Conceptual Site Model Site Investigation Report: Bennington, Vermont

Prepared for
Saint-Gobain Performance Plastics

March 2018

Conceptual Site Model Site Investigation Report

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March 15, 2018
Date

Acronyms and Abbreviations

Abbreviation/ Acronym	Description
AHC	Agglomerative Hierarchical Cluster analysis
bgs	below ground surface
CAAII	Corrective Action Area II
CAAs	Corrective Action Areas
CSM	conceptual site model
ELLE	Eurofins Lancaster Laboratories Environmental, LLC
EPA	U.S. Environmental Protection Agency
ES	Environmental Standards
f_{oc}	fraction of organic carbon
FSP	Field Sampling Plan
gpm	gallons per minute
IDW	investigation derived waste
K	hydraulic conductivity
LCS	laboratory control sample
MDL	method detection limit
mg/kg	milligrams per kilogram
MSL	mean sea level
MVA	multivariate analysis
NAVD88	North American Vertical Datum of 1988
ng/g	nanograms per gram
ng/L	nanograms per liter
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutanoic acid
PFBS	perfluorobutanesulfonic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFPeA	perfluoropentanoic acid
PFTeDA	perfluorotetradecanoic acid
PTFE	polytetrafluoroethylene
PID	photoionization detector
POET	point-of-entry treatment system

ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RPD	relative percent difference
SVOC	semivolatile organic compound
TAL	target-analyte-list
TOC	total organic carbon
TOP	total oxidizable precursor
VGS	Vermont Geological Survey
VOC	volatile organic compound
VTANR	Vermont Agency of Natural Resources
VTDEC	Vermont Department of Environmental Conservation
WWTP	wastewater treatment plant

Executive Summary

An investigation was conducted on behalf of Saint-Gobain Performance Plastics (Saint-Gobain) to further assess the distribution of per- and polyfluoroalkyl substances (PFAS) in soil and groundwater in an investigation area in and near the Town of Bennington and the Village of North Bennington, Vermont. Specific investigation objectives included:

- assessment of site hydrogeologic conditions;
- evaluation of the relationships and trends in PFAS concentrations;
- evaluation of potential impacts from the former Bennington Landfill;
- identification of some of the other potential sources of PFAS in the investigation area and measurement of background levels of PFAS present in soil and groundwater within the Corrective Action Areas (CAAs); and
- assessment of the measured distribution of PFAS in soil and groundwater against the distribution based upon modeling of air emissions at the former Chemfab facilities.

The investigation was completed in accordance with the requirements of the Consent Order between the State of Vermont Agency of Natural Resources (VTANR) and Saint-Gobain dated October 2, 2017 and the *Revised Work Plan – CSM Site Investigation: Bennington, Vermont* (Work Plan; Barr, 2017a) approved by the Vermont Department of Environmental Conservation (VTDEC) as amended (VTDEC, 2017a; Barr, 2017b).

The investigation area includes two CAAs. As identified in the Consent Order, Corrective Action Area I generally consists of a bounded area west of Route 7 (Harwood Hill Road), and Corrective Action Area II (CAAII) generally consists of a bounded area east of Route 7. PFAS has been detected in groundwater at varying concentrations and in various locations, including some private water wells, within both CAAs. Investigation activities described in this report were performed at locations primarily within the CAAs, but also at some locations beyond the CAA borders (e.g., background sample locations).

The investigation activities included drilling shallow and deep soil borings in unconsolidated materials located along transects between Bennington Landfill and the two former Chemfab facilities and in each cardinal direction from the former Chemfab on Water Street facility (former Water Street facility). Four bedrock borings also were advanced into bedrock at or near Bennington Landfill, and were completed as permanent monitoring wells. The locations of the wells were selected based on the results of a bedrock outcrop and lineament study of the landfill area. A total of 568 soil samples were collected from the borings and analyzed for PFAS, total organic carbon, soil pH, and moisture content. Soil samples from the deep soil borings and bedrock monitoring wells were also analyzed for metals and cations. Temporary wells were installed in 16 shallow soil borings and screened at or across the water table and permanent monitoring wells were completed in the unconsolidated aquifer at eight deep soil borings. All groundwater samples were analyzed for PFAS, metal/cations (excluding cyanide and mercury), anions, ammonia, orthophosphate, and total Kjeldahl nitrogen. Groundwater samples collected within the Bennington Landfill area were also analyzed for cyanide, mercury, volatile organic compounds, and 1,4-dioxane to assess the presence of landfill leachate impacts. Bedrock groundwater elevations were monitored by installing data-logging pressure transducers in previously existing bedrock monitoring wells

at Bennington Landfill and in seven private water wells completed in bedrock near the landfill. Slug testing was conducted to obtain estimates of hydraulic conductivity in seven permanent monitoring wells installed for the investigation. Hydraulic conductivity estimates were also obtained from analysis of grain-size distribution data for samples collected from investigation soil borings and from specific capacity values for the new bedrock wells. Borehole characterization of the new bedrock wells was performed using geophysical and flow logging methods to evaluate the potential for discrete groundwater flow through structures identified from the bedrock outcrop and lineament study.

Findings associated with the investigation objectives include the following:

- hydrogeologic conditions are similar to those described in the conceptual site model (CSM);
- relationships and trends in PFAS concentrations indicate that current concentrations in CAAII soil are not indicative of historical impacts from the former Chemfab facilities;
- statistical analysis of available groundwater data from this investigation suggest different (multiple) PFAS sources, including the Bennington Landfill, as reflected by groundwater of different PFAS composition;
- concentrations of PFAS compounds in the bedrock aquifer at Bennington Landfill are highest directly downgradient (southwest) of the landfill cap area; are at much lower concentrations upgradient of this area; and are consistent with bedrock flow through fractures and zones of bedrock alteration forming discrete flow paths; and
- measured soil concentrations across the investigation area are generally consistent with background concentrations and may also be indicative of localized sources of PFAS.

After accounting for background and local sources other than the former Chemfab facilities, such as the Bennington Landfill, the data collected as part of this investigation are consistent with the CSM. Measured PFAS concentrations were higher in some areas of CAAII than the modeled values, which is indicative of the fact that there are background local, regional and global sources of perfluorooctanoic acid (PFOA) other than the former Chemfab facilities that were not accounted for in the CSM and that have contributed to PFAS concentrations in CAAII. Some of these sources are identified in this report. For the purposes of assessing the effects of air emissions from the former Chemfab facilities, an evaluation of the site data indicates that additional investigations within the CAAs are not warranted. However, additional investigation by the appropriate regulatory agency to evaluate other potential local or regional sources, such as those identified in this report, may be appropriate.

1.0 Introduction

The investigation activities described herein were conducted on behalf of Saint-Gobain Performance Plastics (Saint-Gobain) and were completed in accordance with the requirements of the Consent Order between the State of Vermont, Agency of Natural Resources (VTANR) and Saint-Gobain dated October 2, 2017 (Consent Order) and the *Revised Work Plan – CSM Site Investigation: Bennington, Vermont* (Work Plan; Barr, 2017a) approved by the Vermont Department of Environmental Conservation (VTDEC) as amended (VTDEC, 2017a; Barr, 2017b). The work was performed by consulting staff from Barr Engineering Co., C.T. Male Associates, and Golder Associates Inc.

The purpose of this investigation was to further assess the distribution of per- and polyfluoroalkyl substances (PFAS) in soil and groundwater in an investigation area encompassing the Village of North Bennington and portions of the Towns of Bennington and Shaftsbury, Vermont (Figure 1.1) to meet the following site-specific objectives:

- assess hydrogeologic conditions;
- evaluate relationships and trends in PFAS distribution, specifically in relation to perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS);
- evaluate potential impacts from the former Bennington Landfill;
- identify some of the other potential sources of PFAS within the investigation area and measure background levels of PFAS present in soil and groundwater within the Corrective Action Areas (CAAs); and
- assess the measured distribution of PFAS concentrations in soil and groundwater against the modeled distribution.

Data collected as part of this investigation were used to further refine the conceptual site model (CSM) of PFAS fate and transport developed for the area. The CSM is described in the *Draft Conceptual Modeling of PFOA Fate and Transport: North Bennington, Vermont* (Draft CSM Report; Barr, 2017c), and was developed using site data available prior to January 2017; chemical characteristics of PFAS; and modeling studies of processes important to PFAS fate and transport.

For the purposes of this investigation, the specific areas of interest within the investigation area included the former Bennington Landfill and the former Chemfab facilities on Water Street in North Bennington and on Northside Drive in Bennington (Figure 1.1). While there are other likely sources that have contributed to PFAS concentrations within the CAAs, some of which are identified in this report, a detailed investigation of such potential sources was beyond the scope of this report.

Investigation activities at the former Bennington Landfill were completed as part of this investigation. However, investigation activities at the former Chemfab on Northside Drive facility (former Northside Drive facility) were not completed because access to the former facility was not available at the time of Work Plan development and approval. Investigation of soil and groundwater at the former Water Street facility was conducted in 2016 in accordance with the *Initial Site Characterization Investigation Work Plan* (Water Street Work Plan, C.T. Male, 2016a). Results from that investigation are discussed in this report.

Additional investigation activities at the former Water Street facility are currently being conducted in accordance with the approved *Supplemental Site Investigation Work Plan – Former Chemfab Facility Water Street* (Supplemental Water Street Work Plan, C.T. Male, 2018). Additional investigations will be completed at the former Northside Drive facility, pending access and following the development and approval of an investigation work plan. Results from additional investigation activities at the former Chemfab facilities will be reported separately, and submitted to VTDEC in accordance with the schedule presented in the Consent Order.

1.1 Investigation Objectives

As stated above, the purpose of this investigation was to further assess the distribution of PFAS in soil and groundwater at the site. These data were collected to meet the following site-specific investigation objectives identified in the Work Plan:

- **Assess site hydrogeologic conditions**. Additional information regarding the hydrogeologic conditions was collected in areas with limited or no available data, specifically for bedrock in the Bennington Landfill area.
- **Evaluate relationships and trends in PFAS concentrations.** Soil analytical results were evaluated to enhance the understanding of geochemical relationships for PFAS and determine what, if any, relationship exists between total organic carbon (TOC), metals, and PFAS concentrations. Soil and groundwater analytical results were evaluated for distributional relationships, such as spatial (depth or distance) or lithological (unconsolidated or bedrock).
- **Evaluate potential impacts from Bennington Landfill.** Monitoring wells were installed at the landfill to characterize groundwater flow directions in this area relative to nearby private wells and to further assess the role of Bennington Landfill as a potential source of PFAS.
- **Identify other potential sources of PFAS within the investigation area and evaluate background conditions**. A preliminary evaluation of other potential PFAS sources in the investigation area was performed using available public records and data available prior to this investigation. In addition, samples were collected from areas not expected to have been impacted by air deposition of PFAS from the former Chemfab facilities for the purpose of establishing background concentrations of PFAS in soil and groundwater resulting from regional and global sources.
- **Assess measured distribution of PFAS in soil and groundwater against the expected distribution**. For purposes of this report, soil analytical results from the upper unsaturated zone soils (O horizon and C horizon mineral zone beneath the root zone) and at depths to bedrock or the water table were used for comparison against the air deposition and unsaturated zone models. Similarly, groundwater results were evaluated against the modeled concentrations.

1.2 Report Organization

The remainder of this report is organized into the following sections:

- **Section 2.0 Background** – discussion of the site history; physical setting; characteristics of PFOA, PFOS, and associated compounds; and the PFOA fate and transport conceptual modeling approach and results.
- **Section 3.0 Work Plan Implementation Activities and Results –** summary of the investigation activities and methods, including sample collection and analyses and deviations from the Work Plan; and discussion of the results of soil and groundwater sampling (including Quality Assurance/Quality Control (QA/QC), hydrogeologic investigation activities, and bedrock evaluation, including results from drilling, desktop and outcrop studies, and geophysical logging.
- **Section 4.0 Analysis** – summary of the interpretation and analysis of the investigation data with respect to hydrogeologic conditions, geochemical relationships of PFAS in the soil and groundwater, potential additional PFAS sources, and the observed distribution of PFAS in soil and groundwater.
- **Section 5.0 Summary** – discussion of findings as related to the objectives of the investigation.

2.0 Background

The following discussion of background information relevant to this investigation is drawn primarily from the Draft CSM Report (Barr, 2017c), with the exception of 2016 soil and groundwater data collected from property adjacent to the former Water Street facility as part of the Water Street Work Plan implementation, as described in Section 2.1.1 below.

2.1 Site Description and History

For the purposes of this investigation, the site is an area of approximately 35 square miles in southwestern Vermont (Figure 1.1), encompassing the Village of North Bennington and portions of the Towns of Bennington and Shaftsbury. While there are other potential PFAS sources within the investigation area, as described in Section 4.4, this investigation primarily focused upon the two former Chemfab facilities and Bennington Landfill. Background information and history for each of these is included below.

2.1.1 Former Chemfab Facilities

The former Chemfab facilities are located on Northside Drive in Bennington and on Water Street in North Bennington (Figure 1.1). The former Northside Drive facility operated from 1969 until mid-1978 when operations were transferred to the Water Street facility. The former Water Street facility operated from mid-1978 until February 2002, when the plant closed. The facilities applied polytetrafluoroethylene (PTFE) coatings to some fiberglass fabrics. During drying and curing of certain fabrics, a small portion of the PFOA driven off the fabric may have been emitted from the facilities' stacks. Modeling results presented in the Draft CSM Report (Barr, 2017c) suggest that air emissions of PFOA from the former Chemfab facilities contributed some PFOA, in varying amounts, to groundwater in certain, but not all, portions of the investigation area.

A shallow soil investigation was completed in 2016 at and around the former Water Street facility. Of the 103 soil samples collected and analyzed for PFAS compounds, 16 were collected adjacent to the former Water Street facility. The highest PFOA detection in soil was 20 nanograms per gram (ng/g) in a sample collected within 15 feet of the facility. In contrast, the highest PFOS concentration in soil (2.8 ng/g) was detected over 3 miles southeast of the facility. Additional information from the shallow soil investigation completed in 2016 is available in the *Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas* (C.T. Male, 2016b).

Soil and groundwater investigation activities were also completed adjacent to the former Water Street facility as part of the Water Street Work Plan investigation (C.T. Male, 2016a). In a total of 54 soil samples collected and analyzed for PFAS as part of this investigation, PFOA was detected above the method detection limit (MDL) in 46 samples (at concentrations ranging from 0.49 ng/g to 30 ng/g). Again, by contrast, PFOS was detected in only four soil samples (at qualified concentrations ranging from 0.76 ng/g to 1.1 ng/g). Two rounds of groundwater samples from eleven wells were also collected as part of this investigation. Whereas PFOA was detected in all samples, PFOS was only detected in six samples. In those groundwater samples in which PFOS was detected, it was present at concentrations that were one to three orders of magnitude lower than PFOA concentrations in the same samples. The results of this

investigation are discussed briefly in this report (Section 4.4), and a comprehensive summary will be included with results from the Supplemental Water Street Work Plan (C.T. Male, 2018).

2.1.2 Bennington Landfill

Bennington Landfill, shown on Figure 1.1, is a closed landfill that received municipal sanitary waste from the Town of Bennington from 1969 until 1987 (U.S. EPA, 2004). Historical records indicate that polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and lead were disposed of in the landfill. Several industries in the Bennington area dumped liquid wastes into an unlined lagoon at the landfill from 1969 to 1975. An underdrain was installed in 1976 to dewater the unlined lagoon (McLaren/Hart, 1997). This underdrain was extended to the north in 1979-1980 as waste was disposed of in that area. A treatment system was eventually installed to treat leachate collected by the underdrain. The treated leachate was infiltrated on site in an infiltration gallery east of the leachate vault. The landfill was graded and capped by 1999 and other measures were taken to reduce production of leachate. A drain structure, referred to as the Upgradient Groundwater Isolation Trench, was installed as part of the capping activities to intercept shallow groundwater and divert that water around the landfill (TRC, 1998). The leachate treatment system was decommissioned in 2008. Since 2008, untreated leachate has been collected in a storage vault, pumped out of the vault when leachate levels are high, and treated and disposed of offsite (VT ANR, 2016).

Leachate from Bennington Landfill has been shown to have contaminated surface water and groundwater with PCBs and VOCs. The facility was listed as a Superfund site in 1989 for this reason (U.S. EPA, 2004). Constituents monitored in the landfill leachate and monitoring wells include PCBs and VOCs. Monitoring for PFOA and other PFAS compounds was not undertaken until an investigation in March and April of 2016 (Weston Solutions, Inc., 2016), during which PFOA was measured at concentrations ranging from 5,300 parts per trillion (ppt) in the leachate vault to non-detect (< 2 ppt) in the two bedrock wells sampled (B-2-3 and B-6-3). Groundwater sampling and analysis of shallow monitoring wells (i.e., not screened in bedrock) was performed on behalf of the U.S. Environmental Protection Agency (EPA) in 2017 as part of a larger investigation, and included completion of soil borings and monitoring wells and collection of soil and groundwater samples in the southwestern portion of the landfill area (Weston Solutions, Inc., 2017). Sample splits were collected by Saint-Gobain representatives during this monitoring well sampling event. The results of that investigation are discussed in this report.

2.2 Physical Setting

The regional and site geology and hydrogeology are described in the following sections. Additional data related to the physical setting were collected during this investigation and an interpretation of the geology and hydrogeology within the investigation area is presented in Section 4.1 and Section 4.2, respectively.

2.2.1 Regional Geology and Hydrogeology

The investigation area is located in the Northeastern Appalachians groundwater region which is characterized by rolling topography that primarily reflects the weathered bedrock surface with glacial and fluvial landforms mantling the bedrock (Randall et al., 1988). The following regional geology and

hydrogeology summary is condensed from that resource. Additional discussion of information related to regional geology and hydrogeology is provided in the Draft CSM Report (Barr, 2017c).

The bedrock in the area consists of folded and faulted metamorphosed sedimentary rocks with low primary porosity due to the rock matrix. Water is conducted in the bedrock through secondary porosity caused by, for example, fracturing, faulting, or dissolution. In some rock types, such as those in the North Bennington area, the secondary porosity is enhanced and enlarged by dissolution. The frequency and permeability of secondary porosity typically decreases with depth. Most bedrock wells in the region are between 200 and 400 feet deep.

Glacial erosion and deposition produced changes in drainage and topography and deposited a nearly continuous layer of unconsolidated till over the bedrock. Stratified drift units, chiefly sand and gravel, are associated with the larger valleys such as those of the Walloomsac River.

Recharge to the bedrock is controlled by the permeability and thickness of the overlying glacial deposits and overburden. Runoff in upland areas is focused to seasonal streams that typically lose discharge in areas in which they flow over stratified drift at the margins of the larger valleys. Bedrock wells that are pumped continuously may receive pumping-induced recharge from adjacent stratified drift aquifers. Discharge is primarily from the bedrock to wells and to the stratified drift in the large valleys. Inter-basin flow systems with significant discharge have not been discovered in the bedrock.

In addition to discharge to the stratified drift filling the larger valleys from minor upland streams, recharge to these units is from direct infiltration of precipitation, and discharge from bedrock. Recharge from the larger rivers may take place in the case of localized pumping from the stratified drift or higher-than-normal river stage. Discharge from the stratified drift is via pumping wells, evapotranspiration, and to the larger rivers when their stage is at or below typical levels.

2.2.2 Groundwater Use in the Investigation Area

Groundwater use in the investigation area is primarily from private wells. No high-capacity industrial or commercial wells permitted by the State of Vermont were identified from available information on water use and well construction. The municipal water sources for the Town of Bennington are Morgan Spring and Bolles Brook, which are spring and stream source types, respectively (Town of Bennington, 2016). The municipal water sources for the Village of North Bennington are supply wells near the surface-water intake on Basin Brook, which is located in Shaftsbury (VTDEC, 2016). PFOA has not been detected in these municipal water supplies (Barr, 2017c).

2.3 Characteristics of PFOA, PFOS, and Associated Compounds

PFOA is one of a class of fluorinated hydrocarbon compounds associated with fluoropolymers – most commonly recognized as Teflon®. Like PFOA, PFOS is a "C8" PFAS, possessing eight carbon atoms, each attached to two fluorine atoms. PFOA was manufactured by 3M and DuPont in the United States until its production was phased out between 2002 and 2006. PFOS was manufactured by 3M using an electrochemical fluorination process until 2002. Since that time, shorter-chain PFAS have been used.

PFOA and PFOS were used in the manufacture of many commercial materials for industrial and residential use, including stain-resistant carpeting/furniture/upholstery, non-stick cookware, food package coatings, aqueous film-forming foams, moisture-resistant breathable fabrics, concrete and rock sealants, electrical capacitors, dyes, paints and coatings, ski wax, batteries, photographic films, printing inks, herbicide and pesticide formulations, car wash surfactants, and as a vapor suppressor in metal plating processes (Kissa, 2001; 3M, 1999; Knepper and Langue, 2012; Olsen, 2015). They are a ubiquitous presence in most households and consequently are found in municipal waste streams and in most landfills (Busch et al., 2009; MPCA, 2009). In some manufacturing processes, PFOA is used and may be released to the environment through air emissions. They are also found in biosolids, in part from municipal sewer sludge used as amendments to soil in agricultural and landscaping applications, including gravel pit reclamation (Sepulvado et al., 2011; NEBRA, 2014).

PFOA and PFOS are highly soluble in water and are resistant to degradation. They readily bond to organic material surfaces and adsorb poorly to surfaces with low organic material content. In saturated, unconsolidated deposits and fractured rock media, they are mobile and migrate as an unattenuated solute in flowing groundwater. In general, they are considered "conservative" solutes because the compounds' conservation of mass is confined to the dissolved phase, and the compound is not substantially converted to other forms. Very small sources of PFOA and PFOS can result in detections in groundwater in the ppt and parts per billion (ppb) range.

Perfluoroalkyl carboxylates, the class of PFAS containing PFOA, are stable in water, sediment, and soil under natural conditions (Kissa, 2001). As a result, longer-chained perfluoroalkyl carboxylates are not known to degrade into PFOA in these media in the environment. PFOA is itself a degradation product of perfluoro alcohols. The perfluoro alcohols that degrade to PFOA are volatile and may be emitted into the atmosphere as part of various chemical manufacturing processes. Consequently, PFOA is found worldwide at low levels (Strynar et al., 2012; Rankin et al., 2016).

Several studies have quantified the structure-activity relationships between the length of linear PFAS and transport potential through soil columns (Higgins and Luthy, 2006; Zhang et al., 2013; Gellrich et al., 2012; Hirata-Koizumi et al., 2015). Perfluorotetradecanoic acid (PFTeDA) and other longer-chained fluorocarbons also have a much higher partition coefficient with respect to organic carbon, resulting in very low mobility in the soil column which prevents them from migrating to groundwater (which likely explains why they are not detected in deeper soils or groundwater where they were detected in shallow soils). Thus, compared to PFOA, PFTeDA and other long-chain linear PFAS found in organic soils are less likely to affect groundwater because of their inability to percolate through soil columns.

2.4 PFOA Fate and Transport Conceptual Modeling Approach and Results

For purposes of the Draft CSM Report (Barr, 2017c), numerical models were developed to simulate PFOA transport and migration from points of release at the former Chemfab facilities to the groundwater-flow system and private wells. Given the limited amount of hydrogeologic data and some uncertainties in sources of PFOA, the modeling approach constituted a conservative, regional evaluation. The simulations

allowed for a quantitative and physically-based assessment of the mechanisms that could potentially result in detectable PFOA concentrations in soils and groundwater.

For purposes of the Draft CSM Report (Barr, 2017c), the complete PFOA transport pathway was simulated to assess the possibility of transport from source to potential receptors. As indicated above, these transport paths are through air, unsaturated soil and other unconsolidated materials, and saturated aquifer materials. No single model in standard practice exists that can account for transport through these different media. Therefore, transport was simulated by a series of distinct models, with the output of one or more models serving as input for the model simulating the next segment of the transport pathway. Each of these individual models is a widely accepted tool for the transport pathway for which it was applied. Assumptions and limitations in the modeling approach are described in the Draft CSM Report (Barr, 2017c). For purposes of the Draft CSM Report (Barr, 2017c), the only sources of PFOA that were evaluated were air emissions from the two former Chemfab facilities—other local sources and regional or worldwide deposition sources were not part of the modeling evaluation.

The primary findings of the conceptual modeling were that the distribution of PFOA measured in private wells could not be explained solely by air emissions from the former Chemfab facilities, and that such emissions would not have potentially produced PFAS concentrations above 20 ppt in private wells in Corrective Action Area II (CAAII).

3.0 Work Plan Implementation Activities and Results

The Work Plan (Barr, 2017a) was implemented through soil and bedrock boring advancement, temporary and permanent monitoring well installation in select borings, collection, and laboratory analysis of soil and groundwater samples, a bedrock study, groundwater elevation monitoring, and hydraulic conductivity testing. The work was performed to assist in meeting the investigation objectives described in Section 1.1.

Investigative activities commenced following August 12, 2017 approval of the Work Plan by VTDEC (VTDEC, 2017a). The field activities were performed between August 14, 2017 and January 31, 2018, and the field methods were generally consistent with the Work Plan with the exception of minor deviations described in Appendix A and discussed in Section 3.6.

A summary of the investigation locations, soil samples collected, and well construction details are provided in Table 3.1, Table 3.2, and Table 3.3, respectively. Field investigation documentation including soil boring logs, field notes, well construction logs, and photographs from the investigation are provided in Appendix A. Analytical methods are summarized in Table 3.4. Laboratory reports are included in Appendix B, and a summary of QA/QC results is provided in Appendix C.

3.1 Unconsolidated Soil Characterization

Locations of background, shallow and deep unconsolidated investigation borings are shown on Figure 3.1. When considering the shallow and deep soil borings together, borings were placed in an approximate grid pattern across the investigation area. The grid-sampling concept was proposed to allow for flexibility in interpreting results as a function of distance in any direction from a feature of interest (e.g., the former Chemfab facilities and Bennington Landfill). Access restrictions resulted in minor deviations to this approach.

Soil samples were collected from each soil boring for geologic characterization, field screening, and laboratory analysis. Geologic characterization included classifying material using the visual and manual test methods described in ASTM D-2488, Standard Practice for Description and Identification of Soils (Visual/Manual). Field screening included classification of soils in accordance with the methods in the Field Sampling Plan (FSP) included as part of the Work Plan (Barr, 2017a), and visually examining the soil samples; recording observations of moisture, odor, and discoloration; and determining the presence of organic vapors with a photoionization detector (PID) equipped with a 10.6-electron-volts lamp. Laboratory analysis of soil samples was completed at the locations and for the parameters identified in Table 3.2, and was completed in accordance with the Quality Assurance Project Plan (QAPP; C.T. Male, 2016a) and QAPP Addendum included as part of the Work Plan (Barr, 2017a; Barr, 2017d).

In general, soil samples were collected from investigation borings at selected intervals: 0-0.5 feet below ground surface (bgs), 0.5-1 feet bgs, 1-1.5 feet bgs, 3-4 feet bgs, 8-9 feet bgs, and at 10-foot intervals to the terminus of the boring at the water table or bedrock, whichever was shallower. If saturated soil was encountered at a depth of less than 8 feet, a sample was collected from just above the observed groundwater level. If refusal was encountered at a depth of less than 8 feet, a sample was collected at the

terminus of the boring, unless refusal was encountered at depths less than 4 feet bgs, in which case additional attempts were made within the vicinity of the originally proposed location. Additional soil samples were also collected if highly organic soils were encountered or if field screening identified signs of obvious environmental impacts.

Laboratory analytical services were provided for soil samples, grain-size distribution samples, and water samples by Eurofins Lancaster Laboratories Environmental, LLC (ELLE) of Lancaster, Pennsylvania in accordance with the QAPP (C.T. Male, 2016a) and the QAPP Addendum attached to the Work Plan (Barr, 2017a; Barr, 2017d). Laboratory reports are included in Appendix B. The analytical data QA/QC reviews are included in Appendix C. As requested by VTDEC in comments on the revised Work Plan (VTDEC, 2017a), additional soil samples were analyzed for grain-size distribution using ASTM D422 (Standard Test Method for Particle-Size Analysis of Soils) to allow interpretation of soil type and estimation of hydraulic conductivity. The sample intervals for grain-size distribution analysis were selected to represent the range of lithologies observed in the soil borings.

3.1.1 Background Soil Borings

Background soil borings were completed to evaluate local background PFAS soil concentrations. The boring locations were selected in consultation with VTDEC and were placed near sampling locations previously completed by VTDEC during a statewide study of the background concentrations of polycyclic aromatic hydrocarbons (PAHs), arsenic, and lead in surface soils (VTDEC, 2017b). The borings were advanced in Shaftsbury State Park, Woodford State Park, Molly Stark State Park, and at the Lake Raponda boat launch area (Figure 3.1).

The four shallow background soil borings (BG1 to BG4) were advanced using direct-push methods (i.e., Geoprobe®) within the unconsolidated materials and continuously logged to depths ranging from 3.5 to 10 feet bgs. The Work Plan specified collection of an analytical soil sample at a depth of 8 feet bgs or at the interpreted groundwater surface (whichever was shallower). Background soil borings BG1 and BG2 were advanced to 10 feet bgs to obtain a sufficient volume of soil for analysis; boring BG3 encountered refusal at 3.5 feet bgs and multiple additional attempts in the vicinity were unsuccessful; and BG4 encountered groundwater at 8 feet bgs.

No odor, sheen, or discolored soil was observed during field screening of the collected samples. Headspace readings were measured below background at all locations.

A total of 18 soil samples were collected and analyzed for PFAS, TOC, soil moisture, and soil pH (Table 3.5). Soil analytical results from samples collected at background locations are shown on Figure 3.2, Figure 3.3, and Figure 3.4 for PFOA, PFOS, and TOC, respectively. PFOA was detected above the MDL in ten samples at concentrations ranging from 0.37 to 7.2 ng/g, and PFOS was detected above the MDL in four samples at concentrations ranging from 0.42 to 1.1 ng/g. The highest concentrations of PFOA and PFOS (7.2 and 1.1 ng/g, respectively) were detected in a sample collected from surface soils in boring BG2 located near a hiking/skiing trail in Woodford State Park, approximately 7 miles east of the investigation area (Figure 3.2 and Figure 3.3). As shown on Figure 3.5, PFOA and perfluorobutanoic acid (PFBA) were the most frequently detected of the PFAS compounds in samples from background locations.

The concentrations of PFOA and TOC from the four background soil borings were compared to background soil concentrations collected from across North America. The purpose of this evaluation was to assess whether the background samples collected during this investigation were representative of known background conditions in North America. The results of this evaluation are provided in Appendix D.2 and an interpretation of the background soil analytical evaluation is discussed in Section 4.4.1.

3.1.2 Shallow Soil Borings

As shown on Figure 3.1, a total of 46 shallow soil borings (S1 to S14, S11-2, S16, S18, S20 to S22, and S24 to S49) were drilled within the unconsolidated materials using hand auger or direct-push methods (i.e., Geoprobe®) along an approximate grid across the site (when taking into account deep borings and access issues). In general, shallow borings were planned to be advanced to depths of 8 feet bgs or until reaching saturated conditions, whichever was shallower; however, because the Work Plan specified collection of an analytical soil sample at a depth of 8 feet bgs from each shallow boring, final boring depths of up to 10 feet bgs were common in order to obtain a sufficient volume of soil for analysis. Monitoring wells were completed in select shallow borings as described in Section 3.3.1 and shown on Figure 3.1.

No odor, sheen, or discolored soil was observed during field screening at these borings with the exception of boring S02, where both a sheen and odor were noted at a depth of 1.5 feet bgs. Headspace readings were measured above background in soils from seven borings (S02, S11, S11-2, S14, S21, S27, and S38) and PID readings in these borings ranged from 5.3 to 35 parts per million (ppm). Elevated headspace readings at borings S11 and S14 appear to have been sourced by equipment interference (i.e., elevated ambient air readings inside empty headspace bags) and are likely not representative of actual conditions.

A total of 214 soil samples were collected from shallow borings and analyzed for PFAS, TOC, soil moisture, and soil pH (Table 3.6). Due to elevated organic vapor concentrations, petroleum odors, and potential staining in samples from S02 (0.5-1 feet bgs) and S02 (1-1.5 feet bgs), location S02 was resampled and analyzed for VOCs, semivolatile organic compounds (SVOCs), PCBs, and pesticides. Results of these additional analyses show no elevated concentrations to suggest an environmental impact (Table 3.7). Soil analytical results for shallow soil borings are shown on Figure 3.6, Figure 3.7, and Figure 3.8 for site-wide PFOA, PFOS, and TOC, respectively, and on Figure 3.9, Figure 3.10, and Figure 3.11 for Bennington Landfill-specific PFOA, PFOS, and TOC, respectively.

PFOA was detected above the MDL in 120 shallow soil boring samples at concentrations ranging from 0.17 to 130 ng/g, and PFOS was detected above the MDL in 73 samples at concentrations ranging from 0.32 to 17 ng/g. The highest PFOA and PFOS concentrations were detected in samples collected from shallow soils in borings S20 and S29. The samples from these borings were collected from the organic soil and peat in a wetland area east of Bennington Landfill. The TOC concentrations in these samples were also the highest measured during this investigation, with measured concentrations up to 512,000 milligram per kilogram (mg/kg) (Figure 3.8).

3.1.3 Deep Soil Borings

Deep soil borings were located along transects between Bennington Landfill and the former Chemfab facilities and in each cardinal direction (i.e., north, south, east, and west) from the former Water Street facility (Figure 3.1). The locations were intended to target areas that have been undisturbed since the late 1960s; were away from potential PFAS sources that may have been associated with the former Chemfab facilities; and for which access could be obtained. Access restrictions resulted in the majority of soil borings being placed within public rights-of-way along roadways, where disturbance of the shallow soil layers may have occurred since the late 1960s; however, areas of apparent disturbance or fill were avoided, as practicable, as were locations of potential deep excavations or thick fill sequences (e.g. Vermont State Highway 279).

A total of 25 deep soil borings (D01 to D03 and D05 to D26) were drilled within the unconsolidated materials to bedrock or the water table (whichever was shallower) using rotasonic methods and logged continuously to depths ranging from 10 to 200 feet bgs. Four of the scoped deep borings (D06, D08, D14, and D19) were completed to shallow depths (between 10 and 20 feet bgs) after groundwater and/or bedrock was encountered. Monitoring wells were completed in select deep borings as described in Section 3.3.2 and shown on Figure 3.1.

No odor, sheen, or discolored soil was observed during field screening for these borings. Headspace readings were measured above background (i.e., 5.0 ppm) in soils from seven borings (D03, D05, D06, D07, D10, D11, D20, and D23) and PID readings in these borings ranged from 5.3 to 23 ppm. Elevated headspace readings at borings D03 and D05 appear to have been sourced by equipment interference (i.e., elevated ambient air readings inside empty headspace bags) and are likely not representative of actual conditions.

A total of 336 soil samples were collected from deep soil borings and analyzed for PFAS, TOC, soil moisture, and soil pH (Table 3.8). Of these 336 soil samples, 190 samples from deep borings were also analyzed for target-analyte-list (TAL) metals. Due to elevated organic vapor concentration and potential staining in sample D20 (78 to 79 feet), this sample was also analyzed for VOCs, SVOCs, PCBs, and pesticides (Table 3.7). Soil analytical results from samples collected from deep borings are shown on Figure 3.6, Figure 3.7, and Figure 3.8 for site-wide PFOA, PFOS, and TOC, respectively and on Figure 3.9, Figure 3.10, and Figure 3.11 for Bennington Landfill-specific PFOA, PFOS, and TOC, respectively.

PFOA was detected above the MDL in 80 samples at concentrations ranging from 0.16 to 7.2 ng/g and PFOS was detected above the MDL in 34 samples at concentrations ranging from 0.28 to 16 ng/g. The highest PFOA concentrations were detected in samples collected from shallow soils in boring D05 located approximately 0.7 miles north of the former Water Street facility. The highest PFOS concentrations were detected in samples collected from shallow soils in borings D08 and D10 located at Bennington Landfill.

3.1.4 Comparison of Results by Depth and Area

To meet the site-specific investigation objectives of evaluating relationships and trends in PFAS distribution (specifically in relation to PFOA and PFOS) and identifying some of the other potential sources

of PFAS within the investigation area, analytical results collected as part of this Work Plan were evaluated by depth over different soil depth intervals (e.g., surface, shallow, and deep) and by area for the landfill and non-landfill areas, as described in Section 3.1.4.1 below.

A synthesis of soil and groundwater data collected adjacent to the former Chemfab Water Street facility and away from the former Water Street facility area (i.e., Water Street and non-Water Street) is provided in Section 4.4.2. A discussion is not provided in this section, Work Plan Implementation Activities and Results, as the Water Street-specific data was collected as part of a separate investigative effort (C.T. Male, 2016a).

3.1.4.1 Comparison of Shallow to Deep Results

The comparison of soil results across depth intervals is informed by the PFAS detection frequency plots shown on Figure 3.12, Figure 3.13, and Figure 3.14. Figure 3.12 shows that PFOA is the most frequently detected PFAS compound in both shallow (0-5 feet) and deep (>5 feet) soils across the entire investigation area, with just over half of shallow samples having detectable concentrations of PFOA. The figure also shows a clear difference in the frequency of detection between shallow and deep soils for all of the PFAS compounds analyzed for the investigation. Figure 3.13 shows that at Bennington Landfill, there is a pronounced difference in detection frequency of PFAS parameters within the shallow soil layer, with detections in the upper 1.5 feet of the soil layer being roughly twice as frequent as detections in the depth interval 1.5-5 feet bgs. Outside of the landfill (Figure 3.14), there is no notable difference in PFOA detections between surface soil (upper 1.5 feet) and shallow soil from 1.5 -5 feet bgs for PFOA, but there is a marked decrease in the frequency of detection between surface and deeper soils for other PFAS parameters outside the landfill.

3.1.4.2 Comparison of Landfill to Non-Landfill Results

Shallow and deep unconsolidated borings completed in Bennington Landfill and outside the landfill were sampled and analyzed as described above. Analytical data discussed above and summarized on Table 3.6 and Table 3.8 for shallow and deep soil borings, respectively, are also presented in Table 3.9 and Table 3.10 for non-landfill and landfill locations, respectively.

A total of 318 soil samples were collected from outside the landfill and analyzed for PFAS, TOC, and soil pH (Table 3.9) as part of this investigation. Of these 318 soil samples, 126 samples from deep soil borings were also analyzed for TAL metals. Soil analytical results are shown on Figure 3.6, Figure 3.7, and Figure 3.8 for PFOA, PFOS and TOC, respectively. PFOA was detected above the MDL in 151 samples at concentrations ranging from 0.18 to 12 ng/g. PFOS was detected above the MDL in 71 samples at concentrations ranging from 0.28 to 4.4 ng/g. The highest PFOA concentrations were detected in samples collected from shallow soils in boring S33 located along Harwood Hill Road (Route 7), approximately 1.7 miles east of the former Water Street facility (Figure 3.6) and ranged from 10 to 12 ng/g. The highest PFOS concentration (4.4 ng/g) was detected in a sample collected from surface soils in boring S46, located in the southern portion of the investigation area (Figure 3.7).

A total of 232 soil samples were collected from the landfill and analyzed for PFAS, TOC, and soil pH (Table 3.10). Of these 232 soil samples, 175 samples from deep soil borings and bedrock monitoring well

borings were also analyzed for TAL metals. Soil analytical results from samples collected at the landfill are shown on Figure 3.9, Figure 3.10, and Figure 3.11 for PFOA, PFOS and TOC, respectively. PFOA was detected above the MDL in 54 samples at concentrations ranging from 0.16 to 130 ng/g and PFOS was detected above the MDL in 39 samples at concentrations ranging from 0.28 to 17 ng/g. The highest PFOA and PFOS concentrations were detected in samples collected from shallow soils in borings S20 and S29. The samples from these borings were collected from the organic soil and peat in a wetland area east of the landfill. The TOC concentrations in these samples were also the highest measured during this investigation.

While PFOA and PFOS were the most frequently detected of the PFAS compounds in samples from both landfill and non-landfill locations (Figure 3.15), PFOA was detected approximately twice as frequently in non-landfill samples as it was in landfill samples (47% and 24% of samples, respectively), reflective of elevated soil PFOA concentrations in CAAI discussed in Section 4.3.1.2. Similarly, PFOS and other non-PFOA PFAS parameters were detected at a similar frequency in both non-landfill and landfill locations, which is consistent with an elevated PFOA source outside of the landfill. In addition, within the landfill, the difference in the frequency of detections between PFOA and PFOS is less pronounced at each depth interval than it is outside the landfill. Within the landfill (Figure 3.13), PFOA and PFOS were detected at 58% and 47%, respectively, of surface soil samples; 37% and 21%, respectively, of shallow soil samples; and 7% and 3%, respectively, of deep soil samples. Outside of the landfill (Figure 3.14), PFOA and PFOS were detected at 64% and 44%, respectively, of surface soil samples; 63% and 6%, respectively, of shallow soil samples; and 18% and 1%, respectively, of deep soil samples.

3.2 Bedrock Characterization

To assess bedrock hydrogeologic conditions beneath and downgradient of Bennington Landfill, a bedrock desktop review and outcrop study was conducted to guide the placement of bedrock borings (shown on Figure 3.1). After the boreholes were drilled, downhole logging was completed to further assess bedrock conditions using geophysical logging and hydrogeologic flow logging. Discrete interval sampling was completed to sample groundwater intervals of interest based on the results of the downhole logging.

3.2.1 Bedrock Desktop Review and Outcrop Study

A desktop review of publicly available information regarding the bedrock geology, an outcrop mapping analysis, and a photo lineament analysis were performed for the area around Bennington Landfill. The discussion below provides a summary of the study methods and results that are discussed in detail in Appendix E.1. The objectives of this work were to:

- guide placement of bedrock borings and monitoring wells near the landfill along potential preferential groundwater flow paths;
- verify recent Vermont Geological Survey (VGS) geologic mapping of the area;
- collect geologic, hydrogeologic, and rock mass discontinuity data at the outcrop-level scale; and
- collect lineament trend data at a larger scale.

Candidate outcrop locations were identified through the desktop review of the recent geologic mapping by VGS (e.g., Kim, 2017), the Remedial Investigation Report documents for Bennington Landfill (McLaren/Hart, 1997), and other regional geologic reports. Candidate outcrop locations were further screened using Google Earth's Street View to identify outcrop locations that were publicly accessible.

Outcrops of the Cambrian Cheshire Formation quartzite were identified and quartz veins filling joints were noted at the outcrops. Ogden (1969) described quartz veins in the Cheshire Formation quartzite associated with the kaolin deposits in the Cheshire Formation near Monkton, Vermont. Ogden (1969) also noted that several kaolin deposits have been identified along the western base of the Green Mountains from Bennington to East Monkton. All of the deposits are in a zone of faulting. Kaolin in the Cheshire Formation quartzite, arising from hydrothermal alteration, appears to be consistent with available information regarding the stratigraphic position and chemical composition of these deposits. Previous work at Bennington Landfill indicated weathering as the source of alteration of bedrock beneath the landfill. For example, McLaren/Hart (1997) described a weathered zone on the bedrock ranging from 0 to greater than 150 feet thick and classified it as a saprolite (clay-rich rock formed by chemical weathering of igneous or metamorphic rock; AGI, 1976).

The outcrop mapping analysis consisted of photographing the outcrops studied, compiling lithologic descriptions, taking representative lithologic samples, and mapping discontinuities in the rock masses. Discontinuity types included bedding-plane fractures, joints, faults, and mineralized veins. Discontinuity characteristics documented include the type, orientation, persistence, aperture, infilling material (if present), shear strength of infilling material, surface roughness, shape, presence of water, and spacing. The outcrop study identified one bedding plane discontinuity set and two primary joint sets. Bedding-plane strikes are predominantly northeasterly, with dips both toward the southeast and northwest at angles ranging from 3 to 32 degrees. The field measurements are consistent with a broad, open anticline mapped by VGS (Kim, 2017) with its axis located west of the landfill. Joint sets J1 and J2 have azimuths of approximately 21 and 306 degrees azimuth. Joint and bedding-plane discontinuity spacing ranges from 0.04 feet to 5 feet. Joint and bedding-plane persistence (lateral and vertical continuity) on the outcrops examined ranges up to 50 feet. Bedding-plane apertures average 0.3 inches and the apertures of joint sets J1 and J2 average 0.7 and 1.2 inches, respectively.

The photo lineament analysis identified possible joint sets at the regional level and compared their orientations with those measured in the outcrop study with the results of a similar study conducted for the investigation of the landfill (McLaren/Hart, 1997). An area around Bennington Landfill with an approximate radius of 12,500 feet was studied as part of the desktop review and outcrop study. The photo lineament analysis identified two predominant lineament directions: 44 and 311 degrees azimuth. These lineaments correspond with the J1 and J2 joint sets identified in the outcrop study. Spacing between these lineaments ranges from 50 to 2,200 feet and 100 to 3,700 feet, respectively.

Representative orientations of the J1 and J2 joint sets, based on combined information from the outcrop and lineament analyses, are 33 and 310 degrees azimuth, respectively. These orientations are shown graphically in Appendix E.1 and are projected from the limits of the capped portion of Bennington Landfill on Figure 3.16 to show alignment of the joint sets relative to investigation locations in the landfill area.

3.2.2 Bedrock Borings

Four bedrock borings (SG3-MW17-BR1 to SG3-MW17-BR4) were drilled at the locations encompassing the Bennington Landfill shown on Figure 3.16. The primary joint sets, identified in the bedrock study described in the previous section and in Appendix E.1, and the alignment of these joint sets served as a guide for bedrock boring siting (Figure 3.16). Final locations were contingent on access and were shifted from planned locations within the joint alignments slightly. The borings were advanced through the unconsolidated materials, altered bedrock, and into the competent bedrock to depths ranging from 263 to 459 feet bgs. (A discussion of altered and competent bedrock is provided in Section 4.1.2.2 and Section 4.1.2.3, respectively.) The bedrock borings were completed as monitoring wells as described in Section 3.3.3.

The borings were drilled through the unconsolidated materials using rotasonic methods and were logged continuously until competent (unaltered) bedrock was encountered (at depths ranging from 106 to 397 feet bgs). Upon encountering competent bedrock, borings were then drilled approximately ten feet into the bedrock and a 6-inch-diameter steel casing was installed and grouted into place. Within the grouted casing, the borings were further drilled into bedrock using a combination of methods including rotasonic (all borings), air rotary with downhole hammer (borings SG3-MW17-BR2 and SG-MW17-BR3), and diamond bit coring (borings SG3-MW17-BR4 and approximately the upper 21 feet of SG3-MW17-BR1). Total depths of borings were targeted to be consistent with nearby drinking water wells (generally 150-400 feet bgs), to the extent that depths of bedrock alteration allowed such consistency. Logging of bedrock materials included descriptions of interpreted lithology, mineralogy, and potential fracturing based on visual observation of the bedrock core or drill cuttings.

The encountered bedrock lithologies were consistent with the Cheshire and Dunham Formations. The Cheshire Formation was encountered in bedrock borings SG3-MW17-BR1, SG3-MW17-BR2 and SG3-MW17-BR3, and the Dunham Formation was encountered in bedrock boring SG3-MW17-BR4.

Hydrothermally altered rock (described in Section 4.1.2.2) was encountered at bedrock borings SG3-MW17-BR1 and SG3-MW17-BR4, located north and east of the landfill, respectively. The hydrothermally altered rock was observed from 130 to 304 feet bgs in bedrock boring SG3-MW17-BR1 and from 192 to 392 feet bgs in bedrock boring SG3-MW17-BR4. Hydrothermally altered bedrock was also encountered in SG3-MW17-BR1 below 304 feet bgs. As noted on the boring log for this well included in Appendix A, the hydrothermally altered bedrock was not recovered but was inferred from “soft” zones for drilling and brown-colored return water. The low recoveries noted on the log and the brown-colored return water support that the altered zones were likely washed out during drilling. Hydrothermally altered bedrock was observed in SG3-MW17-BR4 to a lesser extent than SG3-MW17-BR1. As noted on the boring log for SG3-MW17-BR4, discrete zones with vugs and pitting moderately healed with quartz and some fractures/joints filled with kaolin were observed.

3.2.3 Borehole Characterization

Borehole characterization activities were completed in the four new bedrock wells (SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3, and SG3-MW17-BR4), and in existing Bennington Landfill bedrock

monitoring wells B-2-3, B-4-3, and B-6-3. Well construction records, boring and coring logs, and a construction summary for the existing landfill bedrock wells are included in Appendix E.2. This characterization consisted of downhole geophysical logging and flow logging to supplement geologic log information and to identify significant intervals of flow for discrete interval groundwater sampling.

The methods and locations of borehole characterization activities, including geophysical logging methods, flow logging, and discrete interval sampling, are summarized in Table 3.11. Reasons for partial data collection at select wells are discussed below. Results of the borehole characterization activities are discussed below and presented in detail in an investigation report included in Appendix E.3.

As discussed in Section 3.3.3 below, borehole instability during drilling of wells SG3-MW17-BR1 and SG3-MW17-BR4 required installation of 4-inch-diameter polyvinyl chloride (PVC) risers and screens to complete the boreholes. Due to the presence of the PVC, only a partial suite of geophysical logs could be completed in the wells as listed in Table 3.11. The screened interval in well SG3-MW17-BR1 is approximately 299 to 369 feet bgs. The screened interval in well SG3-MW17-BR4 is approximately 409 to 459 feet bgs.

Borehole instability was also encountered in SG3-MW17-BR3 after the first discrete interval sample was collected. The borehole was stabilized by installing 4-inch-diameter PVC riser and screen, which prevented completion of the additional discrete interval sampling planned at this well. The screened interval in well SG3-MW17-BR3 is approximately 112 to 272 feet bgs. Only a partial set of geophysical logs, as shown in Table 3.11, was collected from the existing Bennington Landfill bedrock monitoring wells (B-2-3, B-4-3, and B-6-3) due to their completion with 2-inch-diameter PVC riser and 15-foot-long well screens, limiting the downhole tool diameters. Logging of wells B-2-3, B-4-3, and B-6-3 was performed from the ground surface to the depth at which there was no longer sufficient clearance for the logging tools to pass; deviations in PVC riser straightness prevented the tool from reaching the bottom of the well. Logging depths for these wells are noted in Table 3.11.

3.2.3.1 Geophysical Logging

The geophysical logging methods consisted of natural gamma, resistivity, spontaneous potential, caliper, and optical and acoustic televiewer borehole imaging; and the fluid logging methods consisted of temperature, resistivity and conductivity. Borehole geophysical logging results are presented in Appendix E.3. The primary findings are discussed below in relation to the intended use and utility of the logs to characterize site hydrogeology.

The geophysical logs for wells SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3, and SG3-MW17-BR4 were compared to the corresponding field boring logs to identify any geophysical signatures of the lithology encountered. The comparisons indicate that the relationship between field logging descriptions and borehole geophysical logging results is generally consistent between wells. Changes in lithology noted in the field are generally consistent with changes in the gamma, spontaneous potential, and resistivity logs. For example, the gamma response of unaltered quartzite (based on field identification) is typically lower than the gamma response in zones of altered bedrock or in zones of phyllite (a rock

enriched in clay minerals) (Figure 3.17 and Figure 3.18Figure 3.20). This correlation is consistent with hydrothermal alteration of the bedrock, which results in the formation of naturally radioactive kaolin.

The geophysical logs for the existing bedrock monitoring wells B-2-3, B-4-3, and B-6-3, which were limited in number due to the completion of the wells with 2-inch-diameter PVC and relatively short screens, showed little consistency between log response and lithology. The natural gamma log is the only log performed in these wells that could have interpretive value, as the resistivity signal would not penetrate the steel well casing and would be affected by the PVC well screen. Gamma responses for B-2-3 and B-6-3 do not exhibit much similarity with the gamma responses for either SG3-MW17-BR2 or SG3-MW17-BR3. Zones interpreted as sands and clays above the bedrock in B-2-3 and B-6-3 do not have corresponding responses at similar depths in SG3-MW17-BR2 or SG3-MW17-BR3. Gamma responses in B-4-3 are of similar overall trend to that of SG3-MW17-BR2 at depths of approximately 25 feet and below, but do not correlate with responses for SG3-MW17-BR3.

The borehole imaging logs for wells SG3-MW17-BR2 and SG3-MW17-BR3 were reviewed to identify planar features (i.e., bedding, foliation, joints/fractures) intersecting the open boreholes. The borehole imaging logs are spatially oriented so the logs can be used to determine orientations of the fracture planes. A total of 232 planar features were identified intersecting the open borehole in SG3-MW17-BR2 and 204 planar features were identified intersecting the open borehole in SG3-MW17-BR3 (Appendix E.4). Approximately 45% of the planar features intersecting well SG3-MW17-BR2 are consistent with the orientation of joint set J1 that was identified in the outcrop mapping and lineament analysis described in Appendix E.1 and summarized in Section 3.2.1. Approximately 1% of the planar features intersecting SG3-MW17-BR2 are consistent with the orientation of joint set J2 that was identified in the outcrop mapping and lineament analysis. Approximately 34% of the planar features intersecting well SG3-MW17-BR3 are consistent with the orientation of joint set J1. Approximately 3% of the planar features intersecting SG3-MW17-BR3 are consistent with the orientation of joint set J2 that was identified in the outcrop mapping and lineament analysis.

Similarities and differences between the joint set orientations mapped in outcrops and the orientations determined from the borehole imaging logs are presented in Appendix E.5. The reader should note when reviewing the information in Appendix E that structural orientation data from the borehole geophysical logging is presented in upper hemisphere stereonets (Appendix E.3), while the structural orientation data in the comparison of the outcrop mapping results to the borehole geophysical logging results is presented in lower hemisphere stereonets (Appendix E.5).

Due to the well screens and risers in SG3-MW17-BR1, SG3-MW17-BR4, B-2-3, B-4-3, and B-6-3, no imaging logs useful for evaluating the presence and orientation of fractures intersecting the boreholes could be collected at these locations.

3.2.3.2 Flow Logging

Borehole flow logging was performed using an electromagnetic flow meter trolling up and down in the borehole under ambient (non-pumping) and dynamic (pumping) conditions. Results from flow logging are presented in Appendix E.3 and discussed below in relation to the intended use and utility of the logs

to characterize site hydrogeology. As discussed in Appendix E.3, the flow logging results for wells SG3-MW17-BR2 and SG3-MW17-BR3 did not identify upward or downward flow in the wells under ambient conditions.

The borehole geophysical logs and flow logging results for wells SG3-MW17-BR2 and SG2-MW17-BR3 were used to identify potentially more hydraulically active zones within the open borehole portions of the wells. Flow, fluid temperature, and fluid conductivity logging data indicate that there was not significant vertical flow within the open borehole of either well under ambient conditions, as discussed in Appendix E.3. This suggests that flow through the borehole is predominantly lateral.

An analysis of the flow, fluid temperature, and fluid conductivity logging data collected under both ambient and pumping conditions for well SG3-MW17-BR2 indicates the presence of five intervals considered to be more hydraulically active than other zones within the well (Figure 3.19Figure 3.20). These intervals are identified on Figure 3.19Figure 3.20 and in Appendix E.3. The more hydraulically active intervals are in the following depth intervals: 259 to 264 feet bgs, 250 to 254.5 feet bgs, 204 to 217 feet bgs, 167 to 172 feet bgs, and 148 to 151 feet bgs. These more hydraulically active intervals appear to include groups of bedding planes and joints in the J1 joint set. As discussed in Section 3.2.3.1, there are very few joints in the J2 joint set that intersect SG3-MW17-BR2, and these joints do not appear to be hydraulically active. As shown in Appendix E.3, essentially no vertical flow (i.e., flow rates were less than 0.1 gallons per minute or gpm) under ambient flow logging conditions was measured in SG3-MW17-BR2. Under dynamic flow logging conditions, measured flows in the more hydraulically active intervals ranged from less than 0.1 gpm to 1.7 gpm

A total of six more hydraulically active intervals were identified in well SG3-MW17-BR3 based on the flow, fluid temperature, and fluid conductivity logging data collected under both ambient and pumping conditions (Figure 3.20). These intervals are identified on Figure 3.20 and in Appendix E.3. The more hydraulically active intervals are in the following depth intervals: 246.0 to 248.0 feet bgs, 223.5 to 226.0 feet bgs, 205.0 to 210.0 feet bgs, 188.2 to 192.7 feet bgs, 167.8 to 174.0 feet bgs, and 147.4 to 158.5 feet bgs. These more hydraulically active intervals appear to include groups of bedding planes and joints in the J1 joint set. As discussed in Section 3.2.3.1, there are very few joints in the J2 joint set that intersect SG3-MW17-BR3, and these joints do not appear to be hydraulically active. As shown in Appendix E.3, essentially no vertical flow (i.e., flow rates were less than 0.2 gpm) under ambient flow logging conditions was measured in SG3-MW17-BR3. Under dynamic flow logging conditions, measured flows in the more hydraulically active intervals ranged from 2.0 gpm to 6.0 gpm.

3.2.3.3 Discrete Interval Sampling

The borehole geophysical logs and flow logs for wells SG3-MW17-BR2 and SG3-MW17-BR3 were used to select discrete intervals for groundwater sampling using straddle packers. As shown in Table 3.12, four zones in well SG3-MW17-BR2 were selected for discrete interval sampling, and six zones were selected for sampling in well SG3-MW17-BR3 (Table 3.12).

The testing procedure called for selected intervals to be isolated using inflatable packers set above and below the interval. If the selected target interval extended up to the water surface in the well, one packer

set at the bottom of the interval was used to isolate the interval for testing. If the selected target interval extended to the bottom of the well, one packer set at the top of the interval was used to isolate the interval for testing. During installation of the packers and pumping in the selected interval, In-Situ Level TROLL 300 pressure transducers were used to monitor heads below the bottom packer (when used), in the test interval, and above the top packer (when used). Depth to water was also measured manually during the discrete interval sampling to provide the real-time data that could not be obtained from the pressure transducers due to the inability to use data cables out of concern of PFAS cross contamination. Representative depths to water for packed intervals are summarized in Table 3.12.

Heads monitored above and below the test interval, as applicable, were reviewed upon retrieval of the transducers to determine if the packers had sufficiently isolated the test interval from the rest of the borehole. If the water pressures above and below the test interval did not change appreciably (0.1 foot or less) during pumping within the test interval, the packers were determined to adequately isolate the test interval. This range is below the accuracy of the transducers used in the packer tests. For some intervals, the water pressure above or below the test interval changed by more than 0.1 foot (Appendix E.3) and was attributed to hydraulic connections around the borehole through fractures rather than inadequate packer inflation. Groundwater sampling within the discrete intervals followed the standard well sampling protocol outlined in the FSP, i.e., a minimum of three well volumes was purged from the isolated interval prior to stabilization and groundwater sampling.

The first interval tested in well SG3-MW17-BR3 was from the water surface in the well to 161 feet bgs. After this discrete interval sample was collected and as the packer assembly was being removed, some lithologic material in the open borehole portion of the well collapsed onto the packer assembly, causing it to become stuck. The packer assembly was ultimately freed but no additional discrete interval sample collection was attempted in the well out of concern that additional borehole collapse would cause the equipment to become irretrievably stuck. A 4-inch-diameter PVC screen and riser was installed to keep the borehole open. The screened interval in well SG3-MW17-BR3 is from a depth of approximately 112 feet to approximately 272 feet.

Due to the presence of the well screens and risers, no discrete interval sampling was completed in wells SG3-MW17-BR1 and SG3-MW17-BR4.

Analytical results from the discrete interval groundwater sampling are summarized in Table 3.14. The PFAS results for the discrete interval samples are generally the same as the results for the standard well samples collected following borehole development and logging. For SG3-MW17-BR2, the PFOA concentrations for the discrete interval samples range from 140 to 170 nanograms per liter (ng/L) and the concentrations for the standard samples are 160 and 180 ng/L. The discrete interval sample from 131 to 161 feet bgs in SG3-MW17-BR3 had a PFOA concentration of 72 ng/L, while the standard samples had concentrations between 62 and 67 ng/L. The general agreement between discrete interval samples and standard well samples is attributed to either vertical mixing of concentrations in the bedrock aquifer or limitations of the discrete interval sampling approach due to fracturing in the surrounding bedrock resulting in a hydraulic connection around the packers during sampling.

3.3 Groundwater Characterization

Groundwater samples were collected from permanent and temporary unconsolidated monitoring wells installed as part of the investigation, previously existing Bennington Landfill bedrock and unconsolidated monitoring wells, and newly installed Bennington Landfill area bedrock monitoring wells. A leachate sample also was collected from the Bennington Landfill leachate vault. A summary of the groundwater sampling locations, including well construction details, is provided in Table 3.3. Locations of shallow (temporary) monitoring wells, deep (temporary and permanent) and bedrock (permanent) monitoring wells are shown on Figure 3.1. Additional supporting information associated with the monitoring well installation is included in Appendix A. Permanent monitoring wells constructed during this investigation were installed by a Vermont-licensed well contractor and were constructed in accordance with VTDEC well code. Prior to sampling, monitoring wells were developed using a combination of surging and pumping to remove fines from the well screen.

Groundwater samples were collected following methods described in the FSP. Groundwater samples were analyzed for PFAS, TAL metals/cations (excluding cyanide and mercury), anions, ammonia, orthophosphate, and total Kjeldahl nitrogen. Groundwater samples collected within the Bennington Landfill area were also analyzed for cyanide, mercury, VOCs, and 1,4-dioxane. The analytical methods for each of the analyte groups for groundwater were consistent with those listed in the Work Plan and Table 3.4. The analytical method for PFAS was a modified version of EPA Method 537, to allow for the analysis of other matrices.

Following installation and sampling of wells completed as part of this investigation, hydraulic conductivity testing was completed, and the groundwater elevation was measured. Hydraulic conductivity testing consisted of slug testing, evaluation of grain-size distribution samples, and specific capacity testing. Groundwater elevations were collected using manual measurements and data-recording pressure transducers.

Groundwater analytical results for groundwater samples collected at Bennington Landfill and outside of Bennington Landfill are summarized in Table 3.13 and Table 3.14, respectively. Non-landfill groundwater analytical data are shown on Figure 3.21 and Figure 3.22 for PFOA and PFOS, respectively, and Bennington Landfill groundwater data are shown on Figure 3.23 and Figure 3.24 for PFOA and PFOS, respectively. Frequency of PFAS detections in groundwater by depth are provided on Figure 3.25, and frequency of PFAS detections in groundwater by area are provided on Figure 3.26.

3.3.1 Shallow Unconsolidated Monitoring Well Sampling

One groundwater sample was collected from a temporary well installed at a background location (BG4). Groundwater was not encountered at any of the other three background locations over the depth of the shallow soil boring. Only PFOA and perfluoroheptanoic acid (PFHpA) were detected in the temporary monitoring well installed in boring BG4, at concentrations of 6 and 0.9 J ng/L, respectively (Table 3.13).

Groundwater analytical results for the shallow unconsolidated samples are summarized in Table 3.13 and Table 3.14 for non-landfill and landfill locations, respectively. Temporary wells were installed in 14 shallow

soil borings (S01, S03, S04, S08, S10, S16, S21, S24, S28, S34, S37, S41, S42, and S49) and groundwater samples were collected from each well screened at or across the water table. PFOA was detected in all samples from shallow boring temporary wells at concentrations ranging from 5 to 850 ng/L. PFOS was detected in eight samples at concentrations ranging from 2 J to 23 ng/L. The highest groundwater concentration of PFOA was detected in temporary well S34 located on the eastern side of CAAII, along the Walloomsac River and north of Vermont Route 279 (VT 279) (Figure 3.1). The highest groundwater concentration of PFOS was detected in temporary monitoring well S03 located beyond the northern boundary of CAAII, near Shaftsbury (Figure 3.1). Detection frequency plots show that PFOA, PFHpA, and perfluorohexanoic acid (PFHxA) were the most frequently detected PFAS compounds in groundwater samples collected from shallow unconsolidated wells (Figure 3.25).

3.3.2 Deep Unconsolidated Monitoring Well Sampling

Groundwater samples were collected from the deep unconsolidated groundwater at temporary wells installed in two borings (D03, D13) and from eight deep soil borings after they were converted into permanent monitoring wells (SG3-MW17-01 to SG3-MW17-07, SG3-MW17-WWTP). (Monitoring well SG3-MW17-WWTP was completed in fractured bedrock directly underlying fine-grained unconsolidated materials. For purposes of this report, it is considered a deep unconsolidated monitoring well for the evaluation of unconsolidated aquifer water levels and water quality.) The eight permanent monitoring wells completed in deep soil borings were screened at or across the water table. Note that for purposes of this report, the soil borings in which permanent monitoring wells were installed typically have a different name than their associated monitoring well. For example, monitoring well SG3-MW17-01 was constructed in soil boring D06. The relationship between soil boring and monitoring well names is summarized in Table 3.1.

Groundwater analytical results for the deep unconsolidated monitoring well samples are summarized in Table 3.13 and Table 3.14 and shown on Figure 3.21, Figure 3.22, Figure 3.23 and Figure 3.24. PFOA was detected in samples from all of the deep unconsolidated groundwater wells at concentrations ranging from 8 J to 240 ng/L. PFOS was detected in seven of the eight deep unconsolidated groundwater wells at concentrations ranging from 2 J to 10 ng/L.

The highest concentrations of PFOA and PFOS in the deep unconsolidated groundwater (240 and 10 ng/L, respectively) were at temporary well D03, located 1.2 miles north of the former Water Street facility. Detection frequency plots show that PFOA, PFHxA, PFHpA, PFNA, PFOS, and perfluoropentanoic acid (PFPeA) were the most frequently detected PFAS compounds in samples from deep unconsolidated wells (Figure 3.25).

3.3.3 Bedrock Monitoring Well Construction and Sampling

Bedrock monitoring well designs were based on the results of the geological and geophysical logging. Bedrock well SG3-MW17-BR2 was completed with the uncased portion left as an open interval. Due to borehole collapse, bedrock wells SG3-MW17-BR1, SG3-MW17-BR3, and SG3-MW17-BR4 could not be completed as open hole wells and were completed as monitoring wells with a 4-inch-diameter PVC screen and riser. This diameter is larger than the 2-inch-diameter specified in the Work Plan in order to

accommodate the downhole geophysical logging tools. The hole was allowed to collapse around the PVC screen in these wells and no filter pack or grout was installed in the borehole annulus. The well construction records for the new monitoring wells are included in Appendix A.

The bedrock wells were completed, developed, and sampled in the following manner:

- Well completion consisted of a protective casing extending approximately three feet above ground surface with locking caps.
- Wells were developed by over pumping and surging. Wells drilled using the down hole hammer (SG3-MW17-BR2 and SG3-MW17-BR3) were air lifted prior to over pumping. Development was completed to produce sediment-free water (turbidity less than 50 Nephelometric Turbidity Unit or NTU).
- Groundwater samples were collected from the developed wells prior to geophysical logging and after borehole logging was complete.
- In addition to measurements completed during drilling, depth to water was measured following well development and prior to sample collection. Additional depth to water measurements made as part of groundwater level monitoring are described in Section 3.3.6.

In addition to the sampling following well development and borehole logging described above, discrete interval groundwater sampling was completed at bedrock well SG3-MW17-BR2 and attempted at SG3-MW17-BR3. The discrete intervals were chosen based on a review of the geophysical and flow logs; see Section 3.2.3.3 for additional discussion.

Groundwater analytical results for the bedrock samples are summarized in Table 3.14 and shown on Figure 3.23 and Figure 3.24. PFOA was detected in samples from all four of the bedrock groundwater wells at concentrations ranging from 0.4 J to 180 ng/L. PFOS was detected in two of the bedrock groundwater wells at concentrations ranging from 0.9 J to 3 J ng/L. The highest concentrations of PFOA and PFOS in the bedrock groundwater (180 and 3 J ng/L, respectively) were at bedrock well SG3-MW17-BR2, located directly downgradient (southwest) of the toe of the landfill (Figure 3.23).

3.3.4 Bennington Landfill Groundwater Split Sampling

Groundwater samples from a subset of existing Bennington Landfill monitoring wells were obtained by Saint-Gobain representatives as sample splits during a groundwater sampling event performed by VTDEC/EPA representatives on May 24 and 25, 2017. This monitoring round is described in the *Final Technical Report for the Bennington Municipal Sanitary Landfill Site* (Weston Solutions, 2017). Purging and stabilization of each monitoring well was performed by the VTDEC/EPA representative, and laboratory sample containers were filled by Saint-Gobain representatives and shipped to the appropriate laboratory for analysis (ELLE or Test America). Groundwater samples were analyzed for the parameters listed in Table 3.4 and were also analyzed for PFAS precursors using the Total Oxidizable Precursor (TOP) Assay methodology (Appendix F).

Samples were collected from non-bedrock monitoring wells at the landfill and from the leachate vault (VLT-01). Sample identification and sampling rationale are presented below, and sample locations are shown on Figure 3.16.

- VLT-01: leachate vault
- B-2-1: shallow well adjacent to leachate vault
- B-2-2: intermediate depth well adjacent to leachate vault
- B-12: previously sampled in 2016, with elevated results
- MW-07: not previously sampled well west of landfill
- MW-100S: shallow monitoring well completed by VTDEC/EPA in 2017

Attempts to collect a sample from monitoring well B-6-1, located beneath the landfill cap, were unsuccessful, due to an insufficient volume of water for sample collection.

Results for the split sampling are summarized in Table 3.14 and shown on Figure 3.23 and Figure 3.24 and include:

- PFOA was detected in all of the samples at concentrations ranging from 16 J ng/L at MW-07 to 4,700 ng/L at the leachate vault (VLT-01)
- PFOS was detected in five of the six samples (all except MW-07) at concentrations ranging from 4 J ng/L at MW-100S to 35 J ng/L at the leachate vault
- VOCs were not detected at concentrations above the laboratory reporting limits
- Chloroethane, ethyl benzene, and xylene were detected at concentrations near the reporting limits in the landfill leachate.

Additional discussion and analysis of the split sampling results is provided in Section 4.3.2 and Section 4.4.3.

3.3.5 Hydraulic Conductivity

Hydraulic conductivity testing was performed to provide a data set to improve the understanding of hydrogeologic conditions in the investigation area and to compare with values of hydraulic conductivity that were used in the conceptual modeling, as described in the Draft CSM Report (Barr, 2017c). For purposes of this investigation, hydraulic conductivity testing methods included slug testing of the new monitoring wells completed as part of the investigation, analysis of grain-size distribution data for soil samples, and analysis of specific capacity information collected as part of dynamic flow logging. Hydraulic conductivity testing and data analysis procedures for the three methods employed for purposes of this investigation are described in Appendix G. A summary of hydraulic conductivity results is provided in Table 3.15.

Slug testing was conducted in the new monitoring wells SG3-MW17-01, SG3-MW17-02, SG3-MW17-03, SG3-MW17-04, SG3-MW17-06, SG3-MW17-07, and SG3-MW17-WWTP. The process involves rapidly raising or lowering the water level in a well by inserting or removing a solid “slug”, monitoring the water-level recovery to equilibrium conditions, and fitting a theoretical model to the field data. Hydraulic

conductivity (K) values estimated from slug tests performed in wells ranged from 0.01 to 230 feet/day. The highest hydraulic conductivity values (86 – 230 feet/day) were calculated from slug tests performed in the three wells located near the former leachate infiltration area at Bennington Landfill (SG3-MW17-01, SG3-MW17-02, and SG3-MW17-06).

Hydraulic conductivity estimates obtained from analysis of grain-size distribution data for samples collected from investigation soil borings are also summarized in Table 3.15. Most of the K values estimated from the grain-size distribution data are low (< 0.1 feet/day), which reflects the high percentage of fine-grained materials in the unconsolidated deposits.

Hydraulic conductivity values for bedrock near Bennington Landfill were estimated from specific capacity information following the method of Bradbury and Rothschild (1985). Specific capacity data were collected during dynamic flow logging at bedrock monitoring wells SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3, and SG3-MW17-BR4, which is described in Section 3.2.3.2. Water levels and pumping rates were continuously recorded during the tests, which were conducted over a period of 2 to 4.5 hours. Hydraulic conductivity estimates from the specific capacity information ranged from 0.6 feet/day at SG3-MW17-BR2 to 54.2 feet/day at SG3-MW17-BR1 (Table 3.15).

3.3.6 Groundwater Elevations

Groundwater elevations were collected using manual water level meters and using automated data-logging pressure transducers.

Manual depth-to-water measurements were taken at twelve permanent monitoring wells installed as part of this investigation, three existing monitoring wells at Bennington Landfill, and seven private wells near Bennington Landfill. Table 3.16 and Figure 3.27 summarize the water elevations measured during two synoptic rounds of manual depth-to-water measurements collected on November 2, 2017 and January 9, 2018. Field sheets from the manual measurements are included in Appendix A. A potentiometric surface map for the surficial aquifer in the vicinity of the landfill is shown on Figure 3.28. Well construction records of the residential water wells obtained from VTDEC and a construction summary for the existing landfill bedrock wells are included in Appendix E.2.

The observed bedrock groundwater levels are generally consistent with a potentiometric surface map of the bedrock aquifer for the area (Kim and Dowey, 2017). The observed bedrock groundwater levels were used with the potentiometric surface map from Kim and Dowey (2017) to develop the groundwater contours on Figure 3.29. Groundwater elevations and inferred flow directions are discussed in Section 4.2.2 and Section 4.2.3.3.

In addition to the manual measurements, bedrock groundwater elevations were continuously monitored with data-logging pressure transducers (i.e., In-Situ Level TROLLs) installed in the three existing bedrock monitoring wells at Bennington Landfill and in seven residential water wells near the landfill. The wells in which transducers were installed are shown on Figure 3.30 and listed below. The Vermont Unique GIS Name is included in parenthesis, where available.

- B-2-3
- B-4-3
- B-6-3
- 32 Cortland Lane (BI128)
- 49 Michaels Drive (BI16851)
- 54 Cortland Lane (BI2093)
- 901 Rocky Lane (BI48930)
- 1102 Rocky Lane (BI30221)
- 1371 Harwood Hill Road (BI7)
- 1400 Becks Drive (BI15386)

The residential water wells were identified from candidate locations in consultation with VTDEC and contingent on gaining access from well owners. In addition to the wells listed above, access was also provided to the residential well at 1152 Harwood Hill Road (Vermont Unique GIS Name BI35563); however, this well did not have sufficient water column height to allow for transducer installation.

The transducers were installed in the residential water wells in a 1-inch-diameter PVC stilling pipe to a depth of approximately 20-30 feet below the water level at the time of stilling pipe installation. Due to pumping in several of the residential wells during the transducer installation, a true static water level could not be measured for those wells (well pumps were not pulled to complete transducer installation). Transducer installation at the landfill monitoring wells (B-2-3, B-4-3, and B-6-3) was more straightforward, as there were no pumps and associated riser pipe and cables obstructing access to the water column. Transducer installation occurred between October 20, 2017 and October 31, 2017. The transducers in B-4-3 and B-6-3 were removed on December 4, 2017, and all remaining transducers were removed on January 9, 2018.

PFAS was detected in rinsate blanks of the in-situ transducer cables that allow use of vented transducers and live display of transducer readings. Unvented (i.e., absolute pressure) transducers were used instead and were suspended in the wells with fishing line. To allow removal of the barometric pressure component of the absolute pressure readings (barometric compensation), a data-logging barometer (i.e., In-Situ BaroTROLL) was deployed at the landfill to measure barometric pressure.

The transducers and barometer were programmed to record pressure measurements at consistent one-hour intervals. After removing the barometric component of the absolute pressure measurements, the resulting water pressure measurements were converted to water elevations. This was done by correcting the pressure measurement to water column height and then converting the depths to water to elevations based on the surveyed elevation of the stilling pipe or casing.

Figure 3.31 shows a hydrograph of the groundwater-elevation data collected by transducers installed in the wells shown on Figure 3.30. Hydrographs of individual wells are included in Appendix G.1.

3.4 Desktop Review of Other Potential PFAS Sources

A preliminary evaluation of other potential PFAS sources in the investigation area was performed using available public records and groundwater analytical data collected prior to this investigation. The evaluation methods and findings are provided in Appendix H.1. This evaluation was not intended to identify all other potential PFAS sources in the investigation area and additional investigation may indicate other potential sources. An additional evaluation of potential PFAS sources to the Bennington Landfill is provided in Appendix H.2.

3.5 Implementation Logistics

Logistics associated with implementing the Work Plan are described below and include: sampling and analysis QA/QC; management of investigation derived waste (IDW); coordination of property access; and surveying investigation locations.

3.5.1 Sampling and Analysis QA/QC

3.5.1.1 Analytical Method Modification

US EPA Method 537 is listed as the reference method in the title of ELLE Standard Operating Procedure; however, US EPA Method 537 is written specifically for the analysis of drinking water samples. As a result, the laboratory has made modifications to the extraction procedure to accommodate the preparation of non-aqueous samples, consisting of ultrasonic extraction for an hour with a 4:1 acetonitrile/water mixture instead of solid-phase extraction. Other modifications include the following:

- For aqueous samples, 100 mL was subsampled for extraction instead of using the entire container contents (250 mL) and Sep-Pak C18 solid-phase extractions cartridges were used instead of polystyrenedivinylbenzene.
- Additional labeled analogs of target PFAS compounds were used as pre-extraction internal standards.
- As labeled internal standards were added prior to extractions, additional labeled surrogate compounds were not used.
- A holding time of 28 days from collection to extraction was established for soil samples.
- The lab did not control the relative percent difference (RPD) between high and low areas for each internal standard in the initial calibrations.
- The laboratory did not calculate peak asymmetry factors.
- The laboratory did not rotate the lowest and highest standards from the initial calibration in the continuing calibration standards.
- The laboratory did not rotate the concentration used for the laboratory control sample (LCS).
- The calibration standards were only linear PFAS isomers; however, available branched and linear standards were analyzed for qualitative purposes.
- Alternate ion transitions were used for perfluorobutanesulfonic acid (PFBS).

Additional details regarding the modifications made to the method are detailed in the project QAPP (C.T. Male, 2016a), as well as in the body of each data validation report included in Appendix C.2.

3.5.1.2 Field Quality Control

As a check on the potential for cross contamination, quality-control samples were collected and analyzed for PFAS from source materials and equipment used in the investigation. Equipment and source materials with PFAS detections that posed a risk of cross-contamination or of otherwise affecting sample results were not used in the investigation. Source materials sampled included water used by the drilling contractor for drilling and equipment decontamination and water used as final decontamination rinse water. Equipment sampled included: casing, rods, core barrels, macro core samplers, totes, tanks, and submersible pumps used by the drilling contractor; water-level pressure transducers and associated stilling tubes, suspending cables, rope, and wire; downhole equipment used by the geophysical logging contractor; and monitoring well construction materials. When possible, equipment/rinsate blanks were collected and analytical results reviewed prior to mobilization of the equipment to the site. To the extent practical, source equipment was segregated and not used for any other purpose by the drilling and geophysical logging contractors from the time that field quality control samples were collected to the time that the equipment was mobilized to the site for the investigation.

The water used by the drilling contractor was obtained from the potable water supply for the City of Troy, New York (City Water) and then treated to reduce levels of PFAS to below the associated MDLs or to concentrations not expected to cross-contaminate environmental samples. The City Water was delivered by tanker truck to the former Water Street facility for storage and treatment. Samples of City Water were collected from the truck's pump; the end of the truck's discharge hose; and from the storage tank into which the City Water was pumped. The City Water was then pumped though a point-of-entry treatment (POET) system and into another storage tank for the treated water. Samples for PFAS analysis were collected from the discharge of the POET system before the treated water went into the storage tank and, once the treated water tank was full, samples were collected from the treated water tank for laboratory analysis. Treated water sample results are presented in Appendix C.

Field quality-control samples included equipment blanks, field blanks, and duplicates. Quality-control samples were taken for each media type at a ratio of one (1) set of quality control samples per 20 media samples. Laboratory-prepared trip blanks were submitted with aqueous samples requiring analysis for Target Compound List VOCs or PFAS. The types of field quality-control samples collected and the sampling method and rationale were detailed in the FSP of the Work Plan (Barr, 2017a). Quality-control samples for the TOP Assay were limited to duplicate collection. Equipment blank and duplicate results are presented in Appendix C.

3.5.1.3 Data Validation

All laboratory analytical data were evaluated by Environmental Standards (ES) using standard operating procedures based on guidance documents and/or method documentation. In the case of PFAS analyses, ES developed a document based on the raw data they received from ELLE.

Data were evaluated at different levels of review as part of the validation process. A Level IIA data review confirms that analytical methods, analytes, and reporting levels are consistent with project objectives and applicable state and federal regulations. Additionally, this level of review verifies that supporting QA/QC

are of a level of quality necessary to support sample results. Level IV data validation consists of a full review and evaluation of all summaries and raw data associated with the data package, and ensures the highest level of defensibility.

In general, the level of validation/review effort for this investigation was as follows:

- soils undergo 90% Level IIA review, 10% Level IV validation;
- new investigative media (groundwater, surface water, sediment) undergo 100% Level IV validation; and
- as determined by the project team (i.e., additional samples may be selected for Level IV validation).

Assessments of QA/QC results, including a description of any potential impacts on the usability of project sample results, are provided in the individual data validation reports prepared by ES for each Sample Delivery Group. Validation reports and additional information on Level IIA and Level IV evaluation are included in Appendix C.

3.5.2 IDW Management and Disposal

IDW consisted of soil cuttings from boring activities and water from equipment decontamination and monitoring-well development and sampling. Handling and disposal of IDW was consistent with the approach described in the Work Plan and approved by VTDEC in the conditional approval and comment letter dated August 12, 2017 (VTDEC, 2017a). Handling and disposal of IDW differed by the media type and by the location of IDW generation (either at Bennington Landfill or elsewhere). Handling of IDW at the landfill differed from handling at other locations due to the presence of hazardous, non-PFAS contaminants (primarily PCBs), in the landfill area. A table summarizing how IDW was managed is provided in Appendix A.

Soil cuttings generated from the investigation activities were either thin-spread at each respective boring location or containerized for waste characterization and disposal. Soil cuttings from borings at Bennington Landfill were containerized in 55-gallon drums and are presently stored at the landfill, pending waste characterization and disposal. Results of the waste characterization will determine the nature of the IDW material, which will in turn dictate whether disposal of the cuttings is by thin-spreading in the vicinity of the soil boring or is in a facility permitted to receive the waste material. Outside of the landfill, soil cuttings from borings were thin-spread in the vicinity of each soil boring to the extent practicable. Excess soil cuttings from deep borings were containerized in 55-gallon drums, transported to the former Water Street facility, and transferred into a covered 20-cubic-yard roll-off container. Waste characterization sampling for soil from the roll-off container will be completed prior to future off-site disposal.

Water generated during monitoring well development, sampling, and equipment decontamination at Bennington Landfill was discharged to the ground surface. Outside of the landfill, water generated from well development and equipment decontamination was containerized in a frac tank that was staged at the former Water Street facility. Containerized water was treated prior to being discharged to the sanitary sewer in a manner consistent with the plan provided to and approved by VTDEC in response to the 1272

Order. Additional containerized water remains at the former Water Street facility and will be treated and discharged in a similar manner at a later date.

3.5.3 Property Access

Investigation activities completed on public and private property included investigative drilling, monitoring well installation, transducer installation and download, and slug testing. Access to municipal rights-of-way was obtained by contacting the respective municipality (Town of Bennington, Village of North Bennington, or the Town of Shaftsbury) in which the particular investigation activity was planned. Access to the William H. Morse State Airport was obtained by contacting the Vermont Agency of Transportation and access to Vermont State Parks property was obtained through a Special Use Permit from the VTANR.

Access to private properties was obtained by individual Access and Maintenance Agreements signed by each property owner. Prior to investigation activities on private property, at least 24-hour advance notice was provided by telephone or email, as preferred by each property owner or unless agreed to in advance by the property owner. Environmental activities generally were undertaken between 9:00 am and 6:00 pm, Monday through Friday, unless prior permission from the property owner had been obtained.

3.5.4 Surveying

Investigative borings and monitoring well locations were surveyed in the field using Real-Time Kinematic Global Positioning System (GPS) methods. The survey information for each investigation location is summarized in Table 3.1. In addition, the elevation of the top of riser and/or casing and the ground elevation for each well were measured to the nearest 0.01 foot using typical survey methods. Elevations were surveyed relative to the North American Vertical Datum of 1988 (NAVD88). These elevation data are listed in Table 3.3.

3.6 Deviations from Work Plan

Investigation and sampling activities were conducted in general accordance with the Work Plan. Minor deviations and modifications from the Work Plan are summarized in Appendix A. Deviations included minor adjustments to proposed boring locations and changes to sample collection methodology:

- Permanent monitoring well SG3-MW17-WWTP was completed in fractured bedrock, rather than the unconsolidated clay and clayey till overlying bedrock.
- Transducers were deployed in the existing Bennington Landfill bedrock wells B-4-3 and B-6-3 and collected data through December 4, 2017 when they were removed for geophysical logging. Upon re-suspending the transducers in these wells, the transducers were inadvertently installed above the well water level.
- Bedrock wells installed during this investigation could not be completed with rotasonic drilling methods. Diamond core and air rotary drilling methods were also utilized to complete the bedrock wells. Wells SG3-MW17-BR2 and SG3-MW17-BR3 were completed with air rotary with downhole hammer. Due to the drilling methods, complete rock core could not be produced and fracturing could not be observed at these locations.

- A PVC riser was installed in bedrock wells SG3-MW17-BR1 and SG3-MW17-BR4 due to borehole collapse limiting geophysical logging and eliminating discrete interval sampling at these locations. A PVC riser was installed in bedrock well SG3-MW17-BR3 after geophysical logging and collection of the first discrete interval sample due to concerns regarding potential borehole collapse. The diameter of the PVC riser was larger than the 2-inch-diameter specified in the Work Plan in order to accommodate the downhole logging tools.

The following investigation activities were completed beyond the initial scope of work defined in the Work Plan, several of which were performed at the request of VTDEC (VTDEC, 2017a):

- Existing Bennington Landfill bedrock monitoring well B-4-3 was developed and sampled.
- Existing Bennington Landfill bedrock monitoring wells B-2-3, B-4-3, and B-6-3 were surveyed.
- Soil samples from deep borings were analyzed for TAL metals to provide a better understanding of the adsorption and attenuation of PFAS compounds in the unsaturated zone.
- Grain-size distribution analysis was completed to further assist in evaluating values of hydraulic conductivity and to compare against the assumed values that were used in the conceptual modeling described in the Draft CSM Report (Barr, 2017c). Soil samples were selected from investigation locations across the site and analyzed for grain-size distribution.
- Hydraulic conductivity estimates were obtained for all new monitoring wells for comparison against the values used in the conceptual modeling described in the Draft CSM Report (Barr, 2017c). Slug testing of the permanent monitoring wells in the unconsolidated materials and shallow fractured quartzite (SG3-MW17-WWTP) was completed. Hydraulic conductivity values for the deep bedrock wells installed at and near Bennington Landfill were estimated from specific capacities measured during dynamic flow logging.
- A preliminary desktop evaluation of other potential PFAS sources in the investigation area and Bennington Landfill was performed.
- Geophysical logging was completed at existing bedrock monitoring wells at Bennington Landfill (B-2-3, B-4-3, and B-6-3).

None of the additions or deviations were deemed to have had a negative impact on the investigation results.

4.0 Analysis

This section synthesizes the investigation results presented in Section 3.0 to address the primary objectives of the study. References to results of previous studies are made only to the extent necessary for analysis of the investigation results. The discussion does not reflect or address all available information related to the CSM.

4.1 Site Geology

The publicly available background information on site geology, which is described in the Draft CSM Report (Barr, 2017c), indicates that the geology of the investigation area generally consists of sandy glacial till deposits of varying thickness overlying bedrock that has been folded and faulted in a compressional structural setting. Bedrock across the site is almost entirely composed of various metamorphosed sedimentary rock formations. A series of thrust faults have been previously mapped in a northeast to southwest orientation across the investigation area, with older Cambrian rocks being thrust from the east over younger Ordovician rocks (Kim, 2017). The thrusted rocks have formed topographic highs. General bedrock orientation and associated structure was inferred from Kim (2017) and based on mapping described in Appendix E.1.

The uppermost bedrock units mapped in the study area includes Cambrian and Ordovician bedrock formations. Cambrian formations in the study area include (from oldest to youngest) the Cheshire Formation, the Dunham Formation, the Monkton Formation, the Winooski Formation, and the Clarendon Springs Formation. The Cheshire Formation is generally composed of quartzite and sandstone. The Dunham Formation is generally composed of dolomitic quartzite, dolostone, sulfidic and phyllitic quartzite, and phyllite. The Monkton Formation is generally composed of sandstone, dolomitic sandstone, phyllitic quartzite, and phyllite. The Winooski Formation is generally composed of limestone and dolostone, and the Clarendon Springs Formation generally consists of dolostone and calcitic dolostone (Kim, 2017). Portions of the Cheshire and Dunham Formations have undergone hydrothermal alteration. Additional discussion of altered and competent bedrock units observed during the installation of deep borings and bedrock wells completed during the investigation is presented in Section 4.1.2.2 and Section 4.1.2.3.

The Ordovician formations in the study area include (from oldest to youngest) the Shelburne Formation, the Bascom Formation, and the Walloomsac Formation. The Shelburne Formation is generally composed of limestone and dolomitic limestone. The Bascom Formation consists generally of limestone with dolomitic and/or shaley layers. The Walloomsac Formation consists of phyllite and may contain thin limestone beds, breccias and chert. At some locations, the Walloomsac Formation is further divided into members which include an unnamed gray to blue chert member and the Whipstock Breccia Member that is described as being argillaceous and containing horizons of phyllite, phyllitic siltstone, and chert (Kim, 2017).

The unconsolidated materials and lithologies encountered in borings completed as part of this investigation is consistent with previous interpretations of site geology. Five cross-sections showing the

subsurface materials encountered during the investigation, their orientation, and major structural features have been constructed along transects shown on Figure 4.1. The cross sections are shown on Figure 4.2, Figure 4.3, Figure 4.4, Figure 4.5 and Figure 4.6. A contour map showing the interpreted depth to the bedrock surface is shown on Figure 4.7. The map shows that the greatest thickness of unconsolidated materials and altered bedrock occur in the vicinity of the Bennington Landfill. Photos of the geologic units encountered during drilling are provided in a photo log in Appendix A and referenced throughout this section.

4.1.1 Unconsolidated Materials

The unconsolidated materials encountered as part of this investigation largely consist of sandy glacial till (photo #10, Appendix A) with some outwash and alluvial deposits. Thickness of till units ranged significantly from several feet to over one hundred feet, with till thinner on hilltops and thicker in valleys. Till was typically classified as a sandy lean clay with gravel and some cobbles, and was typically yellowish brown to deep reddish brown. Though till was typically massive, layers and laminations that are indicative of glaciolacustrine deposition were observed in some borings. Potential lodgment till was observed in the eastern portion of the site near Bennington Landfill, where increased density and hardness made advancement difficult during drilling.

Cobbles and boulders were present within the till, with one quartzite boulder encountered at 65 feet bgs in SG3-MW17-07 measuring over five feet thick. Wherever possible, deep borings were advanced five to ten feet into rock to confirm the presence of bedrock, rather than a large boulder. Gravel and cobbles found in till were typically locally sourced (e.g., Cheshire Formation quartzite, Dunham Formation dolomite and marble, as well as other metamorphosed sedimentary rocks) and their angularity ranged from angular to rounded.

Some sandy outwash units were observed in thin intervals (typically 0.25 to 5 feet thick), randomly distributed within till. Outwash units were typically classified as silty sand or silty sand with gravel. Outwash units were saturated when encountered below the water table, whereas till units were classified as "moist", via *ASTM 2488-09a Visual-Manual Soil Classification* standards.

4.1.2 Bedrock

The bedrock lithology encountered throughout the study area during the investigation is generally consistent with publicly-available bedrock information for southern and middle portions of Vermont. Both hydrothermally altered bedrock and competent bedrock were encountered during the investigation primarily in the borings and wells installed around Bennington Landfill. This altered bedrock is likely the same material described as saprolite during previous investigations conducted at Bennington Landfill (e.g., McLaren/Hart, 1997). Further discussions of the altered and competent bedrock are provided in Sections 4.1.2.2 and Section 4.1.2.3 below. The bedrock boring and monitoring well locations are shown on Figure 3.1.

4.1.2.1 Structural Geology

As previously discussed in Section 4.1, several northeast-to-southwest trending thrust faults have been mapped in the study area (Kim, 2017). These faults are shown on the geologic cross sections on Figure 4.2 and Figure 4.4. Several joint/fracture sets and bedding/foliation planes have been identified in the study area in and around the Bennington Landfill from publicly-available information and field observations. The field measurements of bedding planes are consistent with a broad, open anticline mapped by VGS (Kim, 2017) with its axis located west of the landfill. Additional discussion of the structural geology in the study area is presented in Appendix E.1.

4.1.2.2 Altered Bedrock

Hydrothermally altered bedrock was encountered in the eastern half of the site at bedrock monitoring wells SG3-MW17-BR1 and SG3-MW17-BR4 at or near Bennington Landfill and at deep soil boring D07 along Chapel Road. Hydrothermally altered bedrock was also encountered at one location (deep soil boring D24) in the southwestern area of the site near William H. Morse State Airport (Figure 3.1). The hydrothermally altered bedrock typically consisted of parent lithologies of the Cheshire Formation or the Dunham Formation (Ogden, 1969). The hydrothermally altered rock was usually observed as a residual soil of clay or silt-sized material with minor sandy intervals, formed when the primary cementing silicates were leached from the parent rock and replaced with hydrous aluminosilicate clays (kaolin) (Ogden, 1969), along with minor iron and manganese oxide minerals (ocher and umber, respectively) (Burt, 1930). Previous investigations in the area have referred to these deposits as saprolite (McLaren/Hart, 1997).

Ocher, as encountered and interpreted in this study area, consists of sandy lean clay or gravelly lean clay with some quartz precipitate nodules (photo #13, Appendix A) and is typically associated with hydrothermal alteration of the Cheshire Formation, Dunham Formation, or Monkton Formation (Ogden, 1969). The material exhibits a distinct dark reddish-brown iron oxidation color. A five- to ten-foot-thick layer of ocher (photos #11 and 13, Appendix A) was typically present overlying kaolin in investigation borings completed near Bennington Landfill. Ocher was also encountered at deep soil boring D24 near William H. Morse State Airport (Figure 4.1 and Figure 4.2). This boring was terminated after penetrating 17 feet of ocher, and it is unknown if kaolin was present below it. The Clarendon Springs Formation has been mapped (Kim, 2017) as the uppermost bedrock just to the north of D24 and is inferred to be the parent material of the ocher observed in this boring. The presence of ocher above kaolin deposits is apparently common in southern Vermont (Burt, 1930). From review of publicly available information on the VTDEC Well Completion Report Searchable Database, hydrothermally altered bedrock appears to extend to the southwest of the Bennington Landfill at least 1,000 feet as illustrated in well number 23240 (well report 381) in the VTDEC Well Completion Report Searchable Database.

Kaolin as encountered and interpreted in this study (photos #12 and 15, Appendix A) was observed as a clayey or silty, friable, residual soil resulting from hydrothermal alteration of the Cheshire or Dunham Formations. Kaolin was observed at SG3-MW17-BR1, SG3-MW17-BR2, and SG3-MW17-BR4 and deep soil boring D07 (Figure 4.4, Figure 4.5, and Figure 4.6). Coloration of kaolin typically ranged from a white to yellowish powdery material to earthy reddish-brown. Intervals of argillaceous phyllite and quartz sericite phyllite-schist were observed within intervals of kaolin, along with milky white quartz vein fragments.

The parent rock of hydrothermally altered material such as kaolin and ocher was typically inferred by the presence of interbedded subfacies and from previous geologic investigations in the area that mapped the bedrock geology (e.g., Kim, 2017). Altered rock derived from the Dunham and Monkton Formations typically contained interbeds of carbonate rock such as limestone, dolomite, and marble. Altered rock derived from the Cheshire Formation was typically more homogenous and massive, which is indicative of Cheshire Formation quartzite parent rock.

The borehole geophysics data from monitoring wells SG3-MW17-BR1 and SG3-MW17-BR4 were consistent with the field observations of altered bedrock observed during the sampling of the well bores. The changes in lithology as noted in the field are generally consistent with changes in gamma, spontaneous potential, and resistivity response and are generally consistent between the noted well bores.

4.1.2.3 Competent Bedrock

For purposes of this report, competent bedrock refers to metamorphosed sedimentary rock that has not been hydrothermally altered. Competent bedrock was encountered across the site at depths ranging from surficial exposure of outcrops to nearly 400 feet bgs where significant hydrothermally altered bedrock was present. Competent bedrock generally consisted of very hard, metamorphosed sedimentary rocks.

Cambrian bedrock encountered during drilling consisted of a very hard, white quartzite (photo #18, Appendix A) of the Cheshire Formation or as various interbedded metamorphic rocks of the overlying Dunham Formation, consisting primarily of dolomitic quartzite. Cambrian formations mapped by others in the area include the Clarendon Springs, Winooski, and Monkton Formations (listed youngest to oldest). All of these formations lie stratigraphically above the Dunham Formation. Dolomite from the Clarendon Springs Formation was encountered in boring D15 during installation of monitoring well SG3-MW17-07. The Monkton Formation was encountered in boring D21 during the installation of monitoring well SG3-MW17-05 and was logged as gray dolomitic quartzite. The Winooski Formation, which has been mapped as limestones and dolostones with varying degrees of metamorphism (Kim, 2017), was not observed during this investigation.

The borehole geophysics data from monitoring wells SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3, and SG3-MW17-BR4 were consistent with the field observations of the competent Cambrian bedrock observed during the sampling of the well bores. The changes in lithology as noted in the field are generally consistent with changes in gamma, spontaneous potential, and resistivity response and are generally consistent between the noted well bores.

Ordovician bedrock was encountered as a suite of foliated metamorphic rocks such as slate and phyllite that was typically highly weathered at the contact with unconsolidated material. The Ordovician bedrock units at the site are members of the Walloomsac, Bascom, and Shelburne Formations (listed youngest to oldest), all of which are composed of chemical sedimentary rocks or fine-grained detrital sedimentary rocks that have undergone varying degrees of metamorphism (Kim, 2017). Black slate of the Walloomsac Formation was observed in deep borings D01 and D17. Marble and slate of the Bascom Formation was

observed in boring D14 (photo #16, Appendix A) and boring D22 (photo #19, Appendix A), respectively. Ordovician bedrock was only observed west of the Silk Road Fault (Figure 4.4).

4.2 Hydrogeologic Conditions

This section describes the hydrogeologic conditions encountered in the investigation including hydraulic conductivity, groundwater levels, discrete flow pathways, hydrothermally altered bedrock, and groundwater flow directions relating to the hydrogeologic setting of the Bennington Landfill.

4.2.1 Hydraulic Conductivity Values

4.2.1.1 Comparison to Published Values

The estimated hydraulic conductivity (K) values presented in Section 3.3.5 and Appendix G vary over six orders of magnitude and are consistent with published values associated with the types of geologic materials tested. Hydraulic conductivity can vary over several orders of magnitude even within a given material type (Freeze and Cherry, 1979), though hydraulic conductivity of unconsolidated sediments generally increases with increasing grain size. For the following general groups of materials, hydraulic conductivity values estimated from slug tests and grain-size distributions ranged from: clay, 0.00053 – 0.51 feet/day; silt, 0.0013 – 7.6 feet/day; sand, 0.0021 – 820 feet/day; and gravel, 0.1 – 230 feet/day. The overlapping ranges are to be expected given that the screened intervals/grain-size distribution samples tested are not homogenous, and the presence of an appreciable fine-grained fraction can significantly influence the hydraulic conductivity of a predominantly coarse-grained material (e.g., K = 0.1 feet/day for clayey gravel).

4.2.1.2 Comparison of Field and Model Values

Hydraulic conductivity values estimated from field data are consistent with values used in the groundwater flow model for the conceptual modeling described in the Draft CSM Report (Barr, 2017c). The conceptual modeling used horizontal hydraulic conductivity values for unconsolidated deposits that range from 0.49 feet/day for fine-grained sediments to 197 feet/day for sand and gravel. The values estimated from slug tests and grain-size distributions range from 0.00053 feet/day for clay to 820 feet/day for sand, and are consistent with the values for unconsolidated materials in the model, which all fall within the range of measured values. Hydraulic conductivity estimates obtained for quartzite bedrock range from 0.6 feet/day to 54 feet/day (Table 3.15). The model value of 1.0 feet/day for quartzite falls within this measured range.

4.2.2 Groundwater Level Monitoring

4.2.2.1 Unconsolidated Aquifer

Water levels measured at five wells completed in the unconsolidated aquifer at Bennington Landfill are shown on Figure 3.27 and Figure 3.28. Wells SG3-MW17-01, SG3-MW17-02, and SG3-MW17-06 are located near existing shallow monitoring wells B-2-1 and B-2-2. Groundwater elevations measured at B-2-1 in 30 sampling events from December 1992 through July 1997 ranged from 907.87 to 912.87 feet above mean sea level (MSL) and groundwater elevations measured at B-2-2 in 22 sampling events from April 1993 through July 1997 ranged from 907.88 to 912.89 feet above MSL (McLaren/Hart, 1997). Though the

specific datum used (Sea Level Datum of 1929 (NGVD29) or NAVD88) for these historical measurements is unknown, the November 2, 2017 groundwater elevations at SG3-MW17-01, SG3-MW17-02, and SG3-MW17-06, which range from 908.07 to 908.14 feet above NAVD88, appear to be consistent with the historical measurements at B-2-1 and B-2-2. No comparisons to existing data are possible for SG3-MW17-03 and SG3-MW17-04, the former because no wells were installed in this area as part of previous investigations at Bennington Landfill and the latter because unconsolidated monitoring wells near SG3-MW17-04 completed over a similar depth interval do not exist.

4.2.2.2 Bedrock Aquifer

Water-level variations due to pumping are evident in the data from domestic wells at 32 Cortland Lane, 54 Cortland Lane, and 1400 Becks Drive shown on Figure 3.31. Apparent water-level variations due to pumping are also observed on the individual hydrographs for 49 Michaels Drive, 1102 Rocky Lane, and 1371 Harwood Hill Road (Appendix G.1). Though pumping rates at these wells are not known, the smaller drawdowns observed for the latter group of wells may suggest that the bedrock aquifer is more permeable at these locations.

Hydrographs for all of the transducer-equipped wells indicate a decreasing water-level trend over the measurement period (Figure 3.31 and Appendix G.1). Water levels measured on January 9, 2018 were generally between 2 and 3 feet lower than water levels measured in late October 2017. It is common for groundwater levels to decrease during the winter months when there is reduced aquifer recharge from infiltrating precipitation due to a combination of frozen precipitation and frozen ground near the land surface.

Inspection of the individual well hydrographs (Appendix G.1) for wells with little or no pumping signal indicates that changes in barometric pressure correlate strongly with the smaller-scale observed water-level fluctuations not associated with the overall decreasing trend discussed in the previous paragraph. This barometric response, in which increases in atmospheric pressure cause water elevations to decrease and vice-versa, indicates that the bedrock aquifer has a relatively high barometric efficiency. In other words, changes in atmospheric pressure are not readily transmitted to the water in the aquifer adjacent to the open intervals of these wells resulting in potentiometric level changes in the well. Changes in water levels in a well as a result of atmospheric pressure changes are an indication that the aquifer is confined (Freeze and Cherry, 1979). Such conditions may also arise from other factors such as the location of a well screen beneath frozen soil or a perched zone (Butler et al., 2011). Where these barometric pressure responses are observed near Bennington Landfill, the response is interpreted as being the result of the perching of the unconsolidated aquifer above the bedrock aquifer.

Precipitation data from the William H. Morse State Airport in Bennington are also shown on the hydrographs. While increases in water level are observed at similar times to many precipitation events, it is likely that these water level changes are entirely due to the concurrent decreases in barometric pressure as discussed above.

The January 9, 2018 synoptic round of water level measurements at the bedrock wells near Bennington Landfill is shown with inferred groundwater flow directions on Figure 3.29. The spatial variability in the

water levels is typical of a heterogeneous fractured rock flow environment, and this variability complicates a detailed assessment of groundwater flow directions. Additional discussion of bedrock groundwater flow directions near Bennington Landfill is provided in Section 4.2.3.3.

4.2.3 Hydrogeologic Setting of Bennington Landfill

The hydrogeologic data collected during this investigation reveal a complex hydrogeologic setting at Bennington Landfill. A discussion of this hydrogeologic setting is provided below, and includes the presence of discrete flow pathways, the hydrogeologic significance of bedrock alteration, and groundwater levels and flow directions.

4.2.3.1 Discrete Flow Pathways

Geologic and hydrogeologic information gathered as part of the investigation were combined with existing information to evaluate the existence of discrete groundwater flow paths in the bedrock. The locations of wells referenced in this section are shown on Figure 3.1.

Results from the bedrock study (Appendix E.1) and bedrock drilling and borehole characterization reveal near-vertical joint and near-horizontal bedding-plane/foliation discontinuities which are interconnected, have average apertures ranging from 0.3 to 1.2 inches, and have spacings that are small relative to the extent of the model domain (142 square miles).

Bedding/foliation and fracture/joint strike and dip data obtained from the borehole geophysics completed in SG3-MW17-BR2 and SG3-MW17-BR3 were compared to data collected as part of the bedrock study (summarized in Section 3.2.1 and included in Appendix E.1). The data provided by the borehole geophysics identified shallow dipping bedding/foliation and a steeply dipping fracture/joint set that primarily correlates with the shallow dipping bedding/foliation (B1) and joint set 1 (J1), respectively, identified during the bedrock study (Appendix E.4). Joint set 2 (J2), identified during the bedrock study, was less prevalent than J1, and dynamic flow logging did not indicate J2 was a primary flow pathway.

Analysis of the flow logging data for SG3-MW17-BR2 and SG3-MW17-BR3 shows that groundwater predominantly flows in zones that generally correlate to two sets of structures: (1) the shallow dipping bedding/foliation B1, which trends west-northwest to east-southeast and dips to the south-southwest and (2) a steeply dipping fracture/joint set J1 which trends roughly northeast-to-southwest and dips primarily to the northwest and southeast. At the scale of the landfill area, bedrock groundwater flow is primarily through discrete pathways such as these. The lack of a vertical hydraulic gradient across the bedrock boreholes, which is illustrated by the lack of vertical flow in the boreholes (Appendix E.3) and the generally consistent packed interval heads in SG3-MW17-BR2 (Table 3.12), indicates that the discrete flow pathways are hydraulically connected. Flow through the borehole would be predominantly lateral. This hydraulic connection supports the representation of such features using an equivalent porous medium approach at the scale of the regional model used for the conceptual modeling described in the Draft CSM Report (Barr, 2017c).

The most hydraulically active intervals identified by the geophysical and flow logging at bedrock wells SG3-MW17-BR2 and SG3-MW17-BR3 are summarized below:

- SG3-MW17-BR2: 148.0 to 151.0 feet bgs; 167.0 to 172.0 feet bgs; 204.0 to 217.0 feet bgs; 250.0 to 254.5 feet bgs; and 259.0 to 264.0 feet bgs.
- SG3-MW17-BR3: 147.4 to 158.5 feet bgs; 167.8 to 174.0 feet bgs; 188.2 to 192.7 feet bgs; 205.0 to 210.0 feet bgs; 223.5 to 226.0 feet bgs; and 246.0 to 248.0 feet bgs.

4.2.3.2 Hydrogeologic Significance of Bedrock Alteration

Altered bedrock zones, where present, appear to have enhanced hydraulic conductivity based on data gathered during well installation, development, and flow logging. Wells SG3-MW17-BR1 and SG3-MW17-BR4 encountered altered bedrock ranging in thickness from approximately 170 to 200 feet, as shown on the well logs provided in Appendix A. The hydrothermally altered rock consisted usually of clay or silt-sized material with minor sand or sandy intervals, formed when the primary silicate cement was leached from the parent rock and replaced by hydrous aluminosilicates (clays) and oxides.

Borehole instability and relatively high yields of boreholes SG3-MW17-BR1 and SG3-MW17-BR4 are evidence of enhanced hydraulic conductivity in zones of bedrock alteration. Both well boreholes experienced collapse during the drilling process, which necessitated the installation of PVC well screen and riser pipe to keep the bedrock from collapsing and filling the well bore. Altered bedrock is present in the screened intervals in both SG3-MW17-BR1 and SG3-MW17-BR4 (Appendix A). In addition, both of these wells were able to sustain a pumping rate of 20 to 30 gpm with minimal (less than 5 feet) drawdown during well development activities. For comparison, at SG3-MW17-BR2, where no significant altered bedrock was observed, the well could sustain a pumping rate of only approximately 10 to 12 gpm during development and had a corresponding drawdown of over 40 feet.

To evaluate the horizontal extent of altered zones, lithology descriptions from private well logs available on the VTDEC Well Completion Report Searchable Database were reviewed for descriptions of altered bedrock (e.g., "ochre"). This exercise identified alteration in the vicinity of the landfill and extending to the southwest of the landfill. The unique well number of evaluated Bennington wells that identified the presence of altered bedrock include 23240, 405, 16851, and 553.

4.2.3.3 Groundwater Levels and Flow Directions

Groundwater levels in the Bennington Landfill area measured during this investigation and as part of previous investigations (e.g., McLaren/Hart, 1997) reflect a complex groundwater flow system with significant heterogeneity at the local scale of the landfill. Groundwater flow through the discrete flow pathways in the fractured and altered bedrock in the landfill area results in heterogeneity in heads and complicates an interpretation of flow directions between locations. Groundwater levels measured during the investigation show that groundwater in the unconsolidated aquifer is perched above the bedrock aquifer in portions of the landfill area. The interpretation of a perched unconsolidated aquifer was previously presented by McLaren/Hart (1997), and is supported by heads in nested unconsolidated and bedrock wells installed at the landfill that differ by up to nearly 200 feet (e.g., SG3-MW17-03 and SG3-MW17-BR1; Figure 3.27). The interpreted groundwater flow direction in the shallow unconsolidated aquifer to the southeast (McLaren/Hart, 1997) is supported by data collected during this investigation (Figure 3.28).

Bedrock groundwater flow directions inferred from the investigation data and regional mapping are predominantly to the west and southwest in the landfill area (Figure 3.29). The regional potentiometric surface (Kim and Dowey, 2017) shows bedrock flow directions to the west and southwest (Figure 3.27) that generally follow ground surface topography and are consistent with simulated flow directions described in the Draft CSM Report (Barr, 2017c). Water levels measured in existing bedrock wells at the landfill as part of this investigation are also consistent with water levels measured during the period 1993 through 1996 (McLaren/Hart, 1997). Bedrock groundwater flow directions at the local scale of the landfill are heterogeneous due to the fractured- and altered-rock setting and the apparent mounding of the potentiometric surface of the bedrock aquifer beneath the landfill resulting in radial flow outward from the landfill (Figure 3.29), as discussed further in Section 4.4.3.2.

Local deviations from the regional flow field are typical of groundwater flow conditions in fractured rock settings and in areas of local mounding of the potentiometric surface. At the regional scale, the frequency and interconnectedness of fractures becomes high and a regional continuity to the potentiometric surface becomes apparent as shown by Kim and Dowey (2017). In other words, the orientation of fractures has a greater control on groundwater flow direction at the local (landfill) scale than at the regional scale. It was for this reason that bedrock monitoring wells in the landfill area were located using outcrop fracture and joint orientation data with the goal of sampling groundwater in fractures that had a higher likelihood of traversing beneath the landfill. The local mounding of the bedrock aquifer's potentiometric surface results in the potential for localized groundwater flow towards the south, southeast, north, northwest, and west. The response of groundwater levels in the bedrock aquifer to barometric pressure changes suggests that the aquifer is confined at the depths and locations monitored. The bedrock aquifer may be unconfined where the bedrock is saturated at shallower depths and the overlying unconsolidated material is thin.

4.3 Relationships and Trends in PFAS Concentrations

4.3.1 Soil

4.3.1.1 Relationship of Soil PFAS to TOC, Metals, and pH

As stated in Section 1.1, a primary objective of soil sampling was to determine what, if any, relationships exist between PFAS concentrations and soil geochemistry. Specifically, the relationship between PFAS concentrations and soil TOC, metals concentrations, and pH was evaluated as a possible explanation of the observed distribution of PFAS concentrations in soil. The data analysis addresses a central aspect of the Draft CSM (Barr, 2017c), which is that TOC is the primary control on PFAS sorption to subsurface materials. The relationships between PFAS concentrations and soil TOC, metals concentrations, and pH were assessed statistically. The soil statistical evaluation includes soil data collected in 2016 at and around the former Water Street facility and data collected during this investigation. The data set includes 147 shallow soil samples (including 20 at the former Water Street facility) from the *Shallow Soil Sampling Investigation* (C.T. Male, 2016b), 54 samples collected at the former Water Street facility during the *Water Street Initial Site Characterization Investigation* (C.T. Male, 2016a), and 568 samples collected during this investigation. Details of the statistical methods and results are included in Appendix D.1a, and a summary is provided below.

The statistical analysis of soil data focused on evaluating the differences in concentrations of PFAS, TOC, and metals among groupings that might potentially affect the attenuation of PFAS compounds in soils and on the correlations between these parameters. Correlations were assessed between concentrations of the various chemical parameters (e.g., metals, TOC, and PFOA).

The statistical analyses assessing geochemical relationships in the investigation soil data show that:

- **PFOA and TOC in soil are significantly positively correlated.** The relationship between PFOA and TOC concentrations in soil is shown on Figure 4.8. The significant correlation between PFOA and TOC suggests a better retention of PFAS by organic material. Significantly higher concentrations of both TOC and PFOA were observed at shallower depths.
- **PFOA in soil is not significantly correlated with metals expected to control PFOA sorption.** No significant correlation (positive or negative) was found between concentrations of PFOA and calcium and iron. A significant correlation existed only for silver (positive), but this result was likely affected by a high proportion of non-detect values. Correlation values and scatter plots for each metal parameter are provided in Appendix D.1a.
- **PFOA in soil and soil pH are significantly negatively correlated.** This relationship may be due to a lesser ability for acidic soils to adsorb or otherwise retain PFAS.

4.3.1.2 Spatial Trends in Soil PFAS

Spatial trends in soil PFAS were assessed through two complementary methods: statistical analysis and plotting of PFAS concentrations with distance from the former Chemfab facilities. Similar to the statistical analysis described in the previous section, spatial trends in soil PFAS concentrations were identified through statistical analyses. Details of the statistical methods and results are included in Appendix D.1a, and a summary is provided below. The statistical analysis included soil data collected for this and previous investigations, including the 2016 shallow soil sampling investigation discussed in Section 2.1.1 (C.T. Male, 2016b), and 2016 former Water Street facility investigation performed by C.T. Male (discussed further in Section 4.4.2.2). For purposes of this report, multivariate analysis of the soil data across the entire investigation area was not performed because the data indicate that PFAS concentrations in soils across the investigation area are most closely tied to background sources. In addition to the statistical analysis, the PFAS concentration at distance plot (Chart 2 of C.T. Male's *Draft Shallow Soil Sampling Report* (2016b)) was updated to include the available data and is discussed below.

Statistical Analysis

The spatial trends evaluated in the statistical analysis focused on differences in the distribution of PFOA concentrations in samples collected at different depth intervals in the soil profile, and at increasing distances from known PFAS sources, including the former Water Street facility and Bennington Landfill. For purposes of this report, groupings included depth intervals (surface, 0 to 1.5 feet bgs; shallow, 1.5 to 5.0 feet bgs; and deep samples, greater than 5 feet bgs) and geographic areas (the four background sampling locations; the former Water Street facility; Bennington Landfill; and the non-landfill, non-Water Street investigation area, referred to in this section as "other" locations).

Detailed results of the statistical analyses are included in Appendix D.1a. General findings of the statistical analyses assessing spatial trends in the soil data include the following:

- **PFAS and other parameters vary significantly with soil depth, with TOC and PFAS parameters decreasing with depth.** Organic parameters (PFAS and TOC) and several major cations (e.g., calcium and magnesium) were notably higher in concentration in the surface soils than in the deep soils, whereas iron and trace metals increased in concentration with depth. The variability of PFOA with depth is shown on Figure 4.9, with statistical groupings shown as letters (a, b, c, etc.) to indicate which classifications were or were not statistically significantly different (i.e., classifications that were not significantly different have the same letter(s) in their groupings). As shown on the figure, concentrations of PFOA are not statistically significantly different between the surface and shallow soils, although the median value in surface soil (0.81 ng/g) is greater than the value for shallow soils (0.55 ng/g). Both surface and shallow soils are statistically significantly different from the deep soils, which have a median PFOA concentration of 0.21 ng/g (Figure 4.9). The decreasing PFOA concentrations with depth are consistent with PFAS sources at the ground surface. Higher concentrations of TOC are also measured in surface soils, which is consistent with a soil weathering profile where the highest TOC is found in the uppermost soil horizons.

- **PFOA concentrations in surface soils from all areas except Water Street were not significantly higher than background.** When soil PFOA concentrations are normalized to TOC concentrations, there is no statistically significant difference between the background surface soil samples and either the landfill (p=0.443) or "other" (p=0.539) samples (Figure 4.9). PFOA concentrations normalized to TOC at Water Street are statistically significantly different from the samples in the landfill, background, and "other" locations.

- **PFOA concentrations in surface soils in CAAII and background locations are not significantly correlated to distance from the former Water Street facility.** No statistically significant trend was found between distance from the former Water Street facility and PFOA concentrations normalized to TOC in surface soils (up to 1.5 feet bgs) in CAAII and at background locations (Figure 4.10). The trend line through the data in this region, which is neither increasing nor decreasing with distance from the Water Street facility, closely approximates the regional background value discussed in Section 4.4.1. The variability of soil data in CAAII and at background locations is reflected by the relatively low R^2 values for the best-fit model.

- **PFOA concentrations are significantly correlated to distance from the former Water Street facility and Bennington Landfill when including data for all investigation areas, but the distance trend predicts the data poorly.** When including data for all investigation areas, a statistically significant correlation was found between PFOA concentrations normalized to TOC (PFOA/TOC) in surface soils (up to 1.5 feet bgs) and distance from two locations of interest in the investigation area: the former Water Street facility and Bennington Landfill. The trends are decreasing PFOA/TOC (logarithmic) with distance (logarithmic) from the former Water Street facility (Figure 4.10), and increasing PFOA/TOC (logarithmic) with distance (logarithmic) from Bennington Landfill (Figure 4.11). While the correlation is significant, the agreement between the

measured PFOA/TOC and the best-fit model is poor, as reflected by relatively low R^2 values. This means that the statistically significant distance trend is only a weak predictor of soil PFOA concentrations, even when the PFOA concentration is normalized to account for the effect of another statistically significant predictor of PFOA, TOC.

The relationship between PFOA and TOC suggests that evaluating these parameters together can assist in the interpretation of PFAS distributions across the investigation area. However, the results of these analyses show that even when PFOA concentrations are normalized to account for variability in TOC, some surface activities, local conditions, or localized sources of PFAS may lead to highly localized variations in soil chemistry that have the potential to confound interpretation of larger-scale patterns. Additional potential localized PFAS sources are discussed further in Appendix H.1.

PFAS Concentration-Distance Plots

Figure 4.12 shows average soil concentrations of total PFAS, total sulfonated PFAS, and PFOA at increasing distance from the former Chemfab facilities. The figure was prepared to update Chart 2 of C.T. Male's *Draft Shallow Soil Sampling Report* (2016b) with available data from this investigation and the 2016 investigation performed at the former Water Street facility. Samples with no detected concentration were assigned values of half of the associated MDL in the total and average calculations, which due to the many non-detects for sulfonated PFAS, means the average total sulfonated PFAS concentrations on Figure 4.12 are likely overestimated.

The influence of the former Water Street facility on soil concentrations is illustrated by Figure 4.12. The average of total PFAS and average of PFOA follow a similar trend of relatively elevated concentrations at the former facility decreasing within the 2,000-5,000 foot interval to levels consistent with the background sampling locations (located 25,000+ feet from the facility). This decrease in soil PFOA concentrations west of the CAAI-CAAII boundary (located approximately 6,000 feet from the former Water Street facility) is supported by the statistical analysis described above, which shows a weak decreasing trend for all data from all areas and no trend for data outside of CAAI. Between 5,000-10,000 feet and 10,000-15,000 feet distance from the facility, the concentrations increase due to the elevated PFAS concentrations associated with Bennington Landfill. The relatively high total PFAS at the former Water Street facility is due to the presence of longer-chain (and less mobile) PFAS compounds in the surface soils.

The average of total sulfonated PFAS concentrations at distance from the former Water Street facility do not identify soil impacts from PFOS that would suggest residual air emissions. The ratio of total-to-sulfonated PFAS is lowest in proximity to the former Water Street facility due to the sulfonated PFAS concentrations being consistently low across all plotted distances from the facility.

In contrast to the decreasing trend in PFOA soil concentrations with distance from the former Water Street facility in CAAI suggested by Figure 4.12 and the statistical analysis described above, no distance-based trend was observed from the former Northside Drive facility. The lack of impact from the former Northside Drive facility on soil concentrations is illustrated on Figure 4.12, which shows no consistently decreasing concentration of average PFOA with distance from the former Northside Drive facility to suggest residual soil impacts from air emissions. The average of total PFAS and total sulfonated PFAS also

suggest no residual soil impacts, as the concentration of total PFAS does not show a decreasing trend and the concentration of total sulfonated PFAS is generally constant across all distances from the facility.

4.3.1.3 Presence of Sulfonated PFAS Compounds

Given that PFOA is understood to be the only PFAS compound in the air emissions from the former Chemfab facilities, the presence of sulfonated PFAS compounds in soil samples is indicative of a different PFAS source. This is further supported by the distribution of sulfonated compounds that does not change with distance from the former facilities (Section 4.3.1.2), the infrequent detection of sulfonated compounds near the former Water Street facility (Section 4.4.2.2), and the presence of sulfonated compounds in four of the background soil samples, at concentrations ranging from 0.42 to 1.1 ng/g (Table 3.5), and at a number of the non-background soil sampling locations (Table 3.6).

4.3.2 Groundwater

The analyses of groundwater data described below include both an analysis of groundwater data collected as part of this investigation and the 2016 investigation of the former Water Street Chemfab facility (45 data points) and an analysis of other available area groundwater data (over 700 data points). The purpose of the analyses was to evaluate the transport of PFAS at the ground surface and deeper soils through the unsaturated zone to the water table and to evaluate the role of Bennington Landfill and the former Water Street Chemfab facility as PFAS sources.

Section 4.3.2.1 provides the statistical analysis of groundwater data completed from a limited investigation data set (the leachate vault, temporary wells and permanent investigation monitoring wells), and Section 4.3.2.2 provides the analysis of the broader dataset (including private well sampling data). Findings from the more robust, comprehensive data set are considered to be more representative of site conditions.

4.3.2.1 Analysis of Investigation Groundwater Data

A statistical evaluation of the groundwater quality data collected across the investigation area was conducted to identify similarities and differences in the distributions of PFAS concentration in Water Street, landfill and other areas. Classification of water type from major ion chemistry was also performed to identify similarities and differences in groundwater geochemistry suggesting a different or shared source. Details of the statistical evaluation of investigation data are in Appendix D.1b.

The statistical analyses of the 45 investigation groundwater data do not identify a statistically significant difference in the distribution of concentrations of PFOA or PFOS in groundwater sampled at Bennington Landfill and at locations outside of the landfill or in PFOS in groundwater sampled at the former Water Street Chemfab facility and at locations away from Water Street. However, the analysis did identify a statistically significant difference in the concentrations of PFOA between groundwater sampled at the former Water Street Chemfab facility and at locations away from Water Street. The water type, as identified from the relative abundance of major ions in the groundwater sample, does not indicate substantially different water sources for the unconsolidated aquifer, suggesting that the water samples were collected from a chemically similar source of water, such as the same aquifer.

4.3.2.2 Multivariate Analysis of Groundwater PFAS Data

For purposes of this report, PFAS groundwater data collected to date were statistically evaluated with the private well sampling data collected by the VTDEC and POET influent monitoring data collected on behalf of Saint-Gobain. Statistical tools were used to determine if there were patterns outside of spatial considerations that could be used to identify groups or "families" of samples. By using multivariate analysis (MVA) statistical approaches on the available dataset, previously unrecognized relationships between samples may identify potentially separate sources of PFAS, or may potentially identify the likelihood of a common source. The MVA analysis presented herein is an update of the analysis presented in the Draft CSM Report (Barr, 2017c) and reflects the inclusion of data collected as part of this investigation.

MVA is a well-established set of statistical methods for evaluating data involving more than one variable. MVA procedures were applied to the data from the investigation area to discern data patterns and relationships between data points, based solely on the composition of the PFAS compounds. For purposes of this report, the statistical add-on tool to Microsoft Excel, XLStat (www.xlstat.com), was used in the MVA procedures.

Agglomerative Hierarchical Cluster (AHC) analysis was used in the MVA evaluation. AHC involves evaluating the data (i.e., multiple PFAS compounds from many locations) without any consideration to mechanisms, physical processes, trends, or spatial location. AHC analysis seeks to identify which data locations are similar to other locations and groups or "clusters" like-data based on statistical thresholds. AHC is a statistical iterative classification method which produces a dendrogram (clustering tree), representing a hierarchy of objective similarities and dissimilarities. The agglomerative methodology used was Ward's method using Euclidian distance proximity. Truncation of the AHC was conducted manually and favored fewer groups with larger populations over many groups with smaller (or single) populations.

PFAS data included in the MVA analysis included those PFAS compounds from EPA Method 537 that were found throughout the results and included: PFBS, PFHpA, perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), PFOS, and PFOA. For purposes of this report, where no value is reported in the private well sampling dataset provided by VTDEC, a value of "no detection" was assumed for all parameters not reported for a sample. The presence of non-detect concentrations required assignment of values to allow analysis. Detection limits may be different for different compounds and for different samples. For purposes of this analysis, a non-detect result was treated as a value of 0 ppt and J-qualified values (i.e., values between the instrument detection limit and the practical reporting limit) were not altered.

PFAS data were selected from the available groundwater and POET influent data and transformed in the following manner prior to analysis:

- The geographic location of the data within the investigation area was not a factor in data selection or statistical analysis.
- Multiple observations made at a single location were treated as separate data points due to the amount of time between sample collections (approximately quarterly).

- Of the 1169 total groundwater samples, 711 data points met the criteria of at least one PFAS compound detected and all six PFAS compounds analyzed for.
- The data set was normalized to convert to fractional concentrations of the sum of PFAS measured and the resultant data was processed with XLStat for AHC. Data processed in this manner allowed for clustering with an emphasis on the total sample profile, diminishing the role played by absolute PFOA concentration and influences on absolute concentrations such as dilution and mixing.

Overall, three groups were identified from the statistical clusters. The groups are largely divided by contributions of PFOA versus sulfonated compounds, and are as follows:

- Group A – This group contained 600 samples. Members of this group are characterized by the dominance of detections of PFOA and PFHpA, and no sample with total sulfonated compounds greater than 3% of the total PFAS detected. All other PFAS compounds were less than 5% of the total PFAS compounds detected.
- Group B – This group contained 99 samples. Members of this group largely have a sulfonated presence (88 of 99 samples). All PFAS compounds have a presence in this group, but not across all samples. The PFOA contribution ranges from 59 to 92% of the total PFAS detected.
- Group C – This group contained 12 samples. The group is characterized by a relatively small contribution from PFOA, ranging from 0 to 45%. The samples can be considered heavily sulfonated, with contributions from sulfonated compounds ranging from 44 to 79% in the samples where detected.

The three groups identified by the AHC analysis are shown on Figure 4.13. The groups are described as (A) groundwater with PFOA or PFOA/PFHpA and low or no sulfonated PFAS compounds; (B) groundwater with widespread sulfonated compounds, and (C) groundwater with high proportions of sulfonated compounds.

The overall patterns of groupings and characteristics of the groupings for this analysis are very similar to the analysis results presented in the Draft CSM Report (Barr, 2017c). The additional groundwater data collected as part of this investigation reinforce the AHC findings. Wells in the general vicinity of the former Chemfab facilities have PFAS detections that are predominantly PFOA or PFOA/PFHpA and typically do not have sulfonated PFAS compounds (Group A). This profile is consistent with a source of PFAS similar to PFOA-based air dispersion and is consistent with the results of the CSM modeling of air emissions and deposition from the former Chemfab facilities. Wells in CAAII, northeast of the former Chemfab facilities and in the vicinity of Bennington Landfill, are statistically grouped together because they generally contain detectable concentrations of sulfonated compounds such as PFOS, PFHxS, and PFBS and are not correlated with PFOA/PFHpA (Group B). This profile suggests a mixture of PFAS compounds from a variety of commercial, domestic, and industrial sources other than the former Chemfab facilities. The sporadic presence of wells with high proportions of sulfonated PFAS compounds throughout the investigation area (Group C) indicates a greater statistical commonality with the wells in the Bennington Landfill area than wells in the vicinity of the former Chemfab facilities, again indicating that there are a variety of localized, mixed PFAS sources within the investigation area.

4.3.2.3 Evaluation of Groundwater PFAS Ratios

Support for distinct sources of PFAS to groundwater in the investigation area is also provided by an evaluation of the ratios in concentrations of PFHpA and PFOA in groundwater. Such an evaluation is possible due to the fact that these compounds are two of the most commonly detected PFAS parameters in data from this investigation and from private well and POET monitoring performed by VTDEC and on behalf of Saint-Gobain. Figure 4.14 shows the spatial distribution of the ratio of PFHpA/PFOA across the investigation area, calculated from the same groundwater PFAS dataset as the multivariate analysis described in Section 4.3.2.2, including data from the CSM site investigation, the 2016 Water Street site investigation, and POET and private well sampling data. It is clear from Figure 4.14 that the PFHpA/PFOA ratio, which ranges from approximately 0.02 to 1.73, is not spatially uniform. The lowest PFHpA/PFOA ratio values (0.02-0.05) are clustered around the former Water Street facility and other areas of CAAI near the Walloomsac River and, to a lesser extent, downgradient of Bennington Landfill. The relatively low PFHpA/PFOA ratio values in these areas are likely reflective of relatively high PFOA concentrations resulting from air emissions from the former Water Street facility (in the Water Street area) and from groundwater impacts from Bennington Landfill (in the Bennington Landfill area). In the outer regions of CAAI and across CAAII (including along Harwood Hill Road, downgradient of Bennington Landfill) the PFHpA/PFOA ratio values are similarly clustered but at higher ratio values (0.05-0.23). The difference in PFHpA/PFOA ratio value groupings between the areas near Bennington Landfill and the former Water Street facility is consistent with different sources of PFHpA and PFOA to groundwater in those areas.

4.4 Evaluation of PFAS Sources

As stated in Section 1.1, a primary objective of the investigation was to identify some of the other potential sources of PFAS within the investigation area. The specific PFAS sources evaluated as part of this investigation include the Chemfab facilities, background sources, sources related to Bennington Landfill, and PFAS precursors. Other potential PFAS sources in the investigation area were identified as part of a preliminary desktop evaluation. These potential sources are discussed in the following sections.

4.4.1 Background PFOA Soil Concentration

The concentration of PFOA in soil has two components: the local source contribution and the background contribution. To better understand the magnitude of the local source contribution, the background concentrations were subtracted from measured soil concentrations for purposes of this report. A source of background soil concentrations of PFOA is the atmospheric transport and deposition of PFOA and its precursors (Rankin et al., 2016). Background concentrations are also influenced by local water infiltration rates and by the retention of PFOA within the soil column. A soil's TOC content strongly influences PFOA retention (Zareitalabad et al., 2013). A positive correlation between TOC and PFOA concentrations exists for soils in the investigation area (Appendix D.1a). This suggests that for the same background PFOA deposition rate, the background soil PFOA concentration will vary with soil TOC content. Background soil PFOA concentrations can be calculated by multiplying the background PFOA/TOC ratio by the soil's TOC content. A background PFOA/TOC ratio was developed for the investigation area soils.

As described in Appendix D.2, background (off-site) soil samples were collected at four locations north and east of Bennington, at distances ranging from approximately 8 to 22 miles from the former Water Street facility and in locations not expected to be impacted by emissions from the former Chemfab facilities (Figure 3.1). Two approaches were used to develop a background soil PFOA concentration. The first approach was based upon the average PFOA/TOC ratio for soil samples collected from the upper 18 inches of the soil column. This approach yielded an average PFOA/TOC value of about 0.0586 ng PFOA/mg TOC. The second approach was based upon the measured PFOA and TOC values for soil samples collected from only the upper 6 inches of the soil column. From the slope of line generated by a least-squares-fit of the PFOA and TOC data, the background deposition of PFOA corresponds to a PFOA to TOC ratio of about 0.109 ng PFOA/mg TOC. Both values of PFOA/TOC are within the range of values observed in the Rankin et al. (2016) database for thirty-three North American undisturbed and surficial soil samples. For purposes of this report, evaluations regarding the effect of a background deposition on the distribution of PFOA in soil, and simulated soil concentration from the CSM, the lower of the two estimated values (0.0586 ng PFOA/mg TOC) was used.

Soil concentrations of PFOA above the range of background concentrations were calculated for each soil sample, based on the measured TOC concentration in the sample. The TOC-normalized background PFOA concentration for each sample was calculated from the measured TOC concentration and TOC-normalized background PFOA concentration of 0.0586 ng PFOA/mg TOC. This sample-specific background PFOA concentration was subtracted from the measured PFOA concentration to provide the above-background PFOA concentrations shown on Figure 4.15 and Figure 4.16. The results on these figures show no clear spatial trend or clustering of concentrations exceeding background values that would suggest potential other current sources in addition to background. Evaluation of other current sources was beyond the scope of this investigation and the potential for other current sources has not been fully evaluated.

Simulations of the fate and transport of PFOA in the vicinity of the former Chemfab facilities, described in the Draft CSM Report (Barr, 2017c), used a TOC concentration of 25,000 mg/kg soil (2.5 percent by weight) to characterize the retention of PFOA in the surficial soil. This investigation shows a positive correlation between TOC and PFOA concentrations in soil samples collected from the Bennington area (Figure 4.8; Appendix D.1a). Thus, for purposes of this investigation (comparing simulated soil concentrations to those measured in the field), a background PFOA concentration associated with the average background PFOA/TOC ratio of 0.0586 ng PFOA/mg TOC and a TOC of 25,000 mg/kg was calculated to be 1.46 ng PFOA/g soil (i.e., 1.46 ppb).

4.4.2 Former Chemfab Facilities

The former Chemfab Northside Drive facility operated from 1969 until mid-1978 when operations were transferred to the Water Street facility. The former Chemfab Water Street facility operated from mid-1978 until February 2002, when the plant closed. Modeling results presented in the Draft CSM Report (Barr, 2017c) suggest that air emissions of PFOA from the former Chemfab facilities contributed PFOA, in varying amounts, to groundwater in certain, but not all portions of the investigation area. Investigation data, where available, were evaluated to assess the modeling results and the Chemfab facilities as a source of impacts to the investigation area.

4.4.2.1 Northside Drive

Site-specific data was not collected for the former Chemfab facility at Northside Drive, because access was not available at the time of Work Plan development and approval. General site data indicate that PFOA deposited by historical air emissions at the Northside Drive facility is no longer present at detectable levels in soil in this area, likely due in part to the fact that this facility ceased emissions approximately forty years ago in 1978.

The lack of impact from the former Northside Drive facility on soil concentrations is illustrated by Figure 4.12, which shows the PFAS concentrations (as average of total PFAS, average of total sulfonated PFAS, and average of PFOA) at increasing distance from the facility. The average of total PFAS and average of PFOA follow a similar trend that shows no consistently decreasing concentration with distance from the former Northside Drive facility to suggest residual soil impacts. The average of total sulfonated PFAS are relatively low and consistent across all distances from the facility suggesting potential impacts from regional background sources.

4.4.2.2 Water Street

Site-specific data for the former Chemfab facility at Water Street was collected in 2016 as described in Section 2.1.1 and the Water Street Work Plan (C.T. Male, 2016a). Validated soil and groundwater quality data collected as part of this investigation and figures interpreting the data are included in Appendix I, Tables I.1 and I.2 and Figures I.1 through I.9.

Soil Data

During the 2016 investigation, a total of 54 soil samples were collected and analyzed for PFAS and TOC. PFOA was detected above the MDL in 46 samples at concentrations ranging from 0.49 to 30 ng/g, whereas PFOS was detected above the MDL in four samples at concentrations ranging from 0.76 to 1.1 ng/g. The maximum TOC concentration was 97,300 mg/kg. Water Street PFOA, PFOS and TOC soil data are provided in Appendix I, Figures I.1, I.2 and I.3, respectively, and are shown with site data from the CSM SI and the 2016 shallow soil investigation discussed in Section 2.1.1 (C.T. Male, 2016b).

Elevated PFOA concentrations are present in the immediate vicinity of the former Water Street facility; however, Figure I.1 does not show concentrations uniformly radiating from the facility, suggesting the additional presence of localized sources and reflecting the period of time since emissions ceased (Appendix I, Figure I.1). The frequency of PFOA detections in soil sampled at Water Street (86%), and the consistent PFOA detections across sampled depths, support that PFOA was present in the air dispersion from the facility (Appendix I, Figure I.6 and Figure I.7, respectively).

Low to non-detect concentrations of PFOS in the vicinity of the former Water Street facility indicate the facility is not a source of PFOS, consistent with the understanding that PFOS was not present in the dispersions used at Water Street (Appendix I, Figure I.2). The frequency of PFOS detections in soil sampled at Water Street (< 10%) and the limited detections across sampled depths, further support that PFOS was not present in the air dispersion from the facility (Appendix I, Figure I.6 and Figure 1.7, respectively). The influence of the former Water Street facility on soil concentrations is illustrated by Figure 4.12, which

shows the PFAS concentrations (as average of total PFAS, average of total sulfonated PFAS, and average of PFOA) at increasing distance from the facility. The average of total PFAS and average of PFOA follow a similar trend of relatively elevated concentrations at the former facility decreasing to levels consistent with the background sampling locations (which are 25,000+ feet from the facility) at approximately the 2,000-5,000 foot interval from the facility. The concentrations increase between 5,000-10,000 feet and 10,000-15,000 feet distance from the facility, which is consistent with approaching the elevated concentrations associated with Bennington Landfill. The relatively high total PFAS at the former Water Street facility is due to the apparent presence of longer-chain (and less mobile) PFAS compounds in the surface soils. The average of total sulfonated PFAS shows no soil impacts from PFOS that would suggest residual air emissions, as the concentration is relatively low across all plotted distances from the facility.

Groundwater Data

The absence of sulfonated PFAS compounds in air emissions from the former Chemfab facilities is evidenced by the fact that these compounds are not uniformly detected in groundwater in the vicinity of the former facilities and do not consistently increase in groundwater with increasing proximity to the former facility (Appendix I, Figure I.4 and Figure I.5).

Two rounds of groundwater samples were collected in 2016 from 11 monitoring wells installed near the former Water Street facility. PFOA was detected at all sampled locations during both sampling events at concentrations ranging from 34 to 4,800 ng/L. PFOS was detected above the MDL at six locations during the December 2016 monitoring round, with all but two of the six detections at qualified concentrations at (2 ng/L) or near (3 ng/L) the detection limit and the remaining two detections at concentrations of 14 and 17 ng/L. PFOA concentrations in groundwater are uniformly present and elevated in the vicinity of former Water Street facility (Appendix I, Figure I.4), whereas PFOS concentrations in groundwater are low to non-detect and not uniformly present (Appendix I, Figure I.5).

The detection frequency plot for groundwater by area indicates that PFOA is detected at the highest concentration (4,800 ng/L) and is detected most consistently at non-landfill, landfill, and Water Street locations (Appendix I, Figure I.8). The frequency of PFAS detection in groundwater by depth identified PFOA as most consistently identified in shallow unconsolidated, deep unconsolidated and bedrock wells, likely due in part to PFOA being present at higher concentrations and being more mobile than longer chain PFAS compounds.

4.4.3 Bennington Landfill Impacts

The role of Bennington Landfill as a potential source of PFAS to soil and groundwater in the unconsolidated and bedrock aquifers is illustrated by the analytical results from this investigation, from private well sampling data collected by VTDEC, from POET influent sampling data collected on behalf of Saint-Gobain and by bedrock groundwater flow directions in the landfill area.

The investigation data were evaluated to assess the presence of current and residual impacts in soil and groundwater. Widespread residual impacts were not expected in surficial soil and shallow groundwater, given the time between the investigation and completion of corrective actions at the landfill. Capping of

the unlined landfill was completed in 1999, which effectively cut off the source of infiltration within the footprint of the cap. However, ongoing sources of PFAS impacts to groundwater in the vicinity and downgradient of the landfill may include: infiltration of leachate from the landfill that was not removed by the leachate collection system; impacts sorbed to soils beneath the landfill, the soil stockpile area and/or former leachate infiltration gallery; downward leakage from the shallow aquifer layer; and water migrating from the unsaturated zone beneath the bedrock aquifer and the shallow aquifer into the bedrock aquifer.

A drain structure, referred to as the Upgradient Groundwater Isolation Trench, was installed to intercept shallow groundwater and divert that water around the landfill (TRC, 1998). Since the leachate collection system was decommissioned in 2008, no leachate infiltration has occurred in the leachate infiltration gallery and little or no infiltration has occurred through the footprint of the landfill in recent years. Accordingly, any impacts from the landfill were expected to be most likely present in deeper media like bedrock groundwater.

4.4.3.1 Soil

Residual impacts to soil from historical wastewater treatment plant (WWTP) sludge storage at the landfill were not apparent in the data from two areas designated as storage areas in historical landfill records. The soil analytical results shown on Figure 3.9 and Figure 3.10 illustrate that current concentrations of PFOA and PFOS in soil in the former sludge storage areas are not consistently or uniformly elevated. However, with the exception of shallow soil boring S08, concentrations of PFOS in soil exceed 1.5 ng/g only at the landfill (Figure 3.7), suggesting the presence of localized sources. While the investigation data show no residual impacts in soil at sludge storage areas, the current concentrations do not preclude historical impacts by the landfill. Because PFOA has migrated downward through the soil column with infiltration since landfill leachate infiltration and sludge storage ceased, residual impacts in the soil from the leachate were not expected in the investigation data.

4.4.3.2 Groundwater

The previous interpretation of a groundwater flow direction in the shallow unconsolidated aquifer to the southeast (McLaren/Hart, 1997) is supported by site data, as shown on Figure 3.28. Concentrations of PFOA in the shallow unconsolidated aquifer decrease with distance downgradient of the leachate vault (VLT-01) and in the vicinity of the former leachate infiltration area, which is consistent with leachate being a source of PFOA and other PFAS parameters in the shallow groundwater (Figure 3.2.3). Evidence of leakage through the base of the overburden saturated zone, developed on a leaky basal layer (as opposed to an impermeable layer), includes historical detections of VOCs in bedrock wells at the landfill (McLaren/Hart, 1997).

The interpreted groundwater flow direction in the bedrock aquifer in the region surrounding Bennington Landfill is to the west and southwest (Kim and Dowey, 2017), with the available site data suggesting radial flow outward from the landfill (Figure 3.29). Monitoring wells SG3-MW17-BR2 and SG3-MW17-BR3, located adjacent to the landfill cap and southwest of the landfill, respectively, are considered downgradient, as the dominant flow direction in the southwestern portion of the landfill is to the west and

southwest. Wells SG3-MW17-BR1 and SG3-MW17-BR4 are sidegradient of the landfill, due to radial groundwater flow outward from the landfill (Figure 3.29).

The evaluation of Bennington Landfill impacts on groundwater is illustrated by the inferred bedrock aquifer flow directions and the PFOA and PFOS analytical results from this investigation and from private well sampling shown on Figure 4.17 and Figure 4.18, respectively. To further assess the role of Bennington Landfill as a potential source of PFAS to groundwater in the bedrock aquifer, an additional evaluation of the analytical results was completed by interpolating measured PFAS concentrations in the investigation and private well data sets (Appendix H.3). For the interpolated concentrations presented in Appendix H.3 , data from the most recent sampling event were used at each location, and where samples were non-detect for a given parameter, one-half the MDL was used. Due to the limited number of PFAS parameters analyzed for private wells and the high proportion of non-detects for some of the PFAS parameters, groundwater concentrations for the following parameters were evaluated: PFOA, PFOS, PFHpA, PFHxA, and PFHxS. The distribution of these parameters in groundwater is shown on the figures in Appendix H.3, and the results of this evaluation are summarized below.

Concentrations of PFOA and other PFAS parameters identify impacts from the landfill, with the highest concentrations in the downgradient direction. Table 4.1 summarizes the concentrations of PFAS parameters in the Bennington Landfill leachate vault sample (VLT-01) and landfill bedrock wells SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3, and SG3-MW17-BR4. PFOA is detected at the highest concentrations in the wells downgradient of the landfill (SG3-MW17-BR2 and SG3-MW17-BR3) and at lower concentrations in the sidegradient wells (SG3-MW17-BR1 and SG3-MW17-BR4). Concentrations of several other PFAS parameters identified in landfill leachate were detected at increased concentrations in downgradient monitoring wells, but are absent or are detected at low concentrations in sidegradient monitoring wells. These detections of PFAS at low concentrations in sidegradient wells may result from radial flow outward from the landfill. This could also explain low-level detections of PFOA in bedrock well SG3-MW17-BR1 (north of the landfill) and bedrock well B-4-3 (located northwest of the landfill), as well as the low-level detections of PFOA in private wells north and west of Bennington Landfill shown on Figure H.3.1.

The general magnitude of specific PFAS parameters in leachate is reflected in the magnitude of specific PFAS parameters in downgradient wells, indicating the landfill is a source of impacts to groundwater. As shown on Table 4.1 and Figure H.3.1, the concentrations of PFOA are significantly higher in the leachate vault and in downgradient wells. This is generally consistent with PFOA concentrations increasing while groundwater flows beneath the landfill area, suggesting that the landfill is the primary source of PFOA in bedrock groundwater in the areas southwest of the landfill (Figure 4.17 and Figure H.3.1). Leachate concentrations for PFHpA (Figure H.3.3) and PFHxA (Figure H.3.4) are detected at the second- and third-highest concentrations in the leachate vault (after PFOA) and are detected in groundwater wells at a greater magnitude than concentrations of PFOS (Figure H.3.2) and PFHxS (Figure H.3.5).

Variability in PFAS groundwater concentrations downgradient of the landfill is present. Corrective action at the landfill (including capping, upgradient groundwater diversion, and leachate collection) over

the past two decades may have reduced PFAS migration and infiltration of water from the landfill to the bedrock flow system. Subsequent pore flushing of the bedrock fractures since the implementation of corrective action at the landfill has resulted in the potential for a decrease in PFAS concentrations in bedrock groundwater adjacent to the landfill, relative to concentrations further downgradient.

PFOS concentrations do not identify a concentration gradient that would indicate a potential source of air emissions from the former Chemfab facilities. Concentrations of PFOS in groundwater downgradient of the landfill (Figure H.3.2) indicate the presence of multiple sources, including the landfill, and are not representative of air emissions (Figure 4.18).

Table 4.1 Bennington Landfill Groundwater Impacts to Bedrock

Area	Leachate	Sidegradient		Downgradient					
Location	VLT-01	SG3-MW17-BR1	SG3-MW17-BR4	SG3-MW17-BR2				SG3-MW17-BR3	
Depth				165-175 ft	199-219 ft	243-265 ft	open hole 147-263 ft	131.27-161 ft	screened 112-272 ft
Parameter									
Per- and Polyfluoroalkyl Substances [ng/l]									
Perfluorooctanoic acid (PFOA)	4700	14	0.4 J	170	140	160	160	72	64
Perfluorohexanoic acid (PFHxA)	590 J			41	41	42	38		0.4 J
Perfluoroheptanoic acid (PFHpA)	280	0.8 J		38	37	45	39	2	2
Perfluorobutanoic acid (PFBA)	130 J			16	18	18	17		
Perfluoropentanoic acid (PFPeA)	92			28	30	31	30		
Perfluorohexane sulfonate (PFHxS)	48			3	2	3	2		
Perfluorooctanesulfonic acid (PFOS)	35 J			1 JN	0.9 J	2 J	2 J		
Perfluorobutane sulfonate (PFBS)	9 J			4	5	8	7		
6:2 Fluorotelomer sulfonate (6:2 FTS)	4 J								
Perfluorononanoic acid (PFNA)	3			3 J	2	5 J	4		
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	2 J								
Perfluorodecanoic acid (PFDA)	0.8 J								
8:2 Fluorotelomer sulfonate (8:2 FTS)									
Perfluorooctanesulfonamide (PFOSA / FOSA)									
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)									
Perfluoroundecanoic acid (PFUnA / PFUnDA)									
Perfluorododecanoic acid (PFDoA / PFDoDA)									
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)									
Perfluorotridecanoic acid (PFTrDA / PFTriA)									

Blank cells indicate non-detect results.

4.4.4 PFAS Precursors

Results of the TOP Assay (Appendix F) for groundwater samples collected at Bennington Landfill suggest that there is a negligible mass of PFAS precursors in the shallow groundwater system. Based on the results of the TOP Assay, it appears that the amounts of chemically-oxidizable precursors present in the samples from the Bennington Landfill are negligible, with the exception of the sample from the leachate vault (VLT-01) (Table 3.14). The lack of significant PFAS precursor mass suggests that the background soil concentrations described in Section 4.4.1 result from the ongoing addition of PFAS from other background sources. Further, although the TOP Assay analysis has some limitations, the analyses indicate

that concentrations of PFAS seen in the future would not be due to the presence of precursors, provided the vault integrity at the landfill is maintained.

4.4.5 Other Potential PFAS Sources

The desktop evaluation of other potential PFAS sources in the investigation area described in Appendix H.1 preliminarily identifies local sources other than the former Chemfab facilities. Appendix H.1 describes other potential PFAS sources in CAAI and CAAII that likely existed (and in some cases potentially still exist) in the investigation area. Appendix H.2 summarizes an evaluation of potential PFAS contributors to the Bennington Landfill based on the EPA's "Explanation of PRP Waste Contribution Estimates, Bennington Landfill Superfund Site". The results of this preliminary evaluation suggest that additional investigation of these potential sources by the appropriate regulatory agency may be warranted.

4.5 Evaluation of Expected Distribution of PFAS Concentrations

As stated in Section 1.0, a primary objective of the investigation was to evaluate the distribution of PFAS in soil and groundwater modeled in the CSM against the concentrations identified during the investigation. As described in the Draft CSM Report (Barr, 2017c), numerical models were developed to simulate potential transport mechanisms of PFOA released by historical air emissions at the former Chemfab facilities that may have resulted in the presence of PFOA in soil and groundwater in the vicinity of these facilities. The results of the simulations were compared to measured PFOA concentrations in soil and groundwater.

This section presents comparisons of PFOA concentrations measured in soil and groundwater during this investigation with simulated values from the models presented in the Draft CSM Report (Barr, 2017c). The comparison does not include the other PFAS parameters measured as part of this investigation, as PFOA was the only PFAS parameter simulated in the conceptual modeling. The fraction organic carbon (f_{oc}) used in the conceptual modeling is also compared to values measured during this investigation. The results of this analysis are used to update the conceptual model as presented in Barr (2017c).

4.5.1 Saturated Zone Groundwater

A scatter plot of simulated PFOA concentration in groundwater versus concentrations measured as part of this and previous investigations is presented on Figure 4.19. For purposes of this report, all non-detect values are plotted at their associated detection limit. Overall, there is a slight bias of simulated concentrations being lower than measured concentrations, particularly for higher measured concentrations.

4.5.2 Unsaturated Zone Soils

As shown on Figure 4.20A, simulated soil concentrations of PFOA are consistently lower than measured values across the investigation area. The model has no lower limit for simulated values and can simulate concentrations much lower than can be quantified by current laboratory methods. Figure 4.20A compares the measured concentrations of PFOA in soil to the model's predictions of soil concentrations for the date the sample was collected at locations and depths of the measured values.

For purposes of the conceptual modeling, sorption of PFOA on organic carbon was simulated using a linear sorption model with a distribution coefficient (K_d) based on literature values for the organic carbon partitioning coefficient (K_{oc}) and typical values of the f_{oc} in soils (Barr, 2017c). Values of f_{oc} assumed in the Draft CSM Report (Barr, 2017c), which decrease with depth below ground surface in soils, are compared with measured values from the current investigation on Figure 4.21A. Values shown on Figure 4.21 and summarized in Table 4.2 are also from C.T. Male (2016a, 2016b), and data for soil borings completed at Bennington College (Schroeder, T.; email communication, September 8, 2017).

Measured and modeled f_{oc} values are also compared in Table 4.2 for the depth ranges used in the unsaturated zone model (Appendix C of the Draft CSM Report (Barr, 2017c)). The model input values fall within the observed range for each depth interval. For summarizing data in Table 4.2, one-half the method detection limit was used in calculations of the geometric mean. Figure 4.21B shows the distribution of f_{oc} within each depth interval, demonstrating that the geometric mean is a better representation of the central tendency than the arithmetic mean. However, it is noted that for both the 10-36 cm interval and > 36cm interval, the foc values are neither normally, or log-normally distributed as shown with the Gaussian kernel density plots on Figure 4.21B. As stated in the Work Plan, in addition to samples from planned sampling intervals, samples were collected from organic-rich soils due to their likely high retention of aerially-deposited PFAS compared to low-organic soils; therefore, the results may be biased toward higher f_{oc} values. These results indicate that the f_{oc} values used to represent the three different depth intervals in the modeling are representative of the available data.

Table 4.2 Measured and Modeled f_{oc} Values for the Unsaturated Zone Model

Sample midpoint depth range	Geometric mean of detected values	Minimum detection	Maximum detection	Number of detections	Number of non-detections	Model input
0-10 cm	0.016	0.00041	0.17	130	0	0.025
10-36 cm	0.0084	0.00043	0.48	133	3	0.005
>36 cm	0.0022	0.00012	0.51	474	50	0.0005

f_{oc} expressed as mass fraction, decimal equivalent of percent (unitless)

4.5.3 Comparison to the Conceptual Model

The Draft CSM Report (Barr, 2017c) was reviewed to evaluate if any updates or revisions to the conceptual modeling are necessary in light of additional data collected as part of this investigation. In particular, the numerical models' prediction of groundwater and soil PFOA concentrations below measured values was considered. Background deposition from long-range transport of PFOA and potential contributions from other localized sources like those identified in Appendix H.1 are important contributors that were not included in the Draft CSM Report. The additional background sources and potential additional local sources are believed to be the primary explanation for the model predictions of soil concentrations below measured concentrations.

The model prediction that PFOA potentially emitted from the former Chemfab facilities would no longer be present in soil at the time of this investigation is supported by the finding that the investigation soil data do not show a strong spatial trend with distance from the former Water Street facility (Section 4.3.1.2). The measured PFOA concentrations in soil were higher than the numerical models predict and are consistent with a background source (Section 4.4.1). Figure 4.22 shows a simulated time series of soil concentration of PFOA east of the former Water Street facility resulting from modeled emissions from the former Chemfab facilities that illustrates the predicted attenuation of soil concentrations over the fifteen years since the emissions ceased at the former Water Street facility (2002). Soil concentrations are modeled to peak at around 17 ng/g in 1998 and decline rapidly after that, especially after emissions cease in 2002. In certain conditions (e.g., elevated TOC in soil, low infiltration) and certain locations, elevated PFOA concentrations in soil from the former Chemfab emissions may still be present, but overall soil concentrations present today are expected to be more representative of background or other regional sources. The simulated soil concentration for 2017 is 0.3 ng/g, which is only slightly above the detection limit for soil PFOA data collected as part of this study. This illustrates that PFOA potentially emitted from the former Chemfab facilities, in the form of elevated soil concentration, would not be expected 15 years after emissions ceased.

A background source of PFOA was not included in the conceptual modeling, given that the purpose of the modeling was to perform a screening level evaluation of the extent to which emissions from the former Chemfab facilities may have potentially contributed to PFOA concentrations in groundwater in certain areas. Figure 4.20B is similar to Figure 4.20A, but adds to the model's predicted PFOA concentrations in soil the background soil concentrations of PFOA as a function of the model's TOC values. Because different TOC values were used in the model over three depth intervals (0-10 cm, 10-36 cm, and >36 cm), adding the background contribution results in a clustering of the simulated concentrations with respect to the sampling depth. Figure 4.20B illustrates two considerations: (1) representing more of the measured spatial variability in TOC concentrations in the model would likely produce an even better match between simulated and observed PFOA soil concentrations and (2) including background contributions to soil concentrations is important in assessing the goodness of fit between model-simulated soil concentrations and measured concentrations.

Because transport and deposition is significant and ubiquitous across the modeling domain, simulated PFOA concentrations in both soil and in groundwater are lower than they would be if the background PFOA loading was applied. After accounting for background, model-simulated and measured soil and groundwater concentrations correlate well.

5.0 Summary

The following statements summarize the results from the investigation activities and data analyses described herein. These summary statements address the overarching investigation objectives of assessing hydrogeologic conditions in the investigation area, evaluating relationships and trends in PFAS concentrations, evaluating some of the other potential additional local PFAS sources, as well as measuring background conditions, and assessing measured PFAS concentrations against the modeled distribution.

- Hydrogeologic conditions were found to be very similar to those described in the CSM.
- Relationships and trends in PFAS concentrations indicate that current concentrations of PFOA in soil in CAAII are not indicative of historical impacts from the former Chemfab facilities. The measured soil concentrations are generally consistent with background concentrations and may also be indicative of localized sources of PFAS.
- Statistical analysis of available groundwater data from this investigation and monitoring of private wells and POET systems suggests different PFAS sources reflected by groundwater of different PFAS composition, specifically the relative proportion of sulfonated compounds.
- Bedrock groundwater analytical data indicate that the Bennington Landfill is the primary source of PFAS in groundwater southwest of the landfill.
- Atmospheric transport of PFAS from sources outside the investigation area appears to be a significant source of PFAS within the investigation area.
- A desktop evaluation of area industries identifies additional potential local sources of PFAS within the investigation area.
- After accounting for background sources, the data collected as part of this investigation are consistent with the CSM. The findings do not warrant further investigation for the purposes of assessing the effects of air emissions from the former Chemfab facilities.

It is not anticipated that any additional investigation will be required. However, as discussed in the report, other likely local sources contributing to the presence of PFAS exist within the investigation area and may warrant additional investigation by the appropriate regulatory agency.

5.1 Hydrogeologic Conditions

- The distribution and values of hydraulic conductivity were found to be similar to conditions described in the Draft CSM Report (Barr, 2017c).
- The bedrock aquifer near Bennington Landfill is confined and water levels are consistent with a published bedrock potentiometric surface in which groundwater flow within the bedrock is from the landfill to the south, southwest, and west. At the very local scale of the landfill itself, there is localized mounding of the potentiometric surface beneath the landfill, resulting in local flow directions that are to the north and northwest, as well as south, southwest, and west. While the predominant flow direction in the bedrock is southwest, the localized mounding beneath the landfill has resulted in more radial flow that merges with the regional flow field.
- Bedrock structures identified in the bedrock outcrop and lineament study of the Bennington Landfill area were found to be hydraulically active and altered bedrock zones were found to have

enhanced hydraulic conductivity. Groundwater flow in the local landfill area is through these discrete flow paths. Borehole logging data show the discrete flow paths to be hydraulically connected, supporting the representation of the bedrock as an equivalent porous medium at the regional scale of the conceptual modeling from the Draft CSM Report (Barr, 2017c).

5.2 Relationships and Trends in PFAS Concentrations

5.2.1 Soil

- A significant, positive correlation exists between soil PFOA and TOC. Higher PFAS concentrations were found in soils with higher TOC, indicating that the organic matter in the soils attenuates PFOA, PFOS and other PFAS compounds relative to the movement of water. A significant, negative correlation was found between PFOA and soil pH and silver. No other metals were found to significantly correlate with PFOA.
- PFAS concentrations in soil decrease with depth in the soil column, consistent with sources at the ground surface including atmospheric deposition and infiltration from the ground surface. TOC concentrations in soil decrease with depth in the soil column, consistent with a soil-weathering profile. PFAS fractions that are adsorbed to the organic carbon are highest in the shallow soil layers where organic material content is highest. These findings agree with the results and parameterization of the conceptual modeling.
- Normalizing PFOA concentrations by TOC revealed weak spatial trends in the PFAS; specifically, that the PFOA/TOC ratio decreases with increasing distance from the former Chemfab Water Street facility when accounting for all data, but does not follow a spatial trend with distance from the facility outside of CAAI.
- The presence and concentration of sulfonated PFAS compounds in soil was an indicator of impacts from other sources.
- With the exception of the soils at the former Water Street facility, PFOA concentrations were not statistically higher than concentrations at background sampling locations. This finding indicates that PFOA concentrations in soil are not indicative of past impacts from the former Chemfab facilities. In general, any PFOA in soils that potentially may have been due to historical deposition from the former Chemfab facilities appears to have now attenuated.

5.2.2 Groundwater

- Statistical analyses of groundwater data from this investigation and data from private well sampling and POET influent monitoring indicated distinct groupings of samples based on relative contributions of PFOA and sulfonated compounds. These groupings suggest different PFAS sources to groundwater.

5.3 PFAS Sources

5.3.1 Background

- The PFOA present in background soil samples appears not to represent residual from the historical emissions from the former Chemfab facility. The emissions stopped 15 years ago.

Flushing with infiltrating precipitation for 15 years should have removed all measurable residuals associated with the former Chemfab facility from the surficial soils.

- Analysis of background soil data suggests that the continuing atmospheric transport and deposition of PFOA and its precursors are responsible for measurable background soil concentrations of PFOA in the Bennington area. The average PFOA/TOC value for representative background soil samples collected for this investigation is within the range of PFOA/TOC values reported for surficial soil samples located across North America. The presence of a background source of PFOA is further supported by lack of a spatial trend in soil PFOA concentration outside of CAAI.

5.3.2 Bennington Landfill

- Analysis of PFAS compounds in relation to each other indicated distinct groupings of samples based on relative contributions of PFOA and sulfonated compounds. These groupings suggest different PFAS sources to groundwater at and downgradient of Bennington Landfill. The relative concentrations of PFAS compounds in groundwater is similar to the concentrations in the sample of leachate collected from the landfill leachate vault.
- The presence of sulfonated PFAS compounds in downgradient bedrock landfill wells suggests that the groundwater is being impacted by PFAS sources that are unlike Chemfab-related materials, which are not sulfonated.
- Groundwater flow directions in the bedrock in the vicinity of Bennington Landfill, along with the magnitude of PFAS concentrations relative to the leachate, indicate that private wells downgradient of the landfill have been affected by sources of PFAS in the landfill.

5.3.3 PFAS Precursors

- Results of the TOP Assay analysis for PFAS precursors show no significant precursor mass in landfill leachate and groundwater in the unconsolidated aquifer at Bennington Landfill.

5.3.4 Other Potential PFAS Sources

- Results of a preliminary desktop review of other potential PFAS sources in the investigation area indicate that a number of other potential sources exist. Additional investigation of these potential sources by the appropriate regulatory agency may be warranted.

5.4 Expected Distribution of PFAS Concentrations

- Model-simulated and measured concentrations correlate well when background sources are accounted for in the model.
- The organic carbon content of the soil measured for this study confirms that the f_{oc} values used in the unsaturated zone transport modeling are reasonable and representative of actual conditions. Model values fall in the range of measured values and follow the same general decrease with depth in the soil column.

6.0 References

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Tables

Table 3.1
Investigation Location Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Coordinates (decimal degrees)[2]		Ground Elevation[3] (feet)	Start Date	Depth (feet bgs)	Sample Collected			Maximum Soil Vapor Headspace (ppm)	Comment
	Easting	Northing	Longitude	Latitude				Soil	Groundwater	Grain Size		
Bennington Landfill												
S13	647200.31	4754101.42	-73.196251	42.925332	977.2	9/18/2017	10.0	X			<5	
S16	647395.12	4753800.11	-73.193944	42.922583	910.3	9/20/2017	6.9	X	X		<5	
S18	647224.72	4753690.42	-73.196060	42.921628	920.5	9/13/2017	6.3	X			<5	Encountered refusal at 6.3 ft bgs
S20	647477.31	4753645.00	-73.192978	42.921171	908.1	9/22/2017	1.5	X			NR	
S21	647314.28	4753670.72	-73.194968	42.921434	915.9	9/13/2017	10.0	X	X		21	
S22	646989.41	4753631.99	-73.198957	42.921148	955.1	9/18/2017	10.0	X			<5	
S24	647030.93	4753555.71	-73.198469	42.920453	948.0	9/19/2017	8.0	X	X		<5	
S25	647235.03	4753504.33	-73.195983	42.919951	919.5	9/21/2017	10.0	X			<5	
S26	647095.37	4753528.57	-73.197687	42.920197	940.4	9/20/2017	10.0	X			<5	
S27	647050.77	4753539.86	-73.198230	42.920307	945.5	9/20/2017	10.0	X			5.3	
S28	647733.41	4753454.91	-73.189892	42.919410	894.1	9/28/2017	8.0	X	X		<5	
S29	647435.13	4753465.07	-73.193542	42.919559	908.5	9/22/2017	1.5	X			NR	
D10	646918.05	4753598.13	-73.199840	42.920857	955.6	10/7/2017	115.0	X		X	23.0	
D26	646838.05	4753693.11	-73.200795	42.921727	1004.2	10/10/2017	50.0	X			<5	
SG3-MW17-01/D06	647246.56	4753670.08	-73.195798	42.921441	914.8	9/22/2017	10.2	X	X	X	5.5	
SG3-MW17-02/D08	647312.12	4753643.75	-73.195002	42.921191	916.1	9/22/2017	15.0	X	X		<5	
SG3-MW17-03/D25	647283.89	4754105.41	-73.195226	42.925352	978.1	9/22/2017	20.0	X	X	X	<5	
SG3-MW17-04/D11	647007.68	4753592.28	-73.198744	42.920787	954.7	9/25/2017	150.0	X	X	X	18.1	Geotextile liner observed at 1 ft bgs, encountered altered bedrock
SG3-MW17-06/D09	647254.69	4753608.02	-73.195715	42.920881	929.6	10/17/2017	70.0	X	X		<5	
SG3-MW17-BR1	647281.84	4754105.10	-73.195251	42.925350	977.9	9/26/2017	380.0	X	X		9.3	
SG3-MW17-BR2	646985.55	4753582.87	-73.199017	42.920707	956.8	10/13/2017	263.0	X	X		<5	
SG3-MW17-BR3	646722.40	4753218.59	-73.202335	42.917478	945.9	10/23/2017	273.5	X	X	X	<5	
SG3-MW17-BR4	647731.70	4753451.22	-73.189914	42.919377	894.3	10/20/2017	459.0	X	X	X	5.3	
Outside Bennington Landfill												
S01	643063.49	4756996.10	-73.246179	42.952175	717.4	9/5/2017	10.0	X	X		<5	
S02	644972.91	4756117.61	-73.223010	42.943907	703.0	9/7/2017	10.0	X		X	33	Odor and staining observed
S03	645896.51	4755856.65	-73.211763	42.941382	732.8	9/7/2017	10.0	X	X		<5	
S04	649013.86	4755749.57	-73.173601	42.939815	1086.9	9/6/2017	10.0	X	X		<5	
S05	640837.46	4755644.60	-73.273796	42.940425	528.1	9/5/2017	10.0	X			<5	
S06	641631.03	4754698.85	-73.264313	42.931765	535.5	8/14/2017	9.0	X			<5	
S07	645127.53	4754342.47	-73.221576	42.927899	710.0	8/18/2017	10.0	X			<5	
S08	646147.71	4754890.80	-73.208937	42.932640	776.2	9/8/2017	8.0	X	X		<5	
S09	648628.17	4754481.47	-73.178662	42.928476	1044.2	8/22/2017	10.0	X			<5	
S10	648175.31	4754303.25	-73.184256	42.926960	961.2	8/23/2017	8.0	X	X		<5	
S11	644039.35	4754296.60	-73.234916	42.927693	698.3	8/28/2017	10.0	X			9.0	Elevated headspace readings recorded in empty headspace bag (headspace data not considered representative). Borings S11 and S11-2 installed proximal to each other on 8/28/17 and 9/7/17, respectively
S11-2	644039.35	4754296.60	-73.234916	42.927693	698.3	9/7/2017	10.0	X			35	Borings S11 and S11-2 installed proximal to each other on 8/28/17 and 9/7/17, respectively
S12	646114.61	4753976.27	-73.209581	42.924415	812.7	8/25/2017	10.0	X			<5	
S14	642577.41	4754444.62	-73.252785	42.929300	684.8	8/28/2017	10.0	X			5.8	Elevated headspace readings recorded in empty headspace bag (headspace data not considered representative)
S30	647673.83	4752749.09	-73.190808	42.913069	871.9	8/18/2017	10.0	X			<5	
S31	646051.41	4752859.78	-73.210646	42.914378	790.2	8/25/2017	10.0	X			<5	
S32	648599.76	4752684.23	-73.179487	42.912305	911.8	8/24/2017	10.0	X			<5	
S33	645883.52	4752395.55	-73.212823	42.910231	664.1	9/27/2017	10.0	X			<5	
S34	644883.13	4752022.43	-73.225169	42.907064	573.0	9/11/2017	8.0	X	X		<5	
S35	643939.65	4752311.58	-73.236647	42.909845	583.9	8/22/2017	10.0	X			<5	
S36	642997.26	4752262.19	-73.248199	42.909577	577.3	8/22/2017	10.0	X			<5	
S37	648567.72	4751900.60	-73.180087	42.905258	862.9	8/24/2017	4.0	X	X		<5	
S38	640973.45	4751217.67	-73.273244	42.900552	692.6	8/22/2017	10.0	X			7.9	

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Investigation Location Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location ID	Coordinates (UTM 18N, meters)[1]		Coordinates (decimal degrees)[2]		Ground Elevation[3] (feet)	Start Date	Depth (feet bgs)	Sample Collected			Maximum Soil Vapor Headspace (ppm)	Comment
	Easting	Northing	Longitude	Latitude				Soil	Groundwater	Grain Size		
S39	648561.22	4750890.26	-73.180434	42.896166	833.3	8/24/2017	10.0	X			<5	
S40	643791.74	4750950.44	-73.238807	42.897621	816.9	9/27/2017	10.0	X			<5	
S41	645769.29	4750988.60	-73.214587	42.897589	587.8	8/15/2017	10.0	X	X		<5	
S42	648477.59	4750616.97	-73.181530	42.893722	779.1	8/16/2017	10.0	X	X		<5	Well pumped dry during groundwater sampling and limited volume for analysis.
S43	644291.92	4749827.50	-73.232972	42.887419	842.0	8/21/2017	10.0	X			<5	
S44	642038.08	4749514.14	-73.260640	42.885021	871.9	8/21/2017	10.0	X			<5	
S45	645201.09	4749219.09	-73.222001	42.881770	828.1	9/12/2017	10.0	X			<5	
S46	646673.83	4749442.28	-73.203917	42.883498	669.8	8/16/2017	10.0	X			<5	
S47	648399.33	4749381.94	-73.182814	42.882621	748.1	8/16/2017	5.3	X			<5	Encountered refusal at 5.3 feet bgs
S48	643207.03	4748771.00	-73.246521	42.878114	913.5	8/21/2017	7.4	X			<5	Encountered refusal at 7.4 feet bgs
S49	645406.04	4748598.06	-73.219653	42.876142	916.5	9/12/2017	10.0	X	X		<5	
D01	643172.20	4756135.40	-73.245067	42.944407	763.9	9/13/2017	35.0	X		X	<5	
D02	647151.43	4755023.57	-73.196607	42.933642	960.2	9/20/2017	20.0	X		X	<5	
D03	643077.79	4754776.42	-73.246571	42.932193	645.3	8/28/2017	20.0	X	X	X	15.9	Elevated headspace readings recorded in empty headspace bag (headspace data not considered representative)
D05	643046.39	4753945.60	-73.247168	42.924720	633.4	8/28/2017	30.0	X		X	14.6	Elevated headspace readings recorded in empty headspace bag (headspace data not considered representative)
D07	648590.40	4753820.21	-73.179300	42.922532	1012.8	9/8/2017	200.0	X		X	20.4	Encountered altered bedrock
D12	646067.65	4753431.36	-73.210298	42.919519	822.2	10/3/2017	45.0	X		X	<5	
D13	645410.00	4752879.49	-73.218496	42.914678	642.6	9/6/2017	25.0	X	X	X	<5	
D14	644611.78	4753190.42	-73.228190	42.917628	647.5	8/28/2017	17.0	X		X	<5	
D16	646971.10	4753034.59	-73.199338	42.915774	945.6	9/20/2017	41.0	X		X	<5	Encountered refusal at 41 ft bgs
D17	640801.87	4752926.30	-73.274915	42.915963	674.7	10/7/2017	20.0	X		X	<5	
D19	646756.85	4752463.42	-73.202111	42.910675	806.4	8/30/2017	10.0	X		X	<5	
D20	643302.58	4752114.97	-73.244498	42.908195	606.3	9/18/2017	90.0	X		X	15.3	
D22	643303.46	4751685.29	-73.244597	42.904327	742.5	10/6/2017	20.0	X		X	<5	
D23	643062.24	4750957.54	-73.247736	42.897822	757.3	9/7/2017	50.0	X		X	6.1	
D24	643291.00	4749718.85	-73.245252	42.886630	799.3	9/23/2017	70.0	X		X	<5	Encountered altered bedrock
SG3-MW17-05/D21	646752.09	4751291.64	-73.202476	42.900129	649.7	10/5/2017	25.0	X	X		<5	
SG3-MW17-07/D15	644140.64	4753470.29	-73.233888	42.920236	680.9	10/19/2017	85.0	X	X		<5	
SG3-MW17-WWTP/D18	642265.11	4752854.26	-73.257014	42.915043	565.1	8/25/2017	35.0	X	X	X	<5	
Background Locations												
BG1	648265.91	4764644.73	-73.180404	43.020022	857.0	8/18/2017	10.0	X			<5	
BG2	660426.47	4750073.42	-73.035423	42.886413	2380.7	8/23/2017	10.0	X			<5	
BG3	678070.58	4750263.88	-72.819439	42.884216	1862.2	8/17/2017	3.5	X			<5	Encountered refusal at 3.5 feet bgs
BG4	678434.54	4746680.23	-72.816122	42.851883	1883.6	8/17/2017	8.0	X	X		<5	

Notes:

1 - Northing and easting in UTM Zone 18N NAD83, meters

2 - Latitude and longitude in NAD83, decimal degrees

3 - Elevations in NAVD88, feet

Borings S11 and S11-2 installed proximal to each other on 8/28/17 and 9/7/17, respectively

NR - not recorded

bgs - below ground surface

ppm - parts per million

X - indicates sample collected

Table 3.2
Soil Analytical Sampling Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill									
S13	0-0.5	9/18/2017	X	X					
	0.5-1	9/18/2017	X	X					
	1-1.5	9/18/2017	X	X					
	3-4	9/18/2017	X	X					
	8-9	9/18/2017	X	X					
S16	0-0.5	9/20/2017	X	X					
	0.5-1	9/20/2017	X	X					
	1-1.5	9/20/2017	X	X					
S18	0-0.5	9/13/2017	X	X					
	0.5-1	9/13/2017	X	X					
	1-1.5	9/13/2017	X	X					
	3-4	9/13/2017	X	X					
	5.3-6.3	9/13/2017	X	X					
S20	0-0.5	9/22/2017	X	X					
	0.5-1	9/22/2017	X	X					
	1-1.5	9/22/2017	X	X					
S21	0-0.5	9/13/2017	X	X					
	0.5-1	9/13/2017	X	X					
	1-1.5	9/13/2017	X	X					
	3-4	9/13/2017	X	X					
	6.3-7.3	9/13/2017	X	X					
S22	0-0.5	9/18/2017	X	X					
	0.5-1	9/18/2017	X	X					
	1-1.5	9/18/2017	X	X					
	3-4	9/18/2017	X	X					
	9-10	9/18/2017	X	X					
S24	0-0.5	9/19/2017	X	X					
	0.5-1	9/19/2017	X	X					
	1-1.5	9/19/2017	X	X					
	2.7-3.7	9/19/2017	X	X					
S25	0-0.5	9/21/2017	X	X					
	0.5-1	9/21/2017	X	X					
	1-1.5	9/21/2017	X	X					
	3-4	9/21/2017	X	X					
	4.6-5.6	9/21/2017	X	X					
S26	0-0.5	9/20/2017	X	X					
	0.5-1	9/20/2017	X	X					
	1-1.5	9/20/2017	X	X					
	3-4	9/20/2017	X	X					
	8-9	9/20/2017	X	X					
S27	0-0.5	9/20/2017	X	X					
	0.5-1	9/20/2017	X	X					
	1-1.5	9/20/2017	X	X					
	3-4	9/20/2017	X	X					
	7-8	9/20/2017	X	X					
S28	0-0.5	9/28/2017	X	X					
	0.5-1	9/28/2017	X	X					
	1-1.5	9/28/2017	X	X					
	2.7-3.7	9/28/2017	X	X					

Table 3.2
Soil Analytical Sampling Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill *(continued)*									
S29	0-0.5	9/22/2017	X	X					
	0.5-1	9/22/2017	X	X					
	1-1.5	9/22/2017	X	X					
D06 *SG3-MW-01 installed at location*	0-0.5	9/22/2017	X	X	X				
	0.5-1	9/22/2017	X	X	X				
	1-1.5	9/22/2017	X	X	X				
	3-4	9/22/2017	X	X	X				
	8-9	9/22/2017	X	X	X				
D08 *SG3-MW-02 installed at location*	0-0.5	9/22/2017	X	X	X				
	0.5-1	9/22/2017	X	X	X				
	1-1.5	9/22/2017	X	X	X				
	3-5	9/22/2017	X	X	X				
	7-8	9/22/2017	X	X	X				
	10-11	9/22/2017	X	X	X				
D09 *SG3-MW-06 installed at location*	0-0.5	10/16/2017	X	X	X				
	0.5-1	10/16/2017	X	X	X				
	1-1.5	10/16/2017	X	X	X				
	3-4	10/16/2017	X	X	X				
	8-9	10/16/2017	X	X	X				
	14-15	10/16/2017	X	X	X				
	28-29	10/16/2017	X	X	X				
	38-39	10/16/2017	X	X	X				
	48-49	10/16/2017	X	X	X				
	58-59	10/17/2017	X	X	X				
	68-69	10/17/2017	X	X	X				
D10	0-0.5	10/7/2017	X	X	X				
	0.5-1	10/7/2017	X	X	X				
	1-1.5	10/7/2017	X	X	X				
	3-4	10/7/2017	X	X	X				
	8-9	10/7/2017	X	X	X				
	18-19	10/7/2017	X	X	X				
	28-29	10/7/2017	X	X	X				
	38-39	10/8/2017	X	X	X				
	48-49	10/8/2017	X	X	X				
	58-59	10/8/2017	X	X	X				
	68-69	10/8/2017	X	X	X				
	78-79	10/9/2017	X	X	X				
	88-89	10/9/2017	X	X	X				
	98-99	10/9/2017	X	X	X				
	103-104	10/10/2017	X	X	X				

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill *(continued)*									
D11 *SG3-MW-04 installed at location*	0-0.5	9/25/2017	X	X	X				
	0.5-1	9/25/2017	X	X	X				
	1-1.5	9/25/2017	X	X	X				
	3-4	9/25/2017	X	X	X				
	8-9	9/25/2017	X	X	X				
	18-19	9/25/2017	X	X	X				
	28-29	9/25/2017	X	X	X				
	38-39	9/25/2017	X	X	X				
	48-49	9/25/2017	X	X	X				
	58-59	9/25/2017	X	X	X				
	68-69	9/25/2017	X	X	X				
	78-79	9/26/2017	X	X					
	88-89	9/26/2017	X	X					
	99-100	9/26/2017	X	X					
	113-114	9/26/2017	X	X					
	118-119	9/26/2017	X	X					
	128-129	9/27/2017	X	X	X				
	138-139	9/27/2017	X	X	X				
	144-145	9/27/2017	X	X	X				
D25 *SG3-MW-03 installed at location*	0-0.5	9/22/2017	X	X	X				
	0.5-1	9/22/2017	X	X	X				
	1-1.5	9/22/2017	X	X	X				
	3-4	9/22/2017	X	X	X				
	6.5-7.5	9/23/2017	X	X	X				
	8-9	9/22/2017	X	X	X				
	18-19	9/22/2017	X	X	X				
D26	0-0.5	10/10/2017	X	X	X				
	0.5-1	10/10/2017	X	X	X				
	1-1.5	10/10/2017	X	X	X				
	3-4	10/10/2017	X	X	X				
	8-9	10/10/2017	X	X	X				
	18-19	10/11/2017	X	X	X				
	28-29	10/11/2017	X	X	X				
	38-39	10/11/2017	X	X	X				
SG3-MW17-BR1	28-29	9/27/2017	X	X	X				
	31-32	9/27/2017	X	X	X				
	38-39	9/27/2017	X	X	X				
	48-49	9/27/2017	X	X	X				
	58-59	9/27/2017	X	X	X				
	68-69	9/27/2017	X	X	X				
	78-79	9/27/2017	X	X	X				
	88-89	9/27/2017	X	X	X				
	98-99	9/28/2017	X	X	X				
	108-109	9/28/2017	X	X	X				
	118-119	9/28/2017	X	X	X				
	128-129	9/29/2017	X	X	X				

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill *(continued)*									
SG3-MW17-BR1 *(continued)*	138-139	9/29/2017	X	X	X				
	148-149	9/29/2017	X	X	X				
	158-159	10/3/2017	X	X	X				
	168-169	10/4/2017	X	X	X				
	178-179	10/4/2017	X	X	X				
	188-189	10/4/2017	X	X	X				
	198-199	10/4/2017	X	X	X				
	208-209	10/4/2017	X	X	X				
	218-219	10/4/2017	X	X	X				
	228-229	10/4/2017	X	X	X				
	238-239	10/5/2017	X	X	X				
	248-249	10/5/2017	X	X	X				
	258-259	10/5/2017	X	X	X				
	268-269	10/5/2017	X	X	X				
	278-279	10/5/2017	X	X	X				
	288-289	10/5/2017	X	X	X				
	298-299	10/6/2017	X	X	X				
SG3-MW17-BR2	0-0.5	10/12/2017	X	X	X				
	0.5-1	10/12/2017	X	X	X				
	1-1.5	10/12/2017	X	X	X				
	3-4	10/12/2017	X	X	X				
	8-9	10/12/2017	X	X	X				
	18-19	10/12/2017	X	X	X				
	28-29	10/12/2017	X	X	X				
	38-39	10/12/2017	X	X	X				
	48-49	10/12/2017	X	X	X				
	58-59	10/12/2017	X	X	X				
	68-69	10/12/2017	X	X	X				
	78-79	10/12/2017	X	X	X				
	88-89	10/12/2017	X	X	X				
	98-99	10/12/2017	X	X	X				
	108-109	10/13/2017	X	X	X				
	118-119	10/13/2017	X	X	X				
	128-129	10/13/2017	X	X	X				
	133-134	10/13/2017	X	X	X				
	137-138	10/13/2017	X	X	X				
SG3-MW17-BR3	0-0.5	10/12/2017	X	X	X				
	0.5-1	10/23/2017	X	X	X				
	1-1.5	10/23/2017	X	X	X				
	3-4	10/23/2017	X	X	X				
	6.5-7.5	10/23/2017	X	X	X				
	8-9	10/23/2017	X	X	X				
	18-19	10/23/2017	X	X	X				
	28-29	10/23/2017	X	X	X				
	38-39	10/23/2017	X	X	X				

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill *(continued)*									
SG3-MW17-BR3 *(continued)*	48-49	10/23/2017	X	X	X				
	58-59	10/23/2017	X	X	X				
	68-69	10/24/2017	X	X	X				
	78-79	10/24/2017	X	X	X				
	88-89	10/24/2017	X	X	X				
	98-99	10/24/2017	X	X	X				
	104-105	10/24/2017	X	X	X				
SG3-MW17-BR4	0-0.5	10/20/2017	X	X	X				
	0.5-1	10/20/2017	X	X	X				
	1-1.5	10/20/2017	X	X	X				
	3-4	10/20/2017	X	X	X				
	8-9	10/20/2017	X	X	X				
	19-20	10/20/2017	X	X	X				
	28-29	10/21/2017	X	X	X				
	38-39	10/21/2017	X	X	X				
	48-49	10/21/2017	X	X	X				
	58-59	10/21/2017	X	X	X				
	68-69	10/21/2017	X	X	X				
	78-79	10/21/2017	X	X	X				
	88-89	10/21/2017	X	X	X				
	98-99	10/21/2017	X	X	X				
	108-109	10/22/2017	X	X	X				
	118-119	10/22/2017	X	X	X				
	128-129	10/22/2017	X	X	X				
	138-139	10/22/2017	X	X	X				
	148-149	10/22/2017	X	X	X				
	158-159	10/23/2017	X	X	X				
	168-169	10/23/2017	X	X	X				
	178-179	10/23/2017	X	X	X				
	188-189	10/23/2017	X	X	X				
	198-199	10/23/2017	X	X	X				
	208-209	10/23/2017	X	X	X				
	216.5-217	10/23/2017	X	X	X				
	225-226	10/23/2017	X	X	X				
	235-236	10/23/2017	X	X	X				
	245-246	10/25/2017	X	X	X				
	251-252	10/25/2017	X	X	X				
	261-262	10/30/2017	X	X	X				
	271-272	10/30/2017	X	X	X				
	281-282	10/30/2017	X	X	X				
	291-292	10/30/2017	X	X	X				
	301-302	10/31/2017	X	X	X				
	311-312	10/31/2017	X	X	X				
	321-322	10/31/2017	X	X	X				
	331-332	10/31/2017	X	X	X				

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Bennington Landfill *(continued)*									
SG3-MW17-BR4 *(continued)*	341-342	10/31/2017	X	X	X				
	351-352	10/31/2017	X	X	X				
	361-362	11/1/2017	X	X	X				
	371-372	11/1/2017	X	X	X				
	381-382	11/1/2017	X	X	X				
	391-392	11/1/2017	X	X	X				
	395-396	11/2/2017	X	X	X				
Outside Bennington Landfill									
S01	0-0.5	9/5/2017	X	X					
	0.5-1	9/5/2017	X	X					
	1-1.5	9/5/2017	X	X					
	3-4	9/5/2017	X	X					
	6.5-7.5	9/5/2017	X	X					
S02	0-0.5	9/7/2017	X	X					
	0.5-1	9/7/2017	X	X					
	1-1.5	9/7/2017	X	X					
	3-4	9/7/2017	X	X					
	8-9	9/7/2017	X	X					
	0.5-1	9/12/2017		X (no pH)	X	X	X	X	X
	1-1.5	9/12/2017		X (no pH)	X	X	X	X	X
S03	0-0.5	9/7/2017	X	X					
	0.5-1	9/7/2017	X	X					
	1-1.5	9/7/2017	X	X					
	3-4	9/7/2017	X	X					
	6.6-7.6	9/7/2017	X	X					
S04	0-0.5	9/6/2017	X	X					
	0.5-1	9/6/2017	X	X					
	1-1.5	9/6/2017	X	X					
	3-4	9/6/2017	X	X					
	7-8	9/6/2017	X	X					
S05	0-0.5	9/5/2017	X	X					
	0.5-1	9/5/2017	X	X					
	1-1.5	9/5/2017	X	X					
	3-4	9/5/2017	X	X					
	8-9	9/5/2017	X	X					
S06	0-0.5	8/14/2017	X	X					
	0.5-1	8/14/2017	X	X					
	1-1.5	8/14/2017	X	X					
	3-4	8/14/2017	X	X					
	8-9	8/14/2017	X	X					
S07	0-0.5	8/18/2017	X	X					
	0.5-1	8/18/2017	X	X					
	1-1.5	8/18/2017	X	X					
	3-4	8/18/2017	X	X					
	8-9	8/18/2017	X	X					
S08	0-0.5	9/8/2017	X	X					
	0.5-1	9/8/2017	X	X					
	1-1.5	9/8/2017	X	X					
	1.5-2.2	9/8/2017	X	X					

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
S09	0-0.5	8/22/2017	X	X					
	0.5-1	8/22/2017	X	X					
	1-1.5	8/22/2017	X	X					
	3-4	8/22/2017	X	X					
	8-9	8/22/2017	X	X					
S10	0-0.5	8/23/2017	X	X					
	0.5-1	8/23/2017	X	X					
	1-1.5	8/23/2017	X	X					
	3-4	8/23/2017	X	X					
	4.1-5.1	8/23/2017	X	X					
S11	0-0.5	9/7/2017	X	X					
	0.5-1	9/7/2017	X	X					
	1-1.5	8/28/2017	X	X					
	1-1.5	9/7/2017	X	X					
	3-4	9/7/2017	X	X					
	7.4-8.4	9/7/2017	X	X					
	8-9	8/28/2017	X	X					
S12	0-0.5	8/25/2017	X	X					
	0.5-1	8/25/2017	X	X					
	1-1.5	8/25/2017	X	X					
	3-4	8/25/2017	X	X					
	4.5-4.9	8/25/2017	X						
	8-9	8/25/2017	X	X					
S14	0-0.5	8/28/2017	X	X					
	0.5-1	8/28/2017	X	X					
	1-1.5	8/28/2017	X	X					
	3-4	8/28/2017	X	X					
	8-9	8/28/2017	X	X					
S30	0-0.5	8/18/2017	X	X					
	0.5-1	8/18/2017	X	X					
	1-1.5	8/18/2017	X	X					
	3-4	8/18/2017	X	X					
	8-9	8/18/2017	X	X					
S31	0-0.5	8/25/2017	X	X					
	0.5-1	8/25/2017	X	X					
	1-1.5	8/25/2017	X	X					
	3-4	8/25/2017	X	X					
	8-9	8/25/2017	X	X					
S32	0-0.5	8/24/2017	X	X					
	0.5-1	8/24/2017	X	X					
	1-1.5	8/24/2017	X	X					
	3-4	8/24/2017	X	X					
	8-9	8/24/2017	X	X					
S33	0-0.5	9/27/2017	X	X					
	0.5-1	9/27/2017	X	X					
	1-1.5	9/27/2017	X	X					
	3-4	9/27/2017	X	X					
	8-9	9/27/2017	X	X					
S34	0-0.5	9/11/2017	X	X					
	0.5-1	9/11/2017	X	X					
	1-1.5	9/11/2017	X	X					
	2.2-3.2	9/11/2017	X	X					

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
S35	0-0.5	8/22/2017	X	X					
	0.5-1	8/22/2017	X	X					
	1-1.5	8/22/2017	X	X					
	3-4	8/22/2017	X	X					
	8-9	8/22/2017	X	X					
S36	0-0.5	8/22/2017	X	X					
	0.5-1	8/22/2017	X	X					
	1-1.5	8/22/2017	X	X					
	3-4	8/22/2017	X	X					
	8-9	8/22/2017	X	X					
S37	0-0.5	8/24/2017	X	X					
	0.5-1	8/24/2017	X	X					
	1-1.5	8/24/2017	X	X					
S38	0-0.5	8/22/2017	X	X					
	0.5-1	8/22/2017	X	X					
	1-1.5	8/22/2017	X	X					
	3-4	8/22/2017	X	X					
	8-9	8/22/2017	X	X					
S39	0-0.5	8/24/2017	X	X					
	0.5-1	8/24/2017	X	X					
	1-1.5	8/24/2017	X	X					
	3-4	8/24/2017	X	X					
	8-9	8/24/2017	X	X					
S40	0-0.5	9/27/2017	X	X					
	0.5-1	9/27/2017	X	X					
	1-1.5	9/27/2017	X	X					
	3-4	9/27/2017	X	X					
	8-9	9/27/2017	X	X					
S41	0-0.5	8/15/2017	X	X					
	0.5-1	8/15/2017	X	X					
	1-1.5	8/15/2017	X						
S42	0-0.5	8/16/2017	X	X					
	0.5-1	8/16/2017	X	X					
	1-1.5	8/16/2017	X	X					
	3-4	8/16/2017	X	X					
	8-9	8/16/2017	X	X					
S43	0-0.5	8/21/2017	X	X					
	0.5-1	8/21/2017	X	X					
	1-1.5	8/21/2017	X	X					
	3-4	8/21/2017	X	X					
	8-9	8/21/2017	X	X					
S44	0-0.5	8/21/2017	X	X					
	0.5-1	8/21/2017	X	X					
	1-1.5	8/21/2017	X	X					
	3-4	8/21/2017	X	X					
	8-9	8/21/2017	X	X					
S45	0-0.5	9/12/2017	X	X					
	0.5-1	9/12/2017	X	X					
	1-1.5	9/12/2017	X	X					
	3-4	9/12/2017	X	X					
	8-9	9/12/2017	X	X					

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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
S46	0-0.5	8/16/2017	X	X					
	0.5-1	8/16/2017	X	X					
	1-1.5	8/16/2017	X	X					
	3-4	8/16/2017	X	X					
	6-7	8/16/2017	X	X					
S47	0-0.5	8/16/2017	X	X					
	0.5-1	8/16/2017	X	X					
	1-1.5	8/16/2017	X	X					
	3-5.3	8/16/2017	X	X					
S48	0-0.5	8/21/2017	X	X					
	0.5-1	8/21/2017	X	X					
	1-1.5	8/21/2017	X	X					
	3-4	8/21/2017	X	X					
	6.4-7.4	8/21/2017	X	X					
S49	0-0.5	9/12/2017	X	X					
	0.5-1	9/12/2017	X	X					
	1-1.5	9/12/2017	X	X					
	3-4	9/12/2017	X	X					
	5.3-6.3	9/12/2017	X	X					
	8-9	9/12/2017	X	X					
D01	0-0.5	9/13/2017	X	X					
	0.5-1	9/13/2017	X	X					
	1-1.5	9/13/2017	X	X					
	3-4	9/13/2017	X	X					
	8-9	9/13/2017	X	X					
	12-13	9/13/2017	X	X					
	18-19	9/13/2017	X	X					
	28-29	9/13/2017	X	X					
D02	0-0.5	9/20/2017	X	X	X				
	0.5-1	9/20/2017	X	X	X				
	1-1.5	9/20/2017	X	X	X				
	3-4	9/20/2017	X	X	X				
D03	0-0.5	8/28/2017	X	X	X				
	0.5-1	8/28/2017	X	X	X				
	1-1.5	8/28/2017	X	X	X				
	3-4	8/28/2017	X	X	X				
	8-9	8/28/2017	X	X	X				
	12-13	8/28/2017	X	X	X				
	15-16	8/28/2017	X	X	X				
D05	0-0.5	8/28/2017	X	X	X				
	0.5-1	8/28/2017	X	X	X				
	1-1.5	8/28/2017	X	X	X				
	3-4	8/28/2017	X	X	X				
	8-9	8/28/2017	X	X	X				
	16-17	8/28/2017	X	X	X				
	26-27	8/28/2017	X	X	X				

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			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
D07	0-0.5	9/8/2017	X	X	X				
	0.5-1	9/8/2017	X	X	X				
	1-1.5	9/8/2017	X	X	X				
	3-4	9/8/2017	X	X	X				
	8-9	9/8/2017	X	X	X				
	18-19	9/8/2017	X	X	X				
	28-29	9/8/2017	X	X	X				
	38-39	9/8/2017	X	X	X				
	48-49	9/8/2017	X	X	X				
	58-59	9/8/2017	X	X	X				
	68-69	9/9/2017	X	X					
	77-78	9/9/2017	X	X					
	86-87	9/9/2017	X	X					
	98-99	9/9/2017	X	X					
	107-108	9/9/2017	X	X					
	118-119	9/10/2017	X	X					
	128-129	9/10/2017	X	X					
	138-139	9/10/2017	X	X					
	148-149	9/10/2017	X	X					
	158-159	9/11/2017	X	X					
	168-169	9/11/2017	X	X					
	178-179	9/11/2017	X	X					
	188-189	9/11/2017	X	X					
	198-199	9/11/2017	X	X					
D12	0-0.5	10/3/2017	X	X					
	0.5-1	10/3/2017	X	X					
	1-1.5	10/3/2017	X	X					
	3-4	10/3/2017	X	X					
	8-9	10/3/2017	X	X					
	18-19	10/3/2017	X	X					
	28-29	10/3/2017	X	X					
	36-37	10/4/2017	X	X	X				
D13	0-0.5	9/6/2017	X	X	X				
	0.5-1	9/6/2017	X	X	X				
	1-1.5	9/6/2017	X	X	X				
	3-4	9/6/2017	X	X	X				
	8-9	9/6/2017	X	X	X				
	15-16	9/6/2017	X	X	X				
	18-19	9/6/2017	X	X	X				
	24-25	9/6/2017	X	X	X				
D14	0-0.5	8/29/2017	X	X	X				
	0.5-1	8/29/2017	X	X	X				
	1-1.5	8/29/2017	X	X	X				
	2-3	8/29/2017	X	X	X				
	3-4	8/29/2017	X	X	X				
	8-9	8/29/2017	X	X	X				
	9.5-10.5	8/29/2017	X	X	X				

Table 3.2
Soil Analytical Sampling Summary
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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
D15 *SG3-MW-07 installed at location*	0-0.5	10/18/2017	X	X	X				
	0.5-1	10/18/2017	X	X	X				
	1-1.5	10/18/2017	X	X	X				
	3-4	10/18/2017	X	X	X				
	8-9	10/18/2017	X	X	X				
	18-19	10/18/2017	X	X	X				
	28-29	10/18/2017	X	X	X				
	38-39	10/18/2017	X	X	X				
	48-49	10/19/2017	X	X					
	73-74	10/19/2017	X	X					
D16	0-0.5	9/20/2017	X	X	X				
	0.5-1	9/20/2017	X	X	X				
	1-1.5	9/20/2017	X	X	X				
	3-4	9/20/2017	X	X	X				
	8-9	9/20/2017	X	X	X				
	18-19	9/20/2017	X	X	X				
	28-29	9/20/2017	X	X	X				
	36-37	9/21/2017	X	X					
D17	0-0.5	10/6/2017	X	X	X				
	0.5-1	10/6/2017	X	X	X				
	1-1.5	10/6/2017	X	X	X				
	3-4	10/6/2017	X	X	X				
	8-9	10/6/2017	X	X	X				
	9-10	10/6/2017	X	X	X				
D18 *SG3-MW-WWTP installed at location*	0-0.5	8/25/2017	X	X	X				
	0.5-1	8/25/2017	X	X	X				
	1-1.5	8/25/2017	X	X	X				
	3-4	8/25/2017	X	X	X				
	8-9	8/25/2017	X	X	X				
	15-16	8/27/2017	X	X	X				
	18-19	8/25/2017	X	X	X				
	24-25	8/27/2017	X	X	X				
D19	0-0.5	8/30/2017	X	X	X				
	0.5-1	8/30/2017	X	X	X				
	1-1.5	8/30/2017	X	X	X				
	2-3	8/30/2017	X	X	X				
D20	0-0.5	9/18/2017	X	X	X				
	0.5-1	9/18/2017	X	X	X				
	1-1.5	9/18/2017	X	X	X				
	3-4	9/18/2017	X	X	X				
	6.5-7.5	9/18/2017	X	X	X				
	8-9	9/18/2017	X	X	X				
	18-19	9/18/2017	X	X	X				
	28-29	9/18/2017	X	X	X				

Table 3.2
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Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Outside Bennington Landfill *(continued)*									
D20 *(continued)*	38-39	9/18/2017	X	X	X				
	48-49	9/18/2017	X	X	X				
	58-59	9/19/2017	X	X	X				
	68.5-69.5	9/19/2017	X	X	X				
	75-77	9/19/2017	X	X	X				
	78-79	9/19/2017	X	X	X	X	X	X	X
D21 *SG3-MW-05 installed at location*	0-0.5	10/5/2017	X	X	X				
	0.5-1	10/5/2017	X	X	X				
	1-1.5	10/5/2017	X	X	X				
	3-4	10/5/2017	X	X	X				
	8-9	10/5/2017	X	X	X				
	14-15	10/5/2017	X	X	X				
D22	0-0.5	10/6/2017	X	X	X				
	0.5-1	10/6/2017	X	X	X				
	1-1.5	10/6/2017	X	X	X				
	3-4	10/6/2017	X	X	X				
	8-9	10/6/2017	X	X	X				
	14-15	10/6/2017	X	X	X				
D23	0-0.5	9/7/2017	X	X	X				
	0.5-1	9/7/2017	X	X	X				
	1-1.5	9/7/2017	X	X	X				
	6-7	9/7/2017	X	X	X				
	12-13	9/7/2017	X	X	X				
	18-19	9/7/2017	X	X	X				
	28-29	9/7/2017	X	X	X				
	36-37	9/7/2017	X	X	X				
	41-42	9/7/2017	X	X	X				
	48-49	9/7/2017	X	X	X				
D24	0-0.5	9/23/2017	X	X	X				
	0.5-1	9/23/2017	X	X	X				
	1-1.5	9/23/2017	X	X	X				
	3-4	9/23/2017	X	X	X				
	9-10	9/23/2017	X	X	X				
	18-19	9/23/2017	X	X	X				
	28-29	9/23/2017	X	X	X				
	38-39	9/23/2017	X	X	X				
	48-49	9/24/2017	X	X	X				
	58-59	9/24/2017	X	X	X				
	68-69	9/24/2017	X	X	X				

Table 3.2
Soil Analytical Sampling Summary
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Saint-Gobain Performance Plastics

Sample ID	Sample Interval (ft bgs)	Sample Date	Sample Parameters						
			PFAS	TOC, pH, moisture	Metals, Cations[1]	VOCs	SVOCs	PCBs	Pesticides
Background Samples									
BG1	0-0.5	8/18/2017	X	X					
	0.5-1	8/18/2017	X	X					
	1-1.5	8/18/2017	X	X					
	3-4	8/18/2017	X	X					
	8-9	8/18/2017	X	X					
BG2	0-0.5	8/23/2017	X	X					
	0.5-1	8/23/2017	X	X					
	1-1.5	8/23/2017	X	X					
	3-4	8/23/2017	X	X					
	8-9	8/23/2017	X	X					
BG3	0-0.5	8/17/2017	X	X					
	0.5-1	8/17/2017	X	X					
	1-1.5	8/17/2017	X	X					
	3-4	8/17/2017	X	X					
BG4	0-0.5	8/17/2017	X	X					
	0.5-1	8/17/2017	X	X					
	1-1.5	8/17/2017	X	X					
	3-4	8/17/2017	X	X					

Notes:
1 - target-analyte-list (TAL) metals, excluding mercury
PFAS - perfluoroalkyl and polyfluoroalkyl substances
TOC - total organic carbon
VOCs - volatile organic compounds
SVOCs - semi-volatile organic compounds
PCBs - polychlorinated biphenyl

Table 3.3
Well Construction and Groundwater Analytical Sampling Summary
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Bennington, VT
Saint-Gobain Performance Plastics

Type	Well Name	Elevation (feet)[1]					Sample Date	Parameters						
		Ground Surface	Top of Riser	Top of Screen	Bottom of Screen	Groundwater		PFAS	Metals	VOCs	Ammonia	Ortho-phosphate	TKN	1,4-Dioxane
Bennington Landfill														
Shallow Soil Borings (Temporary Wells)	S16	910.3	--	908.37	903.37	908.37	9/21/2017	X	X	X	X	X	X	X
	S21	915.9	--	907.90	905.90	908.60	9/13/2017	X	X	X	X	X	X	X
	S24	948.0	--	945.01	940.01	943.01	9/19/2017	X	X	X	X	X	X	X
	S28	894.1	--	891.10	886.10	890.30	9/28/2017	X	X	X	X	X	X	X
Deep Soil Borings (Permanent Monitoring Wells)	SG3-MW17-01	914.8	917.79	910.76	903.76	See Table 3.14	10/20/2017	X	X	X	X	X	X	X
	SG3-MW17-02	916.1	918.89	911.06	901.06		10/24/2017	X	X	X	X	X	X	X
	SG3-MW17-03	978.1	980.54	973.08	958.08		10/24/2017	X	X	X	X	X	X	X
	SG3-MW17-04	954.7	957.07	819.72	809.72		10/26/2017	X	X	X	X	X	X	X
	SG3-MW17-06	929.6	931.95	909.59	899.59		10/24/2016	X	X	X	X	X	X	X
Bedrock Monitoring Wells	SG3-MW17-BR1	977.9	980.77	678.94	608.94	See Table 3.14	11/29/2017	X	X	X	X	X	X	X
							12/6/2017	X	X	X	X	X	X	X
	SG3-MW17-BR2[3]	956.8	959.01[3]	809.82	693.82		12/10/2017	X	X	X	X	X	X	X
							1/26/2018	X	X	X	X	X	X	X
	SG3-MW17-BR3[4]	945.9	947.61	830.27	671.77		1/4/2018	X	X	X	X	X	X	X
							1/10/2018	X	X	X	X	X	X	X
							1/25/2018	X	X	X	X	X	X	X
	SG3-MW17-BR4	894.3	896.46	505.14	446.84		12/17/2017	X	X	X	X	X	X	X
							12/21/2017	X	X	X	X	X	X	X
Existing Monitoring Well (Split Sampling)	B-2-1	915.3	917.80	912.36	906.36	908.95	5/25/2017	X	X	X	X	X	X	X
	B-2-2	915.5	917.24	897.39	892.39	908.57	5/25/2017	X	X	X	X	X	X	X
	B-4-3	990.0	991.41	786.58	771.58	NA	10/27/2017	X	X	X	X	X	X	X
	B-12	960.4	962.99	957.36	952.36	957.21	5/24/2017	X	X	X	X	X	X	X
	MW-07[2]	981.7	NA	NA	NA	955.8	5/24/2017	X	X	X	X	X	X	X
	MW-100S[2]	935.5	NA	920.5	915.5	934.0	5/24/2017	X	X	X	X	X	X	X
	VLT-01[2]	901.8	NA	NA	NA	NA	5/25/2017	X	X	X	X	X	X	X

Table 3.3
Well Construction and Groundwater Analytical Sampling Summary
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Type	Well Name	Elevation (feet)[1]					Sample Date	Parameters						
		Ground Surface	Top of Riser	Top of Screen	Bottom of Screen	Groundwater		PFAS	Metals	VOCs	Ammonia	Ortho-phosphate	TKN	1,4-Dioxane
Outside Bennington Landfill														
Shallow Soil Borings (Temporary Wells)	S01	717.4	--	713.43	708.43	711.63	9/5/2017	X	X		X	X	X	
	S03	732.8	--	727.81	722.81	725.51	9/8/2017	X	X		X	X	X	
	S04	1086.9	--	1081.87	1076.87	1080.77	9/6/2017	X	X		X	X	X	
	S08	776.2	--	773.24	768.24	769.14	9/8/2017	X	X		X	X	X	
	S10	961.2	--	958.17	953.17	957.27	8/23/2017	X	X		X	X	X	
	S34	573.0	--	570.00	565.00	569.80	9/11/2017	X	X		X	X	X	
	S37	862.9	--	862.90	858.70	861.10	8/24/2017	X	X		X	X	X	
	S41	587.8	--	581.77	577.77	581.87	8/15/2017	X	X		X	X	X	
	S42	779.1	--	774.15	769.15	770.15	8/16/2017	X						
	S49	916.5	--	911.51	906.51	910.21	9/12/2017	X	X		X	X	X	
Deep Soil Borings (Temporary and Permanent Monitoring Wells)	D03	645.3	--	641.33	636.33	639.53	8/29/2017	X	X		X	X	X	
	D13	642.6	--	637.60	632.60	635.30	9/6/2017	X	X		X	X	X	
	SG3-MW17-05	649.7	649.15	643.21	633.21	See Table 3.14	10/27/2017	X	X		X	X	X	
	SG3-MW17-07	680.9	682.89	625.93	605.93		10/25/2017	X	X		X	X	X	
	SG3-MW17-WWTP	565.1	567.45	540.07	530.07		10/23/2017	X	X		X	X	X	
Background Samples														
Background (Temporary Wells)	BG4	1883.6	--	1880.6	1875.6	1881.7	8/17/2017	X	X		X	X	X	

Notes:

1 - Elevations in NAVD88, feet

2 - Elevation is approximate, based on LiDAR contours

3 - Completed with open hole, no PVC screen or riser installed. Riser elevation shown in table is top of 6-inch steel casing. Discrete-interval groundwater samples were collected from well SG3-MW-BR2 at the following intervals:

165 - 175 feet bgs
199 - 219 feet bgs
243 - 265 feet bgs

4 - Initially completed with open hole. Collected discrete-interval sample from 131 - 160 ft bgs. Concerns regarding borehole collapse during discrete-interval sampling resulted in installation of 4" PVC well riser and screen. No additional discrete-interval samples were collected.

NA - Not available
PFAS - perfluoroalkyl and polyfluoroalkyl substances
VOCs - volatile organic compounds
TKN - total Kjeldahl nitrogen
Groundwater elevations shown correspond with sample date on table

Table 3.4
Analytical Parameters and Methods
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Parameter	Method
Metals - Water	
Aluminum	EPA 6010C/6020A
Antimony	EPA 6010C/6020A
Arsenic	EPA 6010C/6020A
Barium	EPA 6010C/6020A
Beryllium	EPA 6010C/6020A
Boron	EPA 6010C/6020A
Cadmium	EPA 6010C/6020A
Calcium *	EPA 6010C/6020A
Chromium	EPA 6010C/6020A
Cobalt	EPA 6010C/6020A
Copper	EPA 6010C/6020A
Cyanide	EPA 9012A
Iron *	EPA 6010C/6020A
Lead	EPA 6010C/6020A
Magnesium *	EPA 6010C/6020A
Manganese *	EPA 6010C/6020A
Mercury	EPA 7471
Nickel	EPA 6010C/6020A
Potassium *	EPA 6010C/6020A
Selenium	EPA 6010C/6020A
Silver	EPA 6010C/6020A
Sodium *	EPA 6010C/6020A
Thallium	EPA 6010C/6020A
Vanadium	EPA 6010C/6020A
Zinc	EPA 6010C/6020A
General Parameters - Water	
Ammonia	EPA 350.1
Orthophosphate	SM 4500P-E or EPA 300.0
Total Kjeldahl Nitrogen (TKN)	EPA 351.2
Perfluorinated Compounds - Water	
Perfluorobutanoic acid (PFBA)	EPA 537 Rev 1.1 M
Perfluorobutanesulfonate (PFBS)	EPA 537 Rev 1.1 M
Perfluorodecanoic acid (PFDA)	EPA 537 Rev 1.1 M
Perfluorododecanoic acid (PFDoA)	EPA 537 Rev 1.1 M
Perfluoroheptanoic acid (PFHpA)	EPA 537 Rev 1.1 M
Perfluorohexanoic acid (PFHxA)	EPA 537 Rev 1.1 M
Perfluorohexanesulfonate (PFHxS)	EPA 537 Rev 1.1 M
Perfluorononanoic acid (PFNA)	EPA 537 Rev 1.1 M
Perfluorooctanoic acid (PFOA)	EPA 537 Rev 1.1 M
Perfluorooctanesulfonic acid (PFOS)	EPA 537 Rev 1.1 M
Perfluoropentanoic acid (PFPA)	EPA 537 Rev 1.1 M
Perfluorotetradecanoic acid (PFTA)	EPA 537 Rev 1.1 M
Perfluorotridecanoic acid (PFTriA)	EPA 537 Rev 1.1 M
Perfluoroundecanoic acid (PFUnA)	EPA 537 Rev 1.1 M
Perfluorooctane sulfonamide (FOSA)	EPA 537 Rev 1.1 M
6:2 Fluorotelomer sulfonate	EPA 537 Rev 1.1 M
8:2 Fluorotelomer sulfonate	EPA 537 Rev 1.1 M
MeFOSAA	EPA 537 Rev 1.1 M

Table 3.4
Analytical Parameters and Methods
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Parameter	Method
Perfluorinated Compounds - Water *(continued)*	
EtFOSAA	EPA 537 Rev 1.1 M
PFC Precursors	Total Oxidizable Precursor (TOP) Assay
Anions - Water	
Bromide	EPA 300.0
Chloride	EPA 300.0
Nitrate	EPA 300.0/EPA 353.2
Nitrite	EPA 300.0/EPA 353.2
Sulfate	EPA 300.0
Carbonate	SM 2320B-97
Bicarbonate	SM 2320B-97
TCL VOCs - Water	
1,1,1-Trichloroethane	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
1,1-Dichloroethane	EPA 8260C
1,1-Dichloroethene	EPA 8260C
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4-Trichlorobenzene	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260C
1,2-Dibromoethane	EPA 8260C
1,2-Dichlorobenzene	EPA 8260C
1,2-Dichloroethane	EPA 8260C
1,2-Dichloropropane	EPA 8260C
1,3-Dichlorobenzene	EPA 8260C
1,4-Dichlorobenzene	EPA 8260C
2-Butanone	EPA 8260C
2-Hexanone	EPA 8260C
4-Methyl-2-pentanone	EPA 8260C
Acetone	EPA 8260C
Benzene	EPA 8260C
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
Bromoform	EPA 8260C
Bromomethane	EPA 8260C
Carbon Disulfide	EPA 8260C
Carbon Tetrachloride	EPA 8260C
Chlorobenzene	EPA 8260C
Chloroethane	EPA 8260C
Chloroform	EPA 8260C
Chloromethane	EPA 8260C
Cyclohexane	EPA 8260C
Dibromochloromethane	EPA 8260C
Dichlorodifluoromethane	EPA 8260C
Ethylbenzene	EPA 8260C
Freon 113	EPA 8260C
Isopropylbenzene	EPA 8260C
Methyl Acetate	EPA 8260C
Methyl Tertiary Butyl Ether	EPA 8260C

Table 3.4
Analytical Parameters and Methods
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Parameter	Method
TCL VOCs - Water *(continued)*	
Methylcyclohexane	EPA 8260C
Methylene Chloride	EPA 8260C
Styrene	EPA 8260C
Tetrachloroethene	EPA 8260C
Toluene	EPA 8260C
Trichloroethene	EPA 8260C
Trichlorofluoromethane	EPA 8260C
Vinyl Chloride	EPA 8260C
Xylene (Total)	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260C
m+p-Xylene	EPA 8260C
o-Xylene	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260C
SVOCs - Water	
1,4-Dioxane	SW-846 8270C SIM with isotope dilution
Metals - Soils	
Aluminum	EPA 6010C/6020A
Antimony	EPA 6010C/6020A
Arsenic	EPA 6010C/6020A
Barium	EPA 6010C/6020A
Beryllium	EPA 6010C/6020A
Cadmium	EPA 6010C/6020A
Calcium	EPA 6010C/6020A
Chromium	EPA 6010C/6020A
Cobalt	EPA 6010C/6020A
Copper	EPA 6010C/6020A
Iron	EPA 6010C/6020A
Lead	EPA 6010C/6020A
Magnesium	EPA 6010C/6020A
Manganese	EPA 6010C/6020A
Mercury	EPA 7471
Nickel	EPA 6010C/6020A
Potassium	EPA 6010C/6020A
Selenium	EPA 6010C/6020A
Silver	EPA 6010C/6020A
Sodium	EPA 6010C/6020A
Thallium	EPA 6010C/6020A
Vanadium	EPA 6010C/6020A
Zinc	EPA 6010C/6020A
SVOCs - Soils	
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,4-Dioxane (P-Dioxane)	EPA 8270D
2,3,4,6-Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D

Table 3.4
Analytical Parameters and Methods
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Parameter	Method
SVOCs - Soils *(continued)*	
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2,4-Dinitrotoluene	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
2-Chlorophenol	EPA 8270D
2-Methylnaphthalene	EPA 8270D
2-Methylphenol (O-Cresol)	EPA 8270D
2-Nitroaniline	EPA 8270D
2-Nitrophenol	EPA 8270D
3,3'-Dichlorobenzidine	EPA 8270D
3-Nitroaniline	EPA 8270D
4,6-Dinitro-2-Methylphenol	EPA 8270D
4-Bromophenyl Phenyl Ether	EPA 8270D
4-Chloro-3-Methylphenol	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Chlorophenyl Phenyl Ether	EPA 8270D
4-Methylphenol (P-Cresol)	EPA 8270D
4-Nitroaniline	EPA 8270D
4-Nitrophenol	EPA 8270D
Acenaphthene	EPA 8270D
Acenaphthylene	EPA 8270D
Acetophenone	EPA 8270D
Anthracene	EPA 8270D
Atrazine	EPA 8270D
Benzaldehyde	EPA 8270D
Benzo(a)Anthracene	EPA 8270D
Benzo(a)Pyrene	EPA 8270D
Benzo(b)Fluoranthene	EPA 8270D
Benzo(g,h,i)perylene	EPA 8270D
Benzo(k)Fluoranthene	EPA 8270D
Benzyl Butyl Phthalate	EPA 8270D
Biphenyl (Diphenyl)	EPA 8270D
Bis(2-Chloroethoxy) Methane	EPA 8270D
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	EPA 8270D
Bis(2-Chloroisopropyl) Ether	EPA 8270D
Bis(2-Ethylhexyl) Phthalate	EPA 8270D
Caprolactam	EPA 8270D
Carbazole	EPA 8270D
Chrysene	EPA 8270D
Dibenz(a,h)Anthracene	EPA 8270D
Dibenzofuran	EPA 8270D
Diethyl Phthalate	EPA 8270D
Dimethyl Phthalate	EPA 8270D
Di-N-Butyl Phthalate	EPA 8270D
Di-N-Octylphthalate	EPA 8270D
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D

Table 3.4
Analytical Parameters and Methods
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Parameter	Method
SVOCs - Soils *(continued)*	
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D
Indeno(1,2,3-c,d)Pyrene	EPA 8270D
Isophorone	EPA 8270D
Naphthalene	EPA 8270D
Nitrobenzene	EPA 8270D
N-Nitrosodi-N-Propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenanthrene	EPA 8270D
Phenol	EPA 8270D
Pyrene	EPA 8270D
PCB Homologues	EPA 1668
VOCs - Soils	
1,1,1-Trichloroethane	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
1,1-Dichloroethane	EPA 8260C
1,1-Dichloroethene	EPA 8260C
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4-Trichlorobenzene	EPA 8260C
1,2-Dibromo-3-Chloropropane	EPA 8260C
1,2-Dibromoethane (Ethylene Dibromide)	EPA 8260C
1,2-Dichlorobenzene	EPA 8260C
1,2-Dichloroethane	EPA 8260C
1,2-Dichloropropane	EPA 8260C
1,3-Dichlorobenzene	EPA 8260C
1,4-Dichlorobenzene	EPA 8260C
2-Hexanone	EPA 8260C
Acetone	EPA 8260C
Benzene	EPA 8260C
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
Bromoform	EPA 8260C
Bromomethane	EPA 8260C
Carbon Disulfide	EPA 8260C
Carbon Tetrachloride	EPA 8260C
Chlorobenzene	EPA 8260C
Chloroethane	EPA 8260C
Chloroform	EPA 8260C
Chloromethane	EPA 8260C
Cis-1,2-Dichloroethylene	EPA 8260C
Cis-1,3-Dichloropropene	EPA 8260C
Cyclohexane	EPA 8260C
Dibromochloromethane	EPA 8260C

Table 3.4
Analytical Parameters and Methods
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Parameter	Method
VOCs - Soils *(continued)*	
Ethylbenzene	EPA 8260C
Isopropylbenzene (Cumene)	EPA 8260C
m,p-Xylene	EPA 8260C
Methyl Acetate	EPA 8260C
Methyl Ethyl Ketone (2-Butanone)	EPA 8260C
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	EPA 8260C
Methylcyclohexane	EPA 8260C
Methylene Chloride	EPA 8260C
O-Xylene (1,2-Dimethylbenzene)	EPA 8260C
Styrene	EPA 8260C
Tert-Butyl Methyl Ether	EPA 8260C
Tetrachloroethylene (PCE)	EPA 8260C
Toluene	EPA 8260C
Trans-1,2-Dichloroethene	EPA 8260C
Trans-1,3-Dichloropropene	EPA 8260C
Trichloroethylene (TCE)	EPA 8260C
Trichlorofluoromethane	EPA 8260C
Vinyl Chloride	EPA 8260C
General Parameters - Soils	
Total Organic Carbon (TOC)	SM 5310B-00 (M)
Moisture content	SM 2540G-97
pH	EPA 9045D
Perfluorinated Compounds - Soils	
Perfluorobutanoic acid (PFBA)	EPA 537 Rev 1.1 M
Perfluorobutanesulfonate (PFBS)	EPA 537 Rev 1.1 M
Perfluorodecanoic acid (PFDA)	EPA 537 Rev 1.1 M
Perfluorododecanoic acid (PFDoA)	EPA 537 Rev 1.1 M
Perfluoroheptanoic acid (PFHpA)	EPA 537 Rev 1.1 M
Perfluorohexanoic acid (PFHxA)	EPA 537 Rev 1.1 M
Perfluorohexanesulfonate (PFHxS)	EPA 537 Rev 1.1 M
Perfluorononanoic acid (PFNA)	EPA 537 Rev 1.1 M
Perfluorooctanoic acid (PFOA)	EPA 537 Rev 1.1 M
Perfluorooctanesulfonic acid (PFOS)	EPA 537 Rev 1.1 M
Perfluoropentanoic acid (PFPA)	EPA 537 Rev 1.1 M
Perfluorotetradecanoic acid (PFTA)	EPA 537 Rev 1.1 M
Perfluorotridecanoic acid (PFTriA)	EPA 537 Rev 1.1 M
Perfluoroundecanoic acid (PFUnA)	EPA 537 Rev 1.1 M

* Cations

Table 3.5
Analytical Soil Results - Background
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		BG1	BG1	BG1	BG1	BG1	BG2		BG2	BG2	BG2	BG2	BG3	BG3	BG3	BG3		BG4	BG4	BG4	BG4
Sample Date		8/18/2017	8/18/2017	8/18/2017	8/18/2017	8/18/2017	8/23/2017		8/23/2017	8/23/2017	8/23/2017	8/23/2017	8/17/2017	8/17/2017	8/17/2017	8/17/2017		8/17/2017	8/17/2017	8/17/2017	8/17/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	3-4 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft
Sample Type		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	FD	N	N	N	N
Parameter	Units																				
General Parameters																					
Carbon, total organic	mg/kg	**9630**	**4190**	**2980**	**495 J**	**3280**	**58000 J**	**48200 J**	**52900 J**	**32500 J**	**1210 J**	**319 J**	**8790**	**3920**	**3970**	**7340**	**6580 J**	**32800**	**15500**	**5920**	**825**
Moisture	%	**14.4**	**11.5**	**14.9**	**16.2**	**13.1**	**48.6 J**	**40.6 J**	**41.8 J**	**31.8 J**	**9.2 J**	**8.3 J**	**11.6**	**8.7**	**6.1**	**9.8**	**9.4 J**	**43.1**	**31.0**	**20.6**	**12.2**
pH	pH units	**6.15**	**6.45**	**6.61**	**8.03**	**8.13**	**5.26**	**5.08**	**4.93**	**4.88**	**5.09**	**6.30**	**5.47**	**5.36**	**5.67**	**5.68**	**5.72**	**5.42**	**5.59**	**6.05**	**7.14**
Per- and Polyfluoroalkyl Substances																					
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	**0.35 J**	**0.28 J**	**0.30 J**	< 0.22 U	< 0.23 U	**0.81 J**	**0.75 J**	**0.46 J**	**0.30 J**	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	**0.29 J**	**0.65 J**	**0.38 J**	< 0.24 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.23 U	< 0.21 U	**0.32 J**	< 0.22 U	< 0.23 U	**0.76 J**	**0.55 J**	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 UJ	**0.14 J**	< 0.11 U	< 0.12 U	**0.52 J**	**0.43 J**	**0.21 J**	< 0.14 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.26 J**	**0.15 J**	< 0.12 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	**0.25 J**	< 0.11 U	< 0.11 UJ	< 0.11 U	< 0.12 U	**0.49 J**	**0.46 J**	< 0.16 U	< 0.14 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.14 J**	**0.40 J**	< 0.14 U	< 0.12 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.50 J**	< 0.32 U	< 0.34 U	< 0.33 U	< 0.35 U	**1.1 J**	**1.2 J**	< 0.49 U	< 0.41 U	< 0.32 U	< 0.32 U	< 0.31 U	< 0.32 U	< 0.32 U	< 0.33 U	**0.34 J**	**1.1 J**	**0.42 J**	< 0.36 U	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.68 J**	**2.0**	**3.3 J**	< 0.22 U	**0.92**	**7.2 J**	**4.5 J**	**2.9**	**1.1**	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	**0.37 J**	**0.73**	**2.4**	**1.1**	< 0.24 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.23 UJ	< 0.21 UJ	< 0.23 UJ	< 0.22 UJ	< 0.23 UJ	< 0.37 UJ	< 0.33 UJ	< 0.33 UJ	< 0.27 UJ	< 0.22 UJ	< 0.21 U	< 0.21 UJ	< 0.21 UJ	< 0.21 UJ	< 0.22 UJ	< 0.22 UJ	< 0.34 UJ	< 0.28 UJ	< 0.24 U	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.37 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.34 U	< 0.28 U	< 0.24 U	< 0.21 U

Table 3.6
Analytical Shallow Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S01	S01	S01	S01	S01	S02	S02	S02	S02	S02	S02	S02	S03	S03	S03	S03	S03	S04	S04	S04	S04
Sample Date		9/05/2017	9/05/2017	9/05/2017	9/05/2017	9/05/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/12/2017	9/12/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0.5-1 ft	1-1.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.6-7.6 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																					
General Parameters																						
Carbon, total organic	mg/kg	**12000 J**	**4210**	**9530**	**628 J**	**791 J**	**19700**	**15000**	**32600**	**1750**	**3230**	**45700 J**	**21200 J**	**13900**	**12800**	**12000**	**5400**	**8280**	**15200**	**11700**	**8630**	**2540**
pH	pH units	**7.92**	**8.33**	**7.89**	**7.89**	**8.09**	**7.76**	**8.36**	**8.44**	**9.10**	**8.77**	--	--	**8.00**	**7.97**	**8.00**	**8.29**	**7.92**	**7.97**	**7.51**	**7.85**	**7.62**
Per- and Polyfluoroalkyl Substances																						
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	**0.34 J**	--	--	< 0.26 U	**0.34 J**	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	**0.43 J**	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.097 U	< 0.10 U	--	--	< 0.13 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.12 U	**0.18 J**	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.097 U	< 0.10 U	--	--	**0.22 J**	**0.23 J**	**0.18 J**	< 0.12 U	< 0.11 U	< 0.11 U	**0.17 J**	< 0.11 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.34 U	< 0.30 U	**0.50 J**	< 0.31 U	< 0.31 U	< 0.34 U	< 0.30 U	< 0.30 U	< 0.29 U	< 0.30 U	--	--	**0.76 J**	**1.0 J**	**0.84 J**	< 0.37 U	< 0.33 U	< 0.32 U	**0.72 J**	**0.39 J**	< 0.30 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.23 U	**0.23 J**	**1.5**	**0.48 J**	**0.27 J**	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	**2.0**	**2.8**	**2.4**	**0.86**	**0.78**	**0.41 J**	**1.7**	**2.2**	< 0.20 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.23 UJ	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 UJ	< 0.23 UJ	< 0.20 UJ	< 0.20 U	< 0.19 UJ	< 0.20 UJ	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 UJ	< 0.23 UJ	< 0.22 U	< 0.20 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U

Table 3.7
Analytical Shallow and Deep Boring Soil Results - SVOC, VOC, Pesticide and PCB
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D20	S02	S02
Sample Date		9/19/2017	9/12/2017	9/12/2017
Depth		78-79 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N
Parameter	Units			
SVOCs				
1,2,4,5-Tetrachlorobenzene	ug/kg	< 21 U	< 190 U	< 180 U
1,4-Dioxane	ug/kg	< 130 U	< 1100 U	< 1100 U
2,2'-oxybis (1-chloropropane)	ug/kg	< 21 U	< 190 U	< 180 U
2,3,4,6-Tetrachlorophenol	ug/kg	< 84 U	< 740 U	< 710 U
2,4,5-Trichlorophenol	ug/kg	< 21 U	< 190 U	< 180 U
2,4,6-Trichlorophenol	ug/kg	< 21 U	< 190 U	< 180 U
2,4-Dichlorophenol	ug/kg	< 21 U	< 190 U	< 180 U
2,4-Dimethylphenol	ug/kg	< 21 U	< 190 U	< 180 U
2,4-Dinitrophenol	ug/kg	< 380 U	< 3300 U	< 3200 U
2,4-Dinitrotoluene	ug/kg	< 84 U	< 740 U	< 710 U
2,6-Dinitrotoluene	ug/kg	< 21 U	< 190 U	< 180 U
2-Chloronaphthalene	ug/kg	< 8 U	< 74 U	< 71 U
2-Chlorophenol	ug/kg	< 21 U	< 190 U	< 180 U
2-Methyl-4,6-dinitrophenol	ug/kg	< 210 U	< 1900 U	< 1800 U
2-Methylnaphthalene	ug/kg	< 4 U	< 37 U	**670**
2-Methylphenol (o-cresol)	ug/kg	< 21 U	< 190 U	< 180 U
2-Nitroaniline	ug/kg	< 21 U	< 190 U	< 180 U
2-Nitrophenol	ug/kg	< 21 U	< 190 U	< 180 U
3,3`-Dichlorobenzidine	ug/kg	< 130 U	< 1100 U	< 1100 U
3-Nitroaniline	ug/kg	< 84 U	< 740 U	< 710 U
4-Bromophenyl phenyl ether	ug/kg	< 21 U	< 190 U	< 180 U
4-Chloro-3-methylphenol	ug/kg	< 21 U	< 190 U	< 180 U
4-Chloroaniline	ug/kg	< 42 U	< 370 U	< 360 U
4-Chlorophenyl phenyl ether	ug/kg	< 21 U	< 190 U	< 180 U
4-Methylphenol (p-cresol)	ug/kg	< 21 U	< 190 U	< 180 U
4-Nitroaniline	ug/kg	< 84 U	< 740 U	< 710 U
4-Nitrophenol	ug/kg	< 210 U	< 1900 U	< 1800 U
Acenaphthene	ug/kg	< 4 U	< 37 U	**220**
Acenaphthylene	ug/kg	< 4 U	< 37 U	< 36 U
Acetophenone	ug/kg	< 21 U	< 190 U	< 180 U
Anthracene	ug/kg	< 4 U	< 37 U	< 36 U
Atrazine	ug/kg	< 42 U	< 370 U	< 360 U
Benz(a)anthracene	ug/kg	< 4 U	< 37 U	< 36 U
Benzaldehyde	ug/kg	< 84 U	< 740 U	< 710 U
Benzo(a)pyrene	ug/kg	< 4 U	< 37 U	< 36 U
Benzo(b)fluoranthene	ug/kg	< 4 U	< 37 U	< 36 U
Benzo(g,h,i)perylene	ug/kg	< 4 U	**460**	< 36 U
Benzo(k)fluoranthene	ug/kg	< 4 U	< 37 U	< 36 U
Biphenyl	ug/kg	< 21 U	< 190 U	< 180 U
Bis(2-chloroethoxy)methane	ug/kg	< 21 U	< 190 U	< 180 U
Bis(2-chloroethyl)ether	ug/kg	< 21 U	< 190 U	< 180 U
Bis(2-ethylhexyl)phthalate	ug/kg	< 84 U	< 740 U	< 710 U
Butyl benzyl phthalate	ug/kg	< 84 U	< 740 U	< 710 U
Caprolactam	ug/kg	< 42 U	< 370 U	< 360 U
Carbazole	ug/kg	< 21 U	< 190 U	< 180 U
Chrysene	ug/kg	< 4 U	**460**	**280**
Dibenz(a,h)anthracene	ug/kg	< 4 U	**170 J**	< 36 U
Dibenzofuran	ug/kg	< 21 U	< 190 U	< 180 U
Diethyl phthalate	ug/kg	< 84 U	< 740 U	< 710 U

Table 3.7
Analytical Shallow and Deep Boring Soil Results - SVOC, VOC, Pesticide and PCB
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D20	S02	S02
Sample Date		9/19/2017	9/12/2017	9/12/2017
Depth		78-79 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N
Parameter	Units			
SVOCs *(continued)*				
Dimethyl phthalate	ug/kg	< 84 U	< 740 U	< 710 U
Di-n-butyl phthalate	ug/kg	< 84 U	< 740 U	< 710 U
Di-n-octyl phthalate	ug/kg	< 84 U	< 740 U	< 710 U
Fluoranthene	ug/kg	< 4 U	**310**	**91 J**
Fluorene	ug/kg	< 4 U	< 37 U	**180 J**
Hexachlorobenzene	ug/kg	< 4 U	< 37 U	< 36 U
Hexachlorobutadiene	ug/kg	< 21 U	< 190 U	< 180 U
Hexachlorocyclopentadiene	ug/kg	< 210 U	< 1900 U	< 1800 U
Hexachloroethane	ug/kg	< 42 U	< 370 U	< 360 U
Indeno(1,2,3-cd)pyrene	ug/kg	< 4 U	< 37 U	< 36 U
Isophorone	ug/kg	< 21 U	< 190 U	< 180 U
Naphthalene	ug/kg	< 4 U	< 37 U	< 36 U
Nitrobenzene	ug/kg	< 21 U	< 190 U	< 180 U
n-Nitrosodi-n-propylamine	ug/kg	< 21 U	< 190 U	< 180 U
n-Nitrosodiphenylamine	ug/kg	< 21 U	< 190 U	< 180 U
Pentachlorophenol	ug/kg	< 42 U	< 370 U	< 360 U
Phenanthrene	ug/kg	< 4 U	**110 J**	**400**
Phenol	ug/kg	< 21 U	< 190 U	< 180 U
Pyrene	ug/kg	< 4 U	**380**	**200**
VOCs				
1,1,1-Trichloroethane	ug/kg	< 1 U	< 46 U	< 39 U
1,1,2,2-Tetrachloroethane	ug/kg	< 1 U	< 46 U	< 39 U
1,1,2-Trichloroethane	ug/kg	< 1 U	< 46 U	< 39 U
1,1-Dichloroethane	ug/kg	< 1 U	< 46 U	< 39 U
1,1-Dichloroethylene	ug/kg	< 1 U	< 46 U	< 39 U
1,2,3-Trichlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
1,2,4-Trichlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 2 U	< 93 U	< 78 U
1,2-Dibromoethane (EDB)	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dichlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dichloroethane	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dichloroethylene, cis	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dichloroethylene, trans	ug/kg	< 1 U	< 46 U	< 39 U
1,2-Dichloropropane	ug/kg	< 1 U	< 46 U	< 39 U
1,3-Dichlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
1,3-Dichloropropene, cis	ug/kg	< 1 U	< 46 U	< 39 U
1,3-Dichloropropene, trans	ug/kg	< 1 U	< 46 U	< 39 U
1,4-Dichlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
2-Hexanone	ug/kg	< 3 U	< 140 U	< 120 U
Acetone	ug/kg	**20**	< 320 U	< 270 U
Benzene	ug/kg	**1 J**	< 23 U	< 20 U
Bromochloromethane	ug/kg	< 1 U	< 46 U	< 39 U
Bromodichloromethane	ug/kg	< 1 U	< 46 U	< 39 U
Bromoform	ug/kg	< 1 U	< 46 U	< 39 U
Bromomethane	ug/kg	< 2 U	< 93 U	< 78 U
Carbon disulfide	ug/kg	< 1 U	< 46 U	< 39 U
Carbon tetrachloride	ug/kg	< 1 U	< 46 U	< 39 U
Chlorobenzene	ug/kg	< 1 U	< 46 U	< 39 U
Chlorodibromomethane	ug/kg	< 1 U	< 46 U	< 39 U

Table 3.7
Analytical Shallow and Deep Boring Soil Results - SVOC, VOC, Pesticide and PCB
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D20	S02	S02
Sample Date		9/19/2017	9/12/2017	9/12/2017
Depth		78-79 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N
Parameter	Units			
VOCs *(continued)*				
Chloroethane	ug/kg	< 2 U	< 93 U	< 78 U
Chloroform	ug/kg	< 1 U	< 46 U	< 39 U
Chloromethane	ug/kg	< 2 U	< 93 U	< 78 U
Cumene (isopropyl benzene)	ug/kg	< 1 U	< 46 U	< 39 U
Cyclohexane	ug/kg	< 1 U	< 46 U	**190 J**
Dichlorodifluoromethane (Freon-12)	ug/kg	< 2 U	< 93 U	< 78 U
Ethyl benzene	ug/kg	< 1 U	< 46 U	< 39 U
Methyl acetate	ug/kg	< 2 U	**100 J**	< 78 U
Methyl ethyl ketone (2-butanone)	ug/kg	< 4 U	< 190 U	< 160 U
Methyl isobutyl ketone (MIBK)	ug/kg	< 3 U	< 140 U	< 120 U
Methyl tertiary butyl ether (MTBE)	ug/kg	< 0.5 U	< 23 U	< 20 U
Methylcyclohexane	ug/kg	< 1 U	**220 J**	**1200**
Methylene chloride	ug/kg	< 2 U	< 93 U	< 78 U
Styrene	ug/kg	< 1 U	< 46 U	< 39 U
Tetrachloroethylene	ug/kg	< 1 U	< 46 U	< 39 U
Toluene	ug/kg	**1 J**	< 46 U	< 39 U
Trichloroethylene (TCE)	ug/kg	< 1 U	< 46 U	< 39 U
Trichlorofluoromethane (Freon-11)	ug/kg	< 2 U	< 93 U	< 78 U
Trichlorotrifluoroethane (Freon 113)	ug/kg	< 2 U	< 93 U	< 78 U
Vinyl chloride	ug/kg	< 1 U	< 46 U	< 39 U
Xylene, m & p	ug/kg	< 1 U	< 46 U	**52 J**
Xylene, o	ug/kg	< 1 U	< 46 U	**89 J**
Pesticides				
4,4'-DDD	ug/kg	< 0.42 U	**1.7 JN**	**0.74 JN**
4,4'-DDE	ug/kg	< 0.42 U	**0.45 JN**	< 0.36 U
4,4'-DDT	ug/kg	< 0.45 U	**0.42 J**	< 0.39 R
a-BHC	ug/kg	< 0.21 U	< 0.19 U	< 0.18 U
Aldrin	ug/kg	< 0.21 U	< 0.19 U	< 0.18 U
b-BHC	ug/kg	< 0.38 U	< 0.33 U	< 0.32 U
Chlordane, cis (alpha)	ug/kg	< 0.21 U	**0.38 J**	< 0.18 U
Chlordane, trans (gamma)	ug/kg	< 0.31 U	< 0.31 U	< 0.27 U
d-BHC	ug/kg	< 0.57 U	< 0.50 U	< 0.49 U
Dieldrin	ug/kg	< 0.42 U	< 0.37 U	< 0.36 U
Endosulfan I	ug/kg	< 0.28 U	< 0.24 U	< 0.24 U
Endosulfan II	ug/kg	< 0.42 U	< 0.37 U	< 0.36 U
Endosulfan sulfate	ug/kg	< 0.85 UB	< 0.37 U	< 0.36 U
Endrin	ug/kg	< 0.43 U	< 0.38 U	< 0.37 U
Endrin aldehyde	ug/kg	< 0.42 U	< 0.37 U	**0.84 J**
Endrin ketone	ug/kg	< 0.76 U	< 0.66 U	< 0.65 U
g-BHC (Lindane)	ug/kg	< 0.21 U	< 0.19 U	< 0.18 U
Heptachlor	ug/kg	< 0.21 U	**0.28 J**	< 0.18 U
Heptachlor epoxide	ug/kg	< 0.21 U	< 0.19 U	< 0.18 U
Methoxychlor	ug/kg	< 2.1 U	< 1.9 U	< 1.8 U
Toxaphene	ug/kg	< 18 U	< 16 U	< 15 U

Table 3.7
Analytical Shallow and Deep Boring Soil Results - SVOC, VOC, Pesticide and PCB
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D20	S02	S02
Sample Date		9/19/2017	9/12/2017	9/12/2017
Depth		78-79 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N
Parameter	Units			
PCBs				
Aroclor 1016	ug/kg	< 4.5 U	< 4.0 U	< 3.9 U
Aroclor 1221	ug/kg	< 5.8 U	< 5.1 U	< 5.0 U
Aroclor 1232	ug/kg	< 10 U	< 8.9 U	< 8.6 U
Aroclor 1242	ug/kg	< 4.2 U	< 3.7 U	< 3.6 U
Aroclor 1248	ug/kg	< 4.2 U	< 3.7 UJ	< 3.6 UJ
Aroclor 1254	ug/kg	< 4.2 U	< 3.7 UJ	< 3.6 UJ
Aroclor 1260	ug/kg	< 6.2 U	< 5.4 UJ	< 5.3 UJ
Aroclor 1262	ug/kg	< 4.2 U	< 3.7 UJ	< 3.6 UJ
Aroclor 1268	ug/kg	< 4.2 U	< 3.7 UJ	< 3.6 UJ

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D01	D01	D01	D01	D01	D01	D01	D01	D02	D02	D02	D02	D03	D03	D03	D03	D03
Sample Date		9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	12-13 ft	18-19 ft	28-29 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**32000**	**2430**	**6190**	**17600**	**6070**	**51800**	**17700**	**3330**	**32100 J**	**11500 J**	**3680 J**	**3700 J**	**6840**	**5320**	**3070**	**1950**	**6070**
pH	pH units	**8.31**	**8.73**	**7.81**	**8.16**	**8.10**	**8.98**	**9.01**	**8.51**	**7.85**	**8.07**	**7.79**	**8.27**	**9.29**	**8.73**	**8.70**	**8.37**	**8.95**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 UJ	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.099 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.093 U	< 0.10 U	< 0.093 U	< 0.10 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.099 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.099 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.093 U	< 0.10 U	< 0.093 U	< 0.10 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.099 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.30 U	< 0.32 U	< 0.33 U	< 0.32 U	< 0.37 U	< 0.29 U	< 0.31 U	< 0.34 U	< 0.28 U	< 0.31 U	< 0.28 U	< 0.31 U	< 0.30 U	**0.72 J**	< 0.29 U	< 0.30 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	**0.72**	**0.96**	**0.30 J**	**0.30 J**	< 0.20 U	< 0.20 U	< 0.20 U	**0.30 J**	**0.33 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 UJ	< 0.21 U	< 0.22 UJ	< 0.21 UJ	< 0.24 UJ	< 0.19 UJ	< 0.21 UJ	< 0.22 UJ	< 0.19 UJ	< 0.21 UJ	< 0.19 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D03	D03	D05	D05	D05	D05	D05	D05	D05	D06	D06	D06	D06	D06	D07	D07	D07
Sample Date		8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/08/2017	9/08/2017	9/08/2017
Depth		12-13 ft	15-16 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	16-17 ft	26-27 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**4160**	**3040**	**33300**	**13100**	**22600**	**5510**	< 177 U	**1190**	**1730**	**16000**	**16000**	**16900 J**	**30000 J**	**7390**	**31900**	**16100**	**3210**
pH	pH units	**7.93**	**7.78**	**7.80**	**7.84**	**7.84**	**8.05**	**7.49**	**7.64**	**7.71**	**8.43**	**8.33**	**8.64**	**8.69**	**8.50**	**7.62**	**7.61**	**7.83**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.22 U	**0.35 J**	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	**0.20 J**	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	**0.29 J**	< 0.23 U	< 0.23 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.099 U	< 0.11 U	**0.20 J**	**0.11 J**	**0.21 J**	< 0.12 U	< 0.11 U	< 0.097 U	< 0.10 U	< 0.11 U	< 0.091 U	< 0.076 U	< 0.078 U	< 0.086 U	< 0.14 U	< 0.11 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.099 U	< 0.11 U	**0.34 J**	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.097 U	< 0.10 U	< 0.11 U	< 0.091 U	< 0.076 U	< 0.078 U	< 0.086 U	**0.21 J**	**0.27 J**	< 0.12 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.30 U	< 0.32 U	**0.64 J**	< 0.32 U	< 0.34 U	< 0.35 U	< 0.34 U	< 0.29 U	< 0.31 U	< 0.32 U	**0.38 J**	< 0.23 U	< 0.23 U	< 0.26 U	**0.73 J**	**0.88 J**	< 0.35 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.22 U	**7.2**	**3.1**	**5.2**	**2.1**	**0.91**	**0.24 J**	< 0.21 U	**0.24 J**	**0.22 J**	**0.16 J**	< 0.16 U	< 0.17 U	< 0.28 U	**0.55 J**	**0.39 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 UJ	< 0.17 U	< 0.28 UJ	< 0.23 UJ	< 0.23 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.28 U	< 0.23 U	< 0.23 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.22 U	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	**0.53 J**	< 0.23 U	< 0.23 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07
Sample Date		9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/09/2017	9/09/2017	9/09/2017	9/09/2017	9/09/2017	9/10/2017	9/10/2017	9/10/2017	9/10/2017	9/11/2017
Depth		3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	77-78 ft	86-87 ft	98-99 ft	107-108 ft	118-119 ft	128-129 ft	138-139 ft	148-149 ft	158-159 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 161 U	< 233 U	**1790**	**1050**	< 501 U	< 216 U	< 305 U	**3390 J**	**250 J**	**190 J**	< 127 U	**213 J**	**140 J**	< 129 U	< 119 U	< 125 U	**144 J**
pH	pH units	**8.42**	**7.74**	**8.79**	**8.86**	**8.70**	**8.57**	**8.70**	**8.54**	**8.20**	**8.14**	**8.02**	**7.92**	**7.89**	**7.79**	**7.93**	**7.84**	**7.52**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 UJ	< 0.21 UJ	< 0.23 U	< 0.21 UJ	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 UJ
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.32 U	< 0.31 U	< 0.30 U	< 0.29 U	< 0.32 U	< 0.31 U	< 0.34 U	< 0.31 U	< 0.31 U	< 0.33 U	< 0.32 U	< 0.33 U	< 0.34 U	< 0.34 U	< 0.32 U	< 0.30 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.21 UJ	< 0.21 UJ	< 0.20 UJ	< 0.20 UJ	< 0.21 UJ	< 0.21 UJ	< 0.23 UJ	< 0.21 UJ	< 0.21 UJ	< 0.22 UJ	< 0.21 UJ	< 0.22 UJ	< 0.23 UJ	< 0.23 U	< 0.21 U	< 0.20 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D07	D07	D07	D07	D08	D08	D08		D08	D08	D08	D09	D09	D09	D09	D09	D09
Sample Date		9/11/2017	9/11/2017	9/11/2017	9/11/2017	9/22/2017	9/22/2017	9/22/2017		9/22/2017	9/22/2017	9/22/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017
Depth		168-169 ft	178-179 ft	188-189 ft	198-199 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1-1.5 ft	3-5 ft	7-8 ft	10-11 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	14-15 ft
Sample Type		N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 168 U	**322 J**	**319 J**	**227 J**	**19200**	**5740**	**20700 J**	**36300 J**	**26800 J**	**19800 J**	**19000 J**	**31200**	**8740**	**10600 J**	**1180**	**12600**	**20400**
pH	pH units	**7.94**	**7.87**	**7.89**	**7.85**	**7.77**	**7.82**	**8.08**	**8.07**	**8.73**	**8.70**	**8.55**	**7.48**	**7.37**	**7.77**	**7.51**	**7.55**	**8.84**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.25 UJ	< 0.25 UJ	**0.69 J**	< 0.24 UJ	**1.4 J**	**1.1 J**	< 0.87 U	**1.2 J**	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.25 UJ	< 0.25 U	< 0.24 UJ	< 0.24 UJ	**2.6**	**1.7 J**	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	**1.3 J**	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.25 UJ	< 0.25 U	< 0.24 UJ	< 0.24 UJ	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 UJ	< 0.12 U	**0.79 J**	< 0.12 UJ	< 0.43 U	< 0.54 U	< 0.43 U	< 0.50 U	< 0.39 U	< 0.41 U	< 0.40 U	< 0.10 U	< 0.10 U	< 0.085 U	< 0.085 U	< 0.099 U	< 0.095 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 UJ	< 0.12 U	< 0.12 UJ	< 0.12 U	**1.4 J**	**0.86 J**	< 0.43 U	< 0.50 U	< 0.39 U	< 0.41 U	< 0.40 U	< 0.10 U	< 0.10 U	**0.26 J**	< 0.085 U	< 0.099 U	< 0.095 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.37 U	< 0.37 U	< 0.37 U	< 0.36 U	**8.3**	**4.8 J**	< 1.3 U	**1.8 J**	**1.2 J**	**1.4 J**	< 1.2 U	**0.32 J**	**0.94 J**	**2.7 J**	< 0.26 U	< 0.30 U	< 0.28 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.25 UJ	< 0.25 U	**0.98 J**	< 0.24 UJ	**3.4**	**2.4 J**	**1.5 J**	**3.0**	**1.3 J**	**1.2 J**	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	**0.37 J**	**0.47 J**	**0.29 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.25 UJ	< 0.25 UJ	< 0.24 UJ	< 0.24 UJ	< 0.87 UJ	< 1.1 UJ	< 0.87 UJ	< 1.0 UJ	< 0.78 U	< 0.82 UJ	< 0.80 UJ	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D09	D09	D09	D09	D09	D10	D10	D10		D10	D10	D10	D10	D10	D10	D10	D10
Sample Date		10/16/2017	10/16/2017	10/16/2017	10/17/2017	10/17/2017	10/07/2017	10/07/2017	10/07/2017		10/07/2017	10/07/2017	10/07/2017	10/07/2017	10/08/2017	10/08/2017	10/08/2017	10/08/2017
Depth		28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**5290**	**376**	**303 J**	**346**	**3270 J**	**34500 J**	**11900 J**	**12300 J**	**18300 J**	**26100 J**	**2960 J**	**1550 J**	**1350 J**	**3770**	**1760**	**1160**	**1310**
pH	pH units	**8.69**	**8.25**	**8.82**	**8.00**	**8.49**	**7.98**	**7.97**	**8.17**	**8.15**	**7.98**	**8.77**	**8.27**	**8.39**	**8.31**	**8.32**	**8.30**	**8.33**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	**0.28 J**	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	**1.2**	**1.8**	**4.6**	**3.8**	**17**	**0.31 J**	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	**1.1**	**1.2**	**2.8**	**2.8**	**5.3 J**	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	**0.17 J**	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.076 U	< 0.090 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.074 U	**0.13 J**	< 0.099 U	**0.14 J**	< 0.094 U	< 0.098 U	< 0.099 U	< 0.096 U	< 0.10 U	< 0.078 U	< 0.084 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.076 U	< 0.090 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.10 U	**0.14 J**	**0.42**	**0.39 J**	**2.4 J**	< 0.094 U	< 0.098 U	< 0.099 U	< 0.096 U	< 0.10 U	< 0.078 U	< 0.084 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.23 U	< 0.27 U	< 0.29 U	< 0.30 U	< 0.32 U	**1.7**	**2.1**	**5.7**	**5.3**	**16**	< 0.28 U	< 0.29 U	< 0.30 U	< 0.29 U	< 0.30 U	< 0.24 U	< 0.25 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	**0.36 J**	**0.19 J**	**0.35 J**	**0.39 J**	**1.4 J**	**0.20 J**	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.15 UJ	< 0.18 UJ	< 0.19 UJ	< 0.20 UJ	< 0.21 UJ	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 UJ	< 0.20 UJ	< 0.19 UJ	< 0.20 UJ	< 0.16 UJ	< 0.17 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	**0.29 J**	**0.40 J**	**0.97**	**0.93**	**1.3**	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	**0.15 J**	**0.33 J**	**0.28 J**	**0.39 J**	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	**0.46 J**	**0.48**	**1.0**	**0.89**	**1.6 J**	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D10	D10	D10	D10	D11	D11	D11	D11	D11	D11		D11	D11	D11	D11	D11	D11
Sample Date		10/09/2017	10/09/2017	10/09/2017	10/10/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017		9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/26/2017
Depth		78-79 ft	88-89 ft	98-99 ft	103-104 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**3060**	**8530**	**224 J**	< 107 U	**17100**	**15700**	**3760**	**3280**	**17600 J**	**2420**	**1390**	**1580**	**1880 J**	**3090 J**	**1060 J**	**1120 J**	< 613 UB
pH	pH units	**8.19**	**8.24**	**7.96**	**8.17**	**8.04**	**8.77**	**8.51**	**8.48**	**8.38**	**8.43**	**8.44**	**8.38**	**8.31**	**8.46**	**8.47**	**8.60**	**8.25**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	**0.25 J**	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	**0.41 J**	**0.20 J**	< 0.15 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	**0.19 J**	< 0.15 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	**0.21 J**	< 0.15 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	< 0.18 U	< 0.15 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.084 U	< 0.11 U	< 0.096 U	< 0.11 U	< 0.095 U	< 0.079 U	< 0.092 U	< 0.091 U	< 0.089 U	< 0.093 U	< 0.11 U	< 0.11 U	< 0.091 UJ	< 0.091 U	< 0.077 U	< 0.097 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.084 U	< 0.11 U	< 0.096 U	< 0.11 U	< 0.095 U	< 0.079 U	< 0.092 U	< 0.091 U	< 0.089 U	< 0.093 U	< 0.11 U	< 0.11 U	**0.10 J**	**0.15 J**	< 0.077 U	< 0.097 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.25 U	< 0.32 U	< 0.29 U	< 0.33 U	< 0.28 U	< 0.24 U	< 0.28 U	< 0.27 U	< 0.27 U	< 0.28 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.27 U	< 0.23 U	< 0.29 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	**0.77**	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	< 0.18 U	< 0.15 U	< 0.19 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.17 UJ	< 0.22 UJ	< 0.19 UJ	< 0.22 UJ	< 0.19 UJ	< 0.16 UJ	< 0.18 UJ	< 0.18 UJ	< 0.18 UJ	< 0.19 UJ	< 0.22 UJ	< 0.22 UJ	< 0.18 UJ	< 0.18 UJ	< 0.15 UJ	< 0.19 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	**0.24 J**	**0.35 J**	< 0.15 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	**0.20 J**	**0.28 J**	< 0.15 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	**0.24 J**	< 0.15 U	< 0.19 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D11	D11	D11	D11	D11	D11	D11	D12	D12	D12	D12	D12	D12	D12	D12	D13	D13
Sample Date		9/26/2017	9/26/2017	9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/04/2017	9/06/2017	9/06/2017
Depth		88-89 ft	99-100 ft	113-114 ft	118-119 ft	128-129 ft	138-139 ft	144-145 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	36-37 ft	0-0.5 ft	0.5-1 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 913 UB	**48800 J**	**62100 J**	**21400 J**	**17400**	< 824 UB	< 422 UB	**22600 J**	**18100 J**	**9230 J**	**5060 J**	**24500 J**	**10300 J**	**8910 J**	**5150**	**20300**	**13300**
pH	pH units	**8.16**	**8.66**	**8.87**	**8.32**	**8.09**	**7.79**	**8.27**	**7.90**	**8.08**	**8.10**	**7.95**	**8.48**	**8.48**	**8.32**	**8.57**	**7.94**	**8.08**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	**0.55 J**	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.089 U	< 0.095 U	**0.17 J**	< 0.099 U	< 0.12 U	< 0.096 U	< 0.11 U	< 0.11 U	< 0.087 U	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.13 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.089 U	< 0.095 U	< 0.088 U	< 0.099 U	< 0.12 U	< 0.096 U	< 0.11 U	< 0.11 U	< 0.087 U	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.11 U	**0.17 J**	**0.15 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.27 U	< 0.28 U	< 0.26 U	< 0.30 U	< 0.35 U	< 0.29 U	< 0.34 U	**0.50 J**	< 0.26 U	< 0.29 U	< 0.33 U	< 0.31 U	< 0.31 U	< 0.31 U	< 0.32 U	**0.55 J**	**0.56 J**
Perfluorooctanoic acid (PFOA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	**0.36 J**	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	**0.54 J**	**1.1**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 U	< 0.19 UJ	< 0.18 UJ	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 UJ	< 0.21 U	< 0.21 UJ	< 0.21 U	< 0.25 U	< 0.24 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.19 U	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D13	D13	D13	D13	D13	D13	D14	D14	D14	D14	D14		D14	D14		D15	D15
Sample Date		9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017		8/29/2017	8/29/2017		10/18/2017	10/18/2017
Depth		1-1.5 ft	3-4 ft	8-9 ft	15-16 ft	18-19 ft	24-25 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	2-3 ft	3-4 ft	3-4 ft	8-9 ft	9.5-10.5 ft	9.5-10.5 ft	0-0.5 ft	0.5-1 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	FD	N	N	FD	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**5110**	**3420**	**1860**	**3140**	**3980**	**234 J**	**24600**	**15500**	**11300**	**4410**	**3410**	**1150**	**3520**	**2510**	**3860**	**22900**	**13400**
pH	pH units	**8.22**	**8.32**	**8.46**	**8.36**	**8.73**	**8.61**	**7.74**	**7.77**	**7.82**	**8.02**	**7.91**	**7.89**	**7.90**	**7.87**	**7.94**	**7.50**	**7.21**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.27 J**	< 0.25 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	**0.25 J**	**0.25 J**	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U	< 0.13 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 U	< 0.13 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	**0.17 J**	**0.19 J**	**0.13 J**	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	**0.18 J**	< 0.12 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.35 U	< 0.39 U	< 0.32 U	< 0.34 U	< 0.34 U	< 0.31 U	**0.76 J**	**0.73 J**	**0.43 J**	< 0.33 U	< 0.31 U	< 0.33 U	< 0.31 U	< 0.32 U	< 0.32 U	**0.44 J**	< 0.37 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.54 J**	**2.0**	**0.53 J**	**0.51 J**	< 0.23 U	< 0.21 U	**0.50 J**	**0.54 J**	**0.34 J**	**0.72**	**0.36 J**	< 0.22 U	< 0.21 U	< 0.22 U	**0.34 J**	**3.8**	**4.2**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.23 UJ	< 0.26 UJ	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 UJ	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 UJ	< 0.21 U	< 0.22 UJ	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	**0.27 J**	**0.22 J**	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.25 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D15	D15	D15	D15	D15	D15		D15	D15	D16	D16	D16	D16	D16		D16	D16
Sample Date		10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017		10/19/2017	10/19/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017		9/20/2017	9/20/2017
Depth		1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	38-39 ft	48-49 ft	73-74 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	8-9 ft	18-19 ft	28-29 ft
Sample Type		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**7560**	**6010**	**6630**	**6260**	**9430**	**9300**	**11600**	**6600**	**21600**	**5250 J**	**5170**	**3820**	**1070**	**500**	**604**	**938**	**270 J**
pH	pH units	**7.56**	**8.54**	**8.56**	**8.74**	**8.65**	**8.67**	**8.68**	**8.35**	**7.83**	**8.40**	**8.78**	**8.07**	**6.99**	**7.24**	**7.15**	**6.40**	**7.39**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	**0.20 J**	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.083 U	< 0.092 U	< 0.085 U	< 0.092 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.10 U	< 0.095 U	< 0.083 U	< 0.078 U	< 0.084 U	< 0.11 U	< 0.077 U	< 0.078 U	< 0.084 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.083 U	< 0.092 U	< 0.085 U	< 0.092 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.10 U	< 0.095 U	< 0.083 U	< 0.078 U	< 0.084 U	< 0.11 U	< 0.077 U	< 0.078 U	< 0.084 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.25 U	< 0.28 U	< 0.26 U	< 0.28 U	< 0.31 U	< 0.27 U	< 0.31 U	< 0.30 U	< 0.29 U	< 0.25 U	< 0.23 U	< 0.25 U	< 0.32 U	< 0.23 U	< 0.23 U	< 0.25 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	**2.3**	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 UJ	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 UJ	< 0.16 UJ	< 0.17 UJ	< 0.21 U	< 0.15 U	< 0.16 UJ	< 0.17 U	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D16	D17	D17	D17	D17	D17	D17	D18	D18	D18	D18	D18	D18	D18	D18		D19
Sample Date		9/21/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/27/2017	8/25/2017	8/27/2017		8/30/2017
Depth		36-37 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	9-10 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	15-16 ft	18-19 ft	24-25 ft	24-25 ft	0-0.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**433 J**	**20900**	**11500**	**6040**	**4150**	**3470**	**3630**	**6120**	**3130**	**2210**	**1200**	**765**	**1480 J**	**816**	**1710 J**	< 226 UJ	**19900**
pH	pH units	**7.50**	**8.49 J**	**8.11 J**	**7.98 J**	**7.80 J**	**8.21 J**	**8.04**	**8.18**	**8.45**	**8.54**	**8.73**	**8.62**	**8.29**	**8.25**	**8.37**	**8.44**	**7.64**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.25 J**	**0.20 J**	**0.27 J**	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.25 J**
Perfluorodecanoic acid (PFDA)	ng/g	< 0.17 U	**0.35 J**	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.24 J**	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.36 J**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.31 J**
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.086 U	< 0.11 U	< 0.11 U	< 0.075 U	< 0.088 U	< 0.10 U	< 0.077 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.13 U	< 0.14 U	< 0.14 U	< 0.10 U	< 0.11 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.086 U	**0.31 J**	**0.20 J**	< 0.075 U	< 0.088 U	< 0.10 U	< 0.077 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.13 U	< 0.14 U	< 0.14 U	< 0.10 U	< 0.11 U	**0.24 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.26 U	< 0.33 U	< 0.32 U	< 0.23 U	< 0.26 U	< 0.30 U	< 0.23 U	< 0.31 U	< 0.30 U	< 0.35 U	< 0.35 U	< 0.39 U	< 0.41 U	< 0.42 U	< 0.31 U	< 0.32 U	**0.92 J**
Perfluorooctanoic acid (PFOA)	ng/g	< 0.17 U	**1.3**	**1.0**	**0.90**	**0.72**	**0.33 J**	**0.20 J**	**1.8**	**1.2**	**1.5**	**0.97**	**0.54 J**	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**1.7**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 UJ	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.17 U	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.17 U	**0.23 J**	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.22 J**	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.37 J**

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D19	D19	D19	D19	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20
Sample Date		8/30/2017	8/30/2017		8/30/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/19/2017	9/19/2017
Depth		0.5-1 ft	1-1.5 ft	1-1.5 ft	2-3 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68.5-69.5 ft	75-77 ft
Sample Type		N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**22600**	**5380 J**	**8770 J**	**2720**	**15300**	**52600**	**6720**	**3170**	< 335 U	< 233 U	**1120**	< 392 U	**1690**	< 320 U	< 324 U	< 351 U	**2760**
pH	pH units	**7.36**	**7.64**	**7.94**	**8.20**	**8.36**	**8.64**	**9.02**	**8.86**	**8.02**	**8.50**	**8.41**	**8.75**	**8.74**	**8.77**	**8.55**	**8.09**	**9.25**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.24 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorobutanoic acid (PFBA)	ng/g	**0.25 J**	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorodecanoic acid (PFDA)	ng/g	**0.30 J**	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	**0.26 J**	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.24 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.24 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.097 U	< 0.093 U	< 0.076 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.095 U	< 0.14 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	**0.20 J**	< 0.11 U	< 0.11 U	< 0.11 U	< 0.097 U	< 0.093 U	< 0.076 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.095 U	< 0.14 U	< 0.12 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.78 J**	< 0.33 U	< 0.34 U	< 0.33 U	< 0.29 U	< 0.28 U	< 0.23 U	< 0.31 U	< 0.31 U	< 0.31 U	< 0.35 U	< 0.33 U	< 0.32 U	< 0.30 U	< 0.28 U	< 0.43 U	< 0.35 U
Perfluorooctanoic acid (PFOA)	ng/g	**1.6**	**1.8**	**1.4**	**1.4 J**	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	**0.47 J**	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.24 UJ	< 0.22 UJ	< 0.23 UJ	< 0.22 UJ	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 UJ	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.24 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.24 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**0.31 J**	< 0.22 U	< 0.23 U	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
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Bennington, VT
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Location		D20		D21	D21	D21	D21	D21	D21	D22	D22	D22	D22	D22	D22	D23	D23	D23
Sample Date		9/19/2017		10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	9/07/2017	9/07/2017	9/07/2017
Depth		78-79 ft		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	14-15 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	14-15 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 925 U	< 2080 U	**48500 J**	**41100 J**	**21100 J**	**6280 J**	**9830 J**	**9480 J**	**18300**	**9010**	**7820**	**2370**	**3770**	**38700**	**5010**	**9840**	**5430**
pH	pH units	**8.58**		**7.75**	**8.04**	**8.36**	**8.39**	**8.85**	**8.50**	**8.67**	**8.73**	**8.55 J**	**8.51 J**	**8.93 J**	**8.98 J**	**7.91**	**8.01**	**8.79**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	**0.20 J**	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U		< 0.11 U	< 0.097 U	**0.15 J**	< 0.087 U	< 0.10 U	< 0.10 U	< 0.088 U	< 0.11 U	< 0.099 U	< 0.11 U	< 0.082 U	< 0.077 U	< 0.11 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 U		< 0.11 U	< 0.097 U	< 0.079 U	< 0.087 U	< 0.10 U	< 0.10 U	**0.15 J**	< 0.11 U	< 0.099 U	< 0.11 U	< 0.082 U	< 0.077 U	< 0.11 U	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.35 U		**0.73 J**	**0.55 J**	**0.28 J**	< 0.26 U	< 0.31 U	< 0.30 U	**0.38 J**	< 0.32 U	< 0.30 U	< 0.33 U	< 0.25 U	< 0.23 U	< 0.33 U	**0.38 J**	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.24 U		**1.6**	**0.90**	**2.9**	**0.73**	**0.27 J**	< 0.20 U	**0.18 J**	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	**0.50 J**	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.24 UJ		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 UJ	< 0.23 UJ	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.24 U		< 0.22 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D23	D23	D23	D23	D23	D23	D23	D23	D24	D24	D24	D24	D24	D24	D24	D24	D24
Sample Date		9/07/2017		9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/24/2017
Depth		6-7 ft	6-7 ft	12-13 ft	18-19 ft	28-29 ft	36-37 ft	41-42 ft	48-49 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	9-10 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft
Sample Type		N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**720 J**	**7070 J**	**1000**	**1720**	**1100**	**13400 J**	**1370 J**	**506 J**	**9680 J**	**5290 J**	**5820 J**	**4050 J**	**6240 J**	**19900 J**	**12500 J**	**9900 J**	**1460**
pH	pH units	**8.44**	**8.42**	**8.22**	**8.20**	**8.26**	**8.19**	**8.40**	**8.41**	**6.48**	**6.80**	**7.04**	**7.82**	**8.37**	**8.59**	**8.48**	**8.52**	**8.10**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.21 J**	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.28 J**	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.16 J**	< 0.092 U	< 0.091 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.094 U	< 0.078 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.092 U	< 0.091 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.094 U	< 0.078 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.32 U	< 0.31 U	< 0.34 U	< 0.31 U	< 0.32 U	< 0.34 U	< 0.32 U	< 0.30 U	< 0.28 U	< 0.27 U	< 0.34 U	< 0.34 U	< 0.24 U	< 0.28 U	< 0.23 U	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	**3.6**	**1.2 J**	**0.43 J**	**0.59 J**	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.21 UJ	< 0.21 UJ	< 0.23 UJ	< 0.21 UJ	< 0.21 U	< 0.22 UJ	< 0.21 UJ	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D24	D24	D25	D25	D25	D25	D25	D25	D25	D26	D26	D26	D26	D26	D26	D26	D26
Sample Date		9/24/2017	9/24/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/23/2017	9/22/2017	10/10/2017	10/10/2017	10/10/2017	10/10/2017	10/10/2017	10/11/2017	10/11/2017	10/11/2017
Depth		58-59 ft	68-69 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	6.5-7.5 ft	18-19 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	**646**	**707 J**	**27600 J**	**32800 J**	**23300 J**	**3440 J**	**2310 J**	**1900 J**	**4770 J**	**2070**	**1670**	**1170**	**1660**	**4270**	**343 J**	**3270 J**	**910 J**
pH	pH units	**8.00**	**7.93**	**8.70**	**8.94**	**9.01**	**8.86**	**8.58**	**8.45**	**8.60**	**6.41**	**6.25**	**5.55**	**5.24**	**5.98**	**8.04**	**8.13**	**8.14**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	**0.34 J**	< 0.18 U	< 0.18 U	< 0.17 U	**0.99**	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.77**	< 0.16 U	< 0.23 U	< 0.17 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.099 U	< 0.12 U	< 0.073 U	< 0.096 U	< 0.079 U	< 0.083 U	< 0.076 U	< 0.11 U	< 0.087 U	< 0.076 U	< 0.092 U	< 0.089 U	< 0.085 U	< 0.099 U	< 0.081 U	< 0.12 U	< 0.084 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.099 U	< 0.12 U	< 0.073 U	< 0.096 U	< 0.079 U	< 0.083 U	< 0.076 U	< 0.11 U	< 0.087 U	**0.73**	**0.46**	**0.77**	**0.14 J**	**0.26 J**	< 0.081 U	< 0.12 U	**0.12 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.30 U	< 0.35 U	< 0.22 U	< 0.29 U	< 0.24 U	< 0.25 U	< 0.23 U	< 0.32 U	< 0.26 U	**1.0**	**0.48 J**	**0.58 J**	< 0.26 U	**2.4**	< 0.24 U	< 0.35 U	< 0.25 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	**0.28 J**	**0.21 J**	**0.38 J**	**0.36 J**	**0.51 J**	< 0.16 U	< 0.23 U	**1.3**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 U	< 0.23 UJ	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 UJ	< 0.17 UJ	< 0.20 U	< 0.16 UJ	< 0.23 U	< 0.17 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.24 J**	< 0.16 U	< 0.23 U	< 0.17 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U	< 0.23 U	< 0.17 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.21 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.34 J**	< 0.16 U	< 0.23 U	< 0.17 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1
Sample Date		9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017		9/28/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/29/2017	10/03/2017	10/04/2017
Depth		28-29 ft	31-32 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	128-129 ft	138-139 ft	148-149 ft	158-159 ft	168-169 ft
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 685 UB	< 594 UB	< 803 UB	< 839 UB	**1210 J**	**1270**	**1550 J**	**631 J**	**1170 J**	**2050**	**681 J**	**361 J**	**411**	**441**	**306 J**	**244 J**	**357 J**
pH	pH units	**7.98**	**7.86**	**7.96**	**7.96**	**7.93**	**8.20**	**8.29**	**8.50**	**8.47**	**8.41**	**8.37**	**8.26**	**8.06**	**8.13**	**8.09**	**8.10**	**8.17**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	**0.17 J**	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.094 U	< 0.096 U	< 0.096 U	< 0.078 U	< 0.085 U	< 0.094 U	< 0.099 U	< 0.11 U	< 0.080 U	< 0.11 U	< 0.10 U	< 0.084 U	< 0.094 U	< 0.11 U	< 0.097 U	< 0.11 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.094 U	< 0.096 U	< 0.096 U	< 0.078 U	< 0.085 U	< 0.094 U	< 0.099 U	< 0.11 U	< 0.080 U	< 0.11 U	< 0.10 U	< 0.084 U	< 0.094 U	< 0.11 U	< 0.097 U	< 0.11 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.28 U	< 0.29 U	< 0.29 U	< 0.23 U	< 0.26 U	< 0.28 U	< 0.30 U	< 0.33 U	< 0.24 U	< 0.33 U	< 0.30 U	< 0.25 U	< 0.28 U	< 0.32 U	< 0.29 U	< 0.32 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 UJ	< 0.16 UJ	< 0.17 UJ	< 0.19 UJ	< 0.20 UJ	< 0.22 UJ	< 0.16 UJ	< 0.22 UJ	< 0.20 UJ	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 UJ	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.21 U	< 0.21 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2
Sample Date		10/04/2017		10/04/2017	10/04/2017	10/04/2017	10/04/2017	10/04/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/06/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth		178-179 ft	178-179 ft	188-189 ft	198-199 ft	208-209 ft	218-219 ft	228-229 ft	238-239 ft	248-249 ft	258-259 ft	268-269 ft	278-279 ft	288-289 ft	298-299 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft
Sample Type		N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**409**	**401 J**	**459**	**324 J**	**485**	**432**	**306 J**	**164 J**	**141 J**	**141 J**	**653 J**	**801 J**	**387 J**	**278 J**	**15700 J**	**6870 J**	**11700 J**	**7220 J**
pH	pH units	**8.13**	**8.08**	**8.20**	**8.12**	**8.05**	**7.68**	**8.01**	**7.96**	**8.06**	**8.10**	**7.73**	**7.72**	**7.81**	**8.07 J**	**8.26**	**8.47**	**8.34**	**8.68**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 UJ	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.10 U	< 0.097 UJ	< 0.12 U	< 0.098 U	< 0.082 U	< 0.083 UJ	< 0.10 U	< 0.12 U	< 0.12 U	< 0.080 U	< 0.096 U	< 0.12 U	< 0.093 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.10 U	< 0.097 UJ	< 0.12 U	< 0.098 U	< 0.082 U	< 0.083 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.080 U	< 0.096 U	< 0.12 U	< 0.093 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.31 U	< 0.29 U	< 0.35 U	< 0.29 U	< 0.25 U	< 0.25 U	< 0.31 U	< 0.36 U	< 0.35 U	< 0.24 U	< 0.29 U	< 0.37 U	< 0.28 U	< 0.30 U	< 0.34 U	< 0.31 U	< 0.34 U	< 0.33 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.21 UJ	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	**0.39 J**	< 0.21 U	< 0.23 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 UJ	< 0.19 UJ	< 0.23 UJ	< 0.20 UJ	< 0.16 UJ	< 0.17 UJ	< 0.21 UJ	< 0.24 UJ	< 0.23 UJ	< 0.16 UJ	< 0.19 UJ	< 0.25 UJ	< 0.19 UJ	< 0.20 UJ	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2		SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2		SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR3
Sample Date		10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017		10/12/2017	10/13/2017	10/13/2017		10/13/2017	10/13/2017	10/13/2017	10/23/2017
Depth		8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	118-119 ft	128-129 ft	133-134 ft	137-138 ft	0-0.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	FD	N	N	N	FD	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**11400 J**	**2860 J**	**667 J**	**2010**	**1860**	**1660**	**1540**	**1920**	**34800**	**29900**	**207 J**	**118 J**	**162 J**	**226 J**	**383 J**	**128 J**	**118 J**	**48700**
pH	pH units	**8.56**	**8.41**	**8.41**	**8.40**	**8.38**	**8.30**	**8.33**	**8.22**	**8.59**	**8.56**	**8.13**	**8.30**	**5.92**	**8.77**	**7.93**	**8.18**	**8.83**	**8.59**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.21 U	**0.29 J**	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	**0.20 J**	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.10 U	< 0.093 U	< 0.082 U	< 0.10 U	< 0.11 U	< 0.087 U	< 0.099 U	< 0.091 U	< 0.095 UJ	< 0.11 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.12 U	< 0.086 U	< 0.090 U	< 0.091 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.10 U	< 0.093 U	< 0.082 U	< 0.10 U	< 0.11 U	< 0.087 U	< 0.099 U	< 0.091 U	< 0.095 UJ	< 0.11 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.12 U	< 0.086 U	< 0.090 U	**0.093 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.31 U	< 0.28 U	< 0.25 U	< 0.30 U	< 0.32 U	< 0.26 U	< 0.30 U	< 0.27 U	< 0.28 UJ	< 0.32 U	< 0.31 U	< 0.27 U	< 0.30 U	< 0.35 U	< 0.26 U	< 0.27 U	< 0.27 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 UJ	< 0.16 UJ	< 0.20 U	< 0.21 U	< 0.17 UJ	< 0.20 UJ	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 UJ	< 0.18 UJ	< 0.20 UJ	< 0.23 UJ	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/24/2017	10/24/2017	10/24/2017	10/24/2017	10/24/2017	10/20/2017	10/20/2017	10/20/2017
Depth		0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	98-99 ft	104-105 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**30300**	**31300**	**9930**	**29300**	**1040**	**2190**	**978**	**576**	**917**	**947**	**1050 J**	**865 J**	**993**	**748**	**137 J**	**62000**	**34500**	**31100**
pH	pH units	**8.93**	**8.80**	**8.20**	**8.89**	**7.90**	**8.37**	**8.46**	**8.52**	**8.47**	**8.55**	**8.66**	**8.57**	**8.41**	**8.25**	**8.57**	**7.76**	**8.04**	**8.64**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.19 U	< 0.25 UB	< 0.37 UB	< 0.31 UB	< 0.35 UB	< 0.37 UB	< 0.35 UB	< 0.56 UB	< 0.22 UB	< 0.20 U	< 0.54 UB	< 0.34 UB	< 0.39 UB	< 0.57 UB	< 0.28 UB	**0.35 J**	< 0.21 U	< 0.18 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	**0.21 J**	< 0.17 U	**0.30 J**	< 0.21 U	< 0.18 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	**0.35 J**	< 0.21 U	< 0.18 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	**0.20 J**	< 0.21 U	< 0.18 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.093 U	< 0.071 U	< 0.095 U	< 0.080 U	< 0.097 U	< 0.092 U	< 0.084 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.096 U	< 0.099 U	< 0.099 U	**0.90**	< 0.085 U	**0.20 J**	< 0.11 U	< 0.089 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.093 U	< 0.071 U	< 0.095 U	< 0.080 U	< 0.097 U	< 0.092 U	< 0.084 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.096 U	< 0.099 U	< 0.099 U	< 0.099 U	< 0.085 U	**0.27 J**	**0.12 J**	< 0.089 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.28 U	< 0.21 U	< 0.29 U	< 0.24 U	< 0.29 U	< 0.27 U	< 0.25 U	< 0.32 U	< 0.31 U	< 0.31 U	< 0.29 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.25 U	**1.0**	**0.55 J**	**0.28 J**
Perfluorooctanoic acid (PFOA)	ng/g	< 0.19 U	**0.17 J**	**1.0**	**0.19 J**	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	**0.22 J**	< 0.17 U	**0.30 J**	< 0.21 U	< 0.18 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 UJ	< 0.18 UJ	< 0.17 UJ	< 0.21 UJ	< 0.21 UJ	< 0.20 UJ	< 0.19 UJ	< 0.20 UJ	< 0.20 UJ	< 0.20 UJ	< 0.17 UJ	**0.20 J**	< 0.21 U	< 0.18 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	**0.20 J**	< 0.21 U	< 0.18 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	**0.48 J**	**0.30 J**	< 0.18 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/20/2017	10/20/2017	10/20/2017	10/21/2017	10/21/2017		10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/22/2017	10/22/2017	10/22/2017	10/22/2017	10/23/2017
Depth		3-4 ft	8-9 ft	19-20 ft	28-29 ft	38-39 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	128-129 ft	138-139 ft	148-149 ft	158-159 ft
Sample Type		N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**20400**	**24700**	**275 J**	**5620 J**	**5750 J**	**3720**	**7920**	**399 J**	**159 J**	**176 J**	**212 J**	**248 J**	**166 J**	< 138 U	**174 J**	**6020**	**1490**	**881**
pH	pH units	**8.27**	**8.71**	**8.78**	**8.67**	**7.27**	**8.68**	**8.83**	**8.40**	**8.51**	**8.50**	**8.49**	**8.36**	**7.49**	**8.23**	**8.20**	**8.02**	**8.10**	**8.11**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 UJ	< 0.27 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	**0.30 J**	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 U	< 0.26 UJ	< 0.27 UJ
Perfluorodecanoic acid (PFDA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 U	< 0.22 U	< 0.26 UJ	< 0.27 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U	< 0.27 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ	< 0.27 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U	< 0.27 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.085 U	< 0.094 U	< 0.088 U	< 0.088 U	< 0.089 U	< 0.10 U	< 0.11 U	< 0.089 UJ	< 0.096 U	< 0.082 U	< 0.10 U	< 0.12 UJ	< 0.11 UJ	< 0.11 UJ	< 0.14 UJ	< 0.11 UJ	< 0.13 UJ	< 0.14 UJ
Perfluorononanoic acid (PFNA)	ng/g	< 0.085 U	< 0.094 U	< 0.088 U	< 0.088 U	< 0.089 U	< 0.10 U	< 0.11 U	< 0.089 U	< 0.096 U	< 0.082 U	< 0.10 U	< 0.12 UJ	< 0.11 UJ	< 0.11 UJ	< 0.14 U	< 0.11 UJ	< 0.13 UJ	< 0.14 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.26 U	< 0.28 U	< 0.26 U	< 0.26 U	< 0.27 U	< 0.30 U	< 0.33 U	< 0.27 U	< 0.29 U	< 0.25 U	< 0.31 U	< 0.35 U	< 0.33 U	< 0.33 U	< 0.41 U	< 0.33 U	< 0.39 UJ	< 0.41 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ	< 0.27 UJ
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 UJ	< 0.18 UJ	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ	< 0.27 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U	< 0.27 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U	< 0.27 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.17 U	< 0.19 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 UJ	< 0.27 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/25/2017	10/25/2017		10/30/2017	10/30/2017		10/30/2017	10/30/2017	10/31/2017	10/31/2017
Depth		168-169 ft	178-179 ft	188-189 ft	198-199 ft	208-209 ft	216.5-217 ft	225-226 ft	235-236 ft	245-246 ft	251-252 ft	251-252 ft	261-262 ft	271-272 ft	271-272 ft	281-282 ft	291-292 ft	301-302 ft	311-312 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	FD	N	N	FD	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**522**	< 125 U	< 130 U	**227 J**	**220 J**	**292 J**	**574**	**508**	**595**	**233 J**	**235 J**	**367**	**140 J**	**164 J**	< 129 U	**128 J**	**313 J**	**337 J**
pH	pH units	**8.10**	**8.09**	**8.27**	**8.11**	**8.10**	**7.98**	**7.63**	**8.03**	**8.02**	**7.98**	**7.97**	**7.57**	**8.22**	**8.26**	**8.00**	**8.05**	**8.11**	**8.02**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.63 UB	< 0.20 U	< 0.64 UB	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.13 U	< 0.10 U	< 0.096 UJ	< 0.11 UJ	< 0.10 UJ	< 0.13 U	< 0.14 U	< 0.12 UJ	< 0.097 U	< 0.10 U	**0.15 J**	< 0.089 U	< 0.11 U	< 0.081 U	< 0.12 U	< 0.098 U	< 0.12 U	< 0.089 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.13 U	< 0.10 U	< 0.096 UJ	< 0.11 UJ	< 0.10 UJ	< 0.13 U	< 0.14 U	< 0.12 UJ	< 0.097 U	< 0.10 U	< 0.11 U	< 0.089 U	< 0.11 U	< 0.081 U	< 0.12 U	< 0.098 U	< 0.12 U	< 0.089 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.38 U	< 0.31 U	< 0.29 U	< 0.34 U	< 0.31 U	< 0.39 U	< 0.42 U	< 0.37 U	< 0.29 U	< 0.31 U	< 0.33 U	< 0.27 U	< 0.34 U	< 0.24 U	< 0.35 U	< 0.30 U	< 0.36 U	< 0.27 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.26 UJ	< 0.21 UJ	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 UJ	< 0.28 UJ	< 0.25 UJ	< 0.19 UJ	< 0.20 UJ	< 0.22 UJ	< 0.18 UJ	< 0.23 UJ	< 0.16 UJ	< 0.24 UJ	< 0.20 UJ	< 0.24 UJ	< 0.18 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U

Table 3.8
Analytical Deep and Bedrock Boring Soil Results - PFAS, TOC and pH
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/02/2017
Depth		321-322 ft	331-332 ft	341-342 ft	351-352 ft	361-362 ft	371-372 ft	381-382 ft	391-392 ft	395-396 ft
Sample Type		N	N	N	N	N	N	N	N	N
Parameter	Units									
General Parameters										
Carbon, total organic	mg/kg	**267 J**	**382 J**	**1420**	**330 J**	**349 J**	**561**	**218 J**	**155 J**	**379 J**
pH	pH units	**7.89**	**8.03**	**8.17**	**7.67**	**8.32**	**8.25**	**8.12**	**7.84**	**7.38**
Per- and Polyfluoroalkyl Substances										
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.13 U	< 0.10 U	< 0.10 U	< 0.090 U	< 0.11 U	< 0.10 U	< 0.079 U	< 0.082 U	< 0.090 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.13 U	< 0.10 U	< 0.10 U	< 0.090 U	< 0.11 U	< 0.10 U	< 0.079 U	< 0.082 U	< 0.090 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.40 U	< 0.31 U	< 0.30 U	< 0.27 U	< 0.34 U	< 0.30 U	< 0.24 U	< 0.25 U	< 0.27 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.27 UJ	< 0.21 UJ	< 0.20 UJ	< 0.18 UJ	< 0.23 UJ	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D01	D01	D01	D01	D01	D01	D01	D01	D02	D02	D02	D02	D03	D03	D03	D03	D03	D03	D03
Sample Date		9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	12-13 ft	18-19 ft	28-29 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	12-13 ft	15-16 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	32000	2430	6190	17600	6070	51800	17700	3330	32100 J	11500 J	3680 J	3700 J	6840	5320	3070	1950	6070	4160	3040
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	5.4	5.4	16.0	9.7	21.4	4.8	7.1	12.9	13.5 J	9.8 J	13.6 J	3.0 J	3.5	5.1	2.6	4.2	8.1	3.6	14.4
pH	pH units	8.31	8.73	7.81	8.16	8.10	8.98	9.01	8.51	7.85	8.07	7.79	8.27	9.29	8.73	8.70	8.37	8.95	7.93	7.78
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	6030 J	5270 J	7590 J	2970 J	2810 J	7340 J	3470 J	5350 J	3800 J	5790 J	2080 J
Antimony	mg/kg	--	--	--	--	--	--	--	--	0.105 J	0.106 J	0.0909 J	0.0801 J	0.298 J	0.598	0.209 J	0.144 J	0.156 J	0.126 J	0.114 J
Arsenic	mg/kg	--	--	--	--	--	--	--	--	5.52 J	5.46 J	8.45 J	4.15 J	4.16 J	11.0 J	6.48 J	8.75 J	7.29 J	5.79 J	3.25 J
Barium	mg/kg	--	--	--	--	--	--	--	--	111 J	75.6 J	1470 J	2850 J	15.9 J	59.6 J	16.8 J	22.4 J	20.8 J	58.1 J	8.54 J
Beryllium	mg/kg	--	--	--	--	--	--	--	--	0.266	0.234	0.814	0.425	0.135 J	0.359	0.181 J	0.264	0.197 J	0.218	0.0937 J
Cadmium	mg/kg	--	--	--	--	--	--	--	--	0.187 J	0.108 J	0.548	0.433	0.150 J	0.341	0.102 J	0.111 J	0.113 J	0.152 J	0.0671 J
Calcium	mg/kg	--	--	--	--	--	--	--	--	62100 J	65200 J	1480 J	3650 J	84400	28100	73700	46200	68700	49100	67300
Chromium	mg/kg	--	--	--	--	--	--	--	--	5.96 J	5.70 J	9.22 J	6.63 J	5.81 J	9.69 J	4.62 J	6.31 J	4.81 J	5.12 J	2.58 J
Cobalt	mg/kg	--	--	--	--	--	--	--	--	12.6 J	9.86 J	355 J	433 J	3.11 J	13.1 J	5.43 J	6.71 J	9.45 J	23.4 J	2.79 J
Copper	mg/kg	--	--	--	--	--	--	--	--	9.29 J	6.07 J	38.2 J	36.5 J	12.6 J	29.1 J	9.74 J	11.7 J	10.2 J	20.8 J	4.92 J
Iron	mg/kg	--	--	--	--	--	--	--	--	14400 J	10800 J	24200 J	7160 J	8650 J	23300 J	12800 J	17900 J	14300 J	19700 J	7930 J
Lead	mg/kg	--	--	--	--	--	--	--	--	21.5 J	10.4 J	12.1 J	6.40 J	32.0	35.7	13.0	8.96	11.6	9.41	5.24
Magnesium	mg/kg	--	--	--	--	--	--	--	--	28300 J	32200 J	1710 J	1820 J	19000 J	14700 J	20100 J	17600 J	36700 J	26000 J	24500 J
Manganese	mg/kg	--	--	--	--	--	--	--	--	805 J	701 J	14700 J	20200 J	183 J	661 J	264 J	403 J	437 J	5040 J	174 J
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	9.66 J	6.70 J	15.5 J	9.25 J	6.04 J	18.7 J	9.65 J	13.2 J	9.18 J	21.0 J	4.80 J
Potassium	mg/kg	--	--	--	--	--	--	--	--	499 J	413 J	565 J	604 J	479 J	530 J	518 J	530 J	632 J	519 J	364 J
Selenium	mg/kg	--	--	--	--	--	--	--	--	0.219 J	0.160 J	0.195 J	0.0888 J	0.123 J	0.219 J	< 0.0969 U	0.127 J	< 0.102 U	< 0.0926 U	< 0.105 U
Silver	mg/kg	--	--	--	--	--	--	--	--	0.0768 J	0.0710 J	1.87	2.03	0.0324 J	0.127 J	< 0.0283 U	0.0373 J	< 0.0297 U	0.0358 J	< 0.0307 U
Sodium	mg/kg	--	--	--	--	--	--	--	--	48.7 J	65.0 J	56.8 J	36.4 J	319	384	181 J	102 J	93.1 J	78.7 J	91.1 J
Thallium	mg/kg	--	--	--	--	--	--	--	--	0.178 J	0.183 J	9.06 J	6.02 J	0.0314 J	0.405	0.0322 J	0.0501 J	0.0738 J	0.399	< 0.0263 U
Vanadium	mg/kg	--	--	--	--	--	--	--	--	8.10	7.71	9.35	2.65	4.64 J	10.6 J	5.38 J	7.14 J	6.01 J	7.69 J	2.71 J
Zinc	mg/kg	--	--	--	--	--	--	--	--	45.3 J	29.6 J	46.6 J	31.4 J	35.7 J	57.5 J	25.8 J	33.0 J	33.3 J	88.2 J	13.5 J
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 UJ	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.099 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.093 U	< 0.10 U	< 0.093 U	< 0.10 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.099 U	< 0.10 U	< 0.099 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.099 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.093 U	< 0.10 U	< 0.093 U	< 0.10 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.099 U	< 0.10 U	< 0.099 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.30 U	< 0.32 U	< 0.33 U	< 0.32 U	< 0.37 U	< 0.29 U	< 0.31 U	< 0.34 U	< 0.28 U	< 0.31 U	< 0.28 U	< 0.31 U	< 0.30 U	0.72 J	< 0.29 U	< 0.30 U	< 0.31 U	< 0.30 U	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	0.72	0.96	0.30 J	0.30 J	< 0.20 U	< 0.20 U	< 0.20 U	0.30 J	0.33 J	< 0.20 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 UJ	< 0.21 U	< 0.22 UJ	< 0.21 UJ	< 0.24 UJ	< 0.19 UJ	< 0.21 UJ	< 0.22 UJ	< 0.19 UJ	< 0.21 UJ	< 0.19 UJ	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.19 U	< 0.21 U	< 0.22 U	< 0.19 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.22 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D05	D05	D05	D05	D05	D05	D05	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07
Sample Date		8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/09/2017	9/09/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	16-17 ft	26-27 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	77-78 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**33300**	**13100**	**22600**	**5510**	< 177 U	**1190**	**1730**	**31900**	**16100**	**3210**	< 161 U	< 233 U	**1790**	**1050**	< 501 U	< 216 U	< 305 U	**3390 J**	**250 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**23.4**	**12.5**	**18.4**	**19.1**	**14.1**	**6.5**	**10.1**	**29.8**	**19.3**	**20.5**	**10.7**	**12.1**	**9.7**	**8.3**	**7.3**	**6.5**	**8.5 J**	**12.0 J**	**11.1 J**
pH	pH units	**7.80**	**7.84**	**7.84**	**8.05**	**7.49**	**7.64**	**7.71**	**7.62**	**7.61**	**7.83**	**8.42**	**7.74**	**8.79**	**8.86**	**8.70**	**8.57**	**8.70**	**8.54**	**8.20**
Metals																				
Aluminum	mg/kg	**10400 J**	**11700 J**	**12400 J**	**14300 J**	**6700 J**	**15100 J**	**9320 J**	**4070 J**	**7490 J**	**7280 J**	**9560 J**	**10400 J**	**3900 J**	**5500 J**	**8830 J**	**7340 J**	**6610**	--	--
Antimony	mg/kg	**0.343 J**	**0.392**	**0.351**	**0.232 J**	< 0.107 U	**0.296 J**	**0.236 J**	**0.249 J**	**0.263 J**	< 0.108 UJ	**0.0802 J**	**0.129 J**	< 0.0826 UJ	**0.122 J**	**0.120 J**	**0.101 J**	< 0.0926 UJ	--	--
Arsenic	mg/kg	**10.2 J**	**14.0 J**	**17.0 J**	**10.1 J**	**8.23 J**	**12.9 J**	**13.1 J**	**2.96**	**6.15**	**2.54**	**4.10**	**5.59**	**2.46**	**4.50**	**6.24**	**4.95**	**4.85 J**	--	--
Barium	mg/kg	**82.1 J**	**69.2 J**	**71.6 J**	**53.2 J**	**29.7 J**	**62.8 J**	**38.5 J**	**27.0**	**42.8**	**25.3**	**41.0**	**64.1**	**21.9**	**61.4**	**42.4**	**36.7**	**36.4 J**	--	--
Beryllium	mg/kg	**0.384**	**0.341**	**0.459**	**0.498**	**0.214 J**	**0.385**	**0.581 J**	**0.209 J**	**0.323**	**0.268**	**0.453**	**0.487**	**0.155 J**	**0.377**	**0.494**	**0.420**	**0.504**	--	--
Cadmium	mg/kg	**0.568**	**0.526**	**0.334**	**0.211 J**	**0.169 J**	**0.186**	**0.198 J**	**0.231 J**	**0.181**	**0.0827 J**	**0.0538 J**	**0.0914 J**	**0.0485 J**	**0.101 J**	**0.111 J**	**0.0797 J**	**0.103 J**	--	--
Calcium	mg/kg	**22400**	**16000**	**11600**	**1690**	**1540**	**22700**	**35500**	**29300 J**	**16100 J**	**545 J**	**268 J**	**355 J**	**36100 J**	**36300 J**	**15700 J**	**9940 J**	**18500 J**	--	--
Chromium	mg/kg	**13.0 J**	**14.0 J**	**13.4 J**	**14.6 J**	**8.56 J**	**24.1 J**	**12.4 J**	**14.7**	**9.36**	**5.37**	**6.45**	**8.03**	**3.75**	**6.19**	**5.48**	**9.30**	**8.93 J**	--	--
Cobalt	mg/kg	**12.2 J**	**16.2 J**	**11.4 J**	**10.8 J**	**9.29 J**	**17.6 J**	**12.4 J**	**4.89**	**6.34**	**3.53**	**6.00**	**8.26**	**3.42**	**12.7**	**7.38**	**6.10**	**7.89**	--	--
Copper	mg/kg	**40.1 J**	**43.5 J**	**32.3 J**	**19.8 J**	**15.7 J**	**37.3 J**	**20.0 J**	**15.1**	**17.5**	**4.09**	**8.14**	**11.9**	**4.78**	**13.8**	**9.69**	**8.30**	**10.6**	--	--
Iron	mg/kg	**25100 J**	**31200 J**	**26900 J**	**29400 J**	**21000 J**	**34200 J**	**25900 J**	**12000 J**	**16800 J**	**11600 J**	**14500 J**	**18400 J**	**8140 J**	**19100 J**	**13900 J**	**11800 J**	**14600**	--	--
Lead	mg/kg	**48.3**	**39.9**	**40.2**	**14.8**	**12.1**	**15.8**	**15.1**	**42.7 J**	**52.4 J**	**6.71 J**	**8.90 J**	**11.2 J**	**4.44 J**	**8.17 J**	**11.5 J**	**9.62 J**	**13.0**	--	--
Magnesium	mg/kg	**10400 J**	**9780 J**	**7840 J**	**5010 J**	**3770 J**	**13100 J**	**16400 J**	**13700 J**	**9080 J**	**530 J**	**930 J**	**1710 J**	**16400 J**	**9200 J**	**8570 J**	**5240 J**	**7630 J**	--	--
Manganese	mg/kg	**879 J**	**1990 J**	**894 J**	**751 J**	**755 J**	**638 J**	**514 J**	**294 J**	**391 J**	**581 J**	**280 J**	**410 J**	**216 J**	**574 J**	**374 J**	**275 J**	**317**	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	**23.9 J**	**37.1 J**	**23.4 J**	**22.0 J**	**16.5 J**	**37.6 J**	**25.1 J**	**8.27**	**8.81**	**5.35**	**8.99**	**12.9**	**6.10**	**11.3**	**11.2**	**8.93**	**11.7**	--	--
Potassium	mg/kg	**1520 J**	**1220 J**	**1360 J**	**1370 J**	**796 J**	**2120 J**	**1130 J**	**984 J**	**1090 J**	**743 J**	**1430 J**	**1630 J**	**860 J**	**1370 J**	**1360 J**	**1200 J**	**1200 J**	--	--
Selenium	mg/kg	**0.451 J**	**0.328 J**	**0.407 J**	**0.286 J**	< 0.115 U	**0.430 J**	**0.375 J**	**0.125 J**	**0.347 J**	**0.263 J**	**0.0991 J**	**0.113 J**	< 0.0886 U	**0.103 J**	< 0.0981 U	< 0.105 U	< 0.0994 U	--	--
Silver	mg/kg	**0.0989 J**	**0.0900 J**	**0.123 J**	**0.0717 J**	< 0.0337 U	**0.0837 J**	**0.0934 J**	**0.0380 J**	**0.0967 J**	**0.0574 J**	< 0.0244 U	< 0.0291 U	< 0.0259 U	< 0.0255 U	< 0.0286 U	< 0.0306 U	< 0.0290 U	--	--
Sodium	mg/kg	**56.6 J**	**43.6 J**	**52.8 J**	**78.3 J**	**20.5 J**	**58.2 J**	**46.2 J**	**54.8 J**	**59.5 J**	**181 J**	**113 J**	**153 J**	**101 J**	**81.8 J**	**35.8 J**	**29.0 J**	**21.8 J**	--	--
Thallium	mg/kg	**0.0985 J**	**0.0833 J**	**0.128 J**	**0.111 J**	**0.0516 J**	**0.0718 J**	**0.108 J**	**0.0818 J**	**0.165 J**	**0.112 J**	**0.140 J**	**0.177 J**	**0.0470 J**	**0.146 J**	**0.228**	**0.154 J**	**0.227**	--	--
Vanadium	mg/kg	**16.4 J**	**15.9 J**	**18.0 J**	**19.5 J**	**8.13 J**	**17.2 J**	**11.6 J**	**15.0 J**	**14.0 J**	**9.35 J**	**9.15 J**	**11.6 J**	**5.01 J**	**7.21 J**	**8.57 J**	**7.24 J**	**7.34**	--	--
Zinc	mg/kg	**140 J**	**105 J**	**97.1 J**	**67.1 J**	**42.0 J**	**77.0 J**	**66.5 J**	**89.2**	**56.4**	**25.8**	**21.0**	**34.7**	**18.3**	**38.2**	**31.3**	**23.8**	**30.5**	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	**0.35 J**	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 UJ	< 0.21 UJ	< 0.23 U	< 0.21 UJ
Perfluorodecanoic acid (PFDA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	**0.29 J**	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	**0.20 J**	**0.11 J**	**0.21 J**	< 0.12 U	< 0.11 U	< 0.097 U	< 0.10 U	< 0.14 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	**0.34 J**	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.097 U	< 0.10 U	**0.21 J**	**0.27 J**	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.099 U	< 0.098 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.64 J**	< 0.32 U	< 0.34 U	< 0.35 U	< 0.34 U	< 0.29 U	< 0.31 U	**0.73 J**	**0.88 J**	< 0.35 U	< 0.33 U	< 0.32 U	< 0.31 U	< 0.30 U	< 0.29 U	< 0.32 U	< 0.31 U	< 0.34 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	**7.2**	**3.1**	**5.2**	**2.1**	**0.91**	**0.24 J**	< 0.21 U	< 0.28 U	**0.55 J**	**0.39 J**	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 UJ	< 0.23 UJ	< 0.23 UJ	< 0.22 UJ	< 0.21 UJ	< 0.21 UJ	< 0.20 UJ	< 0.20 UJ	< 0.21 UJ	< 0.21 UJ	< 0.23 UJ	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	< 0.28 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.25 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.23 U	< 0.19 U	< 0.21 U	**0.53 J**	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D07	D12	D12	D12	D12	D12	D12	D12
Sample Date		9/09/2017	9/09/2017	9/09/2017	9/10/2017	9/10/2017	9/10/2017	9/10/2017	9/11/2017	9/11/2017	9/11/2017	9/11/2017	9/11/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017
Depth		86-87 ft	98-99 ft	107-108 ft	118-119 ft	128-129 ft	138-139 ft	148-149 ft	158-159 ft	168-169 ft	178-179 ft	188-189 ft	198-199 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**190 J**	< 127 U	**213 J**	**140 J**	< 129 U	< 119 U	< 125 U	**144 J**	< 168 U	**322 J**	**319 J**	**227 J**	**22600 J**	**18100 J**	**9230 J**	**5060 J**	**24500 J**	**10300 J**	**8910 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**11.4 J**	**14.1 J**	**13.3 J**	**12.7 J**	**19.9 J**	**12.9 J**	**12.8 J**	**8.6 J**	**22.5 J**	**21.3 J**	**20.3 J**	**21.6 J**	**10.5 J**	**7.7**	**9.2**	**15.2**	**16.9**	**11.4**	**22.2**
pH	pH units	**8.14**	**8.02**	**7.92**	**7.89**	**7.79**	**7.93**	**7.84**	**7.52**	**7.94**	**7.87**	**7.89**	**7.85**	**7.90**	**8.08**	**8.10**	**7.95**	**8.48**	**8.48**	**8.32**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ	< 0.25 UJ	< 0.25 UJ	**0.69 J**	< 0.24 UJ	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ	< 0.25 UJ	< 0.25 U	< 0.24 UJ	< 0.24 UJ	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ	< 0.25 UJ	< 0.25 U	< 0.24 UJ	< 0.24 UJ	**0.55 J**	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 UJ	< 0.12 UJ	< 0.12 U	**0.79 J**	< 0.12 UJ	< 0.11 U	< 0.087 U	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 UJ	< 0.12 UJ	< 0.12 U	< 0.12 UJ	< 0.12 U	< 0.11 U	< 0.087 U	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.31 U	< 0.33 U	< 0.32 U	< 0.33 U	< 0.34 U	< 0.34 U	< 0.32 U	< 0.30 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.36 U	**0.50 J**	< 0.26 U	< 0.29 U	< 0.33 U	< 0.31 U	< 0.31 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 UJ	< 0.25 UJ	< 0.25 U	**0.98 J**	< 0.24 UJ	< 0.21 U	< 0.17 U	< 0.19 U	**0.36 J**	< 0.21 U	< 0.21 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 UJ	< 0.22 UJ	< 0.21 UJ	< 0.22 UJ	< 0.23 UJ	< 0.23 U	< 0.21 U	< 0.20 UJ	< 0.25 UJ	< 0.25 UJ	< 0.24 UJ	< 0.24 UJ	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 UJ	< 0.21 U	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.17 U	< 0.19 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D12	D13	D13	D13	D13	D13	D13	D13	D13	D14	D14	D14	D14	D14		D14		D14		D15
Sample Date		10/04/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017		8/29/2017		8/29/2017		10/18/2017
Depth		36-37 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	15-16 ft	18-19 ft	24-25 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	2-3 ft	3-4 ft		8-9 ft		9.5-10.5 ft		0-0.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N		N	FD	N
Parameter	Units																				
General Parameters																					
Carbon, total organic	mg/kg	5150	20300	13300	5110	3420	1860	3140	3980	234 J	24600	15500	11300	4410	3410	1150	3520		2510	3860	22900
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--
Moisture	%	13.0	24.1	18.2	13.2	27.0	10.3	13.9	13.5	10.0	19.5 J	16.0 J	16.9 J	14.7 J	8.1 J	10.5 J	6.3 J		11.5 J	8.5 J	24.1 J
pH	pH units	8.57	7.94	8.08	8.22	8.32	8.46	8.36	8.73	8.61	7.74	7.77	7.82	8.02	7.91	7.89	7.90		7.87	7.94	7.50
Metals																					
Aluminum	mg/kg	9100 J	6900 J	8500 J	6170 J	16300 J	5570 J	6640 J	3210 J	8090 J	8570 J	8340 J	8580 J	13600 J	4760 J	5680 J	4920 J		5730 J	5520 J	13100
Antimony	mg/kg	0.153 J	0.289 J	0.369 J	0.180 J	0.283 J	0.154 J	0.211 J	< 0.107 UJ	0.127 J	0.387 J	0.276 J	0.320 J	0.251 J	0.112 J	0.128 J	< 0.0896 U		0.152 J	0.260 J	0.160 J
Arsenic	mg/kg	8.73 J	6.94	7.50	4.80	12.5	7.22	8.23	4.26	8.73	10.1 J	10.9 J	12.7 J	14.4 J	15.1 J	9.55 J	5.84 J		12.4 J	12.7 J	10.2
Barium	mg/kg	87.7 J	66.2	57.6	47.6	121	57.4	61.0	45.6	70.3	57.3 J	59.7 J	85.3 J	70.3 J	30.3 J	35.3 J	25.0 J		31.0 J	33.7 J	62.5
Beryllium	mg/kg	0.453	0.297	0.355	0.228 J	0.805	0.344	0.430	0.194 J	0.439	0.414	0.449	0.497	0.662	0.319	0.542	0.426		0.668	0.359	0.495
Cadmium	mg/kg	0.264	0.287	0.424	0.227 J	0.396	0.197 J	0.204 J	0.456	0.432	0.285	0.361	0.411	0.145 J	0.0962 J	0.120 J	0.105 J		0.178	0.110 J	0.189 J
Calcium	mg/kg	28000 J	38000 J	40700 J	28700 J	3240 J	51000 J	54100 J	90300 J	58600 J	40500 J	32400 J	40700 J	1420 J	111000 J	99200 J	118000 J		65700 J	98700 J	2640
Chromium	mg/kg	14.3	11.8	10.7	7.82	17.7	7.63	9.70	4.62	9.39	11.9	10.2	11.4	14.4	5.96	7.47	5.57		8.13	6.58	12.2
Cobalt	mg/kg	14.5 J	14.9	8.83	5.60	17.8	40.2	15.5	12.5	13.3	8.65	8.42	10.1	9.93	6.09	7.08	4.84		7.81	6.33	8.40
Copper	mg/kg	27.2	23.2	21.6	13.2	33.2	13.9	21.3	7.10	16.1	25.7 J	18.8 J	20.9 J	14.9 J	8.82 J	11.1 J	8.60 J		12.5 J	11.7 J	13.9
Iron	mg/kg	21700	18200 J	20900 J	13400 J	34300 J	17600 J	27500 J	10800 J	23800 J	18200 J	17600 J	21800 J	27200 J	14400 J	12300 J	10100 J		13200 J	15800 J	21600
Lead	mg/kg	10.0 J	74.9 J	80.9 J	31.3 J	29.8 J	8.37 J	16.5 J	8.10 J	13.5 J	52.7	51.2	58.6	15.1	9.57	8.67	6.23		10.3	10.6	16.9
Magnesium	mg/kg	13300 J	17800 J	19300 J	12500 J	6040 J	27300 J	22700 J	44000 J	20600 J	19300 J	17000 J	17900 J	3770 J	61200 J	28100 J	33500 J		18900 J	50500 J	3100
Manganese	mg/kg	560 J	624 J	572 J	389 J	1230 J	591 J	631 J	622 J	659 J	532	503	684	533	350	348	272		328	367	473 J
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--
Nickel	mg/kg	29.0 J	13.9	16.1	10.4	31.7	17.4	19.0	20.3	23.7	14.3 J	15.9 J	18.3 J	20.5 J	11.3 J	15.0 J	12.0 J		16.9 J	12.0 J	15.5
Potassium	mg/kg	1310	1270 J	1610 J	1170 J	2560 J	1240 J	1370 J	858 J	1810 J	1250 J	1130 J	1290 J	1510 J	968 J	1020 J	1110 J		951 J	1010 J	1440 J
Selenium	mg/kg	0.361 J	0.172 J	0.211 J	0.116 J	0.293 J	< 0.105 U	0.149 J	< 0.114 U	0.126 J	0.302 J	0.337 J	0.410 J	0.230 J	< 0.0989 U	< 0.102 U	< 0.0961 U		0.103 J	0.117 J	0.368 J
Silver	mg/kg	0.0577 J	0.0933 J	0.0932 J	0.0523 J	0.0949 J	0.0365 J	0.0509 J	< 0.0334 U	0.0554 J	0.359	0.533	1.08	0.0350 J	< 0.0289 U	< 0.0297 U	< 0.0281 U		0.0318 J	0.0325 J	0.0521 J
Sodium	mg/kg	199	69.0 J	76.1 J	53.5 J	266	97.7 J	108 J	74.0 J	67.7 J	79.6 J	84.4 J	117 J	278	136 J	101 J	82.9 J		102 J	149 J	78.1 J
Thallium	mg/kg	0.164 J	0.406	0.136 J	0.0715 J	0.266	0.110 J	0.157 J	0.116 J	0.166 J	0.111 J	0.115 J	0.162 J	0.149 J	0.176 J	0.199 J	0.151 J		0.215	0.147 J	0.234 J
Vanadium	mg/kg	12.1	12.9 J	13.4 J	8.74 J	23.7 J	8.96 J	9.52 J	5.49 J	11.0 J	17.8	16.7	17.0	18.7	8.30	8.36	6.89		8.90	9.40	17.5
Zinc	mg/kg	61.3	89.6	87.9	49.9	88.3	41.8	79.0	24.6	50.9	94.9 J	86.4 J	99.2 J	62.9 J	23.5 J	33.9 J	26.6 J		36.0 J	28.6 J	54.6
Per- and Polyfluoroalkyl Substances																					
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	0.27 J
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	0.25 J	0.25 J	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.13 U	< 0.12 U	< 0.12 U	< 0.13 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U		< 0.11 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	0.17 J	0.15 J	< 0.12 U	< 0.13 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	0.17 J	0.19 J	0.13 J	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U		< 0.11 U	< 0.11 U	0.18 J
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.32 U	0.55 J	0.56 J	< 0.35 U	< 0.39 U	< 0.32 U	< 0.34 U	< 0.34 U	< 0.31 U	0.76 J	0.73 J	0.43 J	< 0.33 U	< 0.31 U	< 0.33 U	< 0.31 U		< 0.32 U	< 0.32 U	0.44 J
Perfluorooctanoic acid (PFOA)	ng/g	< 0.21 U	0.54 J	1.1	0.54 J	2.0	0.53 J	0.51 J	< 0.23 U	< 0.21 U	0.50 J	0.54 J	0.34 J	0.72	0.36 J	< 0.22 U	< 0.21 U		< 0.22 U	0.34 J	3.8
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 UJ	< 0.23 UJ	< 0.26 UJ	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 UJ	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 UJ	< 0.21 U	< 0.22 UJ	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.25 U	< 0.24 U	< 0.23 U	< 0.26 U	< 0.21 U	< 0.23 U	< 0.23 U	< 0.21 U	0.27 J	0.22 J	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U		< 0.22 U	< 0.21 U	< 0.23 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D15	D15	D15	D15	D15	D15	D15		D15	D15	D16	D16	D16	D16	D16		D16	D16	D16
Sample Date		10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017	10/18/2017		10/19/2017	10/19/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017		9/20/2017	9/20/2017	9/21/2017
Depth		0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	38-39 ft	48-49 ft	73-74 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	8-9 ft	18-19 ft	28-29 ft	36-37 ft
Sample Type		N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	FD	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**13400**	**7560**	**6010**	**6630**	**6260**	**9430**	**9300**	**11600**	**6600**	**21600**	**5250 J**	**5170**	**3820**	**1070**	**500**	**604**	**938**	**270 J**	**433 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**20.3 J**	**16.8 J**	**7.6 J**	**7.0 J**	**7.3 J**	**9.3 J**	**9.2 J**	**5.9 J**	**8.9**	**9.3**	**11.4 J**	**7.3 J**	**13.4 J**	**12.2 J**	**10.6 J**	**10.8 J**	**16.0 J**	**9.0 J**	**20.3**
pH	pH units	**7.21**	**7.56**	**8.54**	**8.56**	**8.74**	**8.65**	**8.67**	**8.68**	**8.35**	**7.83**	**8.40**	**8.78**	**8.07**	**6.99**	**7.24**	**7.15**	**6.40**	**7.39**	**7.50**
Metals																				
Aluminum	mg/kg	**13200**	**13800**	**9540**	**8610**	**11000**	**9150**	**10200**	**9410**	--	--	**10500 J**	**2550 J**	**12100 J**	**10600 J**	**14100 J**	**14000 J**	**28100 J**	**5800 J**	--
Antimony	mg/kg	**0.159 J**	< 0.107 UJ	**0.0973 J**	**0.118 J**	**0.108 J**	**0.151 J**	**0.133 J**	**0.0927 J**	--	--	**0.146 J**	< 0.0693 U	**0.0962 J**	**0.237 J**	< 0.0983 U	< 0.0925 U	< 0.0991 U	< 0.0692 U	--
Arsenic	mg/kg	**9.30**	**10.1**	**6.90**	**7.02**	**6.51**	**10.9**	**5.78**	**6.27**	--	--	**7.48 J**	**2.79 J**	**7.83 J**	**9.77 J**	**6.85 J**	**7.60 J**	**5.11 J**	**0.579 J**	--
Barium	mg/kg	**60.4**	**63.4**	**56.1**	**48.8**	**65.4**	**56.9**	**61.9**	**53.6**	--	--	**47.0 J**	**16.9 J**	**46.5 J**	**90.4 J**	**69.4 J**	**69.1 J**	**173 J**	**32.3 J**	--
Beryllium	mg/kg	**0.456**	**0.486**	**0.385**	**0.362**	**0.450**	**0.365**	**0.368**	**0.394**	--	--	**0.583**	**0.253**	**0.702**	**0.699**	**0.676**	**0.690**	**1.02**	**0.157**	--
Cadmium	mg/kg	**0.191 J**	**0.107 J**	**0.123 J**	**0.108 J**	**0.198**	**0.133 J**	**0.0824 J**	**0.106 J**	--	--	**0.127 J**	**0.0457 J**	**0.133 J**	**0.168 J**	**0.0714 J**	**0.0999 J**	**0.0839 J**	< 0.0255 U	--
Calcium	mg/kg	**1700**	**2170**	**51300**	**50300**	**64400**	**63200**	**62800**	**88600**	--	--	**7130 J**	**15500 J**	**629 J**	**163 J**	**553 J**	**538 J**	**1550 J**	**226 J**	--
Chromium	mg/kg	**11.9**	**12.5**	**9.08**	**7.86**	**11.4**	**8.63**	**11.2**	**9.30**	--	--	**9.70 J**	**4.41 J**	**10.9 J**	**10.1 J**	**12.7 J**	**11.8 J**	**20.1 J**	**6.12 J**	--
Cobalt	mg/kg	**11.3**	**9.69**	**8.06**	**7.42**	**9.79**	**7.87**	**8.54**	**7.47**	--	--	**11.2 J**	**3.08 J**	**13.5 J**	**16.8 J**	**10.5 J**	**10.3 J**	**10.4 J**	**1.06 J**	--
Copper	mg/kg	**12.3**	**12.4**	**12.8**	**12.3**	**14.7**	**13.1**	**13.8**	**11.9**	--	--	**17.1 J**	**5.70 J**	**18.1 J**	**24.5 J**	**14.5 J**	**15.8 J**	**22.9 J**	**3.93 J**	--
Iron	mg/kg	**21600**	**23300**	**17400**	**17800**	**19200**	**17700**	**18300**	**17100**	--	--	**22000 J**	**10600 J**	**25300 J**	**23600 J**	**21900 J**	**23200 J**	**28600 J**	**2140 J**	--
Lead	mg/kg	**15.5**	**11.6**	**8.57**	**7.07**	**8.57**	**8.16**	**8.11**	**8.00**	--	--	**11.3 J**	**6.06 J**	**11.3 J**	**12.7 J**	**12.3 J**	**11.4 J**	**15.0 J**	**5.09 J**	--
Magnesium	mg/kg	**3400**	**3910**	**23600**	**21200**	**24500**	**23000**	**26200**	**29500**	--	--	**4900 J**	**8000 J**	**2430 J**	**1600 J**	**2880 J**	**2570 J**	**4670 J**	**476 J**	--
Manganese	mg/kg	**613 J**	**457 J**	**497 J**	**430 J**	**493 J**	**442 J**	**509 J**	**426 J**	--	--	**373 J**	**144 J**	**539 J**	**728 J**	**226 J**	**204 J**	**252 J**	**21.4 J**	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	**15.1**	**17.9**	**15.0**	**13.5**	**17.9**	**15.0**	**15.6**	**14.2**	--	--	**17.0 J**	**4.25 J**	**19.5 J**	**21.5 J**	**14.1 J**	**15.9 J**	**26.7 J**	**3.68 J**	--
Potassium	mg/kg	**1360 J**	**1580 J**	**1940 J**	**1710 J**	**2430 J**	**1980 J**	**2440 J**	**2110 J**	--	--	**1040 J**	**763 J**	**1070 J**	**1270 J**	**1340 J**	**1190 J**	**2050 J**	**656 J**	--
Selenium	mg/kg	**0.316 J**	**0.292 J**	< 0.0925 U	**0.0995 J**	**0.206 J**	**0.138 J**	**0.142 J**	**0.136 J**	--	--	**0.291 J**	**0.108 J**	**0.337 J**	**0.252 J**	< 0.106 U	< 0.0992 U	< 0.106 U	< 0.0743 U	--
Silver	mg/kg	**0.0468 J**	< 0.0334 U	< 0.0270 U	**0.0361 J**	**0.0430 J**	**0.0402 J**	**0.0325 J**	**0.0274 J**	--	--	**0.0305 J**	< 0.0217 U	< 0.0237 U	< 0.0268 U	< 0.0308 U	< 0.0290 U	**0.0639 J**	**0.0244 J**	--
Sodium	mg/kg	**86.8 J**	**74.9 J**	**86.5 J**	**79.3 J**	**103 J**	**79.8 J**	**99.1 J**	**98.0 J**	--	--	**242**	**57.2 J**	**285**	**284**	**206 J**	**202**	**401**	**191**	--
Thallium	mg/kg	**0.171 J**	**0.167 J**	**0.105 J**	**0.117 J**	**0.119 J**	**0.0890 J**	**0.0772 J**	**0.113 J**	--	--	**0.176 J**	**0.0564 J**	**0.213 J**	**0.307 J**	**0.200 J**	**0.199 J**	**0.352 J**	**0.0937 J**	--
Vanadium	mg/kg	**16.3**	**16.9**	**11.0**	**9.70**	**13.7**	**10.5**	**11.9**	**11.0**	--	--	**14.0**	**5.39**	**14.0**	**13.1**	**19.8**	**19.9**	**37.0**	**4.43**	--
Zinc	mg/kg	**51.5**	**48.4**	**39.7**	**37.8**	**46.6**	**42.1**	**39.1**	**40.6**	--	--	**45.3 J**	**13.4 J**	**55.2 J**	**45.1 J**	**36.5 J**	**36.1 J**	**89.8 J**	**10.0 J**	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	**0.20 J**	< 0.21 U	< 0.17 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U	< 0.083 U	< 0.092 U	< 0.085 U	< 0.092 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.10 U	< 0.095 U	< 0.083 U	< 0.078 U	< 0.084 U	< 0.11 U	< 0.077 U	< 0.078 U	< 0.084 U	< 0.10 U	< 0.086 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 U	< 0.083 U	< 0.092 U	< 0.085 U	< 0.092 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.10 U	< 0.095 U	< 0.083 U	< 0.078 U	< 0.084 U	< 0.11 U	< 0.077 U	< 0.078 U	< 0.084 U	< 0.10 U	< 0.086 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.37 U	< 0.25 U	< 0.28 U	< 0.26 U	< 0.28 U	< 0.31 U	< 0.27 U	< 0.31 U	< 0.30 U	< 0.29 U	< 0.25 U	< 0.23 U	< 0.25 U	< 0.32 U	< 0.23 U	< 0.23 U	< 0.25 U	< 0.31 U	< 0.26 U
Perfluorooctanoic acid (PFOA)	ng/g	**4.2**	**2.3**	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 UJ	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 UJ	< 0.16 UJ	< 0.17 UJ	< 0.21 U	< 0.15 U	< 0.16 UJ	< 0.17 U	< 0.21 UJ	< 0.17 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.25 U	< 0.17 U	< 0.18 U	< 0.17 U	< 0.18 U	< 0.21 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.17 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.17 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D17	D17	D17	D17	D17	D17	D18	D18	D18	D18	D18	D18	D18	D18	D18	D19	D19	D19	D19
Sample Date		10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/27/2017	8/25/2017	8/27/2017		8/30/2017	8/30/2017	8/30/2017	
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	9-10 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	15-16 ft	18-19 ft	24-25 ft	24-25 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	FD
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**20900**	**11500**	**6040**	**4150**	**3470**	**3630**	**6120**	**3130**	**2210**	**1200**	**765**	**1480 J**	**816**	**1710 J**	< 226 UJ	**19900**	**22600**	**5380 J**	**8770 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**16.3**	**11.9**	**11.4**	**10.7**	**8.9**	**13.6**	**6.8 J**	**9.0 J**	**15.2 J**	**17.3 J**	**28.1 J**	**26.7 J**	**32.5 J**	**9.0 J**	**8.8 J**	**18.8 J**	**18.2 J**	**17.7 J**	**17.0 J**
pH	pH units	**8.49 J**	**8.11 J**	**7.98 J**	**7.80 J**	**8.21 J**	**8.04**	**8.18**	**8.45**	**8.54**	**8.73**	**8.62**	**8.29**	**8.25**	**8.37**	**8.44**	**7.64**	**7.36**	**7.64**	**7.94**
Metals																				
Aluminum	mg/kg	**20600**	**22200**	**20000**	**21300**	**21600**	**23600**	**12900**	**11800**	**20300**	**18600**	**23000**	**21000**	**17600**	**13500**	**12400**	**7280**	**8640**	**11800**	**12800**
Antimony	mg/kg	**0.258 J**	**0.151 J**	**0.226 J**	**0.180 J**	**0.214 J**	**0.184 J**	**0.214 J**	**0.216 J**	**0.305 J**	**0.203 J**	**0.280 J**	**0.245 J**	**0.195 J**	**0.294 J**	**0.794**	**0.154 J**	**0.158 J**	**0.131 J**	**0.168 J**
Arsenic	mg/kg	**12.5 J**	**10.9 J**	**10.8 J**	**11.1 J**	**9.12 J**	**10.5 J**	**7.14 J**	**8.32 J**	**13.1 J**	**10.7 J**	**12.0 J**	**7.25**	**8.93 J**	**12.8**	**17.8**	**10.5**	**6.43**	**7.62 J**	**14.5 J**
Barium	mg/kg	**72.0 J**	**57.5 J**	**62.0 J**	**54.4 J**	**35.2 J**	**40.1 J**	**47.7 J**	**53.5 J**	**115 J**	**137 J**	**245 J**	**159**	**89.7 J**	**76.4**	**74.3**	**49.6 J**	**53.4 J**	**69.0 J**	**73.8 J**
Beryllium	mg/kg	**0.428**	**0.432**	**0.450**	**0.393**	**0.387**	**0.401**	**0.364**	**0.444**	**0.834**	**0.746**	**1.12**	**0.925**	**0.555**	**0.496**	**0.442**	**0.394**	**0.490**	**0.670**	**0.700**
Cadmium	mg/kg	**0.450 J**	**0.326 J**	**0.402 J**	**0.427 J**	**0.671 J**	**0.451 J**	**0.146 J**	**0.140 J**	**0.213 J**	**0.226**	**0.178 J**	**0.175 J**	**0.157 J**	**0.149 J**	**0.171 J**	**0.255**	**0.276**	**0.319**	**0.371**
Calcium	mg/kg	**2870 J**	**1520 J**	**953 J**	**879 J**	**1180 J**	**1000 J**	**1390 J**	**1050 J**	**1520 J**	**61500 J**	**20200 J**	**17600**	**15800 J**	**29000**	**21800**	**61500 J**	**37300 J**	**1890 J**	**1820 J**
Chromium	mg/kg	**25.8 J**	**26.5 J**	**23.0 J**	**27.1 J**	**30.9 J**	**32.1 J**	**13.6**	**12.2**	**22.3**	**21.9**	**27.2**	**23.9**	**21.0**	**19.2**	**18.1**	**7.91 J**	**9.59 J**	**11.8 J**	**12.0 J**
Cobalt	mg/kg	**17.7 J**	**16.6 J**	**17.1 J**	**23.1 J**	**18.6 J**	**18.3 J**	**13.2 J**	**10.4 J**	**20.3 J**	**16.0 J**	**19.1 J**	**16.6**	**15.4 J**	**17.1**	**19.5**	**7.47**	**8.64**	**11.4**	**13.4**
Copper	mg/kg	**50.5 J**	**56.2 J**	**48.3 J**	**64.5 J**	**73.6 J**	**73.6 J**	**18.3 J**	**18.7 J**	**32.8 J**	**27.1 J**	**36.6 J**	**28.2**	**26.4 J**	**43.4**	**38.6**	**11.9 J**	**15.2 J**	**13.6 J**	**14.3 J**
Iron	mg/kg	**33800**	**36900**	**36200**	**38800**	**38300**	**35100**	**27400**	**25100**	**40700**	**34200**	**37000**	**40500**	**35900**	**29500**	**28300**	**16000**	**18600**	**22900**	**23900**
Lead	mg/kg	**30.3 J**	**23.9 J**	**22.1 J**	**23.7 J**	**21.4 J**	**28.5 J**	**16.3 J**	**14.5 J**	**20.8 J**	**17.7 J**	**20.5 J**	**19.4**	**14.4 J**	**18.1**	**25.1**	**16.9 J**	**19.6 J**	**14.7 J**	**18.2 J**
Magnesium	mg/kg	**11100 J**	**13800 J**	**11100 J**	**14200 J**	**16800 J**	**17600 J**	**5020**	**4220**	**6660**	**20100**	**15500**	**13900**	**11200**	**16700 J**	**9640 J**	**29900**	**9220**	**3290**	**3200**
Manganese	mg/kg	**1070 J**	**965 J**	**1400 J**	**1240 J**	**1270 J**	**911 J**	**602**	**439**	**733**	**691**	**924**	**681**	**618**	**681**	**804**	**616 J**	**599 J**	**772 J**	**1010 J**
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	**42.8 J**	**45.2 J**	**40.8 J**	**52.0 J**	**60.3 J**	**57.8 J**	**20.9 J**	**20.0 J**	**35.1 J**	**28.3 J**	**34.0 J**	**34.1**	**30.9 J**	**32.2**	**32.4**	**12.8 J**	**14.6 J**	**19.7 J**	**20.9 J**
Potassium	mg/kg	**1530 J**	**1730 J**	**1680 J**	**1560 J**	**1720 J**	**1580 J**	**1320 J**	**1470 J**	**2630 J**	**2610 J**	**4850 J**	**4450**	**2610 J**	**2690**	**2740**	**1070 J**	**1080 J**	**1200 J**	**1330 J**
Selenium	mg/kg	< 0.342 UB	< 0.216 UB	< 0.273 UB	< 0.185 UB	< 0.276 UB	< 0.153 UB	**0.278 J**	**0.289 J**	**0.434 J**	**0.257 J**	**0.245 J**	**0.202 J**	**0.421 J**	**0.400 J**	**1.10**	**0.221 J**	**0.293 J**	**0.239 J**	**0.293 J**
Silver	mg/kg	**0.194 J**	**0.116 J**	**0.137 J**	**0.0845 J**	**0.140 J**	**0.0778 J**	**0.0586 J**	**0.0473 J**	**0.102 J**	**0.0751 J**	**0.0726 J**	**0.0629 J**	**0.0552 J**	**0.0862 J**	**0.0677 J**	**0.273**	**0.319**	**0.0867 J**	**0.0813 J**
Sodium	mg/kg	**184 J**	**124 J**	**124 J**	**94.9 J**	**88.6 J**	**107 J**	**125 J**	**183 J**	**381**	**415**	**241**	**145 J**	**81.9 J**	**65.5 J**	**64.0 J**	**221 J**	**246**	**235**	**267**
Thallium	mg/kg	**0.149 J**	**0.101 J**	**0.121 J**	**0.103 J**	**0.108 J**	**0.0999 J**	**0.0827 J**	**0.113 J**	**0.217 J**	**0.223**	**0.268**	**0.201 J**	**0.108 J**	**0.0802 J**	**0.0910 J**	**0.188 J**	**0.174**	**0.229**	**0.252**
Vanadium	mg/kg	**27.6 J**	**26.2 J**	**23.3 J**	**25.9 J**	**31.1 J**	**31.4 J**	**14.2 J**	**14.2 J**	**25.9 J**	**24.8 J**	**32.7 J**	**27.1**	**20.3 J**	**19.6**	**18.0**	**18.3**	**23.0**	**15.8**	**16.9**
Zinc	mg/kg	**109**	**108**	**89.2**	**87.0**	**102**	**97.0**	**66.3 J**	**52.3 J**	**88.1 J**	**81.4 J**	**90.1 J**	**97.9**	**85.3 J**	**66.0**	**64.6**	**54.7**	**61.3**	**68.2**	**75.1**
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.23 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.25 J**	**0.20 J**	**0.27 J**	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.25 J**	**0.25 J**	< 0.22 U	< 0.23 U
Perfluorodecanoic acid (PFDA)	ng/g	**0.35 J**	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.24 J**	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.36 J**	**0.30 J**	< 0.22 U	< 0.23 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.31 J**	**0.26 J**	< 0.22 U	< 0.23 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.23 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.23 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.075 U	< 0.088 U	< 0.10 U	< 0.077 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.13 U	< 0.14 U	< 0.14 U	< 0.10 U	< 0.11 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	**0.31 J**	**0.20 J**	< 0.075 U	< 0.088 U	< 0.10 U	< 0.077 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.13 U	< 0.14 U	< 0.14 U	< 0.10 U	< 0.11 U	**0.24 J**	**0.20 J**	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.32 U	< 0.23 U	< 0.26 U	< 0.30 U	< 0.23 U	< 0.31 U	< 0.30 U	< 0.35 U	< 0.35 U	< 0.39 U	< 0.41 U	< 0.42 U	< 0.31 U	< 0.32 U	**0.92 J**	**0.78 J**	< 0.33 U	< 0.34 U
Perfluorooctanoic acid (PFOA)	ng/g	**1.3**	**1.0**	**0.90**	**0.72**	**0.33 J**	**0.20 J**	**1.8**	**1.2**	**1.5**	**0.97**	**0.54 J**	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**1.7**	**1.6**	**1.8**	**1.4**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 UJ	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 UJ	< 0.24 UJ	< 0.22 UJ	< 0.23 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.23 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.23 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**0.23 J**	< 0.21 U	< 0.15 U	< 0.18 U	< 0.20 U	< 0.15 U	**0.22 J**	< 0.20 U	< 0.23 U	< 0.24 U	< 0.26 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.22 U	**0.37 J**	**0.31 J**	< 0.22 U	< 0.23 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D19	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D20	D21	D21	D21
Sample Date		8/30/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/19/2017	9/19/2017	9/19/2017	9/19/2017	9/19/2017	10/05/2017	10/05/2017	10/05/2017
Depth		2-3 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68.5-69.5 ft	75-77 ft	78-79 ft	78-79 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**2720**	**15300**	**52600**	**6720**	**3170**	< 335 U	< 233 U	**1120**	< 392 U	**1690**	< 320 U	< 324 U	< 351 U	**2760**	< 925 U	< 280 U	**48500 J**	**41100 J**	**21100 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.23 U	--	--	--	--
Moisture	%	**14.7**	**11.5**	**7.6**	**12.3**	**19.0**	**11.6**	**16.7**	**17.4**	**10.3**	**7.6**	**13.0**	**13.3**	**31.7**	**15.1**	**21.2 J**	**16.2**	**7.5**	**8.4**	**12.6**
pH	pH units	**8.20**	**8.36**	**8.64**	**9.02**	**8.86**	**8.02**	**8.50**	**8.41**	**8.75**	**8.74**	**8.77**	**8.55**	**8.09**	**9.25**	**8.58**	**--**	**7.75**	**8.04**	**8.36**
Metals																				
Aluminum	mg/kg	**10800**	**4310**	**1240**	**7180**	**12600**	**8930**	**8970**	**8730**	**9950**	**8130**	**10300**	**11000**	**7300**	**4720**	**6160**	**4700**	**5190**	**5200**	**8440**
Antimony	mg/kg	**0.116 J**	**0.233 J**	**0.627**	**0.244 J**	**0.224 J**	**0.126 J**	**0.171 J**	**0.135 J**	**0.225 J**	**0.221 J**	**0.332**	**0.287 J**	**0.491**	**0.0965 J**	**0.215 J**	**0.184 J**	**0.171 J**	**0.126 J**	**0.269 J**
Arsenic	mg/kg	**9.33**	**4.90**	**2.63**	**8.62**	**10.1**	**10.1**	**14.1**	**10.9**	**12.6**	**10.4**	**12.1**	**11.5**	**31.5**	**10.6**	**16.5**	**14.3**	**5.41**	**7.91**	**7.37**
Barium	mg/kg	**51.9 J**	**35.2**	**24.3**	**42.4**	**79.1**	**73.4**	**74.3**	**78.9**	**66.4**	**44.7**	**85.2**	**107**	**186**	**43.3**	**181**	**129**	**37.3**	**186**	**64.8**
Beryllium	mg/kg	**0.709**	**0.252**	**0.112 J**	**0.369**	**0.713**	**0.575**	**0.580**	**0.522**	**0.627**	**0.459**	**0.773**	**0.613**	**2.36**	**0.703**	**1.00**	**0.959**	**0.290**	**0.449**	**0.420**
Cadmium	mg/kg	**0.221**	**0.119 J**	**0.0620 J**	**0.188**	**0.229**	**0.174**	**0.197 J**	**0.224**	**0.364**	**0.138 J**	**0.222**	**0.314**	**0.489**	**0.154 J**	**0.737**	**0.58**	**0.273**	**0.427**	**0.307**
Calcium	mg/kg	**1990 J**	**90000**	**89300**	**60600**	**9110**	**1400**	**22100**	**39600**	**60000**	**128000**	**31200**	**62200**	**4490**	**96700**	**81800**	**69300**	**39400**	**35100**	**17500**
Chromium	mg/kg	**11.3 J**	**22.7**	**3.92**	**10.5**	**14.8**	**12.2**	**11.6**	**11.2**	**13.0**	**12.7**	**14.4**	**14.9**	**7.88**	**11.0**	**8.89**	**9.06**	**15.0**	**9.15**	**10.1**
Cobalt	mg/kg	**12.4**	**5.00**	**2.02**	**10.1**	**12.7**	**10.9**	**16.3**	**12.7**	**16.6**	**10.3**	**15.1**	**13.9**	**12.9**	**6.56**	**14.1**	**11.2**	**7.19**	**36.5**	**9.96**
Copper	mg/kg	**21.2 J**	**12.7**	**6.33**	**19.7**	**20.3**	**19.1**	**19.2**	**17.7**	**19.6**	**14.3**	**24.2**	**23.1**	**29.0**	**8.49**	**15.2**	**11.2**	**18.1**	**21.8**	**18.8**
Iron	mg/kg	**27100**	**12700**	**6130**	**19000**	**29800**	**20700**	**22500**	**22000**	**36200**	**17400**	**28800**	**26000**	**47800**	**17400**	**25500**	**20700**	**15600**	**19200**	**19800**
Lead	mg/kg	**15.2 J**	**68.3**	**35.2**	**55.7**	**19.6**	**11.1**	**16.0**	**14.1**	**14.7**	**11.2**	**16.8**	**14.6**	**23.5**	**12.0**	**18.0**	**14.3**	**57.8**	**55.9**	**81.1**
Magnesium	mg/kg	**4600**	**32200**	**44900**	**27600**	**8870**	**2560**	**9360**	**16600**	**17300**	**62900**	**15800**	**17500**	**2640**	**37100**	**10400**	**6330**	**13600**	**12500**	**10300**
Manganese	mg/kg	**557 J**	**317**	**236**	**382**	**762**	**619**	**742**	**809**	**878**	**409**	**710**	**596**	**1840**	**423**	**2250**	**1430**	**408**	**2090**	**612**
Mercury	mg/kg	--	**0.0245 J**	**0.0373 J**	**0.0179 J**	**0.0362 J**	**0.0284 J**	**0.0162 J**	**0.0147 J**	**0.0142 J**	**0.0151 J**	**0.0759 J**	**0.0356 J**	**0.0229 J**	**0.0343 J**	**0.0415 J**	**0.0452 J**	--	--	--
Nickel	mg/kg	**28.3 J**	**9.71**	**4.32**	**14.9**	**22.8**	**18.7**	**24.4**	**21.3**	**25.1**	**17.8**	**27.0**	**25.4**	**36.0**	**14.2**	**31.5**	**23.2**	**12.6**	**21.9**	**17.7**
Potassium	mg/kg	**1390 J**	**971**	**438**	**1330**	**1860**	**1340**	**1600**	**1470**	**1660**	**1690**	**1760**	**1740**	**1490**	**2420**	**1620**	**1500**	**845**	**754**	**1070**
Selenium	mg/kg	**0.137 J**	< 0.0850 U	< 0.0873 U	**0.239 J**	**0.165 J**	< 0.0808 U	< 0.107 U	**0.109 J**	**0.106 J**	**0.786**	< 0.0771 U	**0.0950 J**	< 0.109 U	< 0.0913 U	< 0.0976 U	< 0.0904 U	**0.201 J**	**0.220 J**	**0.366 J**
Silver	mg/kg	**0.0720 J**	**0.0347 J**	**0.0289 J**	**0.0430 J**	**0.0422 J**	**0.0288 J**	< 0.0313 U	< 0.0240 U	**0.0358 J**	**0.0317 J**	**0.0264 J**	**0.0287 J**	**0.0416 J**	**0.0865 J**	**0.113 J**	**0.0813 J**	**0.0556 J**	**0.188**	**0.0943 J**
Sodium	mg/kg	**272**	**54.9 J**	**42.7 J**	**123 J**	**655**	**255**	**286**	**261**	**84.8 J**	**100 J**	**46.1 J**	**47.1 J**	**22.7 J**	**29.3 J**	**21.5 J**	**15.9 J**	**59.4 J**	**82.7 J**	**208**
Thallium	mg/kg	**0.250**	**0.0704 J**	**0.0713 J**	**0.192**	**0.179**	**0.218**	**0.280**	**0.208**	**0.242**	**0.0929 J**	**0.227**	**0.198**	**0.576**	**0.109 J**	**0.582**	**0.466**	**0.117 J**	**0.894**	**0.149 J**
Vanadium	mg/kg	**13.2**	**17.2**	**13.3**	**13.3**	**18.2**	**14.9**	**15.7**	**13.2**	**13.7**	**13.3**	**16.5**	**16.9**	**22.9**	**10.3**	**12.5**	**11.0**	**11.9**	**10.7**	**14.0**
Zinc	mg/kg	**52.0**	**50.7**	**21.8**	**53.1**	**65.6**	**42.4**	**55.9**	**55.7**	**72.4**	**46.7**	**66.3**	**61.3**	**91.1**	**34.3**	**85.3**	**78.2**	**65.0**	**91.9**	**73.0**
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.097 U	< 0.093 U	< 0.076 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.095 U	< 0.14 U	< 0.12 U	< 0.12 U	--	< 0.11 U	< 0.097 U	**0.15 J**
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.097 U	< 0.093 U	< 0.076 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.095 U	< 0.14 U	< 0.12 U	< 0.12 U	--	< 0.11 U	< 0.097 U	< 0.079 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.29 U	< 0.28 U	< 0.23 U	< 0.31 U	< 0.31 U	< 0.31 U	< 0.35 U	< 0.33 U	< 0.32 U	< 0.30 U	< 0.28 U	< 0.43 U	< 0.35 U	< 0.35 U	--	**0.73 J**	**0.55 J**	**0.28 J**
Perfluorooctanoic acid (PFOA)	ng/g	**1.4 J**	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	**0.47 J**	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	**1.6**	**0.90**	**2.9**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 UJ	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 UJ	< 0.24 UJ	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.19 U	< 0.19 U	< 0.15 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.29 U	< 0.24 U	< 0.24 U	--	< 0.22 U	< 0.19 U	< 0.16 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D21	D21	D21	D22	D22	D22	D22	D22	D22	D23	D23	D23	D23		D23	D23	D23	D23	D23
Sample Date		10/05/2017	10/05/2017	10/05/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017		9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017
Depth		3-4 ft	8-9 ft	14-15 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	14-15 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	6-7 ft		6-7 ft	12-13 ft	18-19 ft	28-29 ft	36-37 ft	41-42 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N		FD	N	N	N	N	N
Parameter	Units																				
General Parameters																					
Carbon, total organic	mg/kg	**6280 J**	**9830 J**	**9480 J**	**18300**	**9010**	**7820**	**2370**	**3770**	**38700**	**5010**	**9840**	**5430**	**720 J**		**7070 J**	**1000**	**1720**	**1100**	**13400 J**	**1370 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--
Moisture	%	**13.3**	**12.3**	**15.0**	**15.5**	**13.5**	**15.5**	**17.0**	**9.0**	**12.9**	**12.5 J**	**14.3 J**	**8.2 J**	**13.1 J**		**12.4**	**11.5 J**	**11.5 J**	**11.7 J**	**11.6 J**	**18.8 J**
pH	pH units	**8.39**	**8.85**	**8.50**	**8.67**	**8.73**	**8.55 J**	**8.51 J**	**8.93 J**	**8.98 J**	**7.91**	**8.01**	**8.79**	**8.44**		**8.42**	**8.22**	**8.20**	**8.26**	**8.19**	**8.40**
Metals																					
Aluminum	mg/kg	**11700**	**4400**	**4690**	**10200**	**10600**	**13900**	**13600**	**13000**	**4470**	**14000**	**11400**	**10500**	**13500**		--	**16200**	**17300**	**17500**	**16100**	**20100**
Antimony	mg/kg	< 0.0943 U	**0.106 J**	**0.132 J**	**0.167 J**	**0.175 J**	**0.116 J**	**0.162 J**	**0.104 J**	**0.0782 J**	**0.0924 J**	< 0.0750 UJ	**0.0873 J**	**0.156 J**		--	**0.130 J**	**0.128 J**	**0.162 J**	**0.131 J**	< 0.0973 UJ
Arsenic	mg/kg	**10.1**	**6.70**	**5.66**	**12.5 J**	**13.3 J**	**16.9 J**	**14.3 J**	**9.19 J**	**4.71 J**	**7.17 J**	**6.31 J**	**5.41 J**	**13.9 J**		--	**7.22 J**	**6.09 J**	**7.81 J**	**6.95 J**	**5.70 J**
Barium	mg/kg	**61.5**	**35.9**	**68.7**	**79.5 J**	**93.5 J**	**139 J**	**91.0 J**	**93.6 J**	**25.4 J**	**52.6 J**	**49.7 J**	**44.6 J**	**107 J**		--	**97.5 J**	**112 J**	**113 J**	**108 J**	**71.2 J**
Beryllium	mg/kg	**0.762**	**0.360**	**0.361**	**0.471**	**0.535**	**0.798**	**0.601**	**0.466**	**0.190**	**0.402**	**0.435**	**0.413**	**0.636**		--	**0.647**	**0.690**	**0.683**	**0.709**	**0.366**
Cadmium	mg/kg	**0.235**	**0.150 J**	**0.154 J**	**0.369 J**	**0.368 J**	**0.437 J**	**0.301 J**	**0.219 J**	**0.0882 J**	**0.211**	**0.176**	**0.147 J**	**0.228**		--	**0.130 J**	**0.180**	**0.197**	**0.189**	**0.170 J**
Calcium	mg/kg	**1120**	**49800**	**60800**	**6890 J**	**7670 J**	**2300 J**	**13200 J**	**47500 J**	**232000 J**	**6360 J**	**14700 J**	**36400 J**	**31400 J**		--	**42800 J**	**38300 J**	**29300 J**	**41700 J**	**6980 J**
Chromium	mg/kg	**12.5**	**14.5**	**5.00**	**13.9 J**	**12.3 J**	**14.7 J**	**14.0 J**	**14.5 J**	**6.40 J**	**16.4 J**	**12.8 J**	**12.8 J**	**14.0 J**		--	**19.6 J**	**19.2 J**	**20.2 J**	**18.6 J**	**24.8 J**
Cobalt	mg/kg	**22.8**	**9.56**	**8.92**	**12.7 J**	**12.2 J**	**13.4 J**	**13.8 J**	**11.3 J**	**4.00 J**	**12.1**	**9.55**	**8.51**	**13.1**		--	**10.1**	**13.6**	**14.0**	**12.3**	**19.7**
Copper	mg/kg	**19.2**	**16.2**	**11.1**	**24.2 J**	**19.2 J**	**23.4 J**	**26.3 J**	**21.9 J**	**6.67 J**	**20.4**	**14.8**	**17.2**	**22.0**		--	**24.8**	**26.3**	**28.1**	**24.1**	**48.4**
Iron	mg/kg	**27100**	**15600**	**14200**	**24600**	**29400**	**30400**	**28200**	**24700**	**8980**	**29400**	**29100**	**22200**	**26400**		--	**28400**	**28800**	**31400**	**28100**	**39200**
Lead	mg/kg	**16.2**	**7.73**	**7.77**	**35.9 J**	**25.5 J**	**22.1 J**	**16.2 J**	**13.8 J**	**4.77 J**	**31.2**	**26.6**	**21.2**	**15.5**		--	**13.5**	**17.8**	**18.3**	**16.7**	**22.6**
Magnesium	mg/kg	**3070**	**22800**	**26700**	**6130 J**	**4850 J**	**4650 J**	**11100 J**	**16900 J**	**16300 J**	**6470 J**	**11100 J**	**19600 J**	**16800 J**		--	**19800 J**	**19800 J**	**16900 J**	**18400 J**	**11700 J**
Manganese	mg/kg	**636**	**445**	**625**	**783 J**	**916 J**	**1060 J**	**882 J**	**787 J**	**224 J**	**479**	**541**	**390**	**881**		--	**470**	**659**	**697**	**671**	**408**
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--
Nickel	mg/kg	**24.3**	**16.3**	**13.8**	**24.4 J**	**23.6 J**	**30.4 J**	**29.2 J**	**24.0 J**	**10.2 J**	**25.7**	**18.9**	**17.1**	**24.0**		--	**24.7**	**28.2**	**30.9**	**25.7**	**44.6**
Potassium	mg/kg	**1260**	**778**	**1040**	**1190 J**	**1350 J**	**1690 J**	**1750 J**	**2350 J**	**1710 J**	**1450 J**	**1170 J**	**1630 J**	**2210 J**		--	**2850 J**	**3100 J**	**2980 J**	**2840 J**	**1960 J**
Selenium	mg/kg	**0.283 J**	**0.147 J**	**0.118 J**	< 0.234 UB	< 0.208 UB	< 0.212 UB	< 0.111 UB	< 0.0939 U	< 0.0832 U	**0.147 J**	**0.124 J**	**0.0976 J**	< 0.0805 U		--	**0.101 J**	**0.185 J**	**0.174 J**	**0.103 J**	**0.162 J**
Silver	mg/kg	**0.0358 J**	< 0.0226 U	**0.0375 J**	**0.101 J**	**0.0964 J**	**0.140 J**	**0.0563 J**	**0.0380 J**	< 0.0243 U	**0.0462 J**	**0.0433 J**	**0.0270 J**	**0.0452 J**		--	**0.0655 J**	**0.0504 J**	**0.0468 J**	**0.0578 J**	**0.0399 J**
Sodium	mg/kg	**198 J**	**127 J**	**20.7 J**	**283**	**450**	**567**	**432**	**288**	**103 J**	**93.2 J**	**121 J**	**377**	**591**		--	**87.2 J**	**94.3 J**	**80.2 J**	**86.4 J**	**74.8 J**
Thallium	mg/kg	**0.265**	**0.115 J**	**0.181 J**	**0.197 J**	**0.188 J**	**0.255 J**	**0.208 J**	**0.197 J**	**0.114 J**	**0.102 J**	**0.0887 J**	**0.104 J**	**0.267**		--	**0.146 J**	**0.160 J**	**0.132 J**	**0.179 J**	**0.0670 J**
Vanadium	mg/kg	**16.6**	**6.52**	**6.72**	**18.5 J**	**16.4 J**	**19.9 J**	**17.4 J**	**17.3 J**	**6.51 J**	**14.4**	**12.6**	**17.8**	**17.7**		--	**21.5**	**21.9**	**22.5**	**20.7**	**24.6**
Zinc	mg/kg	**56.3**	**31.6**	**33.7**	**66.6**	**64.3**	**65.7**	**70.6**	**56.2**	**19.9**	**82.9**	**70.9**	**57.9**	**65.2**		--	**70.6**	**74.6**	**78.7**	**72.7**	**99.3**
Per- and Polyfluoroalkyl Substances																					
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	**0.20 J**	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.087 U	< 0.10 U	< 0.10 U	< 0.088 U	< 0.11 U	< 0.099 U	< 0.11 U	< 0.082 U	< 0.077 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U		< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.087 U	< 0.10 U	< 0.10 U	**0.15 J**	< 0.11 U	< 0.099 U	< 0.11 U	< 0.082 U	< 0.077 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U		< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.26 U	< 0.31 U	< 0.30 U	**0.38 J**	< 0.32 U	< 0.30 U	< 0.33 U	< 0.25 U	< 0.23 U	< 0.33 U	**0.38 J**	< 0.32 U	< 0.33 U		< 0.32 U	< 0.31 U	< 0.34 U	< 0.31 U	< 0.32 U	< 0.34 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.73**	**0.27 J**	< 0.20 U	**0.18 J**	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	**0.50 J**	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 UJ	< 0.23 UJ	< 0.21 UJ	< 0.22 UJ		< 0.21 UJ	< 0.21 UJ	< 0.23 UJ	< 0.21 UJ	< 0.21 U	< 0.22 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.17 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.21 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.15 U	< 0.22 U	< 0.23 U	< 0.21 U	< 0.22 U		< 0.21 U	< 0.21 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.22 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D23	D24	D24	D24	D24	D24	D24	D24	D24	D24	D24	D24	S01	S01	S01	S01	S01	S02	S02
Sample Date		9/07/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/23/2017	9/24/2017	9/24/2017	9/24/2017	9/05/2017	9/05/2017	9/05/2017	9/05/2017	9/05/2017	9/07/2017	9/07/2017
Depth		48-49 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	9-10 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	0-0.5 ft	0.5-1 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**506 J**	**9680 J**	**5290 J**	**5820 J**	**4050 J**	**6240 J**	**19900 J**	**12500 J**	**9900 J**	**1460**	**646**	**707 J**	**12000 J**	**4210**	**9530**	**628 J**	**791 J**	**19700**	**15000**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**14.0 J**	**17.5 J**	**12.5 J**	**12.0 J**	**13.8 J**	**10.5 J**	**10.2**	**10.9 J**	**12.1 J**	**20.6 J**	**21.3 J**	**18.0 J**	**13.3**	**5.0**	**15.4**	**7.5**	**8.8**	**19.2 J**	**8.6 J**
pH	pH units	**8.41**	**6.48**	**6.80**	**7.04**	**7.82**	**8.37**	**8.59**	**8.48**	**8.52**	**8.10**	**8.00**	**7.93**	**7.92**	**8.33**	**7.89**	**7.89**	**8.09**	**7.76**	**8.36**
Metals																				
Aluminum	mg/kg	**20600**	**18300**	**17100**	**19500**	**20800**	**17100**	**16200**	**15600**	**15700**	**4370**	**16600**	**8600**	--	--	--	--	--	--	--
Antimony	mg/kg	**0.125 J**	**0.117 J**	**0.226 J**	**0.154 J**	**0.180 J**	**0.163 J**	**0.174 J**	**0.123 J**	**0.144 J**	< 0.0815 UJ	**0.444 J**	**0.300 J**	--	--	--	--	--	--	--
Arsenic	mg/kg	**7.70 J**	**9.49**	**11.4**	**12.4**	**13.5**	**10.0**	**9.12**	**12.4**	**8.97**	**15.7**	**51.6**	**73.4**	--	--	--	--	--	--	--
Barium	mg/kg	**109 J**	**103 J**	**92.2 J**	**121 J**	**120 J**	**123 J**	**91.3 J**	**93.4 J**	**82.9 J**	**18.4 J**	**50.9 J**	**60.0 J**	--	--	--	--	--	--	--
Beryllium	mg/kg	**0.350**	**0.686**	**0.777**	**0.736**	**0.824**	**0.586**	**0.598**	**0.763**	**0.631**	**0.416**	**1.38**	**2.24**	--	--	--	--	--	--	--
Cadmium	mg/kg	**0.314**	**0.334**	**0.260**	**0.247**	**0.228**	**0.230**	**0.213**	**0.221 J**	**0.296**	**0.156 J**	**0.571**	**0.701**	--	--	--	--	--	--	--
Calcium	mg/kg	**2360 J**	**1000**	**715**	**1160**	**1890**	**39400**	**62700**	**47100**	**56800**	**261**	**875**	**548**	--	--	--	--	--	--	--
Chromium	mg/kg	**23.4 J**	**18.4**	**19.3**	**20.2**	**25.1**	**19.7**	**21.1**	**17.3**	**16.5**	**1.69**	**9.34**	**9.54**	--	--	--	--	--	--	--
Cobalt	mg/kg	**20.1**	**15.2 J**	**19.2 J**	**18.8 J**	**18.5 J**	**15.6 J**	**14.3 J**	**16.8 J**	**13.0 J**	**4.57 J**	**21.9 J**	**15.6 J**	--	--	--	--	--	--	--
Copper	mg/kg	**43.9**	**24.3**	**28.4**	**42.8**	**41.0**	**31.0**	**37.4**	**33.5**	**26.3**	**16.9**	**47.2**	**45.0**	--	--	--	--	--	--	--
Iron	mg/kg	**33900**	**31700 J**	**30900 J**	**36800 J**	**36500 J**	**30500 J**	**27300 J**	**29100 J**	**29400 J**	**11300 J**	**34800 J**	**29300 J**	--	--	--	--	--	--	--
Lead	mg/kg	**39.9**	**19.4 J**	**18.3 J**	**18.8 J**	**20.3 J**	**16.2 J**	**15.2 J**	**17.7 J**	**13.9 J**	**13.1 J**	**19.8**	**28.8 J**	--	--	--	--	--	--	--
Magnesium	mg/kg	**9990 J**	**5660**	**5840**	**7330**	**7440**	**14300**	**17200**	**13900**	**15400**	**305**	**978**	**591**	--	--	--	--	--	--	--
Manganese	mg/kg	**287**	**876 J**	**705 J**	**834 J**	**843 J**	**802 J**	**638 J**	**673 J**	**617 J**	**450 J**	**1010 J**	**1250 J**	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	**45.7**	**29.7 J**	**34.3 J**	**39.7 J**	**42.5 J**	**33.5 J**	**32.2 J**	**40.6 J**	**28.8 J**	**13.7 J**	**50.8 J**	**53.2 J**	--	--	--	--	--	--	--
Potassium	mg/kg	**2020 J**	**2150 J**	**2230 J**	**2790 J**	**3480 J**	**3160 J**	**3140 J**	**2940 J**	**2780 J**	**368 J**	**862 J**	**427 J**	--	--	--	--	--	--	--
Selenium	mg/kg	**0.169 J**	**0.363 J**	**0.300 J**	**0.245 J**	**0.182 J**	**0.157 J**	**0.267 J**	**0.218 J**	**0.195 J**	**0.197 J**	**0.305 J**	**0.312 J**	--	--	--	--	--	--	--
Silver	mg/kg	**0.0421 J**	**0.118 J**	**0.0372 J**	**0.0316 J**	**0.0666 J**	**0.0513 J**	**0.145 J**	**0.0420 J**	**0.0769 J**	< 0.0255 U	< 0.0337 U	< 0.0336 U	--	--	--	--	--	--	--
Sodium	mg/kg	**75.5 J**	**74.4 J**	**82.2 J**	**122 J**	**271**	**93.9 J**	**90.4 J**	**87.9 J**	**80.2 J**	< 80.3 U	< 100 U	**29.1 J**	--	--	--	--	--	--	--
Thallium	mg/kg	**0.0700 J**	**0.191 J**	**0.197 J**	**0.171 J**	**0.186 J**	**0.194 J**	**0.157 J**	**0.130 J**	**0.176 J**	**0.163 J**	**0.437 J**	**0.691 J**	--	--	--	--	--	--	--
Vanadium	mg/kg	**24.3**	**22.4**	**22.9**	**23.0**	**29.0**	**22.5**	**20.9**	**17.3**	**16.8**	**5.87**	**25.8**	**33.5**	--	--	--	--	--	--	--
Zinc	mg/kg	**95.9**	**87.2**	**70.7**	**80.4**	**78.5**	**72.0**	**66.9**	**69.6**	**70.4**	**54.9**	**131**	**121**	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	**0.21 J**	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	**0.28 J**	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	**0.16 J**	< 0.092 U	< 0.091 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.094 U	< 0.078 U	< 0.11 U	< 0.099 U	< 0.12 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.10 U	< 0.092 U	< 0.091 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.094 U	< 0.078 U	< 0.11 U	< 0.099 U	< 0.12 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.32 U	< 0.30 U	< 0.28 U	< 0.27 U	< 0.34 U	< 0.34 U	< 0.24 U	< 0.28 U	< 0.23 U	< 0.32 U	< 0.30 U	< 0.35 U	< 0.34 U	< 0.30 U	**0.50 J**	< 0.31 U	< 0.31 U	< 0.34 U	< 0.30 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.21 U	**3.6**	**1.2 J**	**0.43 J**	**0.59 J**	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	**0.23 J**	**1.5**	**0.48 J**	**0.27 J**	< 0.23 U	< 0.20 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 UJ	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 UJ	< 0.23 UJ	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 UJ	< 0.23 UJ	< 0.20 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.20 U	< 0.18 U	< 0.18 U	< 0.23 U	< 0.22 U	< 0.16 U	< 0.19 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.23 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.20 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S02	S02	S02	S02	S02	S03	S03	S03	S03	S03	S04	S04	S04	S04	S04	S05	S05		S05
Sample Date		9/07/2017	9/07/2017	9/07/2017	9/12/2017	9/12/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/06/2017	9/05/2017	9/05/2017		9/05/2017
Depth		1-1.5 ft	3-4 ft	8-9 ft	0.5-1 ft	1-1.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.6-7.6 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	7-8 ft	0-0.5 ft	0.5-1 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**32600**	**1750**	**3230**	**45700 J**	**21200 J**	**13900**	**12800**	**12000**	**5400**	**8280**	**15200**	**11700**	**8630**	**2540**	**1470**	**16200**	**5230**	**5930**	**7010**
Cyanide	mg/kg	--	--	--	< 0.20 U	< 0.19 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**8.4 J**	**4.8 J**	**9.1 J**	**10.7**	**7.6**	**22.0 J**	**22.5 J**	**18.6 J**	**20.2 J**	**17.9 J**	**11.6**	**17.3**	**16.5**	**7.1**	**8.2**	**16.3**	**9.3 J**	**4.7 J**	**9.5**
pH	pH units	**8.44**	**9.10**	**8.77**	--	--	**8.00**	**7.97**	**8.00**	**8.29**	**7.92**	**7.97**	**7.51**	**7.85**	**7.62**	**7.47**	**7.74**	**8.32**	**8.18**	**8.25**
Metals																				
Aluminum	mg/kg	--	--	--	**4980**	**6320**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	**0.239 J**	**0.131 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	**3.94**	**6.72**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	**27.8**	**25.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	**0.226**	**0.293**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	**0.152 J**	**0.150**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	**71100**	**31500**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	**13.4**	**10.0**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	**5.75**	**6.47**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	**11.3**	**15.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	**15300**	**19400**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	**21.4**	**33.4**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	**29800**	**17800**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	**253**	**421**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	< 0.0112 U	**0.0196 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	**11.7**	**15.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	**991**	**593**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	< 0.111 U	**0.149 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	< 0.0324 U	**0.0260 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	**65.2 J**	**47.6 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	**0.0516 J**	**0.0740 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	**16.4**	**11.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	**55.8**	**52.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.19 U	**0.34 J**	--	--	< 0.26 U	**0.34 J**	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	**0.43 J**	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.099 U	< 0.097 U	< 0.10 U	--	--	< 0.13 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.12 U	**0.18 J**	< 0.10 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.10 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.099 U	< 0.097 U	< 0.10 U	--	--	**0.22 J**	**0.23 J**	**0.18 J**	< 0.12 U	< 0.11 U	< 0.11 U	**0.17 J**	< 0.11 U	< 0.10 U	< 0.11 U	**0.23 J**	< 0.11 U	< 0.10 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.30 U	< 0.29 U	< 0.30 U	--	--	**0.76 J**	**1.0 J**	**0.84 J**	< 0.37 U	< 0.33 U	< 0.32 U	**0.72 J**	**0.39 J**	< 0.30 U	< 0.32 U	**0.56 J**	< 0.33 U	< 0.31 U	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	**2.0**	**2.8**	**2.4**	**0.86**	**0.78**	**0.41 J**	**1.7**	**2.2**	< 0.20 U	< 0.21 U	**1.3**	**0.87**	**0.28 J**	**0.57 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 U	< 0.19 UJ	< 0.20 UJ	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 UJ	< 0.23 UJ	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 UJ	< 0.21 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.19 U	< 0.20 U	--	--	< 0.26 U	< 0.25 U	< 0.24 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.20 U	< 0.21 U	**0.24 J**	< 0.22 U	< 0.21 U	< 0.21 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S05	S05	S06	S06	S06	S06	S06	S07	S07	S07	S07	S07	S08	S08	S08	S08	S09	S09	S09
Sample Date		9/05/2017	9/05/2017	8/14/2017	8/14/2017	8/14/2017	8/14/2017	8/14/2017	8/18/2017	8/18/2017	8/18/2017	8/18/2017	8/18/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	8/22/2017	8/22/2017	8/22/2017
Depth		3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2.2 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**2610**	**770 J**	**3050 J**	**3320 J**	**4570 J**	**9520 J**	**1950 J**	**23400**	**16100**	**12900**	**1920**	**1070 J**	**15300**	**6040**	**5940**	**12000**	**23200 J**	**18100 J**	**4580 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**10.0**	**12.3**	**7.8**	**9.9**	**17.4**	**18.9**	**11.1**	**14.0 J**	**21.9 J**	**18.5 J**	**10.5 J**	**12.8 J**	**23.3 J**	**18.4 J**	**19.3 J**	**23.4 J**	**19.6 J**	**20.3 J**	**12.3 J**
pH	pH units	**8.18**	**7.88**	**8.42**	**8.53**	**8.17**	**7.84**	**7.86**	**7.84**	**8.31**	**8.24**	**8.84**	**8.74**	**7.88**	**7.97**	**7.94**	**7.65**	**8.24**	**8.49**	**8.95**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	**0.25 J**	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	**0.36 J**	**0.25 J**	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.11 U	**0.20 J**	**0.18 J**	< 0.10 U	< 0.11 U	< 0.13 U	< 0.12 U	< 0.11 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	**0.25 J**	< 0.12 U	< 0.12 U	< 0.10 U	< 0.11 U	< 0.13 U	< 0.12 U	< 0.11 U	< 0.12 U	**0.20 J**	**0.20 J**	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.31 U	< 0.32 U	< 0.30 U	< 0.33 U	**0.34 J**	< 0.36 U	< 0.32 U	**0.55 J**	< 0.36 U	< 0.36 U	< 0.31 U	< 0.32 U	**1.6**	**1.8**	**1.2**	**0.94 J**	**0.49 J**	**0.40 J**	< 0.33 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.47 J**	**0.39 J**	< 0.20 U	< 0.22 U	**0.78**	**3.2**	**0.41 J**	**2.3**	**5.5**	**4.0**	**0.55 J**	< 0.21 U	**0.89**	**1.4**	**0.56 J**	**0.71 J**	**0.26 J**	**0.45 J**	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 U	< 0.22 UJ	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 UJ	< 0.24 UJ	< 0.23 UJ	< 0.24 UJ	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.22 U	< 0.20 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.21 U	< 0.22 U	< 0.24 U	< 0.24 U	< 0.21 U	< 0.21 U	< 0.26 U	< 0.24 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.25 U	< 0.22 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S09	S09	S10	S10	S10	S10	S10	S11	S11	S11	S11	S11	S11	S11	S12		S12	S12	S12
Sample Date		8/22/2017	8/22/2017	8/23/2017	8/23/2017	8/23/2017	8/23/2017	8/23/2017	8/28/2017	8/28/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	9/07/2017	8/25/2017		8/25/2017	8/25/2017	8/25/2017
Depth		3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	4.1-5.1 ft	1-1.5 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	7.4-8.4 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**4360 J**	< 241 U	**29100**	**20400**	**20100**	**9980**	**16100**	**10500 J**	**1920 J**	**7520**	**6540**	**5530**	**4810**	**1790**	**12700 J**	**2460 J**	**7310**	**5060**	**3360**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**9.5 J**	**6.6 J**	**17.1 J**	**15.0 J**	**14.0 J**	**24.3 J**	**20.0 J**	**10.1 J**	**20.8 J**	**20.1 J**	**17.0 J**	**16.7 J**	**9.0 J**	**18.1 J**	**10.1 J**	**15.9 J**	**8.5**	**5.8**	**9.9 J**
pH	pH units	**8.58**	**8.11**	**7.38**	**7.45**	**7.67**	**7.58**	**7.91**	**8.69**	**8.60**	**8.39**	**8.05**	**8.24**	**8.49**	**8.48**	**8.68**	**8.64**	**8.88**	**8.96**	**8.54**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.13 U	< 0.12 U	< 0.11 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.21 J**	< 0.12 U	< 0.11 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.31 U	< 0.34 U	< 0.33 U	**0.42 J**	**1.0 J**	< 0.35 U	< 0.32 U	< 0.37 U	< 0.35 U	< 0.36 U	< 0.35 U	< 0.33 U	< 0.33 U	< 0.31 U	< 0.35 U	< 0.30 U	< 0.31 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.24 J**	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	**0.28 J**	**1.4**	**2.9**	< 0.25 U	**0.54 J**	**0.83**	**1.5**	**1.0**	< 0.22 U	**0.33 J**	**0.39 J**	**0.52 J**	**0.21 J**	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 UJ	< 0.24 UJ	< 0.23 U	< 0.22 U	< 0.22 UJ	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.25 U	< 0.23 U	< 0.24 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.21 U	< 0.21 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S12	S12	S14	S14	S14	S14	S14	S30	S30	S30	S30	S30	S31	S31	S31	S31	S31	S32	
Sample Date		8/25/2017	8/25/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/28/2017	8/18/2017	8/18/2017	8/18/2017	8/18/2017	8/18/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/25/2017	8/24/2017	
Depth		4.5-4.9 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0-0.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	--	< 312 U	**28300 J**	**13500 J**	**7760 J**	**259 J**	< 223 U	**23800**	**11400**	**10600**	< 149 U	< 206 U	**21900**	**10300**	**10500**	**2770**	**2170**	**19300**	**21300**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**25.4 J**	**5.5 J**	**16.7 J**	**8.0**	**13.5**	**17.4**	**7.6 J**	**9.8 J**	**9.6 J**	**13.4 J**	**11.4 J**	**16.2**	**16.4**	**13.2**	**16.2**	**9.2**	**9.9**	**12.7**	**15.9**
pH	pH units	--	**7.25**	**8.30**	**8.65**	**8.39**	**8.63**	**7.84**	**8.10**	**8.09**	**8.00**	**8.27**	**7.61**	**8.35**	**8.22**	**8.09**	**9.00**	**8.90**	**7.57**	**7.75**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	**0.22 J**	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	**0.23 J**	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.13 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.13 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.10 U	**0.14 J**	< 0.10 U	**0.30 J**	< 0.11 U	< 0.12 U	**0.15 J**	< 0.12 U	**0.17 J**	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.39 U	< 0.31 U	**0.55 J**	< 0.32 U	< 0.32 U	< 0.36 U	< 0.30 U	**0.46 J**	**0.33 J**	**0.76 J**	< 0.32 U	< 0.35 U	**0.43 J**	< 0.35 U	< 0.33 U	< 0.33 U	< 0.30 U	< 0.34 U	< 0.33 U
Perfluorooctanoic acid (PFOA)	ng/g	**0.59 J**	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	**0.42 J**	**0.32 J**	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	**0.71 J**	**1.5**	**2.9**	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.26 U	< 0.21 UJ	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 UJ	< 0.21 UJ	< 0.23 UJ	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 UJ	< 0.22 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.26 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.26 U	< 0.21 U	**0.28 J**	< 0.22 U	< 0.21 U	< 0.24 U	< 0.20 U	**0.21 J**	< 0.20 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.20 U	< 0.23 U	< 0.22 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S32	S32	S32	S32	S33	S33	S33	S33	S33	S34	S34	S34	S34	S35		S35	S35	S35	S35
Sample Date		8/24/2017	8/24/2017	8/24/2017	8/24/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/11/2017	9/11/2017	9/11/2017	9/11/2017	8/22/2017		8/22/2017	8/22/2017	8/22/2017	8/22/2017
Depth		0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	2.2-3.2 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**8380**	**6110**	**1680**	< 137 U	**30600**	**13400**	**8460**	**21400**	**18500**	**37400 J**	**24400 J**	**21100 J**	**8680 J**	**12000 J**	**12000 J**	**9210 J**	**6320 J**	**3560 J**	**1420 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**9.4**	**10.8**	**10.8**	**11.6**	**21.1**	**19.0**	**16.8**	**10.1**	**11.2**	**25.4 J**	**25.4 J**	**23.2 J**	**13.4 J**	**16.2 J**	**16.0 J**	**7.4 J**	**5.9 J**	**16.0 J**	**16.6 J**
pH	pH units	**7.98**	**8.16**	**8.30**	**7.75**	**7.45**	**7.48**	**7.54**	**8.32**	**8.18**	**7.89**	**8.05**	**8.07**	**8.12**	**8.11**	**8.10**	**8.36**	**8.41**	**8.73**	**8.27**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	**0.38 J**	**0.41 J**	**0.23 J**	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	**0.28 J**	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	**0.40 J**	**0.31 J**	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	**0.26 J**	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	**0.34 J**	**0.68 J**	**0.37 J**	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.30 J**	**0.52**	**0.24 J**	< 0.093 U	< 0.078 U	< 0.13 U	< 0.13 U	< 0.13 U	< 0.11 U	< 0.12 U	< 0.12 U	< 0.099 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.34 J**	< 0.12 U	< 0.11 U	< 0.093 U	< 0.078 U	**0.26 J**	**0.18 J**	**0.17 J**	< 0.11 U	**0.25 J**	**0.20 J**	< 0.099 U	< 0.10 U	< 0.11 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.31 U	< 0.33 U	< 0.32 U	< 0.32 U	**0.60 J**	< 0.37 U	< 0.32 U	< 0.28 U	< 0.23 U	**0.63 J**	**0.57 J**	< 0.38 U	< 0.32 U	**0.52 J**	**0.40 J**	< 0.30 U	< 0.31 U	< 0.34 U	< 0.34 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	**10**	**12**	**10**	**0.36 J**	**0.21 J**	**2.7**	**2.3**	**1.5**	**0.81**	**1.0**	**0.74**	< 0.20 U	< 0.20 U	**2.0**	**0.47 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.20 U	< 0.22 UJ	< 0.21 U	< 0.21 U	**0.26 J**	**0.32 J**	< 0.21 UJ	< 0.19 UJ	< 0.16 UJ	< 0.26 UJ	< 0.26 U	< 0.26 UJ	< 0.22 U	< 0.23 UJ	< 0.24 U	< 0.20 UJ	< 0.20 UJ	< 0.23 U	< 0.23 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.20 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.23 U	< 0.24 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.26 U	< 0.26 U	< 0.26 U	< 0.22 U	**0.34 J**	**0.25 J**	< 0.20 U	< 0.20 U	< 0.23 U	< 0.23 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S36	S36	S36	S36	S36	S37	S37	S37	S38	S38	S38	S38	S38	S39	S39	S39	S39	S39	S40
Sample Date		8/22/2017	8/22/2017	8/22/2017	8/22/2017	8/22/2017	8/24/2017	8/24/2017	8/24/2017	8/22/2017	8/22/2017	8/22/2017	8/22/2017	8/22/2017	8/24/2017	8/24/2017	8/24/2017	8/24/2017	8/24/2017	9/27/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**22100**	**15800**	**15500**	**4040**	**2100 J**	**28200**	**4780**	**4830**	**18700**	**25200**	**29500**	**1070**	**1440**	**16100**	**10400**	**21700**	**11000**	**4870**	**30700**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**16.2 J**	**15.7 J**	**22.9 J**	**10.2 J**	**9.2 J**	**23.2**	**10.7**	**11.6**	**17.1 J**	**28.4 J**	**27.3 J**	**20.9 J**	**16.7 J**	**12.1**	**9.9**	**10.6**	**13.8**	**10.3**	**29.8**
pH	pH units	**7.91**	**7.99**	**7.78**	**8.20**	**8.31**	**7.94**	**8.26**	**8.31**	**7.64**	**7.80**	**7.79**	**7.66**	**8.04**	**7.99**	**8.14**	**8.21**	**8.52**	**8.34**	**7.29**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	**0.25 J**	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	**0.32 J**	**0.27 J**	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	**0.38 J**
Perfluorodecanoic acid (PFDA)	ng/g	**0.23 J**	**0.33 J**	**0.31 J**	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	**0.30 J**	**0.31 J**	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	**0.27 J**	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	**0.39 J**
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.13 U	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.14 U	< 0.13 U	< 0.13 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	**0.21 J**
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	**0.11 J**	**0.15 J**	< 0.10 U	< 0.10 U	< 0.12 U	< 0.11 U	< 0.11 U	**0.17 J**	**0.42 J**	**0.31 J**	< 0.13 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.10 U	**0.25 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	**0.41 J**	**0.50 J**	< 0.31 U	< 0.31 U	**0.45 J**	< 0.33 U	< 0.34 U	**0.38 J**	**0.80 J**	**0.62 J**	< 0.38 U	< 0.33 U	**0.38 J**	**0.50 J**	**0.40 J**	< 0.34 U	< 0.31 U	**0.54 J**
Perfluorooctanoic acid (PFOA)	ng/g	< 0.22 U	**0.26 J**	**0.36 J**	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	**0.49 J**	**1.8**	**3.5**	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	**0.32 J**	**0.37 J**	**9.2**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.22 UJ	< 0.26 U	< 0.21 U	< 0.21 UJ	< 0.25 U	< 0.22 UJ	< 0.22 U	< 0.23 UJ	< 0.28 UJ	< 0.26 UJ	< 0.25 UJ	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**0.38 J**	< 0.22 U	< 0.26 U	< 0.21 U	< 0.21 U	< 0.25 U	< 0.22 U	< 0.22 U	< 0.23 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.23 U	< 0.20 U	< 0.27 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S40		S40	S40	S40	S41	S41	S41	S42	S42	S42	S42	S42	S43		S43	S43	S43	S43
Sample Date		9/27/2017		9/27/2017	9/27/2017	9/27/2017	8/15/2017	8/15/2017	8/15/2017	8/16/2017	8/16/2017	8/16/2017	8/16/2017	8/16/2017	8/21/2017		8/21/2017	8/21/2017	8/21/2017	8/21/2017
Depth		0.5-1 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft
Sample Type		N	FD	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**24400**	**24900**	**19600**	**1080**	**9530**	**21200 J**	**7180 J**	--	**1010**	**10400**	**3870**	< 196 UJ	< 237 U	**15000 J**	**14300 J**	**13000 J**	**12700 J**	**876 J**	**2610 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**26.0**	**24.8**	**22.4**	**12.8**	**14.4**	**17.4**	**17.2**	**3.9**	**6.1**	**6.9**	**10.6**	**13.4 J**	**18.5**	**13.0**	**30.5**	**14.5**	**17.5**	**16.7**	**11.1**
pH	pH units	**7.31**	**7.37**	**7.45**	**7.79**	**7.94**	**7.65**	**8.28**	--	**7.90**	**8.34**	**8.68**	**8.25**	**9.13**	**8.54**	**7.98**	**8.90**	**8.84**	**8.56**	**8.59**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	**0.30 J**	**0.28 J**	< 0.24 U	< 0.22 U	**0.19 J**	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	**0.27 J**	< 0.28 U	**0.28 J**	**0.29 J**	< 0.22 U	**0.21 J**
Perfluorodecanoic acid (PFDA)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	**0.24 J**	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluoroheptanoic acid (PFHpA)	ng/g	**0.34 J**	**0.27 J**	**0.30 J**	< 0.22 U	**0.29 J**	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	**0.26 J**	**0.20 J**	**0.19 J**	< 0.11 U	**0.17 J**	< 0.12 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.14 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.10 U
Perfluorononanoic acid (PFNA)	ng/g	**0.18 J**	< 0.11 U	< 0.12 U	< 0.11 U	< 0.087 U	**0.19 J**	**0.25 J**	< 0.10 U	< 0.10 U	< 0.10 U	**0.15 J**	< 0.11 U	< 0.11 U	**0.21 J**	**0.16 J**	< 0.11 U	< 0.12 U	< 0.11 U	< 0.10 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.36 U	< 0.33 U	< 0.36 U	< 0.33 U	< 0.26 U	**0.76 J**	**0.65 J**	< 0.31 U	< 0.31 U	< 0.30 U	< 0.32 U	< 0.33 U	< 0.34 U	**0.61 J**	**0.75 J**	< 0.33 U	< 0.36 U	< 0.34 U	< 0.31 U
Perfluorooctanoic acid (PFOA)	ng/g	**8.5**	**8.4**	**6.9**	**0.55 J**	**5.2**	**0.65 J**	**0.43 J**	< 0.21 U	< 0.21 U	< 0.20 U	**0.45 J**	< 0.22 U	< 0.23 U	**0.85**	**1.4**	**3.4**	**4.5**	**0.84**	< 0.20 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.24 UJ	< 0.22 UJ	< 0.24 UJ	< 0.22 UJ	< 0.17 UJ	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 UJ	< 0.23 U	< 0.22 U	< 0.28 UJ	< 0.22 UJ	< 0.24 U	< 0.22 UJ	< 0.20 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	< 0.28 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.24 U	< 0.22 U	< 0.24 U	< 0.22 U	< 0.17 U	**0.24 J**	< 0.22 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.22 U	**0.32 J**	< 0.22 U	< 0.24 U	< 0.22 U	< 0.20 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S44	S44	S44	S44	S44	S45	S45	S45	S45	S45	S46	S46	S46	S46	S46	S47		S47	S47
Sample Date		8/21/2017	8/21/2017	8/21/2017	8/21/2017	8/21/2017	9/12/2017	9/12/2017	9/12/2017	9/12/2017	9/12/2017	8/16/2017	8/16/2017	8/16/2017	8/16/2017	8/16/2017	8/16/2017		8/16/2017	8/16/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6-7 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**16800 J**	**12700 J**	**6930 J**	**454 J**	< 191 U	**27500**	**13300**	**13300**	**6330**	**7320**	**30400**	**5650**	**4730**	**745**	**980**	**21800**	**20300**	**3660**	**7780**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**29.8**	**22.3**	**15.0**	**14.4**	**13.8**	**14.1 J**	**11.1 J**	**12.8 J**	**14.2 J**	**9.8 J**	**13.2**	**5.8**	**6.6**	**22.4**	**20.9**	**15.4**	**14.3**	**5.7**	**10.1**
pH	pH units	**8.17**	**8.04**	**8.13**	**8.08**	**8.27**	**8.35**	**8.71**	**8.60**	**8.89**	**8.72**	**7.73**	**8.53**	**8.58**	**8.22**	**8.32**	**8.61**	**8.60**	**9.17**	**8.89**
Metals																				
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.27 U	< 0.23 U	**0.25 J**	**0.25 J**	**0.25 J**	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.40 J**	**0.20 J**	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.28 J**	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	**0.22 J**	< 0.21 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	**0.35 J**	**0.28 J**	< 0.21 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	**0.27 J**	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.13 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.21 J**	< 0.098 U	**0.10 J**	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.13 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.20 J**	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	**0.42 J**	< 0.098 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.76 J**	**0.56 J**	**0.44 J**	< 0.32 U	< 0.32 U	**0.44 J**	< 0.33 U	< 0.32 U	< 0.33 U	< 0.32 U	**4.4**	**0.97**	**0.48 J**	< 0.37 U	< 0.37 U	**1.2**	**1.1**	< 0.31 U	**0.48 J**
Perfluorooctanoic acid (PFOA)	ng/g	**1.4**	**1.0**	**1.0**	**0.32 J**	< 0.21 U	**0.31 J**	**0.26 J**	**0.22 J**	< 0.22 U	< 0.21 U	**8.9**	**2.1**	**1.8**	**0.84**	< 0.25 U	**0.25 J**	**0.22 J**	< 0.21 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.27 UJ	< 0.23 U	< 0.23 UJ	< 0.22 UJ	< 0.21 UJ	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.27 U	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	**0.35 J**	< 0.22 U	< 0.21 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**0.35 J**	< 0.23 U	< 0.23 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.25 U	< 0.25 U	**0.39 J**	**0.30 J**	< 0.21 U	< 0.22 U

Table 3.9
Analytical Soil Results - Non-Landfill General Parameters, Metals and PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S47	S48	S48	S48	S48	S48	S49	S49	S49	S49	S49	S49
Sample Date		8/16/2017	8/21/2017	8/21/2017	8/21/2017	8/21/2017	8/21/2017	9/12/2017	9/12/2017	9/12/2017	9/12/2017	9/12/2017	9/12/2017
Depth		3-5.3 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.4-7.4 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	5.3-6.3 ft	8-9 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units												
General Parameters													
Carbon, total organic	mg/kg	**3850**	**14300 J**	**16000 J**	**10800 J**	< 317 U	**414 J**	**13300**	**7460**	**11000 J**	**10500 J**	**6880 J**	**6550 J**
Cyanide	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Moisture	%	**11.0**	**16.4**	**15.8**	**16.1**	**31.9**	**13.3 J**	**13.6 J**	**18.3 J**	**15.0 J**	**11.7 J**	**17.2 J**	**16.4 J**
pH	pH units	**9.29**	**7.92**	**8.05**	**8.06**	**8.35**	**8.32**	**8.52**	**8.51**	**8.52**	**8.79**	**8.42**	**8.41**
Metals													
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances													
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.15 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.15 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.11 U	< 0.12 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.57 J**	**0.78 J**	**0.63 J**	**0.98 J**	**0.64 J**	< 0.34 U	< 0.34 U	< 0.36 U	< 0.33 U	< 0.33 U	< 0.36 U	< 0.34 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	**0.62 J**	< 0.22 U	**0.63 J**	**0.64 J**	**0.86**	< 0.22 U	< 0.24 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 U	< 0.22 UJ	< 0.22 U	< 0.22 UJ	< 0.29 U	< 0.22 UJ	< 0.23 U	< 0.24 U	< 0.22 UJ	< 0.22 UJ	< 0.24 UJ	< 0.22 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.29 U	< 0.22 U	< 0.23 U	< 0.24 U	< 0.22 U	< 0.22 U	< 0.24 U	< 0.22 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D06	D06	D06	D06	D06	D08	D08	D08		D08	D08	D08	D09	D09	D09	D09	D09	D09
Sample Date		9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017		9/22/2017	9/22/2017	9/22/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017	10/16/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft		3-5 ft	7-8 ft	10-11 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	14-15 ft
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	16000	16000	16900 J	30000 J	7390	19200	5740	20700 J	36300 J	26800 J	19800 J	19000 J	31200	8740	10600 J	1180	12600	20400
Moisture	%	6.2 J	8.0 J	6.2 J	3.5 J	8.9 J	14.2 J	11.6 J	9.7 J	9.8 J	4.3 J	4.0 J	11.3 J	10.3	5.2	5.4	3.0	2.6	2.2
pH	pH units	8.43	8.33	8.64	8.69	8.50	7.77	7.82	8.08	8.07	8.73	8.70	8.55	7.48	7.37	7.77	7.51	7.55	8.84
Metals																			
Aluminum	mg/kg	4350 J	5740 J	5450 J	2410 J	1720 J	9880	8770	9380	9370	4800	5340	1840	3250	6570	7560	6490	2770	3180
Antimony	mg/kg	0.183 J	0.128 J	0.141 J	< 0.0862 U	< 0.0793 U	0.307 J	0.154 J	0.158 J	0.148 J	< 0.0805 U	< 0.0883 U	< 0.103 U	0.417	0.275 J	0.367	0.255 J	0.125 J	1.12
Arsenic	mg/kg	5.89 J	5.83 J	7.48 J	8.91 J	3.61 J	5.45 J	5.31 J	6.20 J	5.95 J	4.20 J	4.38 J	5.96 J	8.07 J	34.9 J	7.34 J	9.48 J	7.67 J	5.47 J
Barium	mg/kg	26.4 J	37.5 J	49.2 J	448 J	26.7 J	73.1 J	58.2 J	64.6 J	73.5 J	22.2 J	27.1 J	35.3 J	62.5 J	51.9 J	62.0 J	79.9 J	38.4 J	34.1 J
Beryllium	mg/kg	0.234 J	0.249 J	0.331 J	0.557 J	0.165 J	0.493	0.486	0.577	0.552	0.191 J	0.201	0.153 J	0.192 J	0.264 J	0.266 J	0.386 J	0.190 J	0.199 J
Cadmium	mg/kg	0.102 J	0.0948 J	0.111 J	0.284	0.0713 J	0.186 J	0.187	0.209	0.298	0.0763 J	0.0811 J	0.0697 J	0.244	0.257	0.306	0.173 J	0.0909 J	0.0768 J
Calcium	mg/kg	58300	51200	65400	110000	23600	4410	10800	7450 J	15900 J	91700	78700	43800	84200	26200	6730	324	60000	86000
Chromium	mg/kg	6.14 J	7.69 J	11.5 J	4.58 J	4.64 J	12.2	9.89	10.8	10.4	5.45	6.97	3.36	8.70	7.57	10.3	8.44	4.25	15.2
Cobalt	mg/kg	6.82 J	79.7 J	10.7 J	18.2 J	8.10 J	8.18	7.90	9.23	11.7	5.26	7.47	5.05	7.29	12.2	9.05	13.5	14.0	8.43
Copper	mg/kg	16.3 J	21.4 J	18.0 J	9.37 J	7.57 J	15.0	11.5	11.7	12.2	5.86	6.86	7.39	21.0 J	27.7 J	24.4 J	29.5 J	16.9 J	11.8 J
Iron	mg/kg	15600	13400	19900	18900	9500	18500	19000	20500	23600	14100	15300	10400	13200	19900	17700	24700	12700	13500
Lead	mg/kg	17.9 J	10.3 J	13.7 J	8.08 J	5.55 J	42.2 J	16.1 J	12.9 J	13.5 J	7.20 J	8.73 J	5.35 J	28.4 J	40.6 J	35.4 J	9.98 J	7.23 J	7.34 J
Magnesium	mg/kg	20800 J	20300 J	20100 J	31300 J	8150 J	4150 J	8200 J	6150 J	10600 J	25900 J	27200 J	16300 J	33200 J	13200 J	3730 J	1410 J	23400 J	44100 J
Manganese	mg/kg	343	677	506	2650	313	536 J	520 J	542 J	746 J	314 J	373 J	361 J	390 J	450 J	644 J	528 J	397 J	409 J
Nickel	mg/kg	10.4 J	13.1 J	12.9 J	13.2 J	6.02 J	13.5	13.3	14.9	16.1	8.47	9.50	5.08	11.0	15.0	12.6	16.2	9.38	8.85
Potassium	mg/kg	690 J	865 J	983 J	692 J	413 J	1750 J	1600 J	1700 J	1620 J	665 J	802 J	573 J	527 J	660 J	827 J	714 J	404 J	711 J
Selenium	mg/kg	0.395 J	0.244 J	0.335 J	0.132 J	< 0.0851 U	0.207 J	0.155 J	0.138 J	0.117 J	< 0.0864 U	< 0.0947 U	0.117 J	0.219 J	0.249 J	0.357 J	0.517 J	0.284 J	0.165 J
Silver	mg/kg	0.0560 J	0.112 J	0.0371 J	0.119 J	0.0871 J	1.02	0.220	0.0742 J	0.0993 J	0.0414 J	0.104 J	0.164 J	0.403	0.134 J	0.199	0.0418 J	0.0465 J	0.0395 J
Sodium	mg/kg	30.8 J	33.7 J	36.5 J	37.9 J	21.5 J	56.8 J	51.5 J	45.7 J	50.1 J	40.2 J	43.2 J	32.0 J	41.5 J	35.9 J	38.2 J	28.9 J	26.4 J	58.0 J
Thallium	mg/kg	0.0903 J	0.112 J	0.121 J	1.18	0.115 J	0.193 J	0.167	0.224	0.351	0.0484 J	0.0788 J	0.109 J	0.142 J	0.110 J	0.151 J	0.132 J	0.0943 J	0.0949 J
Vanadium	mg/kg	6.89 J	8.21 J	8.60 J	5.61 J	2.75 J	15.8	12.6	14.5	13.6	5.79	6.96	2.89	8.42	12.0	13.1	10.8	5.21	6.14
Zinc	mg/kg	36.4 J	43.9 J	39.4 J	44.5 J	20.8 J	52.5	44.1	45.2	48.4	31.0	34.7	17.9	133	82.5	96.2	38.2	24.5	25.5
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.21 U	0.20 J	< 0.15 U	< 0.16 U	< 0.17 U	1.4 J	1.1 J	< 0.87 U	1.2 J	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	2.6	1.7 J	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	1.3 J	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.091 U	< 0.076 U	< 0.078 U	< 0.086 U	< 0.43 U	< 0.54 U	< 0.43 U	< 0.50 U	< 0.39 U	< 0.41 U	< 0.40 U	< 0.10 U	< 0.10 U	< 0.085 U	< 0.085 U	< 0.099 U	< 0.095 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.091 U	< 0.076 U	< 0.078 U	< 0.086 U	1.4 J	0.86 J	< 0.43 U	< 0.50 U	< 0.39 U	< 0.41 U	< 0.40 U	< 0.10 U	< 0.10 U	0.26 J	< 0.085 U	< 0.099 U	< 0.095 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.32 U	0.38 J	< 0.23 U	< 0.23 U	< 0.26 U	8.3	4.8 J	< 1.3 U	1.8 J	1.2 J	1.4 J	< 1.2 U	0.32 J	0.94 J	2.7 J	< 0.26 U	< 0.30 U	< 0.28 U
Perfluorooctanoic acid (PFOA)	ng/g	0.24 J	0.22 J	0.16 J	< 0.16 U	< 0.17 U	3.4	2.4 J	1.5 J	3.0	1.3 J	1.2 J	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	0.37 J	0.47 J	0.29 J
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 UJ	< 0.17 U	< 0.87 UJ	< 1.1 UJ	< 0.87 UJ	< 1.0 UJ	< 0.78 U	< 0.82 UJ	< 0.80 UJ	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.21 U	< 0.18 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.87 U	< 1.1 U	< 0.87 U	< 1.0 U	< 0.78 U	< 0.82 U	< 0.80 U	< 0.21 U	< 0.21 U	< 0.17 U	< 0.17 U	< 0.20 U	< 0.19 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D09	D09	D09	D09	D09	D10	D10	D10		D10	D10	D10	D10	D10	D10	D10	D10	D10
Sample Date		10/16/2017	10/16/2017	10/16/2017	10/17/2017	10/17/2017	10/7/2017	10/7/2017	10/7/2017		10/7/2017	10/7/2017	10/7/2017	10/7/2017	10/8/2017	10/8/2017	10/8/2017	10/8/2017	10/9/2017
Depth		28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	5290	376	303 J	346	3270 J	34500 J	11900 J	12300 J	18300 J	26100 J	2960 J	1550 J	1350 J	3770	1760	1160	1310	3060
Moisture	%	6.7	8.3	7.0	10.2	9.0	6.4	5.8	5.5	7.0	12.8	7.3	9.6	11.6	13.9	12.2 J	13.2 J	11.4 J	14.4 J
pH	pH units	8.69	8.25	8.82	8.00	8.49	7.98	7.97	8.17	8.15	7.98	8.77	8.27	8.39	8.31	8.32	8.30	8.33	8.19
Metals																			
Aluminum	mg/kg	6140	11600	7750	8590	12200	6620	6460	6350	6950	6130	6990	8430	10800	10300	9920	9480	8870	12700
Antimony	mg/kg	0.141 J	0.202 J	0.195 J	0.227 J	0.151 J	0.0999 J	0.0907 J	0.122 J	0.119 J	0.115 J	0.130 J	0.128 J	0.180 J	0.172 J	0.164 J	0.154 J	0.143 J	0.168 J
Arsenic	mg/kg	8.74 J	21.9 J	14.0 J	32.9	14.0	5.53	6.64	5.76	6.00	5.44	6.32	14.6	15.2	14.1	14.9	16.7	15.5	17.3
Barium	mg/kg	105 J	179 J	134 J	160	110	55.8	55.6	55.9	77.1	82.3	65.7	85.8	118	135	293	92.2	94.2	77.7
Beryllium	mg/kg	0.394 J	0.817 J	0.645 J	1.11	0.893	0.343	0.339	0.316	0.368	0.298	0.411	0.551	0.752	0.717	0.862	0.700	0.705	0.883
Cadmium	mg/kg	0.118 J	0.196	0.186	0.303	0.249	0.158 J	0.152 J	0.209	0.201 J	0.336	0.152 J	0.274	0.182	0.181 J	1.23	0.199	0.187	0.215 J
Calcium	mg/kg	36100	482	291	349	3750	49600	54400	46900	49600	66500	13100	23500	3290	6590	3720	4270	9380	2360
Chromium	mg/kg	13.8	23.2	10.1	12.3	8.93	6.15	6.27	6.99	7.13	7.26	45.3	11.9	13.3	11.4	11.0	10.6	9.62	12.1
Cobalt	mg/kg	21.8	31.1	19.5	25.5	20.1	9.78 J	9.42 J	8.49 J	9.15 J	9.52 J	89.5 J	10.1 J	16.2 J	18.5 J	60.2 J	23.0 J	16.8 J	17.9 J
Copper	mg/kg	14.0 J	31.9 J	22.8 J	35.4	25.3	14.1 J	16.0 J	17.6 J	20.2 J	29.1 J	19.1 J	19.3 J	36.2 J	33.7 J	64.4 J	34.5 J	30.5 J	36.8 J
Iron	mg/kg	21800	42400	23000	46700	32400	14700	15800	15300	16400	14100	22300	22000	33900	28800	37100	35300	28700	38500
Lead	mg/kg	9.57 J	17.2 J	12.9 J	12.4	17.4	9.86	10.6	11.6	13.0	14.5	9.44	11.8	19.7	16.6	18.3	17.7	21.5	20.2
Magnesium	mg/kg	16500 J	792 J	423 J	554	2830	18800	19000	18000	18900	22000	6240	6870	1950	4080	2270	2210	5270	2330
Manganese	mg/kg	687 J	1400 J	1030 J	1130 J	835 J	415 J	400 J	369 J	462 J	426 J	462 J	396 J	570 J	754 J	4510 J	686 J	536 J	608 J
Nickel	mg/kg	11.9	31.5	18.8	19.6	25.6	11.6	12.2	11.9	12.7	13.2	19.6	18.0	29.5	29.5	73.6	47.5	35.6	31.3
Potassium	mg/kg	870 J	1140 J	918 J	1030 J	1340 J	1090 J	1070 J	954 J	1170 J	863 J	1250 J	1660 J	1540 J	1640 J	1400 J	1170 J	1190 J	1530 J
Selenium	mg/kg	0.155 J	0.313 J	0.266 J	0.252 J	0.283 J	0.127 J	0.123 J	0.153 J	0.203 J	0.275 J	0.147 J	0.316 J	0.288 J	0.262 J	0.247 J	0.264 J	0.255 J	0.352 J
Silver	mg/kg	0.0501 J	0.0357 J	0.0478 J	0.0617 J	0.0382 J	1.57 J	2.97 J	5.47 J	8.49 J	16.3 J	0.408 J	0.0453 J	0.0395 J	0.0385 J	0.302 J	0.0344 J	0.0649 J	< 0.0338 UJ
Sodium	mg/kg	45.5 J	44.1 J	25.0 J	22.9 J	36.3 J	24.2 J	23.2 J	24.3 J	28.1 J	24.2 J	21.3 J	25.8 J	17.3 J	18.0 J	16.1 J	14.1 J	< 13.7 U	< 19.3 U
Thallium	mg/kg	0.362	0.398	0.539	0.501 J	0.445 J	0.194 J	0.172 J	0.149 J	0.186 J	0.127 J	0.192 J	0.193 J	0.443 J	0.336 J	1.56 J	0.403 J	0.317 J	0.330 J
Vanadium	mg/kg	8.22	19.3	12.2	16.3	14.4	7.67	8.11	8.17	8.58	8.05	10.1	13.0	16.3	15.6	15.2	13.7	13.6	19.3
Zinc	mg/kg	28.9	62.6	43.5	75.1	64.9	34.2	37.8	39.8	41.8	50.2	39.7	46.5	68.3	70.9	121	82.2	73.2	73.8
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	0.28 J	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	1.2	1.8	4.6	3.8	17	0.31 J	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	1.1	1.2	2.8	2.8	5.3 J	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	0.17 J	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.076 U	< 0.090 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.074 U	0.13 J	< 0.099 U	0.14 J	< 0.094 U	< 0.098 U	< 0.099 U	< 0.096 U	< 0.10 U	< 0.078 U	< 0.084 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.076 U	< 0.090 U	< 0.095 U	< 0.10 U	< 0.11 U	< 0.10 U	0.14 J	0.42	0.39 J	2.4 J	< 0.094 U	< 0.098 U	< 0.099 U	< 0.096 U	< 0.10 U	< 0.078 U	< 0.084 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.23 U	< 0.27 U	< 0.29 U	< 0.30 U	< 0.32 U	1.7	2.1	5.7	5.3	16	< 0.28 U	< 0.29 U	< 0.30 U	< 0.29 U	< 0.30 U	< 0.24 U	< 0.25 U	< 0.33 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	0.36 J	0.19 J	0.35 J	0.39 J	1.4 J	0.20 J	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.15 UJ	< 0.18 UJ	< 0.19 UJ	< 0.20 UJ	< 0.21 UJ	< 0.20 U	< 0.15 U	< 0.17 U	< 0.20 U	< 0.15 U	< 0.19 U	< 0.20 UJ	< 0.20 UJ	< 0.19 UJ	< 0.20 UJ	< 0.16 UJ	< 0.17 UJ	< 0.22 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	0.29 J	0.40 J	0.97	0.93	1.3	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	< 0.20 U	0.15 J	0.33 J	0.28 J	0.39 J	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.15 U	< 0.18 U	< 0.19 U	< 0.20 U	< 0.21 U	0.46 J	0.48	1.0	0.89	1.6 J	< 0.19 U	< 0.20 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.22 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D10	D10	D10	D11	D11	D11	D11	D11	D11		D11	D11	D11	D11	D11	D11	D11	D11
Sample Date		10/9/2017	10/9/2017	10/10/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017		9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/26/2017
Depth		88-89 ft	98-99 ft	103-104 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft		18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	99-100 ft
Sample Type		N	N	N	N	N	N	N	N	N		FD	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**8530**	**224 J**	< 107 U	**17100**	**15700**	**3760**	**3280**	**17600 J**	**2420**		**1390**	**1580**	**1880 J**	**3090 J**	**1060 J**	**1120 J**	< 613 UB	< 913 UB	**48800 J**
Moisture	%	**12.4 J**	**10.1 J**	**5.1**	**14.7 J**	**10.4 J**	**8.6 J**	**10 J**	**12.1 J**	**10.3 J**		**11.8 J**	**10.2 J**	**12.2 J**	**11.5 J**	**9.9 J**	**10.4 J**	**12.3**	**15.0**	**11.2**
pH	pH units	**8.24**	**7.96**	**8.17**	**8.04**	**8.77**	**8.51**	**8.48**	**8.38**	**8.43**		**8.44**	**8.38**	**8.31**	**8.46**	**8.47**	**8.60**	**8.25**	**8.16**	**8.66**
Metals																				
Aluminum	mg/kg	**10500**	**4120**	**3980**	**7960**	**2460**	**8010 J**	**7830 J**	**7850 J**	**9700 J**		**8760 J**	**8310 J**	**7680 J**	**10900 J**	**11700 J**	**10700 J**	--	--	--
Antimony	mg/kg	**0.142 J**	**0.279 J**	< 0.0877 U	**0.198 J**	< 0.0782 UJ	**0.191 J**	**0.124 J**	**0.106 J**	**0.118 J**		**0.116 J**	**0.141 J**	**0.123 J**	**0.161 J**	**0.174 J**	**0.190 J**	--	--	--
Arsenic	mg/kg	**14.9**	**14.0**	**2.74**	**8.91**	**7.12**	**6.74 J**	**6.56 J**	**6.22 J**	**7.63 J**		**7.00 J**	**12.8 J**	**13.1 J**	**12.5 J**	**13.5 J**	**14.2 J**	--	--	--
Barium	mg/kg	**87.2**	**28.9**	**282**	**55.6 J**	**56.3 J**	**72.1 J**	**70.0 J**	**107 J**	**95.1 J**		**77.8 J**	**126 J**	**79.9 J**	**83.0 J**	**91.9 J**	**111 J**	--	--	--
Beryllium	mg/kg	**0.889**	**1.59**	**0.484**	**0.420**	**0.218**	**0.430 J**	**0.470 J**	**0.508 J**	**0.632 J**		**0.598 J**	**0.588 J**	**0.557 J**	**0.586 J**	**0.957 J**	**1.06 J**	--	--	--
Cadmium	mg/kg	**0.279**	**0.299**	**0.160 J**	**0.227**	**0.0874 J**	**0.112 J**	**0.134 J**	**0.192 J**	**0.217 J**		**0.199 J**	**0.166 J**	**0.168 J**	**0.170 J**	**0.239 J**	**0.275 J**	--	--	--
Calcium	mg/kg	**8620**	**395**	**236**	**58600**	**47300**	**25600 J**	**25800 J**	**24300 J**	**13000 J**		**11400 J**	**4510 J**	**26900 J**	**12300 J**	**2890 J**	**3100 J**	--	--	--
Chromium	mg/kg	**8.69**	**5.27**	**3.08**	**12.6**	**5.13**	**7.81 J**	**7.74 J**	**7.22 J**	**11.2 J**		**12.4 J**	**12.5 J**	**10.9 J**	**16.3 J**	**23.2 J**	**18.7 J**	--	--	--
Cobalt	mg/kg	**17.2 J**	**12.9 J**	**23.4**	**10.1 J**	**6.36 J**	**11.5**	**13.2**	**15.3**	**12.3**		**14.5**	**20.2**	**19.7**	**20.5**	**20.9**	**19.0**	--	--	--
Copper	mg/kg	**26.1 J**	**25.4 J**	**22.3**	**33.7**	**11.1**	**16.1 J**	**16.5 J**	**17.8 J**	**22.3 J**		**21.0 J**	**32.2 J**	**33.5 J**	**32.8 J**	**28.9 J**	**30.0 J**	--	--	--
Iron	mg/kg	**31700**	**40400**	**6020**	**30000 J**	**11600 J**	**17800**	**16200**	**17500**	**23700**		**22400**	**31200**	**31400**	**32400**	**31400**	**33700**	--	--	--
Lead	mg/kg	**20.0**	**20.6**	**8.03**	**11.7 J**	**7.45 J**	**9.59 J**	**11.2 J**	**22.7 J**	**12.3 J**		**11.8 J**	**20.9 J**	**28.1 J**	**15.2 J**	**20.3 J**	**21.8 J**	--	--	--
Magnesium	mg/kg	**5700**	**434**	**284**	**22400**	**15800**	**10900 J**	**8820 J**	**9990 J**	**7490 J**		**6560 J**	**2370 J**	**15100 J**	**6230 J**	**2480 J**	**2640 J**	--	--	--
Manganese	mg/kg	**671 J**	**565 J**	**7590**	**1690 J**	**321 J**	**409**	**394**	**571**	**492**		**443**	**1200**	**918**	**665**	**671**	**807**	--	--	--
Nickel	mg/kg	**27.7**	**31.0**	**19.8**	**21.9 J**	**9.29 J**	**15.1 J**	**15.7 J**	**16.3 J**	**20.0 J**		**18.3 J**	**24.7 J**	**28.2 J**	**25.6 J**	**27.1 J**	**28.0 J**	--	--	--
Potassium	mg/kg	**1050 J**	**275 J**	**295**	**1000 J**	**450 J**	**1270 J**	**1300 J**	**1230 J**	**1550 J**		**1440 J**	**1250 J**	**971 J**	**1540 J**	**1730 J**	**1430 J**	--	--	--
Selenium	mg/kg	**0.140 J**	**0.128 J**	< 0.0941 U	**0.981**	**0.139 J**	**0.131 J**	**0.161 J**	**0.177 J**	**0.227 J**		**0.166 J**	**0.227 J**	**0.209 J**	**0.252 J**	**0.188 J**	**0.196 J**	--	--	--
Silver	mg/kg	< 0.0233 UJ	**0.0264 J**	**0.179 J**	**0.0635 J**	< 0.0245 U	**0.0376 J**	**0.0346 J**	**0.0369 J**	**0.0284 J**		**0.0415 J**	**0.0445 J**	**0.0389 J**	**0.294 J**	**0.0905 J**	**0.0928 J**	--	--	--
Sodium	mg/kg	< 13.3 U	< 62.3 U	< 15.7 U	**39.8 J**	**28.2 J**	**27.9 J**	**26.1 J**	**27.1 J**	**33.4 J**		**31.5 J**	**22.3 J**	**34.7 J**	**29.3 J**	**36.7 J**	**29.5 J**	--	--	--
Thallium	mg/kg	**0.400 J**	**0.153 J**	**2.74**	**0.125 J**	**0.108 J**	**0.247 J**	**0.260 J**	**0.468 J**	**0.307 J**		**0.230 J**	**0.413 J**	**0.350 J**	**0.287 J**	**0.423 J**	**0.556 J**	--	--	--
Vanadium	mg/kg	**16.1**	**15.4**	**5.73**	**15.9**	**6.19**	**9.28 J**	**9.81 J**	**9.18 J**	**14.0 J**		**13.8 J**	**15.2 J**	**14.8 J**	**16.4 J**	**20.5 J**	**20.4 J**	--	--	--
Zinc	mg/kg	**67.2**	**75.2**	**79.0**	**60.3**	**22.8**	**35.2**	**34.1**	**36.1**	**49.6**		**49.2**	**51.6**	**58.7**	**63.7**	**79.9**	**67.0**	--	--	--
Per- and Polyfluoroalkyl Substances																				
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	**0.25 J**	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	**0.41 J**	**0.20 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	**0.19 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	**0.21 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	< 0.18 U	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.084 U	< 0.11 U	< 0.096 U	< 0.11 U	< 0.095 U	< 0.079 U	< 0.092 U	< 0.091 U	< 0.089 U		< 0.093 U	< 0.11 U	< 0.11 U	< 0.091 UJ	< 0.091 U	< 0.077 U	< 0.097 U	< 0.089 U	< 0.095 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.084 U	< 0.11 U	< 0.096 U	< 0.11 U	< 0.095 U	< 0.079 U	< 0.092 U	< 0.091 U	< 0.089 U		< 0.093 U	< 0.11 U	< 0.11 U	**0.10 J**	**0.15 J**	< 0.077 U	< 0.097 U	< 0.089 U	< 0.095 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.25 U	< 0.32 U	< 0.29 U	< 0.33 U	< 0.28 U	< 0.24 U	< 0.28 U	< 0.27 U	< 0.27 U		< 0.28 U	< 0.33 U	< 0.33 U	< 0.27 U	< 0.27 U	< 0.23 U	< 0.29 U	< 0.27 U	< 0.28 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	**0.77**	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 UJ	< 0.18 U	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.17 UJ	< 0.22 UJ	< 0.19 UJ	< 0.22 UJ	< 0.19 UJ	< 0.16 UJ	< 0.18 UJ	< 0.18 UJ	< 0.18 UJ		< 0.19 UJ	< 0.22 UJ	< 0.22 UJ	< 0.18 UJ	< 0.18 UJ	< 0.15 UJ	< 0.19 UJ	< 0.18 U	< 0.19 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	**0.24 J**	**0.35 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	**0.20 J**	**0.28 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.17 U	< 0.22 U	< 0.19 U	< 0.22 U	< 0.19 U	< 0.16 U	< 0.18 U	< 0.18 U	< 0.18 U		< 0.19 U	< 0.22 U	< 0.22 U	< 0.18 U	**0.24 J**	< 0.15 U	< 0.19 U	< 0.18 U	< 0.19 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D11	D11	D11	D11	D11	D25	D25	D25	D25	D25	D25	D25	D26	D26	D26	D26	D26	D26
Sample Date		9/26/2017	9/26/2017	9/27/2017	9/27/2017	9/27/2017	9/22/2017	9/22/2017	9/22/2017	9/22/2017	9/23/2017	9/22/2017	9/22/2017	10/10/2017	10/10/2017	10/10/2017	10/10/2017	10/10/2017	10/11/2017
Depth		113-114 ft	118-119 ft	128-129 ft	138-139 ft	144-145 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	8-9 ft	18-19 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**62100 J**	**21400 J**	**17400**	< 824 UB	< 422 UB	**27600 J**	**32800 J**	**23300 J**	**3440 J**	**1900 J**	**2310 J**	**4770 J**	**2070**	**1670**	**1170**	**1660**	**4270**	**343 J**
Moisture	%	**7.0**	**15.3**	**21.0**	**22.6**	**15.8**	**4.1 J**	**4.0 J**	**5.0 J**	**16.3 J**	**13.6 J**	**12.2 J**	**10.6 J**	**10.1**	**10.8**	**8.5**	**11.0**	**12.6**	**10.7 J**
pH	pH units	**8.87**	**8.32**	**8.09**	**7.79**	**8.27**	**8.70**	**8.94**	**9.01**	**8.86**	**8.45**	**8.58**	**8.60**	**6.41**	**6.25**	**5.55**	**5.24**	**5.98**	**8.04**
Metals																			
Aluminum	mg/kg	--	--	**36300**	**6760**	**2480**	**2280**	**2320**	**2360**	**2010**	**7310**	**6590**	**5730**	**10900**	**11100**	**4420**	**12400**	**12000**	**10900 J**
Antimony	mg/kg	--	--	**0.265 J**	**0.822 J**	**0.152 J**	< 0.0953 U	< 0.0916 U	< 0.0962 U	< 0.0913 U	**0.137 J**	< 0.0732 U	< 0.102 UJ	**0.263 J**	**0.0894 J**	< 0.0999 U	**0.169 J**	**0.196 J**	**0.125 J**
Arsenic	mg/kg	--	--	**15.5 J**	**41.1 J**	**15.3 J**	**5.42**	**6.42**	**4.69**	**3.93**	**6.35**	**3.77**	**3.40**	**10.5**	**6.61**	**3.46**	**11.4**	**15.8**	**9.77**
Barium	mg/kg	--	--	**145**	**22.7**	**35.2**	**56.0**	**27.5**	**19.0**	**18.1**	**87.0 J**	**42.3**	**40.1 J**	**56.2**	**42.3**	**28.5**	**85.3**	**63.4**	**118**
Beryllium	mg/kg	--	--	**4.64**	**9.30**	**2.10**	**0.193 J**	**0.140 J**	**0.128 J**	**0.141 J**	**0.514**	**0.293**	**0.274**	**0.616**	**0.432**	**0.279**	**0.686**	**0.591**	**0.694**
Cadmium	mg/kg	--	--	**1.02**	**1.87**	**0.279**	**0.113 J**	**0.0904 J**	**0.0735 J**	**0.0531 J**	**0.129 J**	**0.0726 J**	**0.0377 J**	**0.104 J**	**0.0809 J**	< 0.0369 U	**0.143 J**	**0.212**	**0.259**
Calcium	mg/kg	--	--	**33800**	**932**	**385**	**101000**	**108000**	**98500**	**105000**	**20800**	**19600**	**20000**	**251**	**245**	**70.1**	**140**	**288**	**618 J**
Chromium	mg/kg	--	--	**24.0 J**	**10.1 J**	**6.66 J**	**3.27**	**2.96**	**2.90**	**2.66**	**6.81**	**3.86**	**4.25**	**10.5**	**11.6**	**3.59**	**12.7**	**15.8**	**11.9**
Cobalt	mg/kg	--	--	**14.4 J**	**75.1 J**	**14.7 J**	**10.2**	**5.73**	**11.1**	**3.61**	**21.1 J**	**6.43**	**7.13 J**	**19.5**	**18.1**	**7.09**	**19.6**	**20.8**	**15.8**
Copper	mg/kg	--	--	**38.0**	**74.8**	**27.7**	**8.74**	**7.68**	**7.09**	**5.32**	**18.6**	**7.46**	**6.07**	**32.3**	**18.2**	**7.53**	**37.4**	**43.4**	**16.8 J**
Iron	mg/kg	--	--	**51100 J**	**87600 J**	**10700 J**	**9200 J**	**9270 J**	**8500 J**	**7750 J**	**16500 J**	**11200 J**	**7940 J**	**25300**	**23500**	**8580**	**28200**	**32500**	**22900**
Lead	mg/kg	--	--	**34.6**	**65.5**	**8.49**	**8.14**	**6.30**	**5.44**	**4.41**	**9.58 J**	**6.53**	**5.90 J**	**12.8**	**11.1**	**4.07**	**15.0**	**14.6**	**14.1**
Magnesium	mg/kg	--	--	**21500**	**5650**	**871**	**32000**	**33500**	**28100**	**29900**	**8420**	**8930**	**7610**	**2320**	**4860**	**517**	**3170**	**3970**	**1670 J**
Manganese	mg/kg	--	--	**1230 J**	**1390 J**	**336 J**	**327 J**	**252 J**	**219 J**	**228 J**	**604 J**	**286 J**	**215 J**	**520**	**693**	**253**	**643**	**491**	**947**
Nickel	mg/kg	--	--	**52.6 J**	**127 J**	**32.0 J**	**7.32**	**7.21**	**7.36**	**6.00**	**17.4 J**	**6.54**	**4.86 J**	**24.3**	**18.3**	**6.64**	**26.1**	**35.9**	**19.9**
Potassium	mg/kg	--	--	**1690 J**	**2390 J**	**506 J**	**443 J**	**464 J**	**431 J**	**366 J**	**1090 J**	**992 J**	**887 J**	**1080**	**888**	**683**	**1440**	**1450**	**1840 J**
Selenium	mg/kg	--	--	**0.224 J**	**0.149 J**	**0.192 J**	**0.120 J**	**0.111 J**	< 0.103 U	< 0.0979 U	**0.180 J**	**0.108 J**	< 0.110 U	**0.527 J**	**0.276 J**	< 0.107 U	**0.545 J**	**0.451 J**	**0.168 J**
Silver	mg/kg	--	--	**0.264**	**0.0331 J**	**0.0298 J**	**0.0538 J**	**0.0295 J**	< 0.0301 U	< 0.0286 U	< 0.0331 U	< 0.0229 U	**0.0322 J**	< 0.0254 U	**0.0633 J**	< 0.0313 U	< 0.0267 U	**0.844**	**0.0494 J**
Sodium	mg/kg	--	--	**105 J**	< 89.2 U	< 69.3 U	**39.0 J**	**41.7 J**	**36.3 J**	**36.7 J**	**41.9 J**	**35.8 J**	**32.3 J**	< 14.5 U	< 13.3 U	< 17.9 U	**17.1 J**	< 16.9 U	**64.7 J**
Thallium	mg/kg	--	--	**1.18**	**0.458**	**0.339**	**0.219**	**0.164 J**	**0.0549 J**	**0.0597 J**	**0.352 J**	**0.119 J**	**0.112 J**	**0.236**	**0.196**	**0.160 J**	**0.338**	**0.222**	**0.336**
Vanadium	mg/kg	--	--	**56.1 J**	**15.9 J**	**5.43 J**	**4.03**	**3.51**	**3.80**	**3.68**	**9.13**	**5.73**	**4.99**	**12.8**	**11.3**	**3.68**	**14.8**	**15.6**	**14.0**
Zinc	mg/kg	--	--	**125**	**225**	**58.3**	**20.7**	**19.6**	**17.4**	**16.3**	**34.8**	**18.6**	**13.4**	**49.2**	**44.1**	**14.0**	**55.7**	**71.7**	**47.8 J**
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	**0.34 J**	< 0.18 U	< 0.18 U	< 0.17 U	**0.99**	< 0.16 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.77**	< 0.16 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U
Perfluorohexanoic acid (PFHxA)	ng/g	**0.17 J**	< 0.099 U	< 0.12 U	< 0.096 U	< 0.11 U	< 0.073 U	< 0.096 U	< 0.079 U	< 0.083 U	< 0.11 U	< 0.076 U	< 0.087 U	< 0.076 U	< 0.092 U	< 0.089 U	< 0.085 U	< 0.099 U	< 0.081 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.088 U	< 0.099 U	< 0.12 U	< 0.096 U	< 0.11 U	< 0.073 U	< 0.096 U	< 0.079 U	< 0.083 U	< 0.11 U	< 0.076 U	< 0.087 U	**0.73**	**0.46**	**0.77**	**0.14 J**	**0.26 J**	< 0.081 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.26 U	< 0.30 U	< 0.35 U	< 0.29 U	< 0.34 U	< 0.22 U	< 0.29 U	< 0.24 U	< 0.25 U	< 0.32 U	< 0.23 U	< 0.26 U	**1.0**	**0.48 J**	**0.58 J**	< 0.26 U	**2.4**	< 0.24 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	**0.28 J**	**0.21 J**	**0.38 J**	**0.36 J**	**0.51 J**	< 0.16 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 UJ	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 UJ	< 0.17 UJ	< 0.20 U	< 0.16 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.24 J**	< 0.16 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	< 0.20 U	< 0.16 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.20 U	< 0.24 U	< 0.19 U	< 0.23 U	< 0.15 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.15 U	< 0.17 U	< 0.15 U	< 0.18 U	< 0.18 U	< 0.17 U	**0.34 J**	< 0.16 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		D26	D26	S13	S13	S13	S13	S13	S16	S16	S16	S18	S18	S18	S18	S18	S20	S20	S20
Sample Date		10/11/2017	10/11/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/20/2017	9/20/2017	9/20/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/22/2017	9/22/2017	9/22/2017
Depth		28-29 ft	38-39 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	5.3-6.3 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**3270 J**	**910 J**	**33300 J**	**19400 J**	**15000 J**	< 293 U	< 281 U	**8650 J**	**12700 J**	**9110 J**	**16200**	**11500 J**	**9470 J**	**12000 J**	**29700 J**	**18200 J**	**446000 J**	**512000 J**
Moisture	%	**17.3 J**	**16.1 J**	**22.2 J**	**7.8 J**	**8.4 J**	**7.9 J**	**9.5 J**	**11.3 J**	**15.3 J**	**9.7 J**	**14.7**	**10.5**	**7.4**	**8.2**	**6.0**	**83.7 J**	**80.8 J**	**87.8 J**
pH	pH units	**8.13**	**8.14**	**8.23**	**8.98**	**8.92**	**8.48**	**8.57**	**8.14**	**8.15**	**8.23**	**8.08**	**8.16**	**8.31**	**8.64**	**8.94**	**7.26**	**7.36**	**7.09**
Metals																			
Aluminum	mg/kg	**6550 J**	**7230 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	**0.172 J**	**0.151 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	**12.1**	**12.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	**140**	**123**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	**0.460**	**0.655**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	**0.0991 J**	**0.211**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	**5870 J**	**5360 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	**12.6**	**9.18**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	**23.6**	**19.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	**41.3 J**	**25.5 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	**28100**	**25300**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	**17.7**	**14.7**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	**1650 J**	**3130 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	**868**	**1090**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	**15.2**	**20.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	**1210 J**	**911 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	**0.599 J**	**0.302 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	**0.0605 J**	**0.0398 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	**22.3 J**	**20.7 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	**0.250**	**0.340**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	**16.0**	**14.1**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	**39.3 J**	**47.8 J**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ
Perfluorobutanoic acid (PFBA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 UJ	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	**6.0 J**	**1.5 J**	**5.8 J**
Perfluorodecanoic acid (PFDA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 U	< 5.5 UJ
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	**10 J**	**1.8 J**	**6.4 J**
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 UJ	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U	< 0.084 U	**0.22 J**	< 0.081 U	< 0.11 U	< 0.091 U	< 0.091 U	< 0.077 U	< 0.087 U	< 0.093 U	< 0.11 U	< 0.11 U	< 0.099 U	< 0.10 U	< 0.099 U	**7.1 J**	**1.6 J**	**4.5 J**
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 U	**0.12 J**	< 0.12 U	< 0.081 U	< 0.11 U	< 0.091 U	< 0.091 U	< 0.077 U	< 0.087 U	< 0.093 U	< 0.11 U	< 0.11 U	< 0.099 U	< 0.10 U	< 0.099 U	**4.1 J**	**0.86 J**	**3.2 J**
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.35 U	< 0.25 U	**0.72 J**	< 0.24 U	< 0.32 U	< 0.27 U	< 0.27 UJ	< 0.23 U	< 0.26 U	< 0.28 U	**1.2**	**1.1**	**0.38 J**	< 0.31 U	< 0.30 U	**17 J**	**3.2 J**	**16 J**
Perfluorooctanoic acid (PFOA)	ng/g	< 0.23 U	**1.3**	**0.25 J**	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 UJ	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	**130 J**	**19 J**	**110 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.23 U	< 0.17 UJ	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 UJ	< 0.21 UJ	< 0.20 UJ	< 0.21 U	< 0.20 UJ	< 4.8 UJ	**1.1 J**	< 5.5 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.23 U	< 0.17 U	< 0.25 U	< 0.16 U	< 0.21 U	< 0.18 U	< 0.18 U	< 0.15 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.21 U	< 0.20 U	< 4.8 UJ	< 0.98 UJ	< 5.5 UJ

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S21	S21	S21	S21	S21	S22	S22	S22	S22	S22	S24	S24	S24	S24	S25	S25	S25	S25
Sample Date		9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/13/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/18/2017	9/19/2017	9/19/2017	9/19/2017	9/19/2017	9/21/2017	9/21/2017	9/21/2017	9/21/2017
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.3-7.3 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	9-10 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	2.7-3.7 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**11000 J**	**5740 J**	**3500 J**	**9360 J**	**29700 J**	**8080 J**	**6170 J**	**2290 J**	< 283 U	**543 J**	**6350**	**3670**	**5660**	**2250**	**22600 J**	**5190 J**	**5170 J**	**1600 J**
Moisture	%	**16.6**	**12.9**	**9.8**	**3.8**	**4.8**	**16.3 J**	**15.0 J**	**11.4 J**	**10.1 J**	**9.6 J**	**27.3 J**	**14.7 J**	**15.8 J**	**13.9 J**	**12.3**	**9.6**	**10.9**	**17.2**
pH	pH units	**7.92**	**8.12**	**8.02**	**9.08**	**8.79**	**7.84**	**8.04**	**8.48**	**8.47**	**8.33**	**8.34**	**8.23**	**8.11**	**8.09**	**8.50**	**8.90**	**8.95**	**8.45**
Metals																			
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	< 0.16 U	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	**0.24 J**	**0.21 J**	< 0.16 U	< 0.18 U	< 0.22 U	**0.26 J**	< 0.23 U	< 0.19 U	< 0.23 U	**0.21 J**	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	**0.44 J**	**0.32 J**	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	**0.29 J**	< 0.20 U	< 0.18 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	**0.18 J**	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	< 0.16 U	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.092 U	< 0.11 U	< 0.12 U	< 0.11 U	< 0.097 U	< 0.11 U	**0.12 J**	< 0.10 U	< 0.092 U	< 0.094 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.081 U	< 0.092 U	< 0.11 U	**0.15 J**	< 0.11 U	< 0.097 U	< 0.11 U	**0.20 J**	< 0.10 U	< 0.092 U	< 0.094 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.33 U	< 0.34 U	< 0.32 U	< 0.31 U	**0.46 J**	< 0.33 U	< 0.32 U	< 0.24 U	< 0.28 U	< 0.33 U	**0.81 J**	**0.63 J**	**0.49 J**	**0.73 J**	**1.5**	< 0.30 U	**0.32 J**	**0.61 J**
Perfluorooctanoic acid (PFOA)	ng/g	**0.60 J**	**0.55 J**	**0.38 J**	< 0.21 U	< 0.21 U	**0.80**	**1.1**	**0.18 J**	< 0.18 U	< 0.22 U	**0.45 J**	**0.67 J**	**0.38 J**	< 0.23 U	**0.47 J**	< 0.20 U	< 0.18 U	**0.55 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.22 UJ	< 0.23 UJ	< 0.21 UJ	< 0.21 UJ	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 UJ	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	**0.17 J**	< 0.20 U	< 0.18 U	< 0.19 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	**0.20 J**	< 0.20 U	< 0.18 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	< 0.16 U	< 0.20 U	< 0.18 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.22 U	< 0.23 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.16 U	< 0.18 U	< 0.22 U	< 0.24 U	< 0.23 U	< 0.19 U	< 0.23 U	**0.20 J**	< 0.20 U	< 0.18 U	< 0.19 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S25	S26	S26	S26	S26	S26	S27		S27	S27	S27	S27	S28	S28	S28	S28	S29	S29
Sample Date		9/21/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017	9/20/2017		9/20/2017	9/20/2017	9/20/2017	9/20/2017	9/28/2017	9/28/2017	9/28/2017	9/28/2017	9/22/2017	9/22/2017
Depth		4.6-5.6 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	0-0.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	7-8 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	2.7-3.7 ft	0-0.5 ft	0.5-1 ft
Sample Type		N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Carbon, total organic	mg/kg	**4500 J**	**17300 J**	**15600 J**	**23800 J**	**10900 J**	**5260 J**	**2930 J**	**19200 J**	**18400 J**	**16000 J**	**15800 J**	**17400 J**	**29100**	**29600**	**31300**	**17000**	**174000 J**	**480000 J**
Moisture	%	**14.8**	**16.4 J**	**10.5 J**	**5.3 J**	**7.5 J**	**19.7 J**	**7.1 J**	**7.3 J**	**6.4 J**	**10.0 J**	**15.6 J**	**16.4 J**	**3.0 J**	**4.5 J**	**4.1 J**	**9.1 J**	**65.3 J**	**81.5 J**
pH	pH units	**8.44**	**7.85**	**8.17**	**8.68**	**8.42**	**8.33**	**8.57**	**8.52**	**8.51**	**8.49**	**8.62**	**8.50**	**8.16**	**8.20**	**8.30**	**8.80**	**6.80**	**6.89**
Metals																			
Aluminum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Per- and Polyfluoroalkyl Substances																			
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluorobutanoic acid (PFBA)	ng/g	< 0.18 U	**0.24 J**	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	**0.22 J**	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	**0.56 J**	< 3.7 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	**0.14 J**	< 0.21 U	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	**0.83 J**	< 3.7 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.088 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.077 U	< 0.098 U	< 0.11 U	< 0.095 U	< 0.10 U	< 0.075 U	< 0.11 U	< 0.090 U	< 0.10 U	< 0.070 U	< 0.10 U	< 0.10 U	**0.77 J**	< 1.9 UJ
Perfluorononanoic acid (PFNA)	ng/g	< 0.088 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.077 U	< 0.098 U	< 0.11 U	< 0.095 U	< 0.10 U	< 0.075 U	< 0.11 U	< 0.090 U	< 0.10 U	**0.084 J**	< 0.10 U	< 0.10 U	**0.39 J**	< 1.9 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/g	**0.35 J**	< 0.33 U	< 0.30 U	< 0.30 U	< 0.23 U	< 0.29 U	< 0.32 U	< 0.28 U	< 0.31 U	< 0.23 U	< 0.34 U	< 0.27 U	**0.35 J**	**0.37 J**	**0.45 J**	< 0.31 U	**1.6 J**	< 5.6 UJ
Perfluorooctanoic acid (PFOA)	ng/g	**0.40 J**	**0.82**	**0.62**	< 0.20 U	**0.40 J**	**0.21 J**	< 0.21 U	< 0.19 U	**0.26 J**	< 0.15 U	< 0.23 U	< 0.18 U	**0.32 J**	**0.17 J**	< 0.21 U	< 0.21 U	**18**	**53 J**
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 UJ	< 0.22 UJ	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 UJ	**0.58 J**	< 3.7 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	< 0.14 U	< 0.21 U	< 0.21 U	< 0.53 U	< 3.7 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.22 U	< 0.20 U	< 0.20 U	< 0.15 U	< 0.20 U	< 0.21 U	< 0.19 U	< 0.20 U	< 0.15 U	< 0.23 U	< 0.18 U	< 0.20 U	**0.20 J**	**0.21 J**	< 0.21 U	< 0.53 U	< 3.7 UJ

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		S29	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1
Sample Date		9/22/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017	9/27/2017		9/28/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017
Depth		1-1.5 ft	28-29 ft	31-32 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	128-129 ft	138-139 ft
Sample Type		N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	**477000 J**	< 685 UB	< 594 UB	< 803 UB	< 839 UB	**1210 J**	**1270**	**1550 J**	**631 J**	**1170 J**	**2050**	**681 J**	**361 J**	**411**	**441**
Moisture	%	**81.9 J**	**11.8**	**14.4**	**8.3**	**9.5**	**13.3**	**12.3**	**10.8**	**11.4 J**	**10.8 J**	**10.1 J**	**13.5 J**	**14.9 J**	**13.4**	**23.4**
pH	pH units	**6.88**	**7.98**	**7.86**	**7.96**	**7.96**	**7.93**	**8.20**	**8.29**	**8.50**	**8.47**	**8.41**	**8.37**	**8.26**	**8.06**	**8.13**
Metals																
Aluminum	mg/kg	--	**16900**	**6510**	**10300**	**6880**	**7420**	**5670**	**8960**	**9850**	**9130**	**8690**	**7650**	**15000**	**20200**	**13000**
Antimony	mg/kg	--	**0.151 J**	**0.0894 J**	**0.114 J**	**0.138 J**	**0.142 J**	**0.138 J**	**0.169 J**	**0.217 J**	**0.260 J**	**0.0977 J**	**0.184 J**	**0.228 J**	**0.560**	**0.110 J**
Arsenic	mg/kg	--	**10.8 J**	**3.11 J**	**9.55 J**	**10.1 J**	**12.9 J**	**9.90 J**	**16.1 J**	**18.8 J**	**15.4 J**	**6.48 J**	**12.3 J**	**7.35 J**	**19.9 J**	**12.6 J**
Barium	mg/kg	--	**58.5**	**24.2**	**57.0**	**70.8**	**119**	**79.1**	**76.6**	**109 J**	**69.5 J**	**37.3 J**	**124 J**	**138 J**	**148 J**	**28.8 J**
Beryllium	mg/kg	--	**0.693**	**0.318**	**0.518**	**0.611**	**0.640**	**0.510**	**0.751**	**0.930 J**	**0.880 J**	**0.304 J**	**0.840 J**	**0.752 J**	**1.59 J**	**1.44 J**
Cadmium	mg/kg	--	**0.0971 J**	< 0.0298 U	**0.0777 J**	**0.189**	**0.235**	**0.136 J**	**0.210**	**0.211**	**0.198**	**0.0619 J**	**0.226**	**0.161 J**	**0.281**	**0.0680 J**
Calcium	mg/kg	--	**982**	**344**	**561**	**352**	**376**	**85500**	**5130**	**2190 J**	**2480 J**	**4820 J**	**2690 J**	**820 J**	**984 J**	**384 J**
Chromium	mg/kg	--	**18.4 J**	**5.84 J**	**12.4 J**	**8.73 J**	**9.66 J**	**7.48 J**	**11.0 J**	**11.5 J**	**9.58 J**	**4.66 J**	**9.01 J**	**20.3 J**	**32.4 J**	**4.40 J**
Cobalt	mg/kg	--	**25.9 J**	**4.33 J**	**21.4 J**	**16.6 J**	**26.0 J**	**19.6 J**	**20.7 J**	**26.1 J**	**16.6 J**	**7.14 J**	**18.2 J**	**13.2 J**	**57.3 J**	**15.2 J**
Copper	mg/kg	--	**20.8**	**11.7**	**16.2**	**16.7**	**32.9**	**20.6**	**32.6**	**34.5 J**	**12.7 J**	**8.94 J**	**21.9 J**	**18.1 J**	**27.5 J**	**50.3 J**
Iron	mg/kg	--	**32500 J**	**9310 J**	**25400 J**	**22700 J**	**34600 J**	**20900 J**	**36100 J**	**40000**	**36600**	**28400**	**28800**	**21400**	**77700**	**59900**
Lead	mg/kg	--	**17.2**	**8.16**	**13.1**	**13.0**	**23.5**	**15.4**	**18.3**	**24.6 J**	**19.1 J**	**8.06 J**	**18.9 J**	**14.3 J**	**30.3 J**	**29.5 J**
Magnesium	mg/kg	--	**1530**	**591**	**782**	**526**	**499**	**45800**	**3470**	**1750 J**	**2060 J**	**2590 J**	**2100 J**	**2950 J**	**1770 J**	**686 J**
Manganese	mg/kg	--	**439 J**	**100 J**	**892 J**	**1290 J**	**1080 J**	**807 J**	**929 J**	**847 J**	**512 J**	**764 J**	**922 J**	**1050 J**	**848 J**	**327 J**
Nickel	mg/kg	--	**19.2 J**	**8.61 J**	**13.7 J**	**14.4 J**	**21.8 J**	**16.7 J**	**24.2 J**	**38.6 J**	**11.8 J**	**10.4 J**	**20.5 J**	**18.8 J**	**44.8 J**	**31.9 J**
Potassium	mg/kg	--	**978 J**	**633 J**	**701 J**	**729 J**	**884 J**	**839 J**	**1150 J**	**988 J**	**969 J**	**1060 J**	**747 J**	**2480 J**	**1060 J**	**1330 J**
Selenium	mg/kg	--	< 0.0914 U	< 0.0865 U	**0.0879 J**	< 0.0906 U	**0.126 J**	**0.104 J**	**0.128 J**	**0.279 J**	**0.220 J**	**0.114 J**	**0.198 J**	< 0.106 U	**0.233 J**	< 0.116 U
Silver	mg/kg	--	< 0.0267 U	< 0.0253 U	< 0.0238 U	< 0.0264 U	**0.0633 J**	**0.0314 J**	**0.0386 J**	**0.0734 J**	**0.0369 J**	< 0.0258 U	**0.0471 J**	< 0.0309 U	**0.0661 J**	< 0.0337 U
Sodium	mg/kg	--	**45.9 J**	**30.7 J**	**28.0 J**	**22.7 J**	**21.9 J**	**39.9 J**	**30.0 J**	**17.7 J**	**16.7 J**	**18.6 J**	**14.5 J**	**50.6 J**	**36.5 J**	< 19.3 U
Thallium	mg/kg	--	**0.389**	**0.133 J**	**0.521**	**0.324**	**0.822**	**0.332**	**0.343**	**0.553 J**	**0.374 J**	**0.166 J**	**0.700 J**	**0.322 J**	**1.40 J**	**0.133 J**
Vanadium	mg/kg	--	**29.5 J**	**8.05 J**	**18.6 J**	**12.0 J**	**15.3 J**	**11.4 J**	**16.7 J**	**17.7 J**	**15.6 J**	**5.44 J**	**13.6 J**	**20.3 J**	**41.3 J**	**22.8 J**
Zinc	mg/kg	--	**43.3**	**20.3**	**30.6**	**36.8**	**57.6**	**43.0**	**59.2**	**63.5**	**56.1**	**45.5**	**55.4**	**49.8**	**83.6**	**46.3**
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorobutanoic acid (PFBA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	**0.17 J**	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorodecanoic acid (PFDA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 2.2 UJ	< 0.094 U	< 0.096 U	< 0.096 U	< 0.078 U	< 0.085 U	< 0.094 U	< 0.099 U	< 0.11 U	< 0.080 U	< 0.11 U	< 0.10 U	< 0.084 U	< 0.094 U	< 0.11 U
Perfluorononanoic acid (PFNA)	ng/g	< 2.2 UJ	< 0.094 U	< 0.096 U	< 0.096 U	< 0.078 U	< 0.085 U	< 0.094 U	< 0.099 U	< 0.11 U	< 0.080 U	< 0.11 U	< 0.10 U	< 0.084 U	< 0.094 U	< 0.11 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 6.6 UJ	< 0.28 U	< 0.29 U	< 0.29 U	< 0.23 U	< 0.26 U	< 0.28 U	< 0.30 U	< 0.33 U	< 0.24 U	< 0.33 U	< 0.30 U	< 0.25 U	< 0.28 U	< 0.32 U
Perfluorooctanoic acid (PFOA)	ng/g	**53 J**	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 UJ	< 0.16 UJ	< 0.17 UJ	< 0.19 UJ	< 0.20 UJ	< 0.22 UJ	< 0.16 UJ	< 0.22 UJ	< 0.20 UJ	< 0.17 U	< 0.19 UJ	< 0.21 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 4.4 UJ	< 0.19 U	< 0.19 U	< 0.19 U	< 0.16 U	< 0.17 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.16 U	< 0.22 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U

Table 3.10
Analytical Soil Results - Bennington Landfill
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Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR1
Sample Date		9/29/2017	10/3/2017	10/4/2017	10/4/2017		10/4/2017	10/4/2017	10/4/2017	10/4/2017	10/4/2017	10/5/2017	10/5/2017	10/5/2017	10/5/2017
Depth		148-149 ft	158-159 ft	168-169 ft	178-179 ft	178-179 ft	188-189 ft	198-199 ft	208-209 ft	218-219 ft	228-229 ft	238-239 ft	248-249 ft	258-259 ft	268-269 ft	278-279 ft
Sample Type		N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	**306 J**	**244 J**	**357 J**	**409**	**401 J**	**459**	**324 J**	**485**	**432**	**306 J**	**164 J**	**141 J**	**141 J**	**653 J**	**801 J**
Moisture	%	**21.4**	**20.9**	**23.7**	**22.2**	**22.3**	**24.8**	**22.0**	**16.0**	**14.3**	**18.4**	**19.6**	**17.7**	**16.1**	**30.2**	**27.4**
pH	pH units	**8.09**	**8.10**	**8.17**	**8.13**	**8.08**	**8.20**	**8.12**	**8.05**	**7.68**	**8.01**	**7.96**	**8.06**	**8.10**	**7.73**	**7.72**
Metals																
Aluminum	mg/kg	**18300**	**12400 J**	**6170 J**	**15100 J**	**14900 J**	**9630 J**	**11200 J**	**7500 J**	**11600 J**	**6050 J**	**7300**	**5080**	**6320**	**6150**	**7360**
Antimony	mg/kg	**0.322 J**	**0.261 J**	**0.244 J**	**0.458 J**	**0.293 J**	< 0.102 UJ	< 0.113 UJ	**0.461 J**	**0.308 J**	**0.322 J**	< 0.252 U	< 0.253 U	< 0.0918 U	< 0.102 U	**0.251 J**
Arsenic	mg/kg	**19.1 J**	**10.7 J**	**6.86 J**	**17.6 J**	**16.0 J**	**4.67 J**	**5.43 J**	**10.2 J**	**8.20 J**	**12.1 J**	**9.91**	**9.24**	**9.56**	**8.28**	**33.9**
Barium	mg/kg	**21.2 J**	**16.5 J**	**6.34 J**	**114 J**	**154 J**	**210 J**	**65.0 J**	**135 J**	**5190 J**	**16.8 J**	**7.48**	**11.1**	**7.78**	**581**	**575**
Beryllium	mg/kg	**1.41 J**	**0.815**	**0.787**	**1.23**	**1.17**	**0.958**	**0.864**	**0.692**	**1.62**	**2.09**	**1.50**	**2.42**	**0.759**	**5.92**	**8.46**
Cadmium	mg/kg	**0.180 J**	**0.0918 J**	**0.330**	**0.258**	**0.260**	**0.0580 J**	**0.0726 J**	**0.104 J**	**0.665**	**0.547**	**0.463 J**	**0.504 J**	**0.0733 J**	**1.08**	**1.41**
Calcium	mg/kg	**486 J**	**331 J**	**202 J**	**411 J**	**409 J**	**273 J**	**292 J**	**221 J**	**403 J**	**327 J**	**346**	**366**	**363**	**1210**	**1440**
Chromium	mg/kg	**5.75 J**	**5.38**	**2.36**	**3.87**	**3.03**	**5.04**	**2.43**	**5.95**	**3.37**	**3.53**	**1.45**	**1.93**	**1.59**	**3.21**	**10.9**
Cobalt	mg/kg	**20.0 J**	**18.1 J**	**10.4 J**	**15.8 J**	**16.0 J**	**17.9 J**	**11.5 J**	**28.6 J**	**671 J**	**8.86 J**	**4.16**	**6.80**	**18.3**	**159**	**137**
Copper	mg/kg	**39.8 J**	**50.3**	**30.5**	**45.0**	**42.5**	**28.8**	**37.2**	**42.3**	**136**	**49.3**	**11.1**	**27.0**	**9.61**	**12.7**	**16.4**
Iron	mg/kg	**75500**	**45500**	**31600**	**57500**	**55200**	**36000**	**31800**	**28000**	**34700**	**53100**	**35500**	**48300**	**16700**	**318000**	**346000**
Lead	mg/kg	**30.4 J**	**6.69 J**	**6.52 J**	**14.8 J**	**15.1 J**	**10.5 J**	**15.1 J**	**10.2 J**	**20.7 J**	**14.4 J**	**6.23**	**18.2**	**14.9**	**22.3**	**58.4**
Magnesium	mg/kg	**924 J**	**595 J**	**364 J**	**680 J**	**699 J**	**368 J**	**457 J**	**567 J**	**373 J**	**601 J**	**559**	**626**	**719**	**1340**	**1980**
Manganese	mg/kg	**401 J**	**214 J**	**124 J**	**337 J**	**349 J**	**784 J**	**300 J**	**556 J**	**40500 J**	**180 J**	**103**	**228**	**172**	**18000**	**16600**
Nickel	mg/kg	**29.3 J**	**20.5 J**	**19.3 J**	**31.4 J**	**30.6 J**	**18.6 J**	**26.0 J**	**27.2 J**	**75.4 J**	**46.8 J**	**41.9**	**37.4**	**22.2**	**91.2**	**224**
Potassium	mg/kg	**868 J**	**625**	**477**	**363**	**326**	**1090**	**998**	**914**	**821**	**585**	**696**	**563**	**915**	**198**	**288 J**
Selenium	mg/kg	< 0.111 U	**0.150 J**	< 0.109 U	**0.255 J**	**0.245 J**	**0.176 J**	**0.190 J**	**0.186 J**	**0.296 J**	**0.200 J**	**0.295 J**	**0.492 J**	**0.199 J**	**0.245 J**	**0.542 J**
Silver	mg/kg	< 0.0323 U	< 0.0295 U	< 0.0319 U	< 0.0303 U	< 0.0313 U	**0.0418 J**	< 0.0353 U	**0.0402 J**	**2.09**	< 0.0306 U	< 0.0790 U	< 0.0792 U	< 0.0288 U	< 0.0319 U	**0.0440 J**
Sodium	mg/kg	< 18.5 U	< 16.9 U	< 18.2 U	< 17.3 U	< 17.9 U	< 18.4 U	< 20.2 U	< 16.7 U	< 77.3 U	< 17.5 U	< 90.3 U	< 90.6 U	< 16.5 U	< 18.3 U	< 96.7 U
Thallium	mg/kg	**0.149 J**	**0.142 J**	**0.115 J**	**0.180 J**	**0.176 J**	**0.649 J**	**0.185 J**	**1.16 J**	**67.3 J**	**0.608 J**	**0.297**	**1.10**	**0.245**	**2.13**	**1.51**
Vanadium	mg/kg	**19.1 J**	**10.1**	**11.8**	**14.4**	**14.0**	**7.27**	**6.71**	**6.45**	**10.5**	**13.0**	**9.25**	**9.49**	**3.82**	**15.3**	**32.4**
Zinc	mg/kg	**55.2**	**63.3**	**75.8**	**131**	**117**	**24.0**	**26.3**	**18.8**	**398**	**128**	**141**	**130**	**25.3**	**253**	**279**
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.097 UJ	< 0.12 U	< 0.098 U	< 0.082 U	< 0.083 UJ	< 0.10 U	< 0.12 U	< 0.12 U	< 0.080 U	< 0.096 U	< 0.12 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.097 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.097 UJ	< 0.12 U	< 0.098 U	< 0.082 U	< 0.083 U	< 0.10 U	< 0.12 U	< 0.12 U	< 0.080 U	< 0.096 U	< 0.12 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.29 U	< 0.32 U	< 0.31 U	< 0.31 U	< 0.29 U	< 0.35 U	< 0.29 U	< 0.25 U	< 0.25 U	< 0.31 U	< 0.36 U	< 0.35 U	< 0.24 U	< 0.29 U	< 0.37 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 UJ	< 0.19 UJ	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 UJ	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.19 UJ	< 0.21 UJ	< 0.21 UJ	< 0.21 UJ	< 0.19 UJ	< 0.23 UJ	< 0.20 UJ	< 0.16 UJ	< 0.17 UJ	< 0.21 UJ	< 0.24 UJ	< 0.23 UJ	< 0.16 UJ	< 0.19 UJ	< 0.25 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.19 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.17 U	< 0.21 U	< 0.24 U	< 0.23 U	< 0.16 U	< 0.19 U	< 0.25 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR1	SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2
Sample Date		10/5/2017	10/6/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
Depth		288-289 ft	298-299 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft	18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units														
General Parameters															
Carbon, total organic	mg/kg	**387 J**	**278 J**	**15700 J**	**6870 J**	**11700 J**	**7220 J**	**11400 J**	**2860 J**	**667 J**	**2010**	**1860**	**1660**	**1540**	**1920**
Moisture	%	**25.2**	**15.5**	**16.8**	**15.4**	**14.5**	**15.8**	**12.0**	**10.7**	**8.6**	**9.2**	**13.5**	**13.7**	**12.3**	**12.6**
pH	pH units	**7.81**	**8.07 J**	**8.26**	**8.47**	**8.34**	**8.68**	**8.56**	**8.41**	**8.41**	**8.40**	**8.38**	**8.30**	**8.33**	**8.22**
Metals															
Aluminum	mg/kg	**9520**	**5640**	**5220 J**	**4770 J**	**6780 J**	**5510 J**	**5520 J**	**7950 J**	**9580 J**	**8650 J**	**8970 J**	**8170 J**	**8670 J**	**8010 J**
Antimony	mg/kg	**0.617 J**	**0.335 J**	< 0.0926 U	< 0.0787 U	< 0.107 U	< 0.0872 U	**0.189 J**	**0.120 J**	**0.124 J**	**0.146 J**	**0.164 J**	**0.163 J**	**0.161 J**	**0.121 J**
Arsenic	mg/kg	**24.0**	**21.2 J**	**4.42**	**4.13**	**5.69**	**4.93**	**11.9**	**7.87**	**13.6**	**11.1**	**14.5**	**14.7**	**13.8**	**13.7**
Barium	mg/kg	**188**	**429 J**	**31.8**	**27.9**	**56.6**	**28.3**	**98.7**	**110**	**95.1**	**102**	**86.8**	**55.2**	**81.3**	**75.5**
Beryllium	mg/kg	**10.8**	**1.67**	**0.215**	**0.227**	**0.308**	**0.219**	**0.496**	**0.520**	**0.566**	**0.438**	**0.801**	**0.692**	**0.825**	**1.02**
Cadmium	mg/kg	**1.85**	**0.248 J**	**0.107 J**	**0.0996 J**	**0.137 J**	**0.128 J**	**0.189 J**	**0.191**	**0.136 J**	**0.143 J**	**0.196 J**	**0.160 J**	**0.265**	**0.225**
Calcium	mg/kg	**1020**	**471 J**	**71700 J**	**82900 J**	**52500 J**	**72700 J**	**37900 J**	**19400 J**	**7600 J**	**3750 J**	**5030 J**	**3990 J**	**5190 J**	**2770 J**
Chromium	mg/kg	**7.56**	**7.66 J**	**5.25**	**4.62**	**6.06**	**5.22**	**6.62**	**14.0**	**13.8**	**13.9**	**11.8**	**17.1**	**8.48**	**9.74**
Cobalt	mg/kg	**46.7**	**12.7 J**	**6.58**	**6.67**	**10.2**	**7.23**	**16.1**	**13.7**	**20.4**	**19.2**	**33.7**	**15.6**	**17.9**	**16.9**
Copper	mg/kg	**40.5**	**49.7 J**	**9.41 J**	**8.40 J**	**12.1 J**	**10.1 J**	**17.9 J**	**20.6 J**	**34.3 J**	**28.9 J**	**36.1 J**	**25.7 J**	**22.5 J**	**28.5 J**
Iron	mg/kg	**98000**	**25800**	**11500**	**10700**	**14000**	**12700**	**19600**	**23500**	**34400**	**24900**	**33000**	**23500**	**27600**	**27200**
Lead	mg/kg	**45.5**	**139 J**	**7.62**	**6.40**	**7.83**	**6.57**	**11.0**	**11.4**	**12.0**	**12.3**	**22.0**	**13.9**	**17.2**	**17.9**
Magnesium	mg/kg	**1170**	**539 J**	**26300 J**	**36500 J**	**20800 J**	**29100 J**	**16900 J**	**7820 J**	**4540 J**	**2100 J**	**3300 J**	**2420 J**	**3020 J**	**2290 J**
Manganese	mg/kg	**5500**	**247 J**	**302**	**292**	**418**	**316**	**589**	**1170**	**555**	**919**	**580**	**546**	**799**	**607**
Nickel	mg/kg	**210**	**41.6 J**	**9.94**	**8.97**	**12.9**	**11.8**	**19.6**	**26.6**	**21.5**	**25.3**	**28.2**	**20.1**	**22.2**	**23.2**
Potassium	mg/kg	**554 J**	**689 J**	**763 J**	**733 J**	**1090 J**	**804 J**	**1040 J**	**1300 J**	**1660 J**	**1310 J**	**1170 J**	**1050 J**	**777 J**	**813 J**
Selenium	mg/kg	**0.948 J**	< 0.268 UB	**0.115 J**	**0.0934 J**	**0.122 J**	**0.122 J**	**0.211 J**	**0.233 J**	**0.327 J**	**0.297 J**	**0.347 J**	**0.239 J**	**0.218 J**	**0.531 J**
Silver	mg/kg	**0.130 J**	**0.0404 J**	**0.246**	**0.0392 J**	< 0.0335 U	< 0.0273 U	**0.0393 J**	**0.111 J**	**0.0424 J**	**0.615**	< 0.0301 U	**0.259**	**0.0382 J**	< 0.0309 U
Sodium	mg/kg	< 217 U	< 135 U	**37.1 J**	**40.4 J**	**37.7 J**	**34.3 J**	**27.4 J**	**36.7 J**	**31.9 J**	**25.7 J**	**24.1 J**	**26.6 J**	**20.2 J**	**21.0 J**
Thallium	mg/kg	**2.02**	**0.276 J**	< 0.102 UB	< 0.0971 UB	**0.230**	< 0.0838 UB	**0.271**	**0.373**	**0.272**	**0.292**	**0.328**	**0.251**	**0.456**	**0.407**
Vanadium	mg/kg	**38.3**	**10.6 J**	**6.13**	**5.96**	**7.14**	**6.27**	**8.54**	**12.4**	**16.7**	**12.2**	**15.9**	**14.9**	**15.0**	**17.3**
Zinc	mg/kg	**393**	**50.6**	**28.6 J**	**26.1 J**	**34.6 J**	**31.1 J**	**43.5 J**	**51.8 J**	**46.1 J**	**53.3 J**	**66.4 J**	**51.1 J**	**52.9 J**	**60.4 J**
Per- and Polyfluoroalkyl Substances															
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	**0.29 J**	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	**0.20 J**
Perfluorodecanoic acid (PFDA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 UJ	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.093 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.093 U	< 0.082 U	< 0.10 U	< 0.11 U	< 0.087 U	< 0.099 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.093 U	< 0.10 U	< 0.11 U	< 0.10 U	< 0.11 U	< 0.11 U	< 0.11 U	< 0.10 U	< 0.093 U	< 0.082 U	< 0.10 U	< 0.11 U	< 0.087 U	< 0.099 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.28 U	< 0.30 U	< 0.34 U	< 0.31 U	< 0.34 U	< 0.33 U	< 0.33 U	< 0.31 U	< 0.28 U	< 0.25 U	< 0.30 U	< 0.32 U	< 0.26 U	< 0.30 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.19 U	< 0.20 U	**0.39 J**	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.19 UJ	< 0.20 UJ	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 UJ	< 0.22 U	< 0.21 U	< 0.19 UJ	< 0.16 UJ	< 0.20 U	< 0.21 U	< 0.17 UJ	< 0.20 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.19 U	< 0.20 U	< 0.23 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.21 U	< 0.19 U	< 0.16 U	< 0.20 U	< 0.21 U	< 0.17 U	< 0.20 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR2		SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2		SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3
Sample Date		10/12/2017		10/12/2017	10/13/2017	10/13/2017		10/13/2017	10/13/2017	10/13/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017
Depth		88-89 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	118-119 ft	128-129 ft	133-134 ft	137-138 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	6.5-7.5 ft	8-9 ft
Sample Type		N	FD	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	34800	29900	207 J	118 J	162 J	226 J	383 J	128 J	118 J	48700	30300	31300	9930	29300	1040
Moisture	%	12.8	13.4	15.3	12.3	11.8	15.2	20.3	12.4	12.4	2.7	3.0	4.4	14.7	2.9	10.8
pH	pH units	8.59	8.56	8.13	8.30	5.92	8.77	7.93	8.18	8.83	8.59	8.93	8.80	8.20	8.89	7.90
Metals																
Aluminum	mg/kg	7990 J	8460 J	6930	1770 J	4060 J	5960	10600 J	3070	2130	3310 J	3670 J	4230 J	8930 J	3290 J	9850 J
Antimony	mg/kg	0.163 J	0.156 J	0.554	< 0.0824 U	0.206 J	0.172 J	0.417 J	0.148 J	0.102 J	0.158 J	0.211 J	< 0.0937 U	0.155 J	0.0884 J	0.151 J
Arsenic	mg/kg	6.94	7.35	6.28 J	3.54	4.62 J	7.63 J	22.8	3.67 J	3.96 J	6.21	9.53	7.11	6.75	5.99	6.14
Barium	mg/kg	147	149	205 J	72.0	307	384 J	291	7.82 J	5.14 J	78.2 J	33.8 J	32.8 J	60.3 J	23.6 J	75.8 J
Beryllium	mg/kg	1.89	1.79	3.10 J	1.53	2.23 J	3.50 J	13.4	1.06 J	1.12 J	0.203	0.210	0.198 J	0.427	0.191	0.515
Cadmium	mg/kg	0.535	0.573	0.656	0.382	0.598	0.838	1.79	0.154 J	0.104 J	0.105 J	0.107 J	0.109 J	0.231	0.0857 J	0.154 J
Calcium	mg/kg	84600 J	89500 J	467	211 J	371 J	443	1190 J	236	177 J	64200 J	82000 J	79100 J	30900 J	81200 J	402 J
Chromium	mg/kg	6.30	6.21	4.25	0.995	1.97	3.11	5.03	2.65	2.00	4.60 J	4.90 J	5.51 J	9.35 J	5.79 J	7.81 J
Cobalt	mg/kg	8.73	8.76	32.6	8.43	16.7	22.8	22.8	6.83	5.35	8.67	10.3	6.29	10.7	5.89	17.6
Copper	mg/kg	20.8 J	20.9 J	30.1 J	14.9 J	22.6 J	33.6 J	38.7 J	13.9 J	13.3 J	13.2 J	14.6 J	11.5 J	14.5 J	13.3 J	18.8 J
Iron	mg/kg	28400	23700	37100	19500	27100 J	40900 J	64700	8450	7880	13800	14500	12400	16300	14100	16900
Lead	mg/kg	16.3	15.8	16.8 J	11.2	14.1	17.0 J	54.5	8.40 J	7.64 J	13.3 J	11.9 J	8.68 J	14.4 J	20.6 J	11.1 J
Magnesium	mg/kg	41700 J	44700 J	1240 J	286 J	525 J	723 J	1150 J	275 J	190 J	25400 J	31700 J	30400 J	12900 J	31600 J	1240 J
Manganese	mg/kg	983	1040	993 J	661	1740 J	2690 J	4150	134 J	117 J	542	380	344	538	288	520
Nickel	mg/kg	22.0	26.1	36.2	14.4	32.3	45.1	62.2	15.3	20.9	11.4 J	11.9 J	8.68 J	14.0 J	10.1 J	15.0 J
Potassium	mg/kg	912 J	1010 J	1150 J	250 J	569 J	756 J	579 J	197 J	140 J	692 J	780 J	974 J	1300 J	609 J	1490 J
Selenium	mg/kg	0.113 J	0.128 J	0.222 J	< 0.0884 U	< 0.109 U	0.191 J	0.780 J	0.207 J	0.261 J	0.209 J	0.329 J	0.155 J	0.310 J	0.238 J	0.219 J
Silver	mg/kg	0.0573 J	0.0616 J	0.0394 J	< 0.0258 U	0.0794 J	0.0778 J	0.0374 J	0.0404 J	< 0.0298 U	0.0575 J	0.0393 J	< 0.0294 U	0.0909 J	< 0.0257 U	< 0.0285 U
Sodium	mg/kg	36.3 J	40.0 J	< 18.8 U	< 14.8 U	< 91.0 U	< 86.4 U	< 175 U	< 95.3 U	< 85.1 U	32.0 J	35.6 J	37.8 J	45.1 J	26.9 J	24.5 J
Thallium	mg/kg	0.563	0.620	1.02	0.736	2.01	2.03	2.68	0.115 J	0.199 J	0.252	0.0921 J	0.0907 J	0.180	0.0856 J	0.307
Vanadium	mg/kg	18.5	18.1	12.9	6.97	8.42 J	13.2 J	28.0	4.40	4.43	22.2 J	8.42 J	6.29 J	13.2 J	10.6 J	11.1 J
Zinc	mg/kg	72.7 J	75.4 J	99.2	57.2 J	68.5 J	118	192 J	45.3	54.2	32.1 J	30.6 J	28.4 J	48.1 J	35.1 J	30.7 J
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.25 UB	< 0.37 UB	< 0.31 UB	< 0.35 UB
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.091 U	< 0.095 UJ	< 0.11 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.12 U	< 0.086 U	< 0.090 U	< 0.091 U	< 0.093 U	< 0.071 U	< 0.095 U	< 0.080 U	< 0.097 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.091 U	< 0.095 UJ	< 0.11 U	< 0.10 U	< 0.091 U	< 0.10 U	< 0.12 U	< 0.086 U	< 0.090 U	0.093 J	< 0.093 U	< 0.071 U	< 0.095 U	< 0.080 U	< 0.097 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.27 U	< 0.28 UJ	< 0.32 U	< 0.31 U	< 0.27 U	< 0.30 U	< 0.35 U	< 0.26 U	< 0.27 U	< 0.27 U	< 0.28 U	< 0.21 U	< 0.29 U	< 0.24 U	< 0.29 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.18 U	< 0.19 UJ	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	0.17 J	1.0	0.19 J	< 0.19 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 UJ	< 0.18 UJ	< 0.20 UJ	< 0.23 UJ	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.19 U	< 0.21 U	< 0.21 U	< 0.18 U	< 0.20 U	< 0.23 U	< 0.17 U	< 0.18 U	< 0.18 U	< 0.19 U	< 0.14 U	< 0.19 U	< 0.16 U	< 0.19 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/24/2017	10/24/2017	10/24/2017	10/24/2017	10/24/2017	10/20/2017	10/20/2017	10/20/2017	10/20/2017	10/20/2017
Depth		18-19 ft	28-29 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	98-99 ft	104-105 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	3-4 ft	8-9 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	2190	978	576	917	947	1050 J	865 J	993	748	137 J	62000	34500	31100	20400	24700
Moisture	%	9.0	12.2	9.9	14.2	8.7	12.7	13.3	18.3	18.9	13.0	15.5	9.4	6.4	7.6	8.7
pH	pH units	8.37	8.46	8.52	8.47	8.55	8.66	8.57	8.41	8.25	8.57	7.76	8.04	8.64	8.27	8.71
Metals																
Aluminum	mg/kg	12800 J	13000 J	12000 J	11900 J	9920	11800	12100	23700	19700	3990	3280	2610	4650	2900	3060
Antimony	mg/kg	0.278 J	0.228 J	0.227 J	0.194 J	0.231 J	0.225 J	0.302 J	0.355 J	1.58 J	0.250 J	0.144 J	0.0990 J	< 0.0914 UJ	0.142 J	0.131 J
Arsenic	mg/kg	11.4	14.7	25.2	17.9	13.6	16.1	14.3	12.2	36.5	5.15	4.25	4.46	4.80	6.03	16.0
Barium	mg/kg	1330 J	80.2 J	109 J	67.0 J	74.7 J	92.9	74.4	179	175	19.8	40.2	22.4	19.3	192	48.3
Beryllium	mg/kg	1.54	0.956	1.32	0.878	0.849	0.979 J	0.992 J	1.26 J	8.96 J	1.95 J	0.181 J	0.149 J	0.184 J	0.192	0.240
Cadmium	mg/kg	0.487	0.224	0.356	0.252	0.305	0.313	0.208	0.216 J	2.93	0.410	0.126 J	0.0932 J	0.0698 J	0.162 J	0.124 J
Calcium	mg/kg	13700 J	4700 J	2840 J	5960 J	7670	4030	2830	32900	1650	378	45800	55500	73800	63200	99700
Chromium	mg/kg	12.8 J	13.9 J	10.7 J	11.4 J	9.05	12.9	7.75	21.6	18.0	5.47	5.58	5.19	6.91	4.14	6.34
Cobalt	mg/kg	62.1	22.3	22.3	20.9	17.9	20.6	18.1	19.8	47.5	6.19	11.6	4.75	7.91	7.94	16.5
Copper	mg/kg	32.4 J	28.1 J	32.2 J	26.0 J	22.7	28.6 J	19.6 J	31.0 J	66.2 J	15.1 J	11.7	6.89	11.0	9.33	15.2
Iron	mg/kg	34300	34600	50500	34800	27700 J	36000	24400	30800	145000	20400	11600	10100	18000	46600	34800
Lead	mg/kg	25.2 J	18.2 J	23.6 J	20.2 J	18.3 J	23.2 J	20.7 J	25.6 J	79.1 J	14.7 J	8.83	8.01	5.09	6.47	7.79
Magnesium	mg/kg	7960 J	3180 J	2380 J	3820 J	5160 J	3200	3070	5480	2570	557	22800	28000	30700	29400	52100
Manganese	mg/kg	6100	728	740	677	808 J	650	571	614	2230	266	453 J	229 J	229 J	4480 J	440 J
Nickel	mg/kg	39.7 J	27.3 J	30.1 J	26.4 J	20.7	27.4 J	25.3 J	35.9 J	160 J	20.6 J	10.6	7.46	9.45	27.7	14.1
Potassium	mg/kg	2070 J	1550 J	1400 J	1290 J	1020	1150	1190	3400	1340	866	663 J	513 J	555 J	577 J	507 J
Selenium	mg/kg	0.338 J	0.309 J	0.334 J	0.254 J	0.255 J	0.171 J	0.196 J	0.180 J	0.290 J	< 0.0991 U	0.207 J	0.192 J	0.161 J	0.157 J	0.187 J
Silver	mg/kg	0.0859 J	< 0.0311 U	< 0.0300 U	0.0403 J	< 0.0305 U	< 0.0337 UB	< 0.0303 U	< 0.0340 U	< 0.0847 UB	< 0.0289 U	< 0.0300 U	0.0263 J	< 0.0286 U	0.0353 J	0.0387 J
Sodium	mg/kg	41.3 J	25.9 J	21.0 J	20.5 J	24.1 J	23.6 J	23.6 J	57.1 J	< 92.8 U	< 82.7 U	35.5 J	38.8 J	41.6 J	32.6 J	44.5 J
Thallium	mg/kg	4.28	0.385	0.516	0.381	0.366	0.419 J	0.354 J	0.457 J	1.36 J	0.374 J	0.0805 J	0.0524 J	0.0359 J	0.168 J	0.0936 J
Vanadium	mg/kg	20.0 J	17.8 J	20.4 J	16.4 J	14.8 J	19.2 J	14.1 J	28.2 J	48.5 J	4.75 J	21.4	12.6	7.10	5.30	5.67
Zinc	mg/kg	95.4 J	63.7 J	70.8 J	60.3 J	60.4	68.8	49.2	77.9	357	38.1	46.8	29.5	31.0	66.5	38.0
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.37 UB	< 0.35 UB	< 0.56 UB	< 0.22 UB	< 0.20 U	< 0.54 UB	< 0.34 UB	< 0.39 UB	< 0.57 UB	< 0.28 UB	0.35 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	0.21 J	< 0.17 U	0.30 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	0.35 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	0.20 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.092 U	< 0.084 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.096 U	< 0.099 U	< 0.099 U	0.90	< 0.085 U	0.20 J	< 0.11 U	< 0.089 U	< 0.085 U	< 0.094 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.092 U	< 0.084 U	< 0.11 U	< 0.10 U	< 0.10 U	< 0.096 U	< 0.099 U	< 0.099 U	< 0.099 U	< 0.085 U	0.27 J	0.12 J	< 0.089 U	< 0.085 U	< 0.094 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.27 U	< 0.25 U	< 0.32 U	< 0.31 U	< 0.31 U	< 0.29 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.25 U	1.0	0.55 J	0.28 J	< 0.26 U	< 0.28 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	0.22 J	< 0.17 U	0.30 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 UJ	< 0.17 UJ	< 0.21 UJ	< 0.21 UJ	< 0.20 UJ	< 0.19 UJ	< 0.20 UJ	< 0.20 UJ	< 0.20 UJ	< 0.17 UJ	0.20 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	< 0.19 U	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	0.20 J	< 0.21 U	< 0.18 U	< 0.17 U	< 0.19 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.17 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.19 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.17 U	0.48 J	0.30 J	< 0.18 U	< 0.17 U	< 0.19 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/20/2017	10/21/2017	10/21/2017		10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/21/2017	10/22/2017	10/22/2017	10/22/2017	10/22/2017
Depth		19-20 ft	28-29 ft	38-39 ft	38-39 ft	48-49 ft	58-59 ft	68-69 ft	78-79 ft	88-89 ft	98-99 ft	108-109 ft	118-119 ft	128-129 ft	138-139 ft	148-149 ft
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	**275 J**	**5620 J**	**5750 J**	**3720**	**7920**	**399 J**	**159 J**	**176 J**	**212 J**	**248 J**	**166 J**	< 138 U	**174 J**	**6020**	**1490**
Moisture	%	**12.1**	**13.3**	**10.5**	**10.4**	**9.5**	**7.9**	**18.7**	**19.0**	**15.3**	**25.2**	**17.4**	**24.7**	**27.3**	**25.4**	**23.8**
pH	pH units	**8.78**	**8.67**	**7.27**	**8.68**	**8.83**	**8.40**	**8.51**	**8.50**	**8.49**	**8.36**	**7.49**	**8.23**	**8.20**	**8.02**	**8.10**
Metals																
Aluminum	mg/kg	**2410**	**8480 J**	**9030 J**	**8250 J**	**9690 J**	**12000 J**	**3680 J**	**3590 J**	**3090 J**	**29100**	**13600**	**24300**	**22600**	**25600**	**29100**
Antimony	mg/kg	< 0.0991 UJ	< 0.100 U	< 0.0938 U	**0.139 J**	**0.144 J**	**0.204 J**	< 0.0862 U	< 0.115 U	< 0.104 U	**0.189 J**	< 0.0848 UJ	< 0.118 UJ	**0.122 J**	< 0.117 UJ	< 0.118 UJ
Arsenic	mg/kg	**2.31**	**3.45**	**9.03**	**8.74**	**11.7**	**8.03**	**1.47**	**2.22**	**2.92**	**3.08**	**1.66**	**2.41**	**3.96**	**2.12**	**11.5**
Barium	mg/kg	**17.4**	**41.8 J**	**54.9 J**	**52.0 J**	**55.3 J**	**47.7 J**	**22.3 J**	**15.9 J**	**107 J**	**11.2 J**	**32.4 J**	**20.0 J**	**69.9 J**	**12.2 J**	**9.61 J**
Beryllium	mg/kg	**0.187 J**	**0.424**	**0.464**	**0.491**	**0.535**	**0.896**	**0.257**	**0.307**	**0.221 J**	**0.836**	**0.281**	**0.548**	**0.760**	**0.433**	**2.98**
Cadmium	mg/kg	**0.0534 J**	**0.113 J**	**0.186 J**	**0.212**	**0.205 J**	**0.110 J**	< 0.0318 U	**0.0590 J**	**0.0682 J**	< 0.0426 U	< 0.0313 U	< 0.0435 U	**0.0655 J**	< 0.0431 U	**0.140 J**
Calcium	mg/kg	**3500**	**52300 J**	**27100 J**	**41000 J**	**35000 J**	**276 J**	< 74.2 UB	**340 J**	**171 J**	**612**	**213**	**480**	**629**	**345**	**623**
Chromium	mg/kg	**3.11**	**5.66 J**	**9.19 J**	**10.5 J**	**9.85 J**	**11.5 J**	**1.99 J**	**4.60 J**	**6.84 J**	**4.83**	**4.89**	**8.67**	**13.0**	**45.4**	**15.9**
Cobalt	mg/kg	**4.44**	**8.30**	**15.8**	**14.4**	**14.9**	**8.57**	**0.829**	**2.23**	**3.21**	**0.742**	**1.47**	**0.301**	**3.78**	**0.431**	**10.2**
Copper	mg/kg	**3.81**	**8.50 J**	**14.6 J**	**13.5 J**	**15.8 J**	**25.6 J**	**2.66 J**	**5.07 J**	**4.20 J**	**2.83**	**2.46**	**3.64**	**17.8**	**3.15**	**114**
Iron	mg/kg	**4980**	**15900**	**21600**	**22100**	**24100**	**22500**	**2270**	**4440**	**11900**	**4300 J**	**1730 J**	**5770 J**	**23600 J**	**2110 J**	**33600 J**
Lead	mg/kg	**4.48**	**10.2 J**	**13.8 J**	**12.7 J**	**12.6 J**	**19.1 J**	**4.16 J**	**4.94 J**	**3.61 J**	**6.37 J**	**16.3 J**	**6.68 J**	**19.8 J**	**4.47 J**	**17.6 J**
Magnesium	mg/kg	**1670**	**31400 J**	**13900 J**	**21800 J**	**17500 J**	**653 J**	**166 J**	**312 J**	**261 J**	**509 J**	**281 J**	**443 J**	**519 J**	**431 J**	**617 J**
Manganese	mg/kg	**113 J**	**452**	**679**	**672**	**689**	**123**	**15.5**	**38.5**	**566**	**14.3 J**	**28.9 J**	**7.30 J**	**63.5 J**	**4.24 J**	**23.3 J**
Nickel	mg/kg	**3.52**	**11.3 J**	**17.5 J**	**17.7 J**	**17.7 J**	**15.1 J**	**1.60 J**	**2.70 J**	**3.61 J**	**2.67**	**2.52**	**2.59**	**5.86**	**3.23**	**21.5**
Potassium	mg/kg	**678 J**	**1470 J**	**1250 J**	**1240 J**	**1410 J**	**1700 J**	**1160 J**	**862 J**	**819 J**	**1020**	**978**	**1450**	**525**	**965**	**724**
Selenium	mg/kg	< 0.106 U	**0.142 J**	**0.166 J**	**0.164 J**	**0.184 J**	**0.260 J**	**0.114 J**	**0.160 J**	< 0.111 U	**0.204 J**	**0.135 J**	**0.204 J**	**0.270 J**	**0.206 J**	**0.542 J**
Silver	mg/kg	< 0.0310 U	< 0.0315 U	**0.0423 J**	**0.0318 J**	**0.0351 J**	**0.0325 J**	< 0.0270 U	< 0.0360 U	< 0.0325 U	< 0.0361 U	< 0.0266 U	< 0.0369 U	< 0.0273 U	< 0.0366 U	< 0.0368 U
Sodium	mg/kg	**20.4 J**	**36.9 J**	**45.9 J**	**45.6 J**	**51.5 J**	**25.0 J**	< 15.4 U	< 20.6 U	< 18.6 U	**40.2 J**	**22.3 J**	**31.6 J**	**27.5 J**	**22.9 J**	< 21.1 U
Thallium	mg/kg	**0.0751 J**	**0.202 J**	**0.187 J**	**0.209 J**	**0.187 J**	**0.224**	**0.0616 J**	**0.0815 J**	**0.331**	< 0.0309 U	**0.0315 J**	**0.0415 J**	**0.0258 J**	< 0.0313 U	**0.0666 J**
Vanadium	mg/kg	**3.98**	**8.29 J**	**11.0 J**	**10.9 J**	**12.3 J**	**15.4 J**	**2.12 J**	**3.11 J**	**5.50 J**	**10.6 J**	**5.81 J**	**20.4 J**	**49.2 J**	**14.6 J**	**79.6 J**
Zinc	mg/kg	**15.3**	**26.8 J**	**43.2 J**	**46.5 J**	**50.9 J**	**48.2 J**	**5.54 J**	**10.1 J**	**17.2 J**	**3.03 J**	**2.14 J**	**2.46 J**	**16.1**	**3.54 J**	**228**
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 UJ
Perfluorobutanoic acid (PFBA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	**0.30 J**	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 U	< 0.26 UJ
Perfluorodecanoic acid (PFDA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 U	< 0.22 U	< 0.26 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.088 U	< 0.088 U	< 0.089 U	< 0.10 U	< 0.11 U	< 0.089 UJ	< 0.096 U	< 0.082 U	< 0.10 U	< 0.12 UJ	< 0.11 UJ	< 0.11 UJ	< 0.14 UJ	< 0.11 UJ	< 0.13 UJ
Perfluorononanoic acid (PFNA)	ng/g	< 0.088 U	< 0.088 U	< 0.089 U	< 0.10 U	< 0.11 U	< 0.089 U	< 0.096 U	< 0.082 U	< 0.10 U	< 0.12 UJ	< 0.11 UJ	< 0.11 UJ	< 0.14 U	< 0.11 UJ	< 0.13 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.26 U	< 0.26 U	< 0.27 U	< 0.30 U	< 0.33 U	< 0.27 U	< 0.29 U	< 0.25 U	< 0.31 U	< 0.35 U	< 0.33 U	< 0.33 U	< 0.41 U	< 0.33 U	< 0.39 UJ
Perfluorooctanoic acid (PFOA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 UJ	< 0.18 UJ	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 UJ	< 0.22 UJ	< 0.22 UJ	< 0.27 UJ	< 0.22 UJ	< 0.26 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.18 U	< 0.18 U	< 0.18 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.19 U	< 0.16 U	< 0.21 U	< 0.23 U	< 0.22 U	< 0.22 U	< 0.27 U	< 0.22 U	< 0.26 UJ

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/23/2017	10/25/2017	10/25/2017	10/25/2017	10/30/2017	10/30/2017	10/30/2017
Depth		158-159 ft	168-169 ft	178-179 ft	188-189 ft	198-199 ft	208-209 ft	216.5-217 ft	225-226 ft	235-236 ft	245-246 ft	251-252 ft	251-252 ft	261-262 ft	271-272 ft	271-272 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	FD	N	N	FD
Parameter	Units															
General Parameters																
Carbon, total organic	mg/kg	**881**	**522**	< 125 U	< 130 U	**227 J**	**220 J**	**292 J**	**574**	**508**	**595**	**233 J**	**235 J**	**367**	**140 J**	**164 J**
Moisture	%	**28.3**	**29.4**	**16.5**	**18.5**	**23.9**	**23.1**	**23.5**	**28.1**	**21.8**	**18.9**	**28.0 J**	**18.0 J**	**14.3**	**13.0**	**12.8**
pH	pH units	**8.11**	**8.10**	**8.09**	**8.27**	**8.11**	**8.10**	**7.98**	**7.63**	**8.03**	**8.02**	**7.98**	**7.97**	**7.57**	**8.22**	**8.26**
Metals																
Aluminum	mg/kg	**17500**	**16700**	**4740**	**18300**	**16200**	**14100**	**7860**	**9540**	**12900**	**18600 J**	**14000 J**	**11600 J**	**25300**	**13000**	**11900**
Antimony	mg/kg	**0.151 J**	< 0.129 UJ	< 0.0893 UJ	< 0.112 UJ	< 0.106 UJ	< 0.0853 UJ	**0.205 J**	**1.08 J**	**0.220 J**	**0.103 J**	< 0.0931 UJ	< 0.0988 UJ	**0.153 J**	< 0.0924 UJ	< 0.0898 UJ
Arsenic	mg/kg	**15.8**	**11.9**	**1.26**	**3.67**	**4.79**	**8.13**	**235**	**57.0**	**14.3**	**10.9**	**4.53**	**3.78**	**9.16**	**1.58**	**1.68**
Barium	mg/kg	**12.0 J**	**13.6 J**	**62.1 J**	**44.3 J**	**21.9 J**	**1080 J**	**7290 J**	**792 J**	**356 J**	**171 J**	**378 J**	**637 J**	**79.8**	**144 J**	**79.9 J**
Beryllium	mg/kg	**3.43**	**4.05**	**0.455**	**0.713**	**1.13**	**1.80**	**6.43**	**10.8**	**3.63**	**2.27 J**	**3.40 J**	**4.12 J**	**1.96 J**	**1.37 J**	**1.19 J**
Cadmium	mg/kg	**0.487**	**0.231 J**	**0.0778 J**	**0.0842 J**	**0.0899 J**	**1.04**	**5.05**	**2.64**	**0.645**	**0.260**	**0.260**	**0.285**	**0.202 J**	**0.423**	**0.276**
Calcium	mg/kg	**628**	**575**	**165**	**487**	**565**	**579**	**2360**	**1380**	**9980**	**570 J**	**600 J**	**566 J**	**656**	**560**	**616**
Chromium	mg/kg	**4.85**	**11.4**	**1.56**	**2.39**	**2.08**	**2.46**	**3.98**	**17.7**	**2.71**	**6.17 J**	**6.80 J**	**7.71 J**	**13.1**	**5.63**	**5.79**
Cobalt	mg/kg	**42.8**	**16.5**	**18.4**	**4.08**	**7.87**	**87.1**	**436**	**193**	**64.9**	**18.2 J**	**33.6 J**	**52.8 J**	**14.4**	**17.9**	**15.0**
Copper	mg/kg	**161**	**102**	**9.18**	**9.26**	**14.6**	**12.1**	**4.22**	**14.5**	**31.5**	**128 J**	**25.5 J**	**23.7 J**	**35.3 J**	**11.7 J**	**11.8 J**
Iron	mg/kg	**98600 J**	**103000 J**	**8700 J**	**14800 J**	**26300 J**	**61100 J**	**435000 J**	**382000 J**	**34400 J**	**43300**	**47600**	**42300**	**34500**	**16600**	**17300**
Lead	mg/kg	**21.9 J**	**19.4 J**	**6.49 J**	**16.5 J**	**10.9 J**	**25.2 J**	**6.33 J**	**81.3 J**	**29.5 J**	**8.92 J**	**18.5 J**	**23.2 J**	**7.66 J**	**9.99 J**	**5.85 J**
Magnesium	mg/kg	**808 J**	**653 J**	**116 J**	**466 J**	**541 J**	**743 J**	**1980 J**	**1700 J**	**6640 J**	**3440 J**	**1460 J**	**1670 J**	**6930**	**3560**	**3020**
Manganese	mg/kg	**610 J**	**330 J**	**591 J**	**120 J**	**274 J**	**7770 J**	**76000 J**	**11400 J**	**1120 J**	**1410 J**	**2370 J**	**2950 J**	**456**	**969 J**	**566 J**
Nickel	mg/kg	**52.9**	**25.7**	**3.77**	**4.08**	**9.73**	**44.1**	**77.1**	**190**	**49.4**	**34.4 J**	**29.8 J**	**30.2 J**	**22.3 J**	**19.1 J**	**13.2 J**
Potassium	mg/kg	**775**	**1140**	**128**	**561 J**	**387 J**	**549**	**290 J**	**257 J**	**1370**	**2170 J**	**1210 J**	**1370 J**	**5430**	**2990**	**2290**
Selenium	mg/kg	**0.449 J**	**0.818 J**	**0.103 J**	**0.349 J**	**0.429 J**	**0.289 J**	**0.540 J**	**0.573 J**	**0.406 J**	**0.330 J**	**0.281 J**	**0.273 J**	< 0.110 U	< 0.0991 U	< 0.0964 U
Silver	mg/kg	< 0.0311 U	< 0.0405 U	< 0.0280 U	< 0.0351 U	< 0.0331 U	**0.655**	**3.67**	**0.619**	**0.131 J**	**0.184 J**	**0.131 J**	**0.189 J**	< 0.0402 UB	< 0.0775 UB	< 0.0467 UB
Sodium	mg/kg	< 88.9 U	< 116 U	< 16.0 U	< 100 U	< 94.6 U	< 76.5 U	< 100 U	< 108 U	< 104 U	< 91.9 U	< 83.4 U	< 88.5 U	**21.3 J**	< 16.5 U	< 16.1 U
Thallium	mg/kg	**0.349**	**0.140 J**	**0.405**	**0.0440 J**	**0.0406 J**	**3.22**	**17.8**	**2.67**	**1.19**	**1.04 J**	**2.91 J**	**3.52 J**	**1.50 J**	**1.09 J**	**0.631 J**
Vanadium	mg/kg	**51.2 J**	**21.6 J**	**2.84 J**	**6.02 J**	**9.29 J**	**10.6 J**	**11.6 J**	**75.3 J**	**35.3 J**	**14.2 J**	**8.94 J**	**9.42 J**	**20.0 J**	**8.60 J**	**9.08 J**
Zinc	mg/kg	**805**	**239**	**23.2**	**12.0 J**	**35.3**	**99.9**	**245**	**579**	**78.2**	**68.3**	**62.7**	**57.7**	**51.2**	**38.9**	**37.4**
Per- and Polyfluoroalkyl Substances																
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.27 UJ	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.63 UB	< 0.20 U	< 0.64 UB	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.27 UJ	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.27 UJ	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.14 UJ	< 0.13 U	< 0.10 U	< 0.096 UJ	< 0.11 UJ	< 0.10 UJ	< 0.13 U	< 0.14 U	< 0.12 UJ	< 0.097 U	< 0.10 U	**0.15 J**	< 0.089 U	< 0.11 U	< 0.081 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.14 U	< 0.13 U	< 0.10 U	< 0.096 UJ	< 0.11 UJ	< 0.10 UJ	< 0.13 U	< 0.14 U	< 0.12 UJ	< 0.097 U	< 0.10 U	< 0.11 U	< 0.089 U	< 0.11 U	< 0.081 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.41 U	< 0.38 U	< 0.31 U	< 0.29 U	< 0.34 U	< 0.31 U	< 0.39 U	< 0.42 U	< 0.37 U	< 0.29 U	< 0.31 U	< 0.33 U	< 0.27 U	< 0.34 U	< 0.24 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.27 UJ	< 0.26 U	< 0.21 U	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 U	< 0.28 U	< 0.25 UJ	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.27 UJ	< 0.26 UJ	< 0.21 UJ	< 0.19 UJ	< 0.23 UJ	< 0.21 UJ	< 0.26 UJ	< 0.28 UJ	< 0.25 UJ	< 0.19 UJ	< 0.20 UJ	< 0.22 UJ	< 0.18 UJ	< 0.23 UJ	< 0.16 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.27 U	< 0.26 U	< 0.21 U	< 0.19 U	< 0.23 U	< 0.21 U	< 0.26 U	< 0.28 U	< 0.25 U	< 0.19 U	< 0.20 U	< 0.22 U	< 0.18 U	< 0.23 U	< 0.16 U

Table 3.10
Analytical Soil Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4	SG3-MW17-BR4
Sample Date		10/30/2017	10/30/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/1/2017	11/1/2017	11/1/2017	11/1/2017	11/2/2017
Depth		281-282 ft	291-292 ft	301-302 ft	311-312 ft	321-322 ft	331-332 ft	341-342 ft	351-352 ft	361-362 ft	371-372 ft	381-382 ft	391-392 ft	395-396 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units													
General Parameters														
Carbon, total organic	mg/kg	< 129 U	**128 J**	**313 J**	**337 J**	**267 J**	**382 J**	**1420**	**330 J**	**349 J**	**561**	**218 J**	**155 J**	**379 J**
Moisture	%	**17.1**	**16.7**	**17.7**	**18.3**	**27.0**	**18.9**	**6.1**	**16.0**	**15.5 J**	**12.3 J**	**11.6 J**	**16.8 J**	**20.1**
pH	pH units	**8.00**	**8.05**	**8.11**	**8.02**	**7.89**	**8.03**	**8.17**	**7.67**	**8.32**	**8.25**	**8.12**	**7.84**	**7.38**
Metals														
Aluminum	mg/kg	**12000**	**14400**	**9730**	**4170**	**2270**	**3640**	**8290**	**3220**	**7090**	**11000**	**8800**	**551**	**1600**
Antimony	mg/kg	**0.197 J**	< 0.101 UJ	< 0.0827 UJ	**0.236 J**	**0.160 J**	**0.166 J**	**0.400 J**	**0.269 J**	**0.266 J**	**0.107 J**	**0.139 J**	**0.0827 J**	**0.118 J**
Arsenic	mg/kg	**6.60**	**1.84**	**4.60 J**	**28.6 J**	**4.20 J**	**3.64 J**	**6.95 J**	**7.98 J**	**9.79 J**	**3.83 J**	**7.40 J**	**1.94 J**	**4.39 J**
Barium	mg/kg	**221**	**237**	**90.2 J**	**4080 J**	**191 J**	**105 J**	**27.2 J**	**104 J**	**162 J**	**65.8 J**	**82.9 J**	**49.1 J**	**56.7 J**
Beryllium	mg/kg	**3.03 J**	**2.73 J**	**2.29 J**	**5.23 J**	**3.00 J**	**2.50 J**	**1.42 J**	**2.39 J**	**1.46 J**	**0.684 J**	**0.493 J**	**0.261 J**	**0.400 J**
Cadmium	mg/kg	**0.556**	**0.413**	**0.189**	**3.26**	**3.17**	**1.38**	**0.180**	**1.85**	**3.51**	**0.295**	**0.428**	**0.348**	**1.36**
Calcium	mg/kg	**543**	**492**	**626 J**	**1150 J**	**350 J**	**419 J**	**624 J**	**364 J**	**423 J**	**700 J**	**931 J**	**219 J**	**4410 J**
Chromium	mg/kg	**5.03**	**5.22**	**1.63**	**5.50**	**1.62**	**3.40**	**5.17**	**3.15**	**6.59**	**10.6**	**4.71**	**0.727**	**1.73**
Cobalt	mg/kg	**44.1**	**11.1**	**19.3**	**135**	**6.36**	**10.4**	**8.64**	**13.9**	**18.5**	**11.4**	**10.0**	**2.53**	**4.41**
Copper	mg/kg	**55.3 J**	**3.04 J**	**36.0 J**	**24.9 J**	**10.8 J**	**50.2 J**	**46.1 J**	**26.2 J**	**37.5 J**	**50.5 J**	**28.4 J**	**1.49 J**	**2.53 J**
Iron	mg/kg	**55100**	**30800**	**50500**	**181000**	**31800**	**51200**	**25100**	**59300**	**42700**	**31400**	**30600**	**18100**	**24500**
Lead	mg/kg	**46.7 J**	**3.74 J**	**39.0 J**	**17.1 J**	**24.8 J**	**16.5 J**	**14.7 J**	**16.7 J**	**16.7 J**	**9.88 J**	**16.3 J**	**14.4 J**	**22.9 J**
Magnesium	mg/kg	**5370**	**5110**	**1140 J**	**1030 J**	**302 J**	**502 J**	**1780 J**	**606 J**	**3180 J**	**7460 J**	**6010 J**	**278 J**	**510 J**
Manganese	mg/kg	**2530**	**1470**	**1020**	**28400**	**3120**	**1650**	**125**	**1880**	**1790**	**311**	**732**	**745**	**1000**
Nickel	mg/kg	**31.2 J**	**16.6 J**	**26.0 J**	**145 J**	**71.1 J**	**41.9 J**	**19.6 J**	**41.8 J**	**37.2 J**	**24.9 J**	**22.4 J**	**9.65 J**	**13.9 J**
Potassium	mg/kg	**3980**	**3980**	**749 J**	**519 J**	**312 J**	**485 J**	**1430 J**	**637 J**	**2730 J**	**5960 J**	**3490 J**	**223 J**	**365 J**
Selenium	mg/kg	< 0.114 U	< 0.108 U	**0.176 J**	**0.215 J**	**0.133 J**	**0.114 J**	**0.113 J**	< 0.0799 U	**0.128 J**	**0.133 J**	**0.132 J**	< 0.0865 U	**0.234 J**
Silver	mg/kg	< 0.0498 UB	< 0.125 UB	**0.0273 J**	**1.36**	**0.0550 J**	**0.0372 J**	< 0.0243 U	**0.0423 J**	**0.0397 J**	< 0.0260 U	< 0.0318 U	**0.0401 J**	< 0.0342 U
Sodium	mg/kg	< 19.0 U	< 18.1 U	< 14.8 U	**16.7 J**	< 16.2 U	< 13.7 U	< 13.9 U	< 13.3 U	< 18.6 U	**16.9 J**	< 18.2 U	< 14.4 U	< 97.7 U
Thallium	mg/kg	**1.19 J**	**0.964 J**	**0.176 J**	**4.61**	**0.252**	**0.153 J**	**0.0661 J**	**0.358**	**0.288**	**0.453**	**0.211 J**	< 0.0216 U	< 0.0292 U
Vanadium	mg/kg	**13.5 J**	**14.8 J**	**8.37**	**10.7**	**8.76**	**15.0**	**9.43**	**13.0**	**13.4**	**13.7**	**7.08**	**2.50**	**4.33**
Zinc	mg/kg	**89.3**	**48.6**	**60.5**	**237**	**172**	**199**	**28.8**	**230**	**93.7**	**93.0**	**56.2**	**36.1**	**95.8**
Per- and Polyfluoroalkyl Substances														
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorobutanoic acid (PFBA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.12 U	< 0.098 U	< 0.12 U	< 0.089 U	< 0.13 U	< 0.10 U	< 0.10 U	< 0.090 U	< 0.11 U	< 0.10 U	< 0.079 U	< 0.082 U	< 0.090 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.12 U	< 0.098 U	< 0.12 U	< 0.089 U	< 0.13 U	< 0.10 U	< 0.10 U	< 0.090 U	< 0.11 U	< 0.10 U	< 0.079 U	< 0.082 U	< 0.090 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.35 U	< 0.30 U	< 0.36 U	< 0.27 U	< 0.40 U	< 0.31 U	< 0.30 U	< 0.27 U	< 0.34 U	< 0.30 U	< 0.24 U	< 0.25 U	< 0.27 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.24 UJ	< 0.20 UJ	< 0.24 UJ	< 0.18 UJ	< 0.27 UJ	< 0.21 UJ	< 0.20 UJ	< 0.18 UJ	< 0.23 UJ	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 UJ
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.24 U	< 0.20 U	< 0.24 U	< 0.18 U	< 0.27 U	< 0.21 U	< 0.20 U	< 0.18 U	< 0.23 U	< 0.20 U	< 0.16 U	< 0.16 U	< 0.18 U

Table 3.11
Borehole Characterization Activities
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Borehole Characterization Method	Monitoring Well						
	SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR3	SG3-MW17-BR4	B-2-3	B-4-3	B-6-3
Caliper	X	X	X	X	--	--	--
Natural gamma	X	X	X	X	X	X	X
Spontaneous potential (SP)	--	X	X	--	--	--	--
Single point resistivity	--	X	X	--	X	X	X
Resistivity (16N and 64N)	--	X	X	--	--	--	--
Induction Resistivity	X	--	--	X	--	--	--
Acoustic and optical borehole imaging (ABI and OBI)	--	X	X	Acoustic log only	--	--	--
Fluid Temperature	X	X	X	X	--	--	--
Fluid Conductivity	X	X	X	X	--	--	--
Trolling flow logging under both static (ambient) and dynamic (pumping) conditions	X	X	X	X	--	--	--
Discrete interval sampling	--	X	X (one interval only)	--	--	--	--
Total Depth (FT BGS)	369	263	274.1	459(1)	575.9	218.4	161.5
Depth Interval Logged (FT BGS)	0 - 367.9	0 - 264.0	0 - 272.6	0 - 458.5	0 – 90.0(2)	0 - 214.9(2)	0 - 128.8(2)

(1) A PVC screen with no end cap was placed in the well to a depth of 447.5 FT BGS
(2) Well could not be logged to full depth due to inadequate clearance for logging equipment

Table 3.12
Flow Zones and Discrete Interval Sampling Intervals
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Well	Flow Zone (feet bgs)	Structural Feature	Discrete Interval Depth (feet bgs)	Estimated Interval-Specific Depth to Water (feet bgs)	Average Flow Rate During Sampling (gpm)	Sample Collected
SG3-MW17-BR2	148 to 151	Bedding/Foliation	144 to 154	NA	<0.01	X
	167 to 172	J1 Joint Set	165 to 175	110.8	0.13	X
	204 to 217	J1 Joint Set	199 to 219	110.6	0.2	X
	250 to 254.5	J1 Joint Set, Bedding/Foliation	243 to 264	111.3	1.7	X
	259 to 264	J1 Joint Set, Bedding/Foliation				
SG3-MW17-BR3	147.4 to 158.5	J1 Joint Set, Bedding/Foliation	Water Surface to 161	127.8	1.6	X
	167.8 to 174	Bedding/Foliation, J1 Joint Set	--	--	--	--(1)
	188.2 to 192.7	J1 and J2 Joint Sets	--	--	--	--(1)
	205 to 210	J1 Joint Set	--	--	--	--(1)
	223.5 to 226	J1 Joint Set	--	--	--	--(1)
	246 to 248	J1 and J2 Joint sets	--	--	--	--(1)

(1) Interval not sampled due to borehole stability concerns

Table 3.13
Analytical Water Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12	B-2-1	B-2-2		B-4-3	MW07	MW100S	S16	S21	S24	S28	SG3-MW17-01	SG3-MW17-02	SG3-MW17-03	SG3-MW17-04		SG3-MW17-06	SG3-MW17-BR1
Sample Date		5/24/2017	5/25/2017	5/25/2017		10/27/2017	5/24/2017	5/24/2017	9/21/2017	9/13/2017	9/19/2017	9/28/2017	10/20/2017	10/24/2017	10/24/2017	10/26/2017		10/24/2017	11/29/2017
Sample Depth																			
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units																		
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	mg/l	**329**	**272**	**306**	**301**	**28.1**	**320**	**300**	**283**	**456 J**	**359**	**313**	**642**	**447**	**246**	**244**	**243**	**510**	**94.4**
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	**13.1**
Alkalinity, total, as CaCO3	mg/l	**329**	**272 J**	**306 J**	**301 J**	**28.1**	**320 J**	**300 J**	**283**	**456 J**	**359**	**313**	**642**	**447**	**246**	**244**	**243**	**510**	**107**
Bromide	mg/l	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U
Chloride	mg/l	**2.3**	**88.0**	**293**	**302**	**1.0 J**	**4.3**	**1.5 J**	**22.2 J**	**43.0**	**2.9**	**187**	**12.5**	**53.2 J**	**22.4 J**	**1.6 J**	**1.5 J**	**113 J**	**12.0 J**
Cyanide	mg/l	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 UJ	< 0.0050 U	< 0.0050 U	**0.0061 J**	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Nitrogen, ammonia, as N	mg/l	< 0.050 U	< 0.050 U	**0.33**	**0.31**	< 0.050 U	**0.10**	< 0.050 U	**0.074 J**	**0.64**	**0.069 J**	**0.11**	**0.68**	**0.19**	< 0.050 U	< 0.050 U	< 0.050 U	**1.2**	< 0.050 U
Nitrogen, nitrate, as N	mg/l	**0.75**	**0.55**	< 0.25 U	< 0.25 U	< 0.25 U	**0.88**	**0.46 J**	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Nitrogen, nitrite, as N	mg/l	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
Nitrogen, total kjeldahl (TKN)	mg/l	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**7.4**	< 0.50 U	< 0.50 UJ	**1.0**	< 0.50 UJ	< 1.3 U	**4.5**	**2.5**	**1.4**	< 0.50 U	< 0.50 U	**1.6**	< 0.50 U
Orthophosphate, as P	mg/l	< 0.030 UJ	< 0.030 U	< 0.030 U	< 0.030 U	**0.22**	< 0.030 UJ	< 0.030 UJ	< 0.030 UJ	< 0.030 U	< 0.030 U	**0.044 J**	**0.055 J**	< 0.030 U	< 0.030 U	**0.19 J**	< 0.030 UJ	< 0.030 U	**0.051 J**
Sulfate, as SO4	mg/l	**6.9**	**5.8**	**10.3**	**10.7**	**4.3 J**	**6.7**	**7.0**	**5.0 J**	**16.7**	**5.5 J**	**6.8**	**15.7**	**9.0**	**4.3 J**	**6.6**	**6.2**	**12.0**	**8.7**
Total Metals																			
Aluminum	mg/l	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0894 U	**5.25**	< 0.0868 U	**0.225 J**	< 0.0894 U	**5.47**	**5.41**	< 0.0894 U	< 0.0894 U	< 0.0894 U	**0.810**	**0.509**	< 0.0894 U	< 0.0894 U
Antimony	mg/l	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	**0.0017 J**	**0.00067 J**	< 0.00048 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	**0.00066 J**	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U
Arsenic	mg/l	< 0.00068 U	< 0.00068 U	**0.0132**	**0.0133**	< 0.00072 U	**0.0012 J**	< 0.00068 U	< 0.00072 U	**0.0015 J**	**0.0109**	**0.0094**	**0.0066**	**0.0030 J**	< 0.00072 U	**0.0059**	**0.0030 J**	**0.0058**	**0.0013 J**
Barium	mg/l	**0.0544**	**0.0624**	**0.526**	**0.599**	**0.0155**	**0.0485**	**0.0299**	**0.0652**	**0.847**	**0.141**	**0.0435**	**0.850**	**0.436**	**0.0395**	**0.0888 J**	**0.0677 J**	**0.883**	**0.0587**
Beryllium	mg/l	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.000071 U	**0.00033 J**	< 0.00011 U	< 0.000071 U	< 0.000071 U	**0.00019 J**	**0.0011**	< 0.000071 U	< 0.000071 U	< 0.000071 U	**0.00045 J**	**0.00025 J**	< 0.000071 U	< 0.000071 U
Boron	mg/l	< 0.0083 U	< 0.0083 U	**0.0180 J**	**0.0194 J**	< 0.0101 U	< 0.0083 U	< 0.0083 U	< 0.0101 U	**0.0422 J**	< 0.0101 U	**0.0479 J**	**0.128**	**0.0565 J**	< 0.0101 U	< 0.0101 U	< 0.0101 U	**0.156**	**0.0117 J**
Cadmium	mg/l	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00019 U	< 0.00019 U	< 0.00015 U	< 0.00015 U	**0.00029 J**	**0.00033 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.00020 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U
Calcium	mg/l	**92.3**	**81.6**	**101**	**105**	**5.84**	**2.36**	**85.8**	**86.9**	**136**	**269**	**25.5**	**218**	**133**	**67.8**	**56.2**	**56.3**	**161**	**33.1**
Chromium	mg/l	< 0.00059 U	< 0.00059 U	**0.00060 J**	< 0.00059 U	< 0.00087 U	**0.0028 J**	**0.00060 J**	< 0.00087 U	**0.0020 J**	**0.0023 J**	**0.0193**	< 0.00087 U	< 0.00087 U	< 0.00087 U	**0.0039 J**	**0.0032 J**	< 0.00087 U	**0.00097 J**
Cobalt	mg/l	< 0.00020 U	< 0.00020 U	**0.0202**	**0.0200**	**0.00016 J**	**0.0402**	< 0.00020 U	**0.00031 J**	**0.0099**	**0.0122**	**0.0338**	**0.0129**	**0.0028**	**0.0018**	**0.0114 J**	**0.0084 J**	**0.0326**	**0.00067 J**
Copper	mg/l	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00054 U	**0.0050**	< 0.00052 U	**0.00094 J**	**0.0011 J**	**0.0108**	**0.0288**	< 0.00054 U	< 0.00054 U	< 0.00054 U	**0.0073**	**0.0038 J**	< 0.00054 U	**0.00063 J**
Iron	mg/l	< 0.0747 U	< 0.0747 U	**4.84**	**5.02**	< 0.0805 U	**9.03**	< 0.0747 U	**0.648**	**3.48**	**20.9**	**46.4**	**11.2**	**1.43**	**0.0861 J**	**2.99 J**	**1.76 J**	**6.73**	< 0.0805 U
Lead	mg/l	< 0.000090 U	< 0.000090 U	< 0.000090 U	< 0.000090 U	**0.00022 J**	**0.0080**	< 0.000090 U	**0.00043 J**	< 0.00011 U	**0.0143**	**0.0590**	< 0.00011 U	< 0.00011 U	< 0.00011 U	**0.0022**	**0.0011 J**	< 0.00011 U	< 0.00011 U
Magnesium	mg/l	**26.2**	**19.4**	**25.3**	**26.4**	**2.44**	**1.54**	**25.6**	**20.5**	**27.4**	**97.5**	**5.96**	**33.5**	**26.1**	**17.5**	**22.3**	**22.4**	**27.9**	**11.5**
Manganese	mg/l	**0.0016 J**	**0.0046**	**0.927**	**1.05**	**0.0054 J**	**0.112**	**0.0138**	**0.0435**	**1.56**	**1.03**	**0.425**	**2.32**	**1.01**	**0.412**	**1.76**	**1.65**	**1.82**	**0.0842**
Mercury	mg/l	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	**0.00010 J**	< 0.000050 U	< 0.000050 U	< 0.000050 U	**0.00013 J**	**0.00014 J**	< 0.000050 U	< 0.000050 U
Nickel	mg/l	< 0.00085 U	< 0.00085 U	**0.0051**	**0.0052**	< 0.0026 UB	**0.0054**	< 0.00085 U	< 0.0010 U	**0.0051**	**0.0077**	**0.0237**	**0.0053**	**0.0017 J**	< 0.0010 U	**0.0129**	**0.0098**	**0.0076**	< 0.0010 U
Potassium	mg/l	**0.922 J**	**1.05**	**2.24**	**2.44**	**1.05**	**2.21**	**0.762 J**	**1.23**	**14.8**	**1.98**	**1.66**	**11.2**	**3.53**	**1.17**	**1.92**	**1.68**	**7.96**	**17.1**
Selenium	mg/l	< 0.00044 U	< 0.00044 U	< 0.00044 U	< 0.00044 U	< 0.00050 U	< 0.00044 U	< 0.00044 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	**0.00084 J**	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U
Silver	mg/l	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00012 U	< 0.00012 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.00032 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.00016 J**	< 0.00015 U
Sodium	mg/l	< 0.914 UB	**51.6**	**172**	**180**	**2.56**	**2.82**	**1.54 J**	**15.4**	**25.1**	**1.53 J**	**202**	**8.85**	**34.5**	**17.6**	**1.61 J**	**1.58 J**	**68.4**	**13.2**
Thallium	mg/l	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	< 0.00016 U	< 0.00016 U	< 0.00012 U	**0.00035 J**	< 0.00012 U	**0.00017 J**	**0.00018 J**	**0.00015 J**	< 0.00012 U	**0.00032 J**	**0.00024 J**	**0.00071 J**	**0.00026 J**
Vanadium	mg/l	< 0.00027 UB	< 0.00020 U	< 0.00028 UB	< 0.00020 U	**0.00058 J**	**0.0012**	< 0.00028 UB	**0.00036 J**	< 0.00021 U	**0.0043**	**0.0199**	< 0.00021 U	**0.00026 J**	< 0.00021 U	**0.0014**	**0.00069 J**	< 0.00021 U	**0.00024 J**
Zinc	mg/l	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0065 U	**0.0263 J**	< 0.0054 U	< 0.0065 U	< 0.0065 U	**0.0355 J**	**0.102**	< 0.0065 U	< 0.0065 U	< 0.0065 U	**0.0162 J**	**0.0097 J**	< 0.0065 U	< 0.0065 U
SVOCs																			
1,4-Dioxane	ug/l	< 0.058 UJ	< 0.052 UJ	< 0.052 UJ	< 0.054 UJ	< 0.072 UB	< 0.053 UJ	< 0.051 UJ	< 0.095 UB	**0.98 J**	< 0.076 UB	< 0.055 UJ	**1.2 J**	**0.19 J**	< 0.051 UJ	< 0.16 UB	< 0.16 UB	**0.18 J**	< 0.050 UJ

Table 3.13
Analytical Water Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12	B-2-1	B-2-2		B-4-3	MW07	MW100S	S16	S21	S24	S28	SG3-MW17-01	SG3-MW17-02	SG3-MW17-03	SG3-MW17-04		SG3-MW17-06	SG3-MW17-BR1
Sample Date		5/24/2017	5/25/2017	5/25/2017		10/27/2017	5/24/2017	5/24/2017	9/21/2017	9/13/2017	9/19/2017	9/28/2017	10/20/2017	10/24/2017	10/24/2017	10/26/2017		10/24/2017	11/29/2017
Sample Depth																			
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units																		
VOCs																			
1,1,1-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**1 J**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	ug/l	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**2**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 2 U	< 0.5 U	< 2 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table 3.13
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Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12	B-2-1	B-2-2		B-4-3	MW07	MW100S	S16	S21	S24	S28	SG3-MW17-01	SG3-MW17-02	SG3-MW17-03	SG3-MW17-04		SG3-MW17-06	SG3-MW17-BR1
Sample Date		5/24/2017	5/25/2017	5/25/2017		10/27/2017	5/24/2017	5/24/2017	9/21/2017	9/13/2017	9/19/2017	9/28/2017	10/20/2017	10/24/2017	10/24/2017	10/26/2017		10/24/2017	11/29/2017
Sample Depth																			
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 UJ	< 5 U	< 3 U	< 3 U	< 7 U	< 7 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	< 4 U	< 4 UJ	< 2 U	< 4 UJ	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 3 U	< 2 U	< 2 U	< 5 U	< 5 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 UJ	< 1 U	< 1 U	**0.6 J**	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.7 U	< 0.4 U	< 0.4 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 UJ	< 1 UJ	< 1 UJ	< 1 U	< 0.4 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 0.7 U	< 0.4 U	< 0.4 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	**1 J**	**2 J**	**2 J**	**2 J**	< 0.3 U	< 0.8 U	< 0.8 U	**1 J**	**4**	< 0.8 U	< 0.8 U	**1 J**	**1**	**0.7 J**	**1 J**	**1 J**	**1 J**	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	**8 J**	**7 J**	**11**	**11**	< 2 U	< 3 U	**4 J**	**6 J**	**42**	< 3 U	< 3 U	**11**	**7**	**3 J**	**10 J**	**10 J**	**3 J**	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	**3**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	**2 J**	< 0.5 U	< 0.5 U	< 0.7 U	< 0.4 U	< 0.4 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.3 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.7 U	< 0.7 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	**14**	**4**	**4**	**4 J**	< 0.3 U	< 0.5 U	**4**	**2**	**20**	**7**	**1 J**	**12**	**4**	**2**	**20**	**20**	**3**	**0.7 J**
Perfluorohexane sulfonate (PFHxS)	ng/l	**3 J**	< 1 U	**1 J**	**1 J**	< 0.4 U	**10 JN**	< 1 UJ	< 1 U	**2 J**	< 1 U	< 1 U	**2 J**	**0.8 J**	< 0.4 U	**2 J**	**2 J**	**1 J**	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	**13**	**5**	**4**	**4 J**	< 0.3 U	< 0.6 U	**4**	**0.8 J**	**24**	**2**	< 0.6 U	**15**	**4**	**2**	**18**	**18**	**3**	**0.4 J**
Perfluorononanoic acid (PFNA)	ng/l	**8**	**0.7 J**	**1 J**	**1 J**	< 0.3 U	< 0.6 U	**3**	**0.6 J**	**5**	< 0.6 U	**2 J**	**1 J**	**0.7 J**	**1**	**1 J**	**1 J**	**0.5 J**	< 0.3 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 0.3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 0.5 UJ	< 0.3 UJ	< 0.3 U	< 0.7 UJ	< 0.7 UJ	< 0.3 UJ	< 0.3 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/l	**11 J**	**6 J**	**6 J**	**6 J**	< 0.7 U	< 2 U	**4 J**	**2 J**	**8**	< 2 U	**12**	**7**	**5**	**3 J**	< 2 U	< 2 U	**3 J**	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	**100**	**36**	**37**	**37**	**3**	**16 J**	**36**	**42 J**	**140**	**120**	**12**	**160**	**53**	**19**	**120**	**130**	**50**	**13**
Perfluoropentanoic acid (PFPeA)	ng/l	**11**	**4**	**4**	**4**	< 0.3 U	< 0.5 U	**3**	< 0.5 U	**15**	**1 J**	< 0.5 U	**8**	**3**	**2**	**14**	**13**	**3**	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.3 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.7 U	< 0.7 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.3 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.7 U	< 0.7 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 UJ	< 1 UJ	< 1 U	< 0.4 U	< 1 UJ	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 0.7 U	< 0.4 U	< 0.4 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U

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Location		SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR4		SG3-MW17-BR4	VLT-01
Sample Date		12/6/2017	12/10/2017	1/16/2018	1/20/2018	1/19/2018	1/26/2018	1/4/2018	1/10/2018	1/22/2018	1/25/2018	12/17/2017		12/21/2017	5/25/2017
Sample Depth				165-175 ft	199-219 ft	243-265 ft				131.27-161 ft					
Sample Type		N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units														
General Parameters															
Alkalinity, bicarbonate, as CaCO3	mg/l	**161 J**	**224**	**228**	**232 J**	**238**	**228**	**170**	**168**	**141 J**	**178**	**122**	**123**	**128**	**1010**
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 UJ	< 1.7 U	**2.2 J**	**1.8 J**	< 1.7 U	< 1.7 U
Alkalinity, total, as CaCO3	mg/l	**161 J**	**224**	**228**	**232 J**	**238**	**228**	**170**	**168**	**141 J**	**178**	**124**	**125**	**128**	**1010 J**
Bromide	mg/l	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 UJ	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	**4.0**
Chloride	mg/l	**10.5 J**	**4.5**	**3.4**	**5.3**	**3.8**	**4.0 J**	**3.9 J**	**6.4 J**	**8.2**	**5.2**	**3.4**	**3.3**	**3.3**	**264**
Cyanide	mg/l	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 UJ	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Nitrogen, ammonia, as N	mg/l	< 0.050 U	**0.096 J**	< 0.050 U	**0.062 J**	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	< 0.050 U	**1.3**
Nitrogen, nitrate, as N	mg/l	**0.40 J**	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	**0.44 J**	**0.54 J**	< 0.25 U	**0.46 J**	< 0.25 R	< 0.25 R	< 0.25 R	**0.62**
Nitrogen, nitrite, as N	mg/l	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 R	< 0.25 R	< 0.25 R	< 0.25 U
Nitrogen, total kjeldahl (TKN)	mg/l	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	**23.0**
Orthophosphate, as P	mg/l	**0.077 J**	< 0.030 UJ	< 0.030 U	< 0.030 UJ	< 0.030 U	< 0.030 U	< 0.030 UJ	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 UJ	< 0.030 UJ	< 0.030 R	< 0.030 U
Sulfate, as SO4	mg/l	**6.4 J**	**12.7**	**11.0**	**11.0**	**10.9 J**	**11.2 J**	**14.0 J**	**11.4**	**26.3**	**13.6**	**4.0 J**	**3.9 J**	**4.2 J**	**219**
Total Metals															
Aluminum	mg/l	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	**0.114 J**	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0894 U	< 0.0868 U
Antimony	mg/l	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	**0.0019 J**	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00048 U
Arsenic	mg/l	< 0.00072 U	< 0.00072 U	**0.00073 J**	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	< 0.00072 U	**0.0083**
Barium	mg/l	**0.0469**	**0.0461**	**0.0496**	**0.0754**	**0.202**	**0.136**	**0.0245**	**0.0207**	**0.0275**	**0.0347**	**0.0082**	**0.0079**	**0.0097**	**0.0675**
Beryllium	mg/l	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	**0.00014 J**	**0.00042 J**	**0.00066 J**	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.00011 U
Boron	mg/l	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	**0.0751 J**	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	**1.74**
Cadmium	mg/l	< 0.00015 U	**0.00030 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.00020 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00019 U
Calcium	mg/l	**40.1**	**58.6**	**60.2**	**58.7**	**61.0**	**58.9**	**46.7**	**47.3**	**41.2**	**48.2**	**27.4**	**27.6**	**28.6**	**137**
Chromium	mg/l	**0.0015 J**	< 0.00087 U	< 0.00087 U	**0.0012 J**	< 0.00087 U	< 0.00087 U	**0.0021 J**	< 0.00087 U	**0.0030 J**	**0.0010 J**	**0.0010 J**	**0.0046**	< 0.00087 U	**0.0014 J**
Cobalt	mg/l	**0.00084 J**	**0.0031**	**0.0087**	**0.0045**	**0.0277**	**0.0171**	**0.00066 J**	< 0.00016 U	**0.00044 J**	**0.0017**	< 0.00016 U	**0.00071 J**	< 0.00016 U	**0.0050**
Copper	mg/l	**0.0033 J**	**0.0022 J**	**0.0015 J**	**0.0043**	**0.00075 J**	**0.0295 J**	**0.0150**	**0.0130**	**0.0167**	**0.0741 J**	**0.0213 J**	**0.0430 J**	**0.0092**	**0.0048**
Iron	mg/l	**0.261 J**	< 0.0805 U	**0.253 J**	**0.344 J**	< 0.0805 U	< 0.0805 U	**0.349 J**	< 0.0805 U	**0.0884 J**	**0.104 J**	**0.124 J**	**1.40 J**	< 0.0805 U	**4.09**
Lead	mg/l	**0.0012 J**	**0.00033 J**	**0.00018 J**	**0.00012 J**	< 0.00011 U	**0.0018 J**	**0.0022**	**0.0326**	< 0.00011 U	**0.0019 J**	**0.0125 J**	**0.0365 J**	**0.00077 J**	**0.0016 J**
Magnesium	mg/l	**15.1**	**23.9**	**24.4**	**25.1**	**25.0**	**24.3**	**17.3**	**18.0**	**15.7**	**18.6**	**13.1**	**13.1**	**13.3**	**75.1**
Manganese	mg/l	**0.119**	**1.19**	**0.824**	**2.11**	**3.92**	**2.37**	**0.0333**	< 0.0028 UB	**0.0157**	**0.0376**	**0.0058 J**	**0.0106**	**0.0077 J**	**0.506**
Mercury	mg/l	< 0.000050 U	< 0.000050 U	< 0.000050 U	**0.000054 J**	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	mg/l	**0.0013 J**	**0.0033 J**	**0.0046**	**0.0053**	**0.0136**	**0.0090**	**0.0016 J**	< 0.0010 U	**0.0017 J**	**0.0040**	**0.0059 J**	**1.06 J**	< 0.0010 U	**0.0625**
Potassium	mg/l	**3.94**	**1.41**	**2.22**	**1.36**	**1.06**	**0.911 J**	**1.63**	**0.664 J**	**3.00**	**3.98**	**2.84**	**2.94**	**2.45**	**276**
Selenium	mg/l	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	**0.00069 J**
Silver	mg/l	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.0011**	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00012 U
Sodium	mg/l	**5.69**	**2.19**	< 2.54 UB	**1.48 J**	**1.40 J**	**1.33 J**	**3.95**	**2.37**	**7.08**	**5.37**	**3.70**	**3.71**	**3.24**	**265**
Thallium	mg/l	**0.00018 J**	**0.00070 J**	**0.00018 J**	**0.0017**	**0.0017**	**0.0013**	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00016 U
Vanadium	mg/l	**0.00025 J**	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00021 U	< 0.00036 UB
Zinc	mg/l	**0.0411**	**0.0611**	**0.0661**	**0.183**	**0.102**	**0.182**	**0.641**	**0.0961**	**0.343**	**1.64**	**0.0522**	**0.0660**	**0.0485**	**0.0745**
SVOCs															
1,4-Dioxane	ug/l	< 0.10 UB	< 0.17 UB	< 0.19 UB	< 0.26 UB	< 0.050 UJ	< 0.065 UB	< 0.052 UJ	< 0.051 UJ	< 0.084 UB	< 0.055 UB	< 0.051 UJ	< 0.051 UJ	< 0.096 UB	**6.4 J**

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Location		SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR4		SG3-MW17-BR4	VLT-01
Sample Date		12/6/2017	12/10/2017	1/16/2018	1/20/2018	1/19/2018	1/26/2018	1/4/2018	1/10/2018	1/22/2018	1/25/2018	12/17/2017		12/21/2017	5/25/2017
Sample Depth				165-175 ft	199-219 ft	243-265 ft				131.27-161 ft					
Sample Type		N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units														
VOCs															
1,1,1-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/l	< 3 U	< 3 U	< 3 U	< 30 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	ug/l	< 6 U	< 6 U	< 6 U	< 60 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.6 J**
Chloroform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.9 J**	**0.9 J**	**0.7 J**	< 0.5 U
Chloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 2 U	< 2 U	< 2 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.8 J**
Methyl acetate	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	< 3 U	< 3 U	< 30 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	< 3 U	< 3 U	< 30 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2 U
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	< 2 U	< 2 U	< 20 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U	< 0.5 U	**1**	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1**
Xylene, o	ug/l	< 0.5 U	< 0.5 U	**0.6 J**	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1**
Xylene, total	ug/l	< 0.5 U	< 0.5 U	**2**	< 5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**2**

Table 3.13
Analytical Water Results - Bennington Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		SG3-MW17-BR1	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR2	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR3	SG3-MW17-BR4		SG3-MW17-BR4	VLT-01
Sample Date		12/6/2017	12/10/2017	1/16/2018	1/20/2018	1/19/2018	1/26/2018	1/4/2018	1/10/2018	1/22/2018	1/25/2018	12/17/2017		12/21/2017	5/25/2017
Sample Depth				165-175 ft	199-219 ft	243-265 ft				131.27-161 ft					
Sample Type		N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Units														
Per- and Polyfluoroalkyl Substances															
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	**4 J**
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	**2 J**
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 1 UJ
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	**11**	**4**	**5**	**8**	**7**	< 0.3 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**9 J**
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	**22**	**16**	**18**	**18**	**17**	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**130 J**
Perfluorodecanoic acid (PFDA)	ng/l	< 0.6 U	< 1 UB	< 1 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 1 UB	< 1 UB	< 1 UB	**0.8 J**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 UJ
Perfluoroheptanoic acid (PFHpA)	ng/l	**0.8 J**	**46**	**38**	**37**	**45**	**39**	**2**	**2**	**2**	**2**	< 0.3 U	< 0.3 U	< 0.3 U	**280**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	**3**	**3**	**2**	**3**	**2**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**48**
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.4 U	**41**	**41**	**41**	**42**	**38**	< 0.4 U	< 0.4 U	< 0.4 U	**0.4 J**	< 0.4 U	< 0.4 U	< 0.4 U	**590 J**
Perfluorononanoic acid (PFNA)	ng/l	< 0.4 U	**5**	**3 J**	**2**	**5 J**	**4**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**3**
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.9 UJ	< 0.9 UJ	< 1 UJ	< 0.9 UJ	< 0.9 U	< 1 U	< 0.9 UJ	< 0.9 UJ	< 0.9 U	< 0.9 U	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 3 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.4 U	**3 J**	**1 JN**	**0.9 J**	**2 J**	**2 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 1 UB	**35 J**
Perfluorooctanoic acid (PFOA)	ng/l	**14**	**180**	**170**	**140**	**160**	**160**	**62**	**67**	**72**	**64**	**0.4 J**	**0.4 J**	< 0.6 UB	**4700**
Perfluoropentanoic acid (PFPeA)	ng/l	< 2 U	**34**	**28**	**30**	**31**	**30**	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**92**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 1 U

Table 3.14
Analytical Water Results - Non-Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		BG4	D03	D13	S01	S03	S04	S08	S10		S34	S37	S41	S42	S49	SG3-MW17-05	SG3-MW17-05	SG3-MW17-07	SG3-MW17-WWTP
Sample Date		8/17/2017	8/29/2017	9/6/2017	9/5/2017	9/8/2017	9/6/2017	9/8/2017	8/23/2017		9/11/2017	8/24/2017	8/15/2017	8/16/2017	9/12/2017	10/27/2017	10/31/2017	10/25/2017	10/23/2017
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																		
General Parameters																			
Alkalinity, bicarbonate, as CaCO3	mg/l	**43.4**	**350**	**234**	**235**	**295**	**126**	**396**	**267**	**265**	**226**	**334**	**135 J**	--	**429**	**286**	--	**273 J**	**242**
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	--	< 1.7 U	< 1.7 U	--	< 1.7 R	< 1.7 U
Alkalinity, total, as CaCO3	mg/l	**43.4**	**350**	**234**	**235**	**295**	**126**	**396**	**267**	**265**	**226**	**334**	**135 J**	--	**429**	**286**	--	**273 J**	**242**
Bromide	mg/l	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	**3.3**	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	--	< 1.3 U	< 1.3 U	--	< 1.3 U	< 1.3 U
Chloride	mg/l	**1.8 J**	**330**	**16.4**	**4.4**	**88.6**	**29.5**	**345**	**65.9**	**67.7**	**6.2 J**	**7.5**	**47.8**	--	**881**	**118**	--	**85.5 J**	**11.8**
Nitrogen, ammonia, as N	mg/l	< 0.050 U	**0.12**	< 0.050 U	< 0.050 U	< 0.050 U	**0.078 J**	< 0.050 U	**0.12**	**0.13**	< 0.050 U	**0.26**	**0.085 J**	--	**0.052 J**	< 0.050 U	--	**0.079 J**	< 0.050 U
Nitrogen, nitrate, as N	mg/l	**1.1**	**6.0**	**1.5**	**0.41 J**	**2.2 J**	**0.28 J**	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	**0.41 J**	**0.87**	--	< 0.25 U	< 0.25 U
Nitrogen, nitrite, as N	mg/l	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	< 25.0 U	< 0.25 U	--	< 0.25 U	< 0.25 U
Nitrogen, total kjeldahl (TKN)	mg/l	< 0.50 U	< 0.50 U	< 0.50 U	**2.1 J**	< 0.50 U	< 0.50 U	**0.63 J**	< 0.50 U	< 0.50 U	< 0.50 U	**0.75 J**	< 0.50 U	--	< 0.50 U	< 0.50 U	--	< 0.50 U	< 0.50 U
Orthophosphate, as P	mg/l	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	**0.052 J**	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	< 0.030 U	--	< 0.030 U	--	< 0.030 U	< 0.030 U	< 0.030 U
Sulfate, as SO4	mg/l	**9.1**	**31.2**	**15.5**	**3.8 J**	**10.5**	**7.5**	**21.7**	**4.6 J**	**4.2 J**	**8.6 J**	**5.8**	**9.9**	--	**39.3**	**11.7**	--	**21.1**	**34.6**
Total Metals																			
Aluminum	mg/l	**5.53**	**86.0**	**0.603**	**0.127 J**	**0.131 J**	**0.757**	**0.748**	**1.25 J**	**0.525 J**	**8.95**	**0.576**	**0.934**	--	**3.01**	**0.326 J**	--	**3.10 J**	< 0.0894 U
Antimony	mg/l	< 0.00045 U	**0.00082 J**	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	< 0.00045 U	--	< 0.00045 U	< 0.00045 U	--	**0.00046 J**	< 0.00045 U
Arsenic	mg/l	**0.0014 J**	**0.0747**	**0.0011 J**	< 0.00072 U	**0.00082 J**	< 0.00072 U	**0.0018 J**	< 0.00072 U	< 0.00072 U	**0.0123**	< 0.00072 U	**0.0020 J**	--	**0.0017 J**	< 0.00072 U	--	**0.0041**	**0.0020 J**
Barium	mg/l	**0.0940**	**0.430**	**0.0119**	**0.0104**	**0.0156**	**0.220**	**0.0797**	**0.0288 J**	**0.0225 J**	**0.0836**	**0.0153**	**0.135**	--	**0.111**	**0.0385**	--	**0.110 J**	**0.0480**
Beryllium	mg/l	**0.00025 J**	**0.0029**	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	< 0.000071 U	**0.00082 J**	< 0.000071 U	< 0.000071 U	--	**0.00015 J**	< 0.000071 U	--	**0.00017 J**	< 0.000071 U
Boron	mg/l	**0.0162 J**	**0.0324 J**	**0.0113 J**	**0.0114 J**	**0.0218 J**	< 0.0101 U	**0.0171 J**	< 0.0101 U	< 0.0101 U	< 0.0101 U	< 0.0101 U	**0.0157 J**	--	**0.0123 J**	**0.0216 J**	--	**0.0187 J**	< 0.0101 U
Cadmium	mg/l	< 0.00015 U	**0.0013**	**0.00022 J**	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	**0.00042 J**	< 0.00015 U	**0.00023 J**	--	< 0.00015 U	< 0.00015 U	--	< 0.00015 U	< 0.00015 U
Calcium	mg/l	**12.7**	**1010**	**64.7**	**68.7**	**78.1**	**41.0**	**210**	**52.2**	**51.6**	**77.8**	**79.5**	**36.2**	--	**163**	**91.8**	--	**95.1**	**70.5**
Chromium	mg/l	**0.0075**	**0.0795**	< 0.00087 U	< 0.00087 U	< 0.00087 U	< 0.00087 U	< 0.00087 U	< 0.0019 UB	< 0.00087 U	**0.0193**	< 0.00087 U	**0.0019 J**	--	**0.0040 J**	**0.00095 J**	--	**0.0067**	< 0.00087 U
Cobalt	mg/l	**0.0058**	**0.0654**	**0.0058**	< 0.00016 U	**0.00016 J**	**0.0049**	**0.0024**	**0.00050 J**	**0.00017 J**	**0.0204**	**0.00081 J**	**0.0032**	--	**0.0031**	**0.0017**	--	**0.0039**	**0.00023 J**
Copper	mg/l	**0.0090**	**0.199**	**0.0017 J**	**0.0011 J**	< 0.00054 U	< 0.00054 U	**0.0010 J**	**0.0013 J**	**0.00070 J**	**0.0362**	**0.0032 J**	**0.0017 J**	--	**0.0052**	**0.0010 J**	--	**0.0070**	< 0.00054 U
Iron	mg/l	**6.86**	**259**	**1.53 J**	**0.168 J**	**0.158 J**	**8.95 J**	**2.73 J**	**1.37 J**	**0.504 J**	**17.9**	**1.31**	**2.26**	--	**5.35**	**0.588**	--	**3.85 J**	< 0.0805 U
Lead	mg/l	**0.0022**	**0.150**	**0.00072 J**	**0.00080 J**	**0.00020 J**	**0.00093 J**	**0.0018 J**	**0.0012 J**	**0.00041 J**	**0.0236**	**0.00087 J**	**0.00092 J**	--	**0.0033**	**0.00043 J**	--	**0.0031**	< 0.00011 U
Magnesium	mg/l	**6.10**	**483**	**24.8**	**16.7**	**23.3**	**8.80**	**37.5**	**19.9**	**19.5**	**28.4**	**20.4**	**11.5**	--	**52.1**	**25.5**	--	**45.5**	**25.3**
Manganese	mg/l	**0.302**	**5.37**	**0.209**	**0.0166**	**0.0090 J**	**1.58**	**1.14**	**0.213**	**0.185**	**0.980**	**0.147**	**1.00**	--	**0.185**	**0.407**	--	**0.521**	**0.155**
Mercury	mg/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.000050 U	--	--	--
Nickel	mg/l	**0.0070**	**0.123**	**0.0101**	< 0.0010 U	< 0.0010 U	< 0.0010 U	**0.0012 J**	**0.0012 J**	< 0.0010 U	**0.0261**	**0.0015 J**	**0.0022 J**	--	**0.0057**	< 0.0042 UB	--	**0.0113**	< 0.0010 U
Potassium	mg/l	**6.58**	**17.7**	**2.36**	**2.74**	**1.71**	**1.39**	**1.35**	**1.21**	**0.806 J**	**2.87**	**1.05**	**2.77**	--	**2.72**	**3.65**	--	**2.96**	**0.902 J**
Selenium	mg/l	< 0.00050 U	**0.0022 J**	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	< 0.00050 U	**0.00057 J**	< 0.00050 U	< 0.00050 U	--	< 0.00050 U	**0.0026 J**	--	< 0.00050 U	< 0.00050 U
Silver	mg/l	< 0.00015 U	**0.0013**	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	--	**0.00024 J**	< 0.00015 U	--	< 0.00015 U	< 0.00015 U
Sodium	mg/l	**4.10**	**235**	**8.52**	**1.92 J**	**59.6**	**18.4**	**115**	**77.7**	**75.5**	**6.05**	**41.0**	**30.5**	--	**472**	**50.4**	--	**11.3**	**5.78**
Thallium	mg/l	**0.00015 J**	**0.0012**	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	**0.00029 J**	< 0.00012 U	**0.00022 J**	--	< 0.00012 U	< 0.00012 U	--	< 0.00012 U	< 0.00012 U
Vanadium	mg/l	**0.0134**	**0.0836**	**0.0010 J**	< 0.00021 U	**0.00026 J**	**0.00083 J**	**0.00031 J**	**0.0016**	**0.00075 J**	**0.0163**	**0.00062 J**	**0.0013**	--	**0.0036**	**0.0011**	--	**0.0048**	**0.00032 J**
Zinc	mg/l	**0.0173 J**	**0.559**	**0.0069 J**	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	**0.0462**	< 0.0065 U	< 0.0065 U	--	**0.0152 J**	< 0.0065 U	--	**0.0088 J**	< 0.0065 U

Table 3.14
Analytical Water Results - Non-Landfill
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		BG4	D03	D13	S01	S03	S04	S08	S10		S34	S37	S41	S42	S49	SG3-MW17-05	SG3-MW17-05	SG3-MW17-07	SG3-MW17-WWTP
Sample Date		8/17/2017	8/29/2017	9/6/2017	9/5/2017	9/8/2017	9/6/2017	9/8/2017	8/23/2017		9/11/2017	8/24/2017	8/15/2017	8/16/2017	9/12/2017	10/27/2017	10/31/2017	10/25/2017	10/23/2017
Sample Type		N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 20 U	< 3 U	< 3 U	--	< 7 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 20 U	< 4 U	< 2 U	--	< 5 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 5 U	< 1 U	< 0.4 U	--	< 1 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 5 U	< 1 U	< 0.4 U	--	< 1 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	**4**	**3**	< 0.8 U	**3 J**	< 0.8 U	**0.8 J**	**1 J**	**1 J**	**0.8 J**	< 0.8 U	< 0.8 U	< 4 U	< 0.8 U	**2**	--	< 0.7 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	**9 J**	< 3 U	< 3 U	**3 J**	< 3 U	**6 J**	**5 J**	**5 J**	**10 J**	**5 J**	**12**	**280 J**	< 3 U	**3 J**	--	< 5 U	**3 J**
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	**0.9 J**	**1 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**5**	< 5 UB	< 0.5 U	< 0.4 U	--	< 1 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**6 J**	< 0.5 U	< 0.3 U	--	< 0.7 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	**0.9 J**	**15**	**5**	< 0.5 U	**4**	**1 J**	**2**	**4**	**4**	**35 J**	**3**	**12**	**57 J**	**1 J**	**12**	--	**2 J**	**4**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	**2 J**	**1 J**	< 1 U	**1 J**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 5 U	< 1 U	**2**	--	< 1 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	**11**	**4**	< 0.6 U	**8**	**0.9 J**	**2 J**	**3**	**3**	**21 J**	**2 J**	**21 J**	**71 J**	**0.9 J**	**6**	--	**3**	**5**
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	**4**	**0.8 J**	< 0.6 U	**3**	< 0.6 U	**0.7 J**	**0.7 J**	**0.8 J**	**2 J**	**2**	**10**	**12 J**	< 0.6 U	**0.7 J**	--	< 0.7 U	< 0.3 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 20 UJ	< 3 UJ	< 0.3 UJ	--	< 0.7 UJ	< 0.3 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 2 U	**10**	**5 J**	< 2 U	**23**	< 2 U	**4 J**	**3 J**	**3 J**	< 2 U	**4 J**	**14**	< 10 U	< 2 U	**2 J**	--	< 2 U	< 0.8 U
Perfluorooctanoic acid (PFOA)	ng/l	**6**	**240**	**72**	**5**	**26**	**19**	**27**	**88**	**87**	**850**	**85**	**160**	**33 J**	**15**	**200**	--	**8 J**	**120**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	**9**	**2**	< 0.5 U	**10**	**0.6 J**	**2**	**3**	**2**	**10**	**2**	**32**	**250 J**	< 0.5 U	**3**	--	**2 J**	**3**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**10 J**	< 0.5 U	< 0.3 U	--	< 0.7 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**26 J**	< 0.5 U	< 0.3 U	--	< 0.7 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**5 J**	< 1 U	< 0.4 U	--	< 1 U	< 0.4 U

Table 3.15
Summary of Hydraulic Conductivity Results
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location ID	Number of Tests/Samples	Hydraulic Conductivity Range (feet/day)		Geometric Mean Hydraulic Conductivity (feet/day)	Material
		Min	Max		
Slug Testing					
SG3-MW17-01/D06	2	8.4E+01	8.9E+01	8.6E+01	GP
SG3-MW17-02/D08	2	2.3E+02	2.3E+02	2.3E+02	GP
SG3-MW17-03/D25	2	5.3E-01	7.6E-01	6.3E-01	SC/SM/ML
SG3-MW17-04/D11	4	2.1E+00	2.2E+00	2.1E+00	SP
SG3-MW17-05/D21	1			1.0E-02	ML
SG3-MW17-06/D09	2	8.2E+01	9.3E+01	8.7E+01	GP-GM
SG3-MW17-07/D15	4	7.0E-02	1.3E-01	9.0E-02	ML
SG3-MW17-WWTP/D18	4	2.1E+00	3.0E+00	2.3E+00	QUARTZITE
Grain Size[1]					
	4	1.3E-03	1.6E-02	3.4E-03	CH
	4	2.2E-03	5.0E-02	1.4E-02	CL-CH
	59	5.3E-04	1.9E-01	2.0E-02	CL
	14	1.1E-03	5.1E-01	5.0E-02	CL-ML
	10	1.3E-03	7.6E+00	3.7E-02	ML
	1	1.4E-01	2.5E-01	1.8E-01	ML-SM
	6	2.1E-03	8.8E-01	1.1E-01	SC
	1	2.8E+00	8.7E+00	4.3E+00	SM-SC
	13	5.4E-03	1.1E+01	2.8E-01	SM
	2	3.7E-02	7.1E+00	4.2E-01	SP-SM
	12	1.7E-01	8.2E+02	1.6E+00	SP
	1	1.9E+00	4.9E+00	2.8E+00	SM,GP
	1	1.0E-01	1.3E-01	1.2E-01	GC
	1	1.6E+00	1.2E+01	3.3E+00	GP-GM
	8	2.8E-03	1.8E+01	2.4E-01	OL-OH
	1	4.5E-01	7.2E-01	5.8E-01	FILL
	4	6.1E-03	8.6E-02	2.6E-02	KAOLIN
	9	1.9E-03	2.6E-01	1.9E-02	OCHER
	1	2.6E+00	1.9E+01	5.3E+00	QUARTZITE
	2	4.0E-02	1.2E-01	7.0E-02	SLATE
Specific Capacity					
SG3-MW17-BR1	1			5.4E+01	QUARTZITE
SG3-MW17-BR2	1			6.0E-01	QUARTZITE
SG3-MW17-BR3	1			1.7E+01	QUARTZITE/SLATE
SG3-MW17-BR4	1			2.0E+01	QUARTZITE

Notes

[1] Results are a composite of the analyses conducted using 3 different methods (Hazen, Kozeny-Carmen, Barr)
See Appendix G for more details.

Table 3.16
Summary of Monitoring Well Water Levels
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location ID	Well Type	Aquifer	Measurement Date	Measurement Method[1]	Groundwater Elevation (ft above NAVD88)
SG3-MW17-01	New Monitoring Well	Unconsolidated	11/2/2017	Manual	908.14
SG3-MW17-02	New Monitoring Well	Unconsolidated	11/2/2017	Manual	908.07
SG3-MW17-03	New Monitoring Well	Unconsolidated	11/2/2017	Manual	971.48
SG3-MW17-04	New Monitoring Well	Unconsolidated	11/2/2017	Manual	849.59
SG3-MW17-05	New Monitoring Well	Unconsolidated	11/2/2017	Manual	635.34
SG3-MW17-06	New Monitoring Well	Unconsolidated	11/2/2017	Manual	908.13
SG3-MW17-07	New Monitoring Well	Unconsolidated	11/2/2017	Manual	668.97
SG3-MW17-WWTP	New Monitoring Well	Unconsolidated[2]	11/2/2017	Manual	541.86
SG3-MW17-BR1	New Monitoring Well	Bedrock	1/9/2018	Manual	789.49
SG3-MW17-BR2	New Monitoring Well	Bedrock	1/9/2018	Manual	846.08
SG3-MW17-BR3	New Monitoring Well	Bedrock	1/9/2018	Manual[3]	816.64
SG3-MW17-BR4	New Monitoring Well	Bedrock	1/9/2018	Manual	788.91
B-2-3	Existing Landfill Well	Bedrock	1/9/2018	Manual	789.63
B-4-3	Existing Landfill Well	Bedrock	1/9/2018	Manual	789.82
B-6-3	Existing Landfill Well	Bedrock	1/9/2018	Manual	829.98
32 Cortland Lane	Residential Well	Bedrock	1/9/2018	Transducer	793.68
54 Cortland Lane	Residential Well	Bedrock	1/9/2018	Transducer	793.68
49 Michaels Drive	Residential Well	Bedrock	1/9/2018	Transducer	817.30
901 Rocky Lane	Residential Well	Bedrock	1/9/2018	Manual	790.92
1102 Rocky Lane	Residential Well	Bedrock	1/9/2018	Transducer	789.51
1371 Harwood Hill Road	Residential Well	Bedrock	1/9/2018	Manual	779.04
1400 Becks Drive	Residential Well	Bedrock	1/9/2018	Transducer	816.15

Notes

[1] Static water level inferred from transducer records when manual measurements were taken during pumping cycles.

[2] While completed in shallow fractured quartzite, water levels at this well are interpreted to represent the unconsolidated aquifer.

[3] Groundwater elevation for bedrock monitoring well SG3-MW17-BR3 calculated using a temporary top of casing elevation (947.70) prior to completion of the well

Figures

Former Chemfab Facility
Bennington Landfill
Corrective Action Area I
Corrective Action Area II

Map Area

Bennington Landfill
Former Chemfab (Water Street)
Former Chemfab (Northside Drive)

N

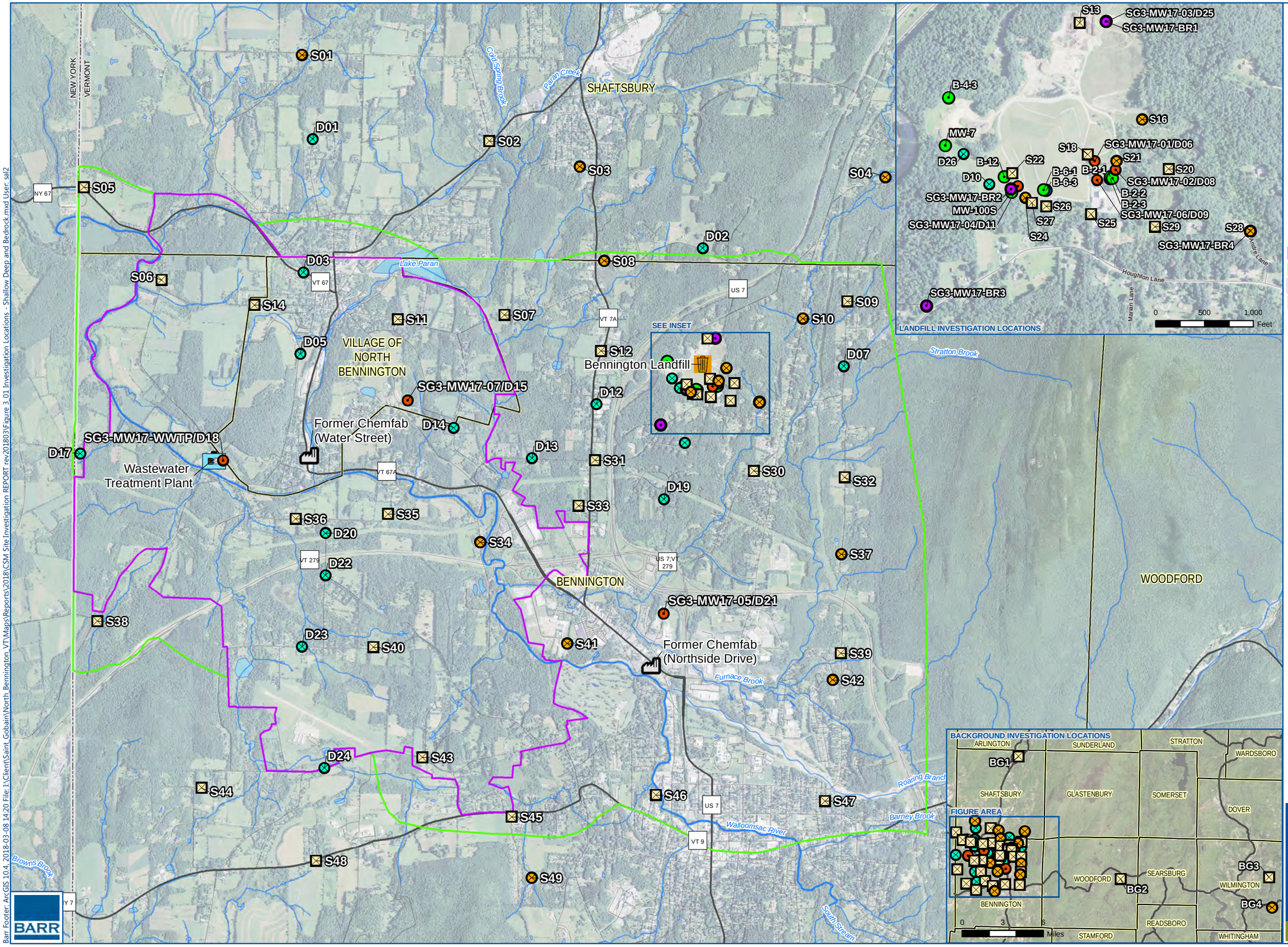
0 6,000
Feet

SITE LOCATION
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 1.1

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Sources: Esri, DeLorme, USGS, NPS
Sources: Esri, USGS, NOAA

Barr Footer: ArcGIS 10.4, 2018-03-09 11:59 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180309\Figure 1_1 Site Location.mxd User: sal2



INVESTIGATION LOCATIONS: SHALLOW, DEEP, AND BEDROCK CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.1

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 14:20 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180308\Figure 3_01 Investigation Locations - Shallow Deep and Bedrock.mxd User: sal2

ARLINGTON
SUNDERLAND
STRATTON
JAMAICA
WARDSBORO
SHAFTSBURY
GLASTENBURY
SOMERSET
DOVER
SEARSBURG
MARLBORO
WILMINGTON
WOODFORD
READSBORO
WHITINGHAM
HALIFAX
POWNAL
STAMFORD
BENNINGTON
VT 7A;VT 313
VT 313
VT 7A
VT 100
VT 9
VT 8
VT 9;VT 100
VT 100;VT 8
VT 346
NY 67
NY 7
CR 68
CR 96
US 7
NEW YORK
VERMONT
BG1
BG2
BG3
BG4
Wastewater Treatment Plant
Former Chemfab (Water Street)
Bennington Landfill
Former Chemfab (Northside Drive)

PFOA (ng/g) *
- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Non Detect **

Sampling Interval
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.15 - 0.28 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

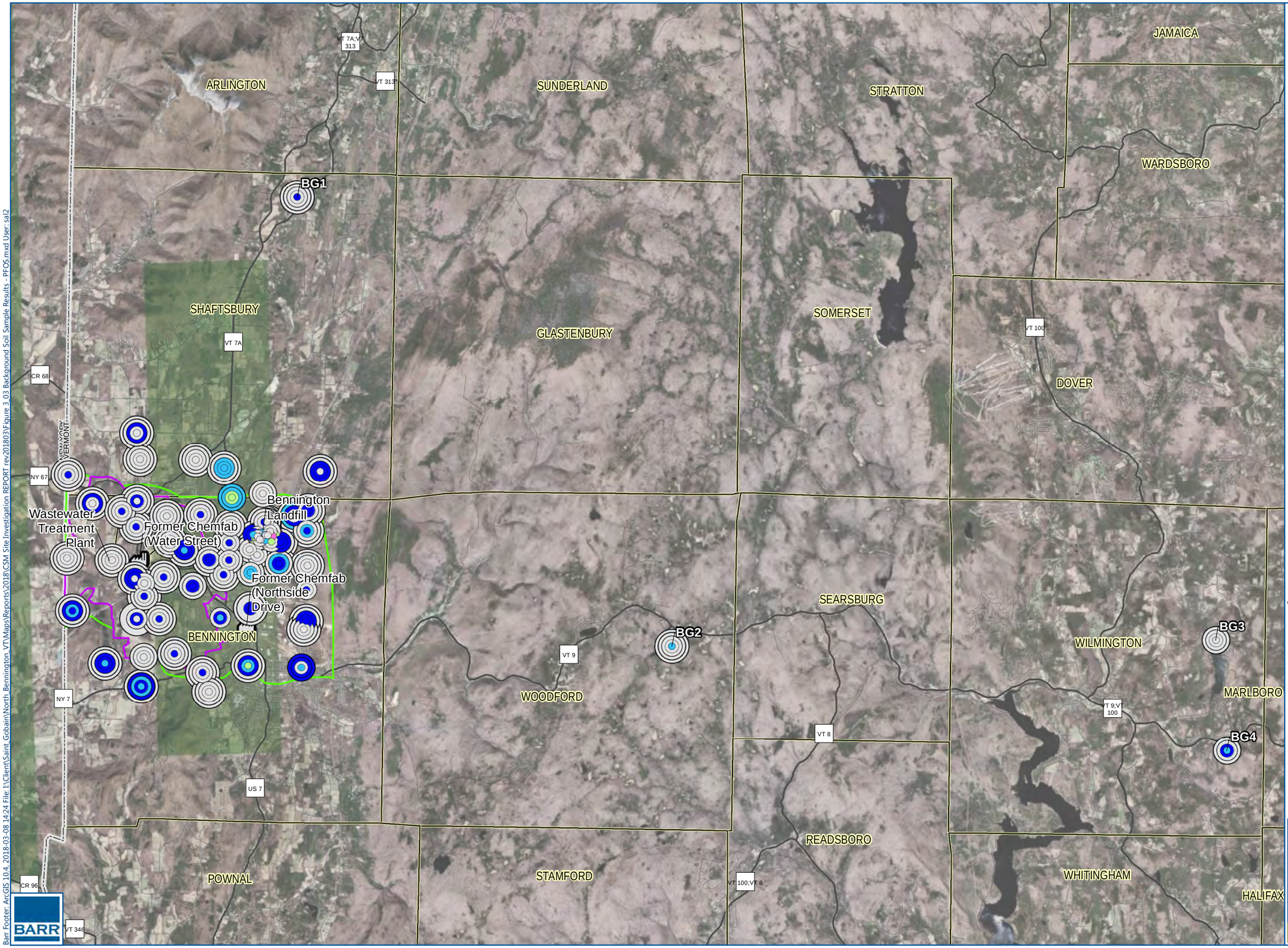
0 2
Miles

BACKGROUND SOIL SAMPLE RESULTS: PFOA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.2

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 14:21 File: I:\Client\Saint-Gobain\North Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\201803\Figure 3_02 Background Soil Sample Results - PFOA.mxd User: sal2



PFOS (ng/g) *

- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Non Detect **

Sampling Interval

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.21- 6.6 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 2

Miles

BACKGROUND SOIL SAMPLE RESULTS: PFOS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.3

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 14:24 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\201803\Figure 3_03 Background Soil Sample Results - PFOS.mxd User: sal2

ARLINGTON
SUNDERLAND
STRATTON
JAMAICA
WARDSBORO
SHAFTSBURY
GLASTENBURY
SOMERSET
DOVER
SEARSBURG
MARLBORO
WILMINGTON
WOODFORD
READSBORO
WHITINGHAM
HALIFAX
POWNAL
STAMFORD
BENNINGTON
BG1
BG2
BG3
BG4
VT 7A;VT 313
VT 313
VT 7A
VT 9
VT 8
VT 100
VT 9;VT 100
VT 100;VT 8
VT 346
US 7
NY 67
NY 7
CR 68
CR 96
NEW YORK
VERMONT
Wastewater Treatment Plant
Former Chemfab (Water Street)
Bennington Landfill
Former Chemfab (Northside Drive)

TOC (mg/kg)
- > 50,000.1
- 25,000.1 - 50,000
- 10,000.1 - 25,000
- 5,000.1 - 10,000
- < 5,000
- Non Detect *

Sampling Interval
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* Non Detect value ranges from 137 - 317 mg/kg.

** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 2
Miles

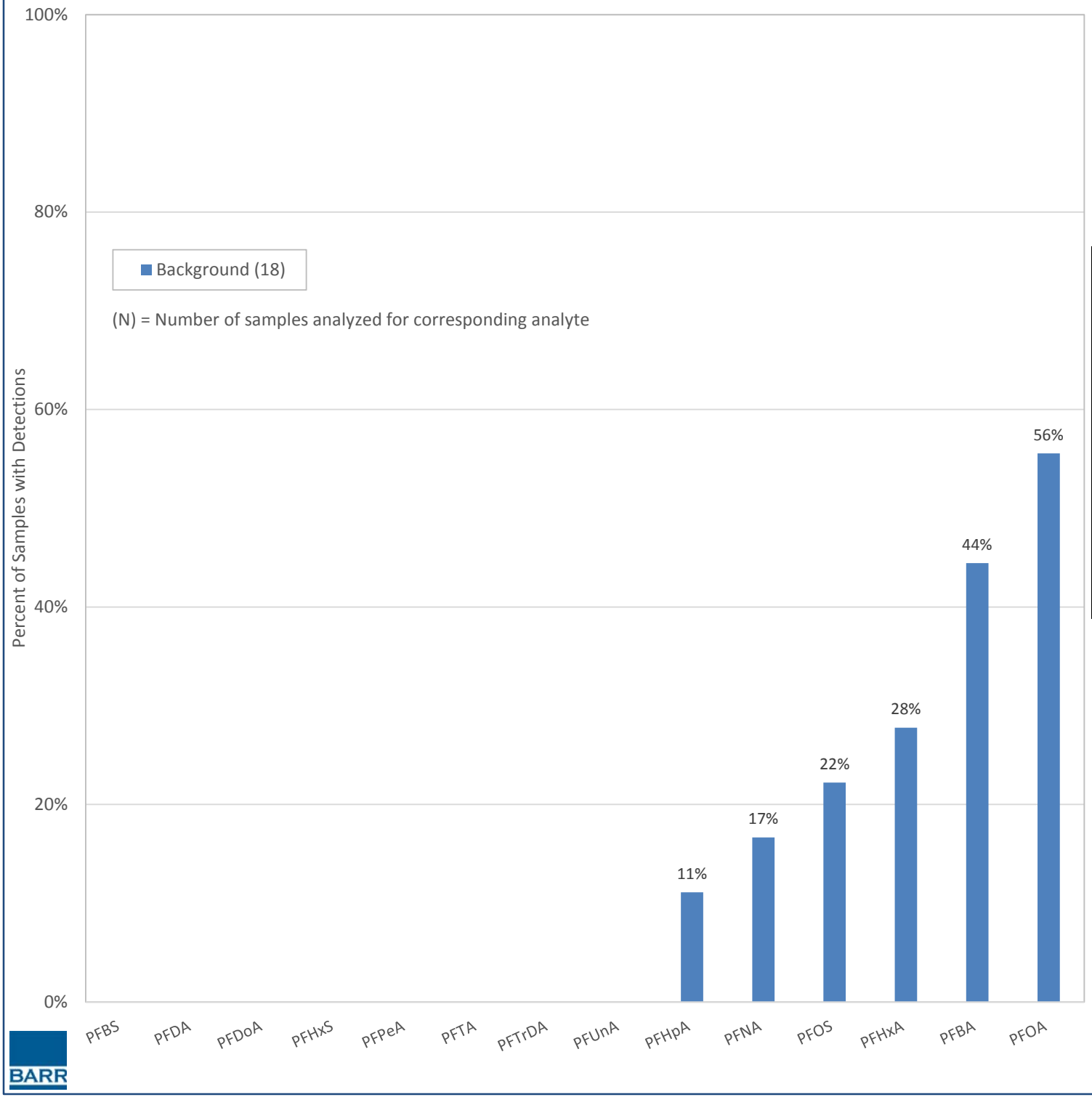
BACKGROUND SOIL SAMPLE RESULTS: TOTAL ORGANIC CARBON CSM SITE INVESTIGATION

Bennington, VT
Saint-Gobain

FIGURE 3.4

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 14:29 File: I:\Client\Saint-Gobain\North Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180\Figure 3_04 Background Soil Sample Results - TOC.mxd User: sal2



PFAS Analyte		Range (ng/g)
PFBS	Perfluorobutane sulfonate	< 0.21 - < 0.37
PFDA	Perfluorodecanoic acid	< 0.21 - < 0.37
PFDoA	Perfluorododecanoic acid	< 0.21 - < 0.37
PFHxS	Perfluorohexane sulfonate	< 0.21 - < 0.37
PFPeA	Perfluoropentanoic acid	< 0.21 - < 0.37
PFTA	Perfluorotetradecanoic acid	< 0.21 - < 0.37
PFTrDA	Perfluorotridecanoic acid	< 0.21 - < 0.37
PFUnA	Perfluoroundecanoic acid	< 0.21 - < 0.37
PFHpA	Perfluoroheptanoic acid	< 0.21 - 0.76
PFNA	Perfluorononanoic acid	< 0.10 - 0.49
PFOS	Perfluorooctanesulfonic acid	< 0.31 - 1.1
PFHxA	Perfluorohexanoic acid	< 0.10 - 0.52
PFBA	Perfluorobutanoic acid	< 0.21 - 0.81
PFOA	Perfluorooctanoic acid	< 0.21 - 7.2

FREQUENCY OF PFAS DETECTIONS
IN BACKGROUND SOIL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.5

BARR

PFOA (ng/g) *
- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Non Detect **

Sampling Interval
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.15 - 0.89 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

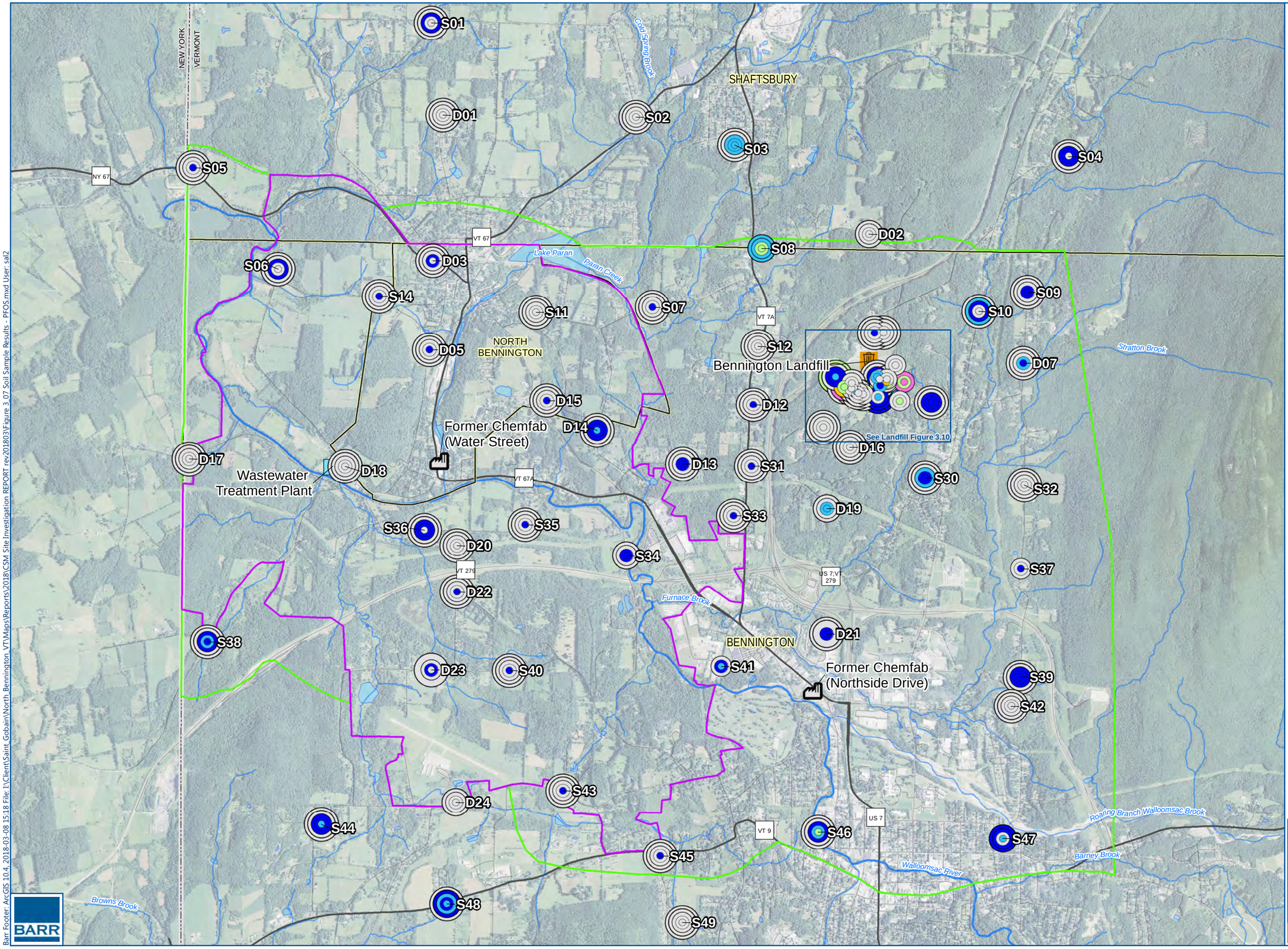
0 3,000
Feet

SOIL SAMPLE RESULTS:
PFOA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.6

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 14:36 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 3_06 Soil Sample Results - PFOA.mxd User: sal2



PFOS (ng/g) *

- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Non Detect **

Sampling Interval

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.21 - 6.6 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 3,000

Feet

SOIL SAMPLE RESULTS: PFOS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.7

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 15:18 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180308\Figure 3_07 Soil Sample Results - PFOS.mxd User: sal2

S01
D01
S02
S03
S04
S05
D02
S08
D03
S06
S14
S11
S07
S09
S10
S12
D05
D07
D15
D12
D14
D16
S31
D13
D17
D18
S30
S32
D19
S33
S35
S36
D20
S34
S37
D22
S38
D21
D23
S40
S41
S39
S42
S43
D24
S44
S46
S47
S45
S48
S49

NEW YORK
VERMONT
SHAFTSBURY
Cold Spring Brook
NY 67
VT 67
Lake Paran
Paran Creek
VT 7A
NORTH
BENNINGTON
Bennington Landfill
Stratton Brook
See Landfill Figure 3.11
Former Chemfab
(Water Street)
Wastewater
Treatment Plant
VT 67A
VT 279
US 7;VT
279
Furnace Brook
BENNINGTON
Former Chemfab
(Northside Drive)
US 7
VT 9
Roaring Branch Walloomsac Brook
Barney Brook
Walloomsac River
Browns Brook

TOC (mg/kg)
- > 50,000.1
- 25,000.1 - 50,000
- 10,000.1 - 25,000
- 5,000.1 - 10,000
- < 5,000
- Non Detect

Sampling Interval
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

Factory
Wastewater Treatment Plant
Landfill
Corrective Action Area I
Corrective Action Area II
Village/Township Boundary
State Boundary

* Non Detect value ranges from 137 - 317 mg/kg.

** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

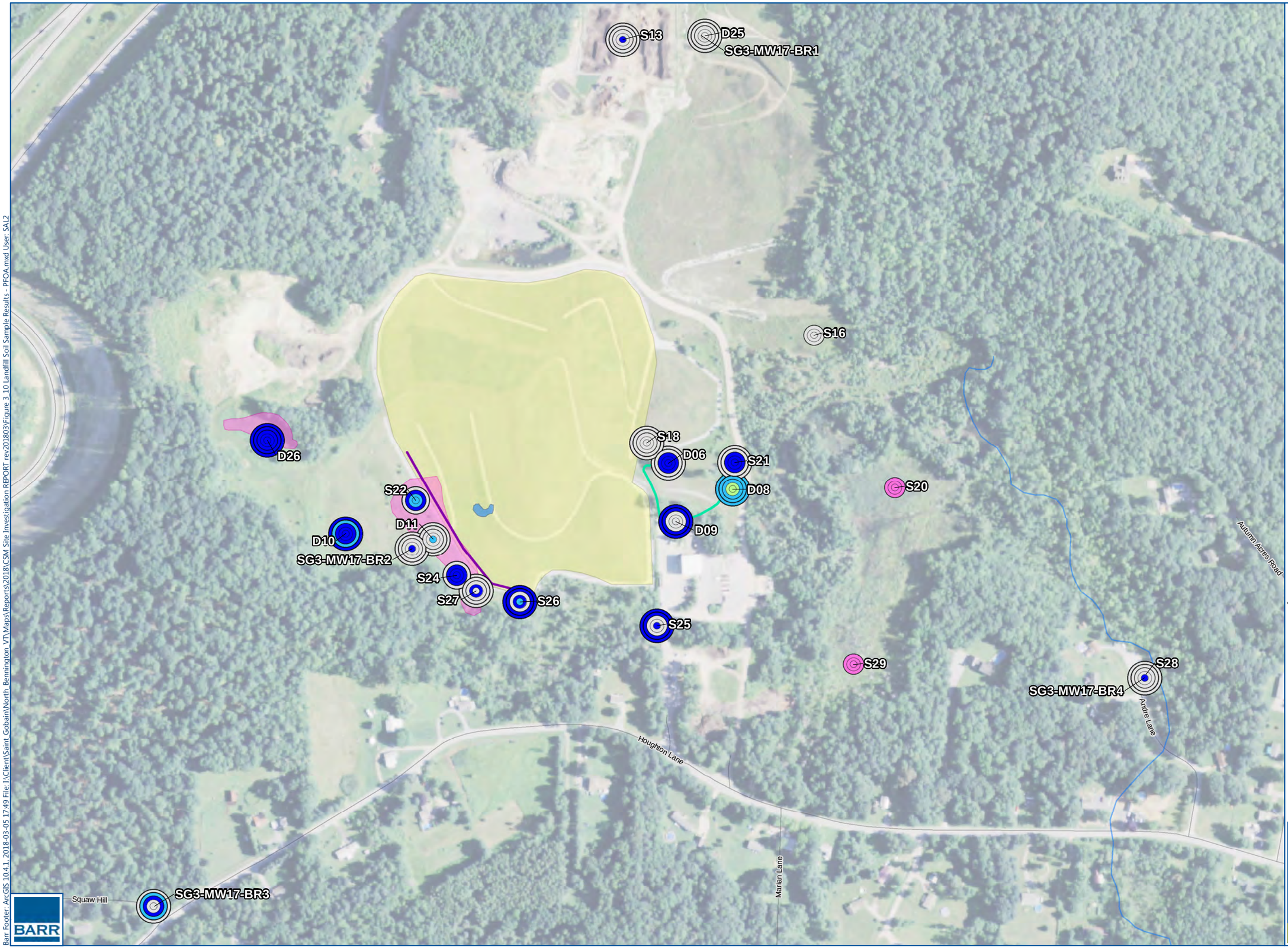
0 3,000
Feet

SOIL SAMPLE RESULTS:
TOTAL ORGANIC CARBON
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.8

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 15:28 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 3_08 Soil Sample Results - TOC.mxd User: sal2



PFOA (ng/g) *

- < 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Non Detect **

Sampling Interval

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

- Upgradient Groundwater Isolation Trench
- Historical Leachate Collection System
- Buried Lagoon (Approx.)
- Historical Leachate Treatment System (Approx.)
- Historical Sludge Storage (Approx.)
- Landfill Cap

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.15 - 0.23 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 300

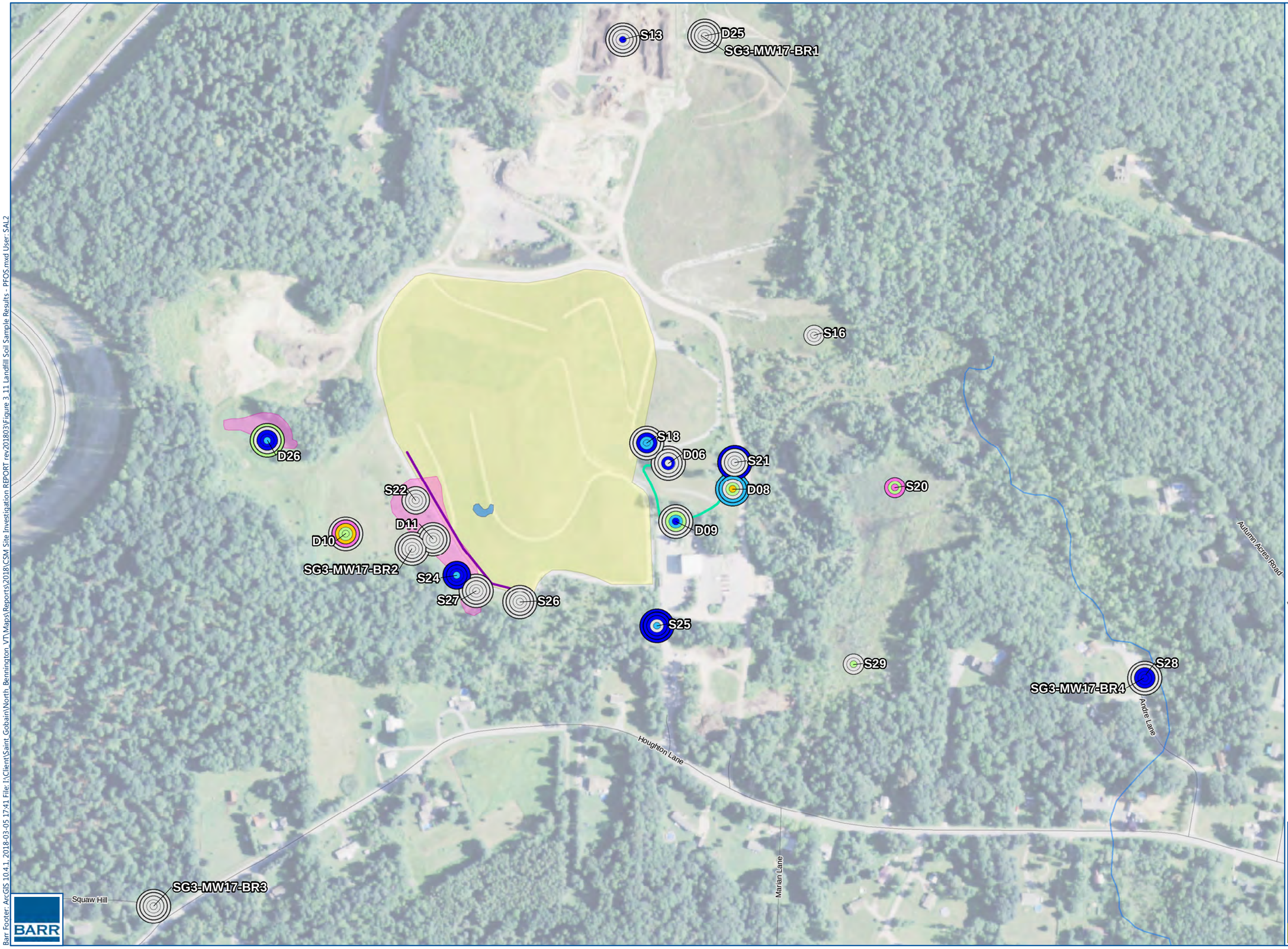
Feet

LANDFILL SOIL SAMPLE RESULTS: PFOA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.9

BARR

Barr Footer: ArcGIS 10.4.1, 2018-03-05 17:49 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\201803\Figure 3_10 Landfill Soil Sample Results - PFOA.mxd User: SAL2

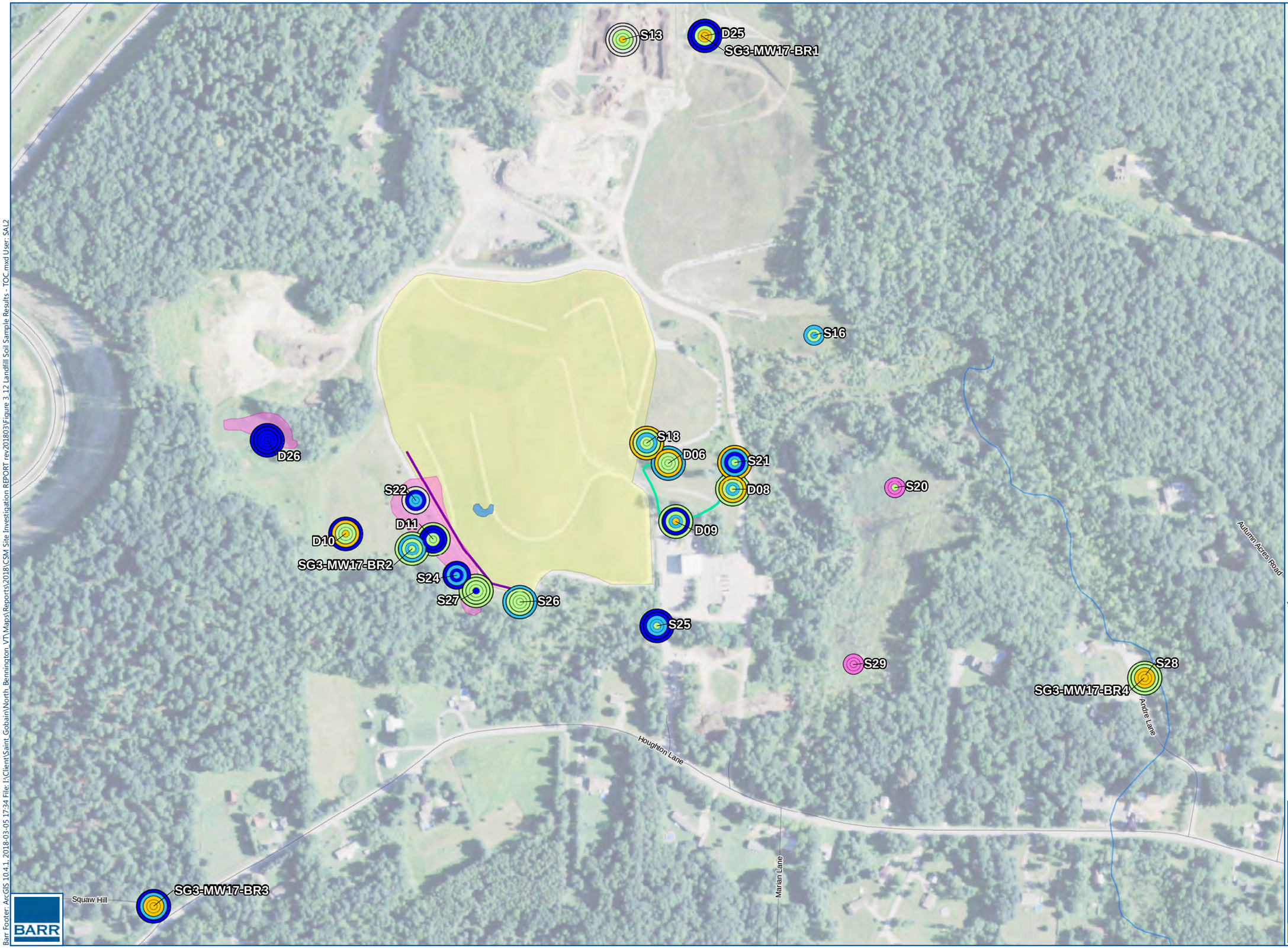


LANDFILL SOIL SAMPLE RESULTS: PFOS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.10

BARR

Barr Footer: ArcGIS 10.4.1, 2018-03-05 17:41 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180303\Figure 3_11 Landfill Soil Sample Results - PFOS.mxd User: SAL2



TOC (mg/kg)

- > 50,000.1
- 25,000.1 - 50,000
- 10,000.1 - 25,000
- 5,000.1 - 10,000
- < 5,000
- Non Detect *

Sampling Interval

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

- Upgradient Groundwater Isolation Trench
- Historical Leachate Collection System
- Buried Lagoon (Approx.)
- Historical Leachate Treatment System (Approx.)
- Historical Sludge Storage (Approx.)
- Landfill Cap

* Non Detect value ranges from 281 - 293 mg/kg.

** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 300

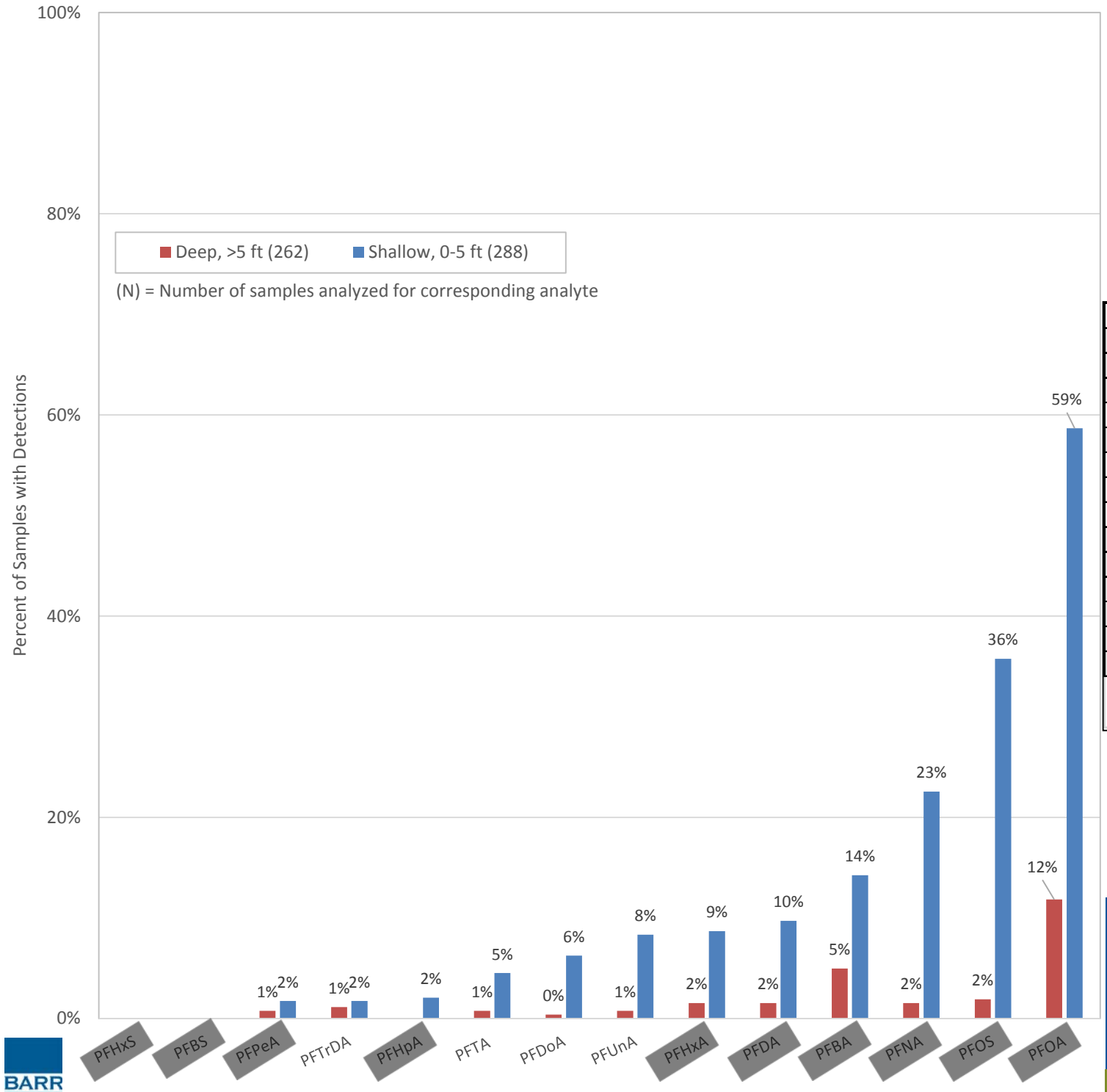
Feet

LANDFILL SOIL SAMPLE RESULTS: TOTAL ORGANIC CARBON CSM SITE INVESTIGATION Bennington, VT Saint-Gobain

FIGURE 3.11

BARR

Barr Footer: ArcGIS 10.4.1, 2018-03-05 17:34 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180303\Figure 3_12 Landfill Soil Sample Results - TOC.mxd User: SAL2



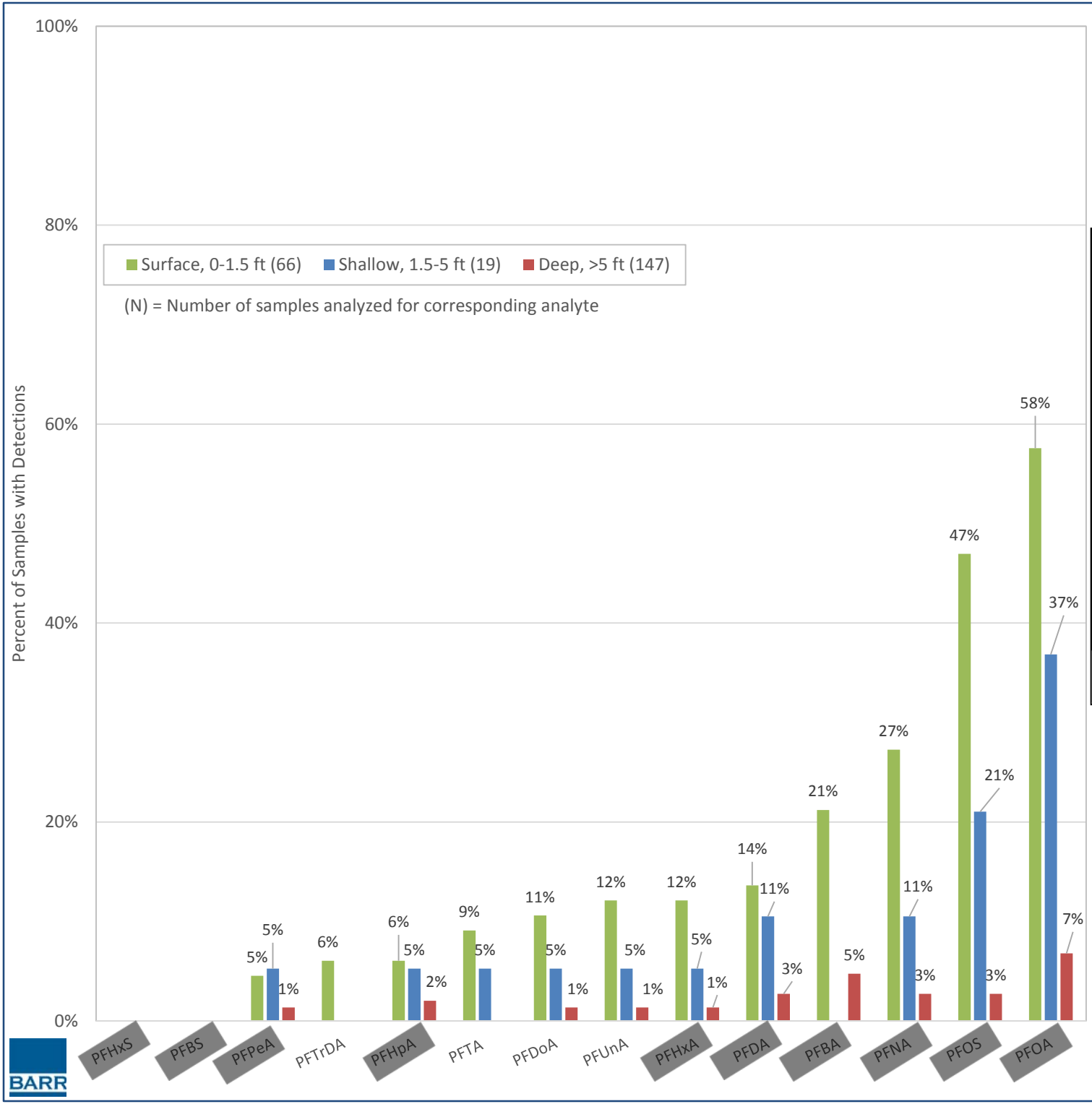
PFAS Analyte		Range (ng/g)
Perfluorohexane sulfonate	PFHxS	<0.14 - <5.5
Perfluorobutane sulfonate	PFBS	<0.14 - <5.5
Perfluoropentanoic acid	PFPeA	<0.14 - 1.1
Perfluorotridecanoic acid	PFTrDA	<0.14 - 0.39
Perfluoroheptanoic acid	PFHpA	<0.14 - 10
Perfluorotetradecanoic acid	PFTA	<0.14 - 1.3
Perfluorododecanoic acid	PFDoA	<0.14 - 5.3
Perfluoroundecanoic acid	PFUnA	<0.14 - 1.6
Perfluorohexanoic acid	PFHxA	<0.070 - 7.1
Perfluorodecanoic acid	PFDA	<0.14 - 17
Perfluorobutanoic acid	PFBA	<0.14 - 6.0
Perfluorononanoic acid	PFNA	<0.071 - 4.1
Perfluorooctanesulfonic acid	PFOS	<0.21 - 17
Perfluorooctanoic acid	PFOA	<0.15 - 130

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

Data source CSM Site Investigation. Background location samples are not included in plotted values.

FREQUENCY OF PFAS DETECTIONS IN SOIL BY DEPTH – LANDFILL AND NON-LANDFILL CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.12



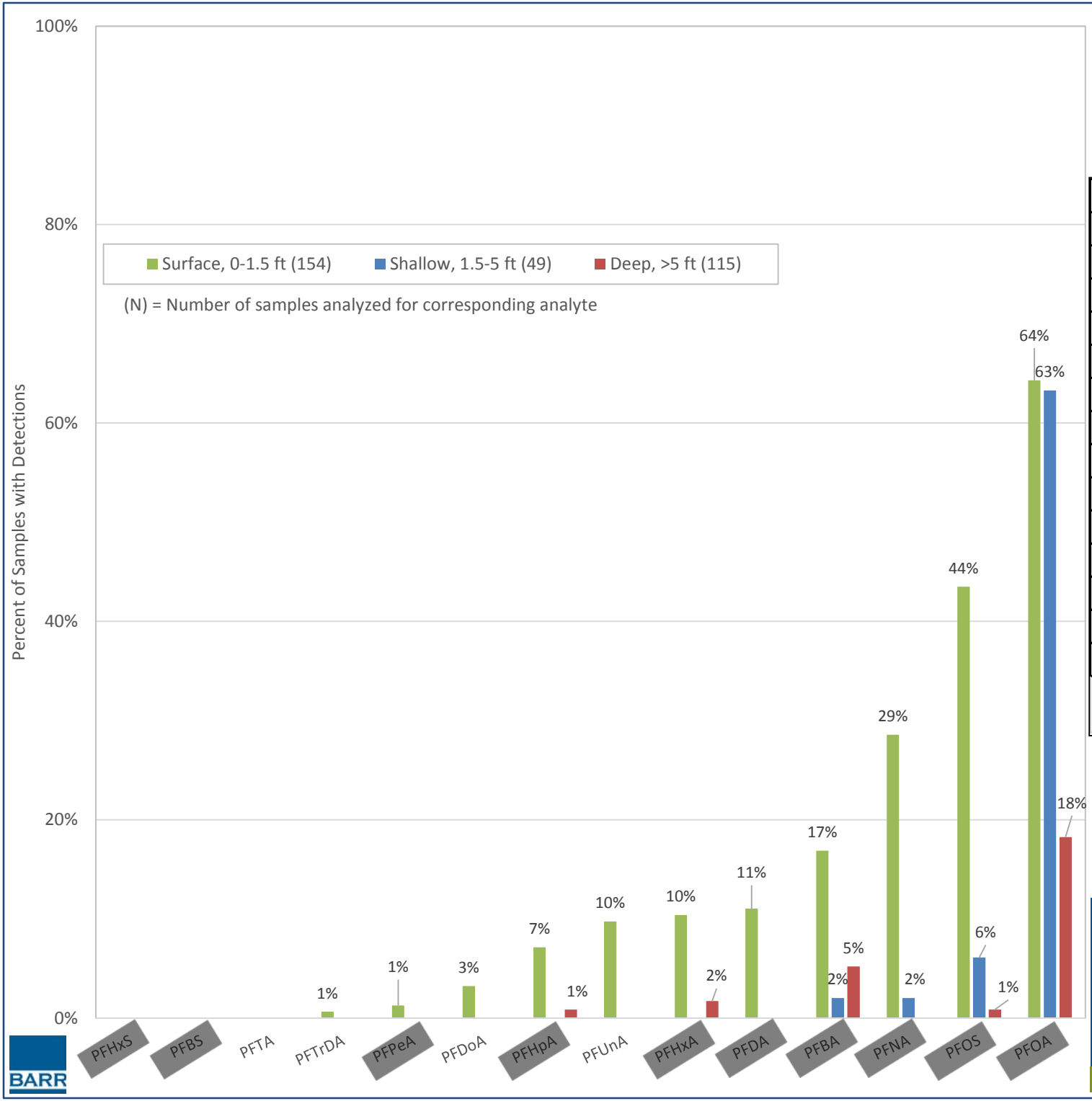
PFAS Analyte		Range (ng/g)
Perfluorohexane sulfonate	PFHxS	<0.14 - <5.5
Perfluorobutane sulfonate	PFBS	<0.14 - <5.5
Perfluoropentanoic acid	PFPeA	<0.14 - 1.1
Perfluorotridecanoic acid	PFTrDA	<0.14 - 0.39
Perfluoroheptanoic acid	PFHpA	<0.14 - 10
Perfluorotetradecanoic acid	PFTA	<0.14 - 1.3
Perfluorododecanoic acid	PFDoA	<0.14 - 5.3
Perfluoroundecanoic acid	PFUnA	<0.14 - 1.6
Perfluorohexanoic acid	PFHxA	<0.070 - 7.1
Perfluorodecanoic acid	PFDA	<0.14 - 17
Perfluorobutanoic acid	PFBA	<0.14 - 6.0
Perfluorononanoic acid	PFNA	<0.071 - 4.1
Perfluorooctanesulfonic acid	PFOS	<0.21 - 17
Perfluorooctanoic acid	PFOA	<0.15 - 130

Shaded cells represent detections in the Bennington Landfill leachate vault samples (VLT-01).

BARR

FREQUENCY OF PFAS DETECTIONS IN SOIL BY DEPTH - LANDFILL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.13



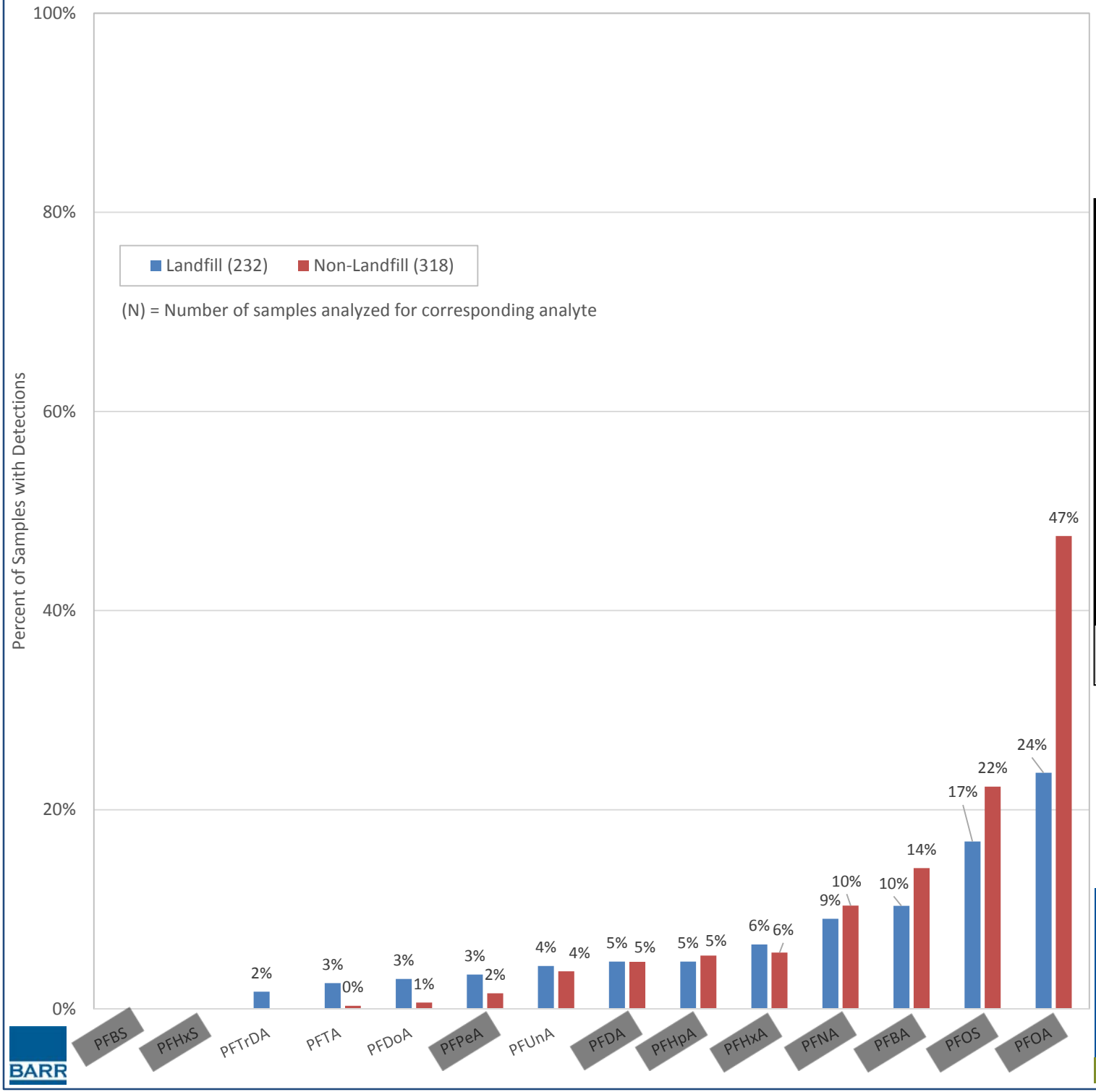
PFAS Analyte		Range (ng/g)
Perfluorohexane sulfonate	PFHxS	<0.14 - <5.5
Perfluorobutane sulfonate	PFBS	<0.14 - <5.5
Perfluorotetradecanoic acid	PFTA	<0.14 - 1.3
Perfluorotridecanoic acid	PFTrDA	<0.14 - 0.39
Perfluoropentanoic acid	PFPeA	<0.14 - 1.1
Perfluorododecanoic acid	PFDoA	<0.14 - 5.3
Perfluoroheptanoic acid	PFHpA	<0.14 - 10
Perfluoroundecanoic acid	PFUnA	<0.14 - 1.6
Perfluorohexanoic acid	PFHxA	<0.070 - 7.1
Perfluorodecanoic acid	PFDA	<0.14 - 17
Perfluorobutanoic acid	PFBA	<0.14 - 6.0
Perfluorononanoic acid	PFNA	<0.071 - 4.1
Perfluorooctanesulfonic acid	PFOS	<0.21 - 17
Perfluorooctanoic acid	PFOA	<0.15 - 130

Shaded cells represent detections in the Bennington Landfill leachate vault samples (VLT-01).

Data source CSM Site Investigation. Non-Landfill area category does not include samples from Background locations.

FREQUENCY OF PFAS DETECTIONS IN SOIL BY DEPTH – NON-LANDFILL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.14



PFAS Analyte		Range (ng/g)
Perfluorobutane sulfonate	PFBS	<0.14 - <1.1
Perfluorohexane sulfonate	PFHxS	<0.14 - <1.1
Perfluorotridecanoic acid	PFTrDA	<0.14 - 0.39
Perfluorotetradecanoic acid	PFTA	<0.14 - 1.3
Perfluorododecanoic acid	PFDoA	<0.14 - 5.3
Perfluoropentanoic acid	PFPeA	<0.14 - 1.1
Perfluoroundecanoic acid	PFUnA	<0.14 - 1.6
Perfluorodecanoic acid	PFDA	<0.14 - 17
Perfluoroheptanoic acid	PFHpA	<0.14 - 10
Perfluorohexanoic acid	PFHxA	<0.070 - 7.1
Perfluorononanoic acid	PFNA	<0.071 - 4.1
Perfluorobutanoic acid	PFBA	<0.14 - 6.0
Perfluorooctanesulfonic acid	PFOS	<0.21 - 17
Perfluorooctanoic acid	PFOA	<0.15 - 130

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

Data source CSM Site Investigation. Non-Landfill area category does not include samples from Background locations.

FREQUENCY OF PFAS DETECTIONS IN SOIL BY AREA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.15

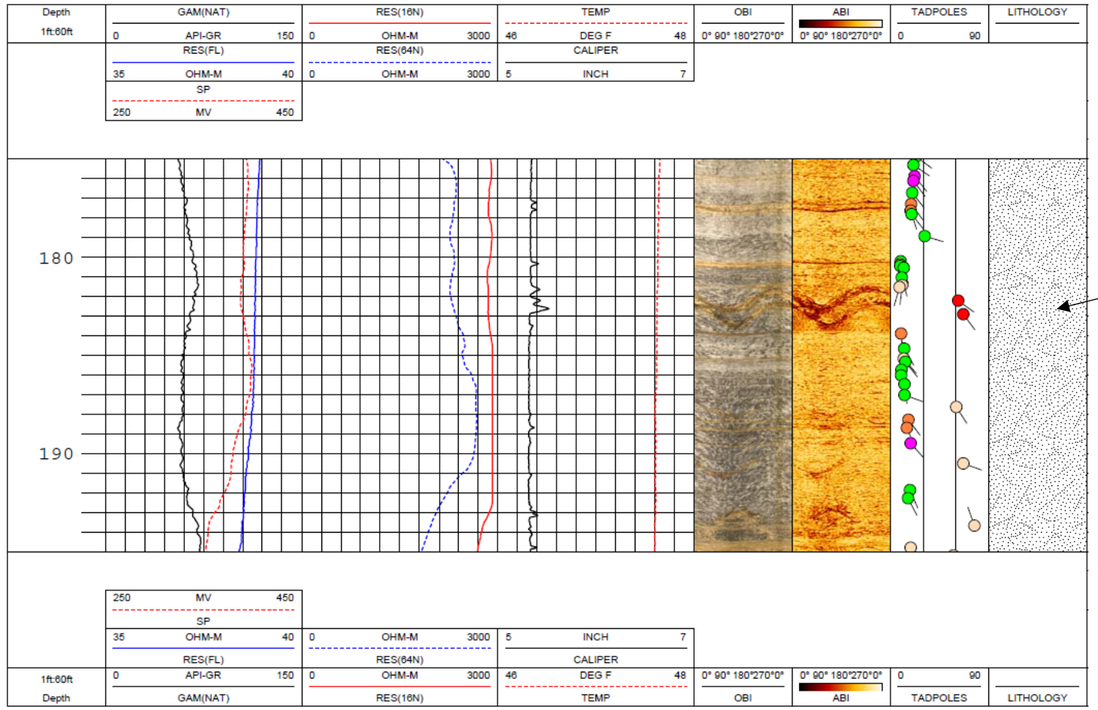
LANDFILL INVESTIGATION
LOCATIONS AND PRIMARY
BEDROCK JOINT
ORIENTATIONS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.16

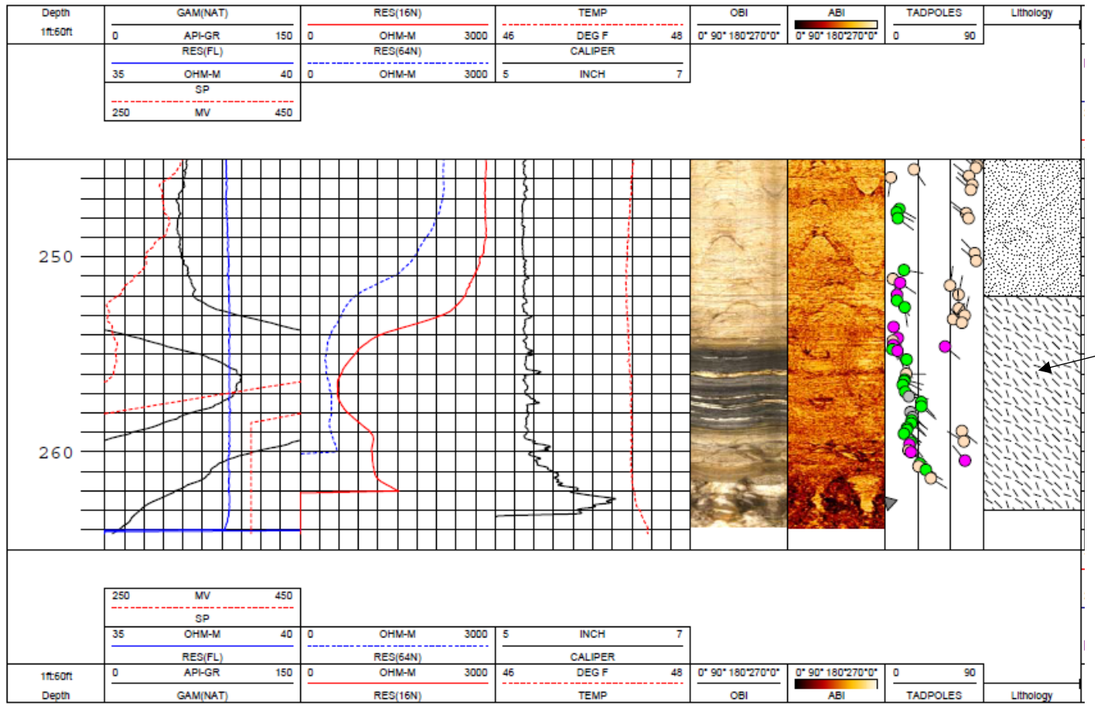
BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:53 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\201803\Figure 3_16 Landfill Investigation Locations and Primary Bedrock Joint Orientations.mxd User: sal2

SG3-MW17-BR2



SG3-MW17-BR2

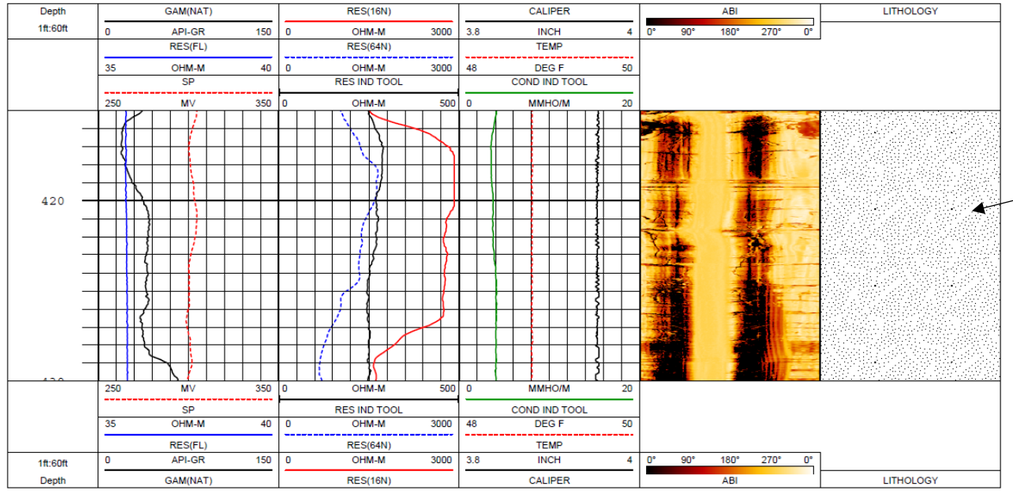


GEOPHYSICAL SIGNATURES OF BEDROCK LITHOLOGY: SG3-MW17-BR2
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

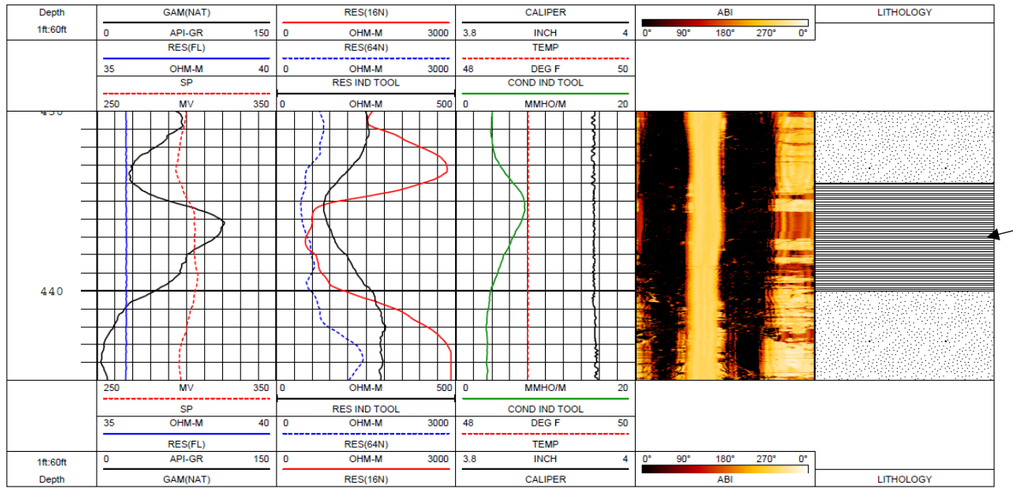
FIGURE 3.17

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Support\Figure 3-16A.ai

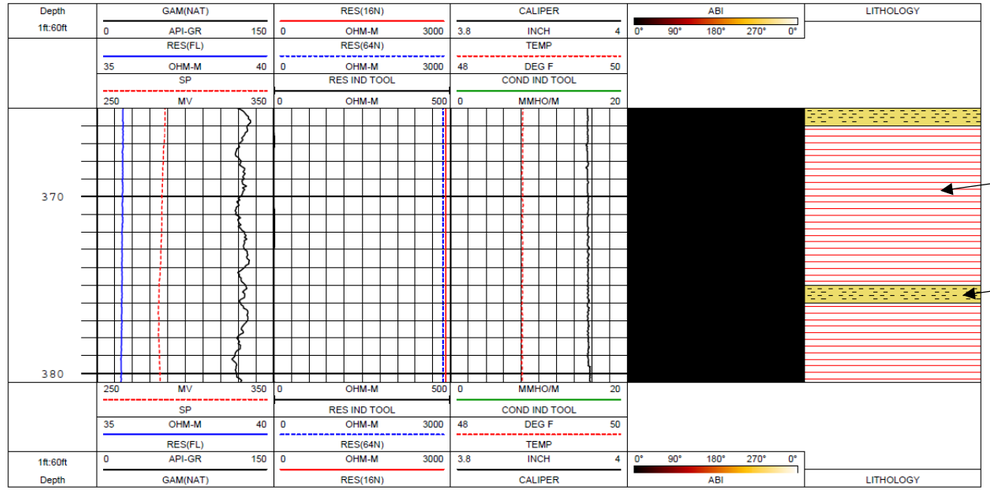
SG3-MW17-BR4



Quartzite



Phyllite



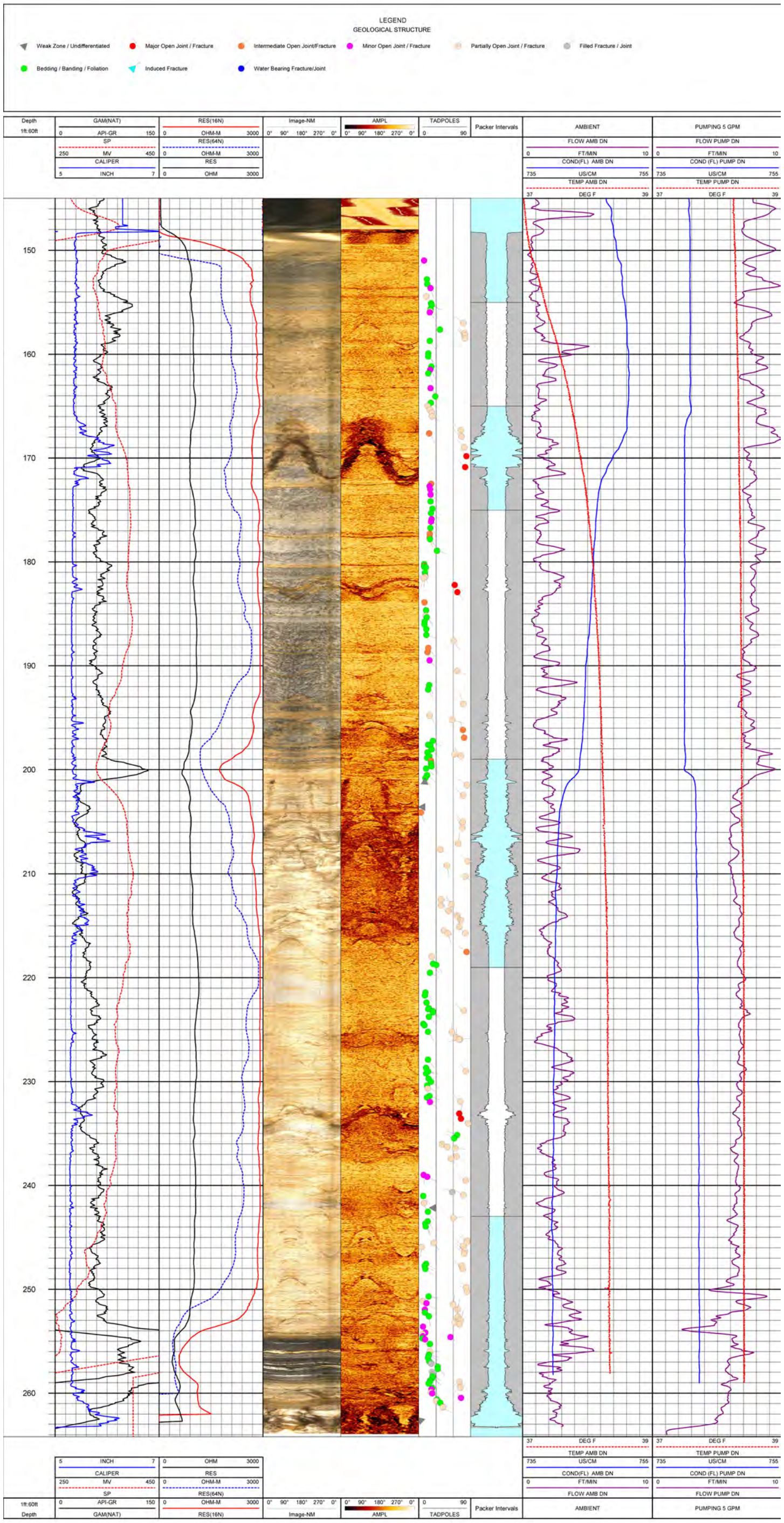
Ocher

Kaolin

GEOPHYSICAL SIGNATURES OF BEDROCK LITHOLOGY: SG3-MW17-BR4
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.18

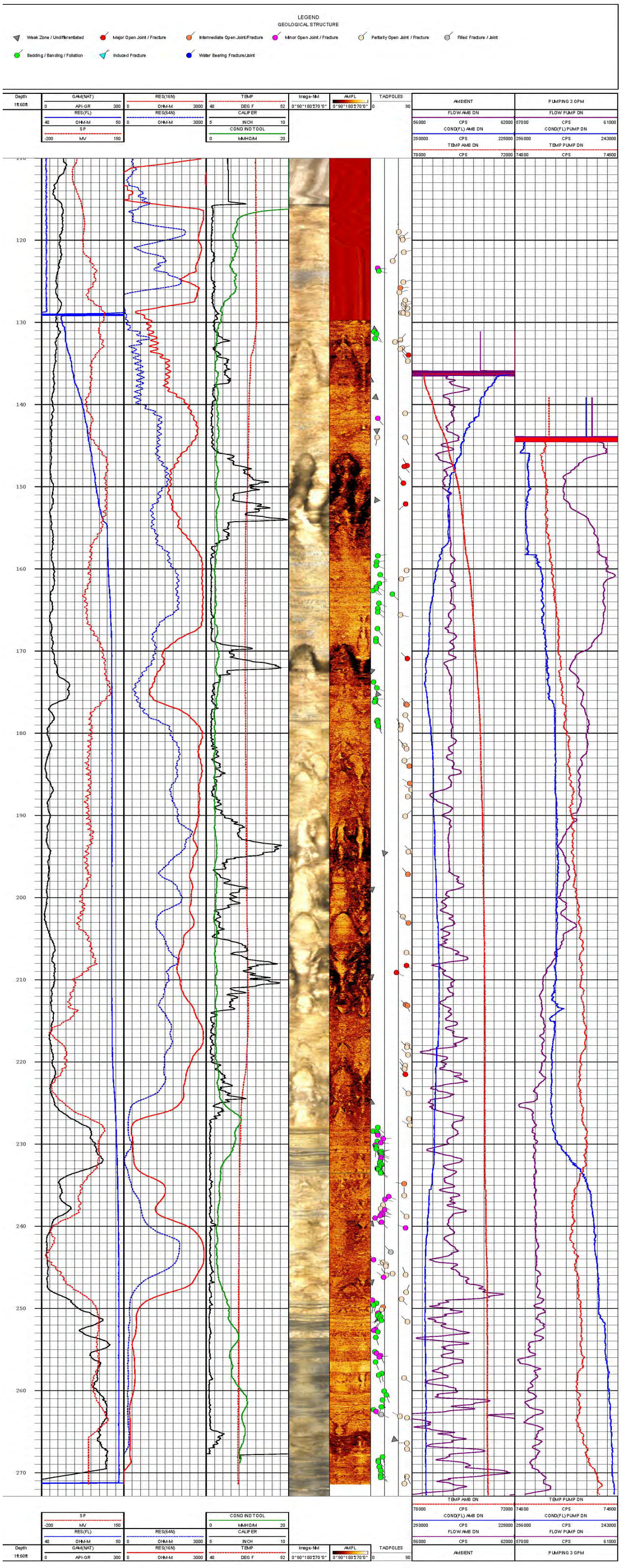
Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Support\Figure 3-16B.ai



More Hydraulically Active Interval

HYDRAULICALLY ACTIVE INTERVALS: SG3-MW17-BR2
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

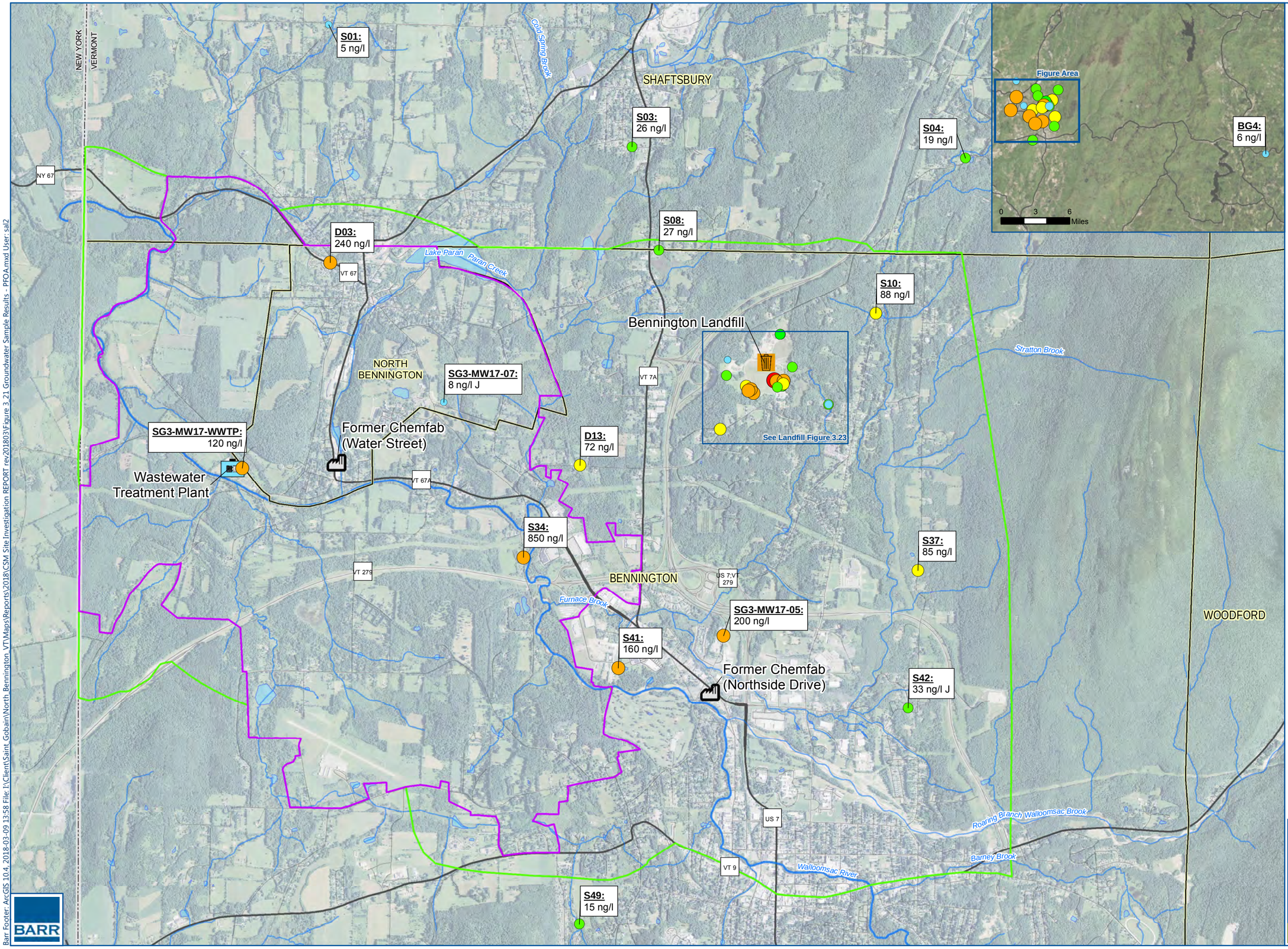
FIGURE 3.19



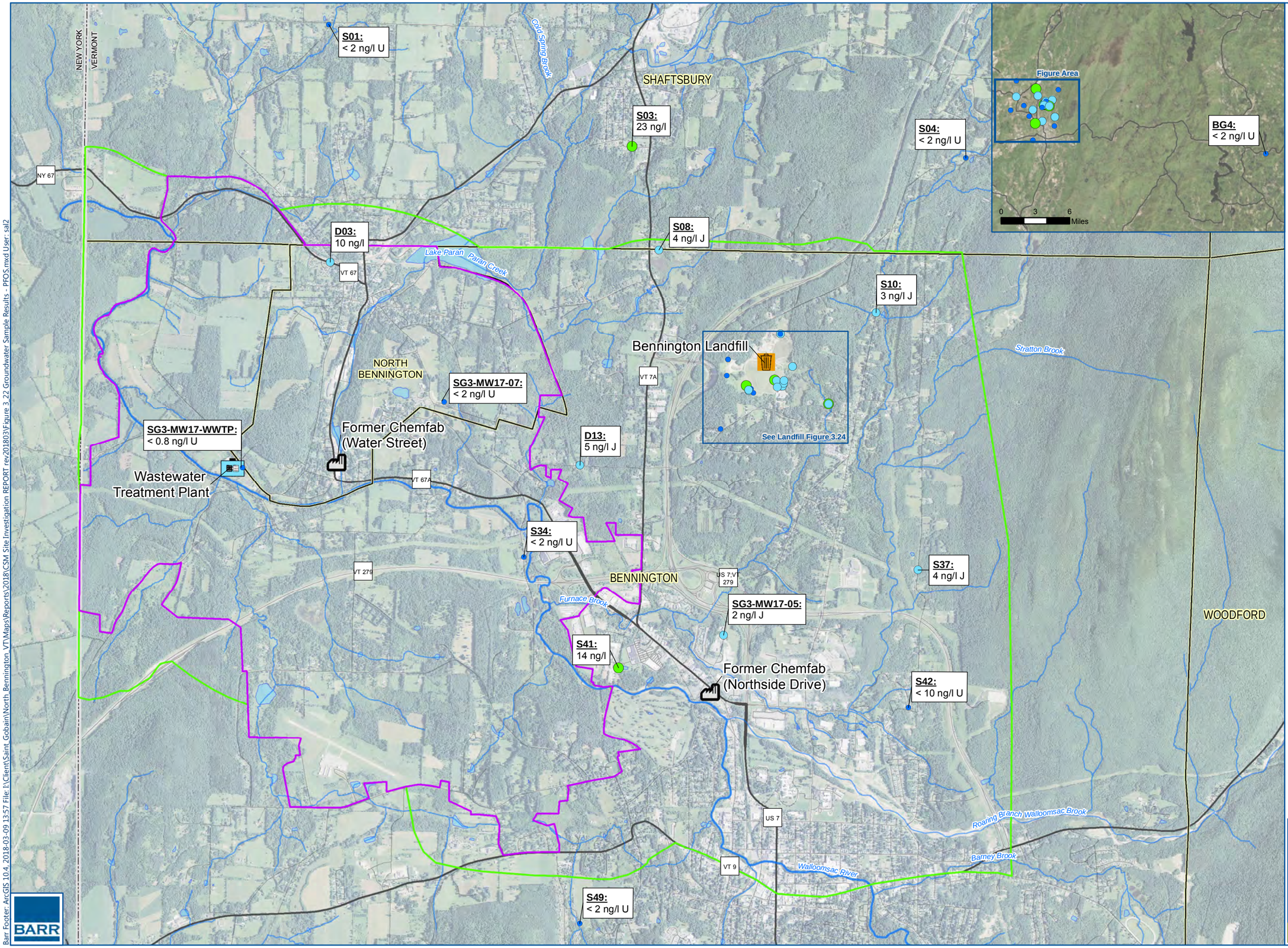
More Hydraulically Active Interval

HYDRAULICALLY ACTIVE INTERVALS: SG3-MW17-BR3
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.20



Barr Footer: ArcGIS 10.4, 2018-03-09 13:58 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180301\Figure 3_21 Groundwater Sample Results - PFOA.mxd User: sal2



* ng/l = parts per trillion (ppt)

Data Qualifiers:
J: The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
U: The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).

Temporary and Permanent Wells:
Shallow unconsolidated groundwater samples collected from temporary wells ("S#").

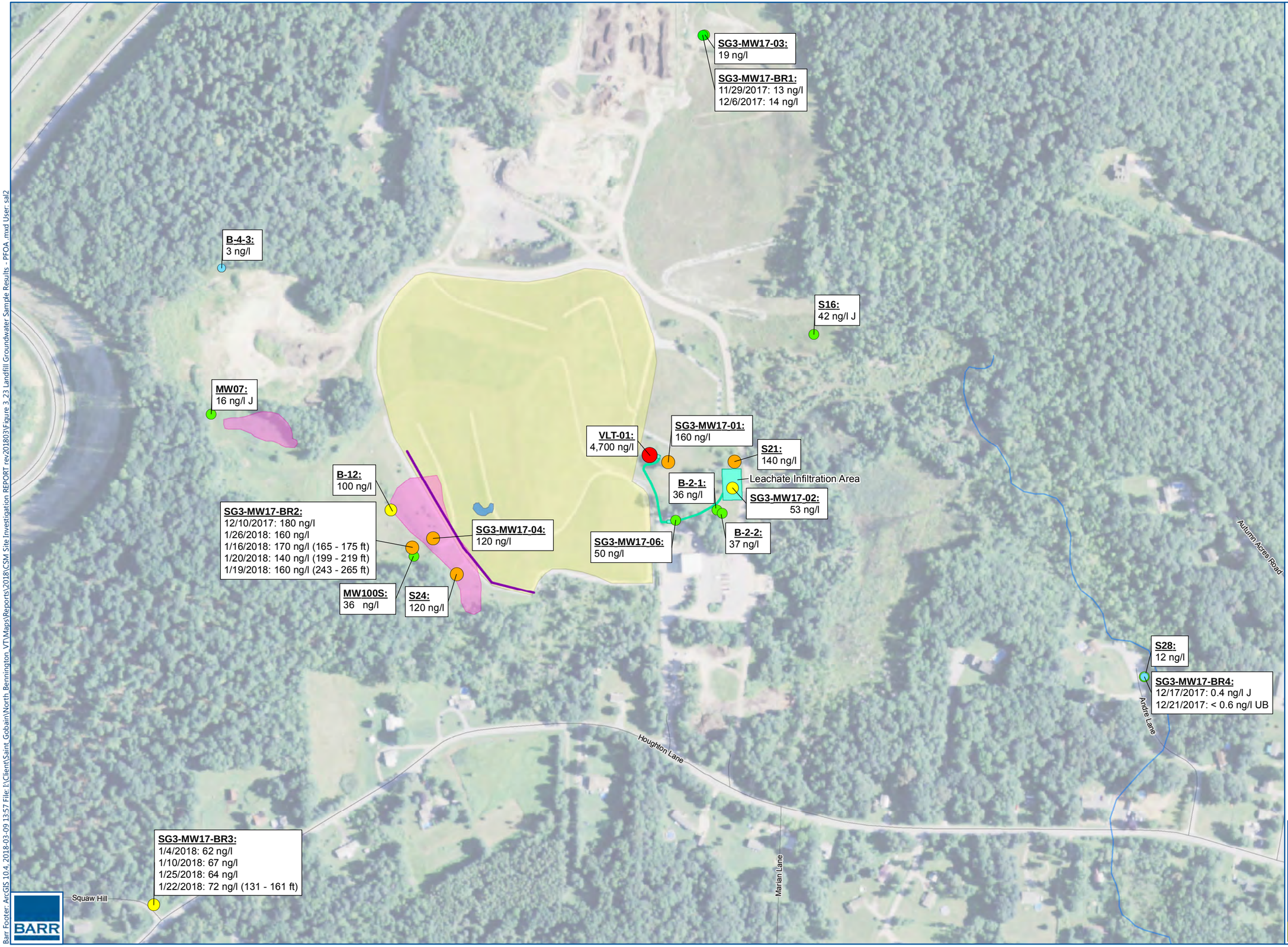
Deep unconsolidated groundwater samples collected from temporary ("D#") and permanent ("SG3-MW17-#") wells.

Bedrock groundwater samples collected from permanent wells ("SG3-MW17-BR#" or "B-#-#").

GROUNDWATER SAMPLE RESULTS: PFOS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.22

Barr Footer: ArcGIS 10.4, 2018-03-09 13:57 File: J:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 3_22 Groundwater Sample Results - PFOS.mxd User: sal2



PFOA (ng/l) *

- > 1000
- 100 - 1000
- 50 - 100
- 10 - 50
- < 10
- Non Detect
- Upgradient Groundwater Isolation Trench
- Historical Leachate Collection System
- Buried Lagoon (Approx.)
- Historical Leachate Treatment System (Approx.)
- Historical Sludge Storage (Approx.)
- Landfill Cap

* ng/l = parts per trillion (ppt)

Data Qualifiers:
J: The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
UB: The analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Temporary and Permanent Wells:
Shallow unconsolidated groundwater samples collected from temporary wells ("S#").

Deep unconsolidated groundwater samples collected from temporary ("D#") and permanent ("SG3-MW17-#") wells.

Bedrock groundwater samples collected from permanent wells ("SG3-MW17-BR#" or "B-#-#").

N

0 300

Feet

LANDFILL GROUNDWATER SAMPLE RESULTS: PFOA CSM SITE INVESTIGATION Bennington, VT Saint-Gobain

FIGURE 3.23

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:57 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 3_23 Landfill Groundwater Sample Results - PFOA.mxd User: sal2

SG3-MW17-03:
3 ng/l J

SG3-MW17-BR1:
11/29/2017: < 0.7 ng/l U
12/6/2017: < 0.4 ng/l U

B-4-3:
< 0.7 ng/l U

S16:
2 ng/l J

MW07:
< 2 ng/l U

VLT-01:
35 ng/l J

SG3-MW17-01:
7 ng/l

S21:
8 ng/l

B-12:
11 ng/l J

Leachate Infiltration Area

B-2-1:
6 ng/l J

SG3-MW17-02:
5 ng/l

SG3-MW17-BR2:
12/10/2017: 3 ng/l J
1/26/2018: 2 ng/l J
1/16/2018: 1 ng/l JN (165 - 175 ft)
1/20/2018: 0.9 ng/l J (199 - 219 ft)
1/19/2018: 2 ng/l J (243 - 265 ft)

SG3-MW17-04:
< 2 ng/l U

SG3-MW17-06:
3 ng/l J

B-2-2:
6 ng/l J

MW100S:
4 ng/l J

S24:
< 2 ng/l U

S28:
12 ng/l

SG3-MW17-BR4:
12/17/2017: < 0.4 ng/l U
12/21/2017: < 1 ng/l UB

SG3-MW17-BR3:
1/4/2018: < 0.4 ng/l U
1/10/2018: < 0.4 ng/l U
1/25/2018: < 0.4 ng/l U
1/22/2018: < 0.4 ng/l U (131 - 161 ft)

Houghton Lane
Marian Lane
Andre Lane
Autumn Acres Road
Squaw Hill

PFOS (ng/l) *
- > 1000
- 100 - 1000
- 50 - 100
- 10 - 50
- < 10
- Non Detect
- Upgradient Groundwater Isolation Trench
- Historical Leachate Collection System
- Buried Lagoon (Approx.)
- Historical Leachate Treatment System (Approx.)
- Historical Sludge Storage (Approx.)
- Landfill Cap

* ng/l = parts per trillion (ppt)

Data Qualifiers:
J: The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N: The analyte has been "tentatively identified" or considered "presumptively" present.
U: The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
UB: The analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.

Temporary and Permanent Wells:
Shallow unconsolidated groundwater samples collected from temporary wells ("S#").

Deep unconsolidated groundwater samples collected from temporary ("D#") and permanent ("SG3-MW17-#") wells.

Bedrock groundwater samples collected from permanent wells ("SG3-MW17-BR#" or "B-#-#").

N

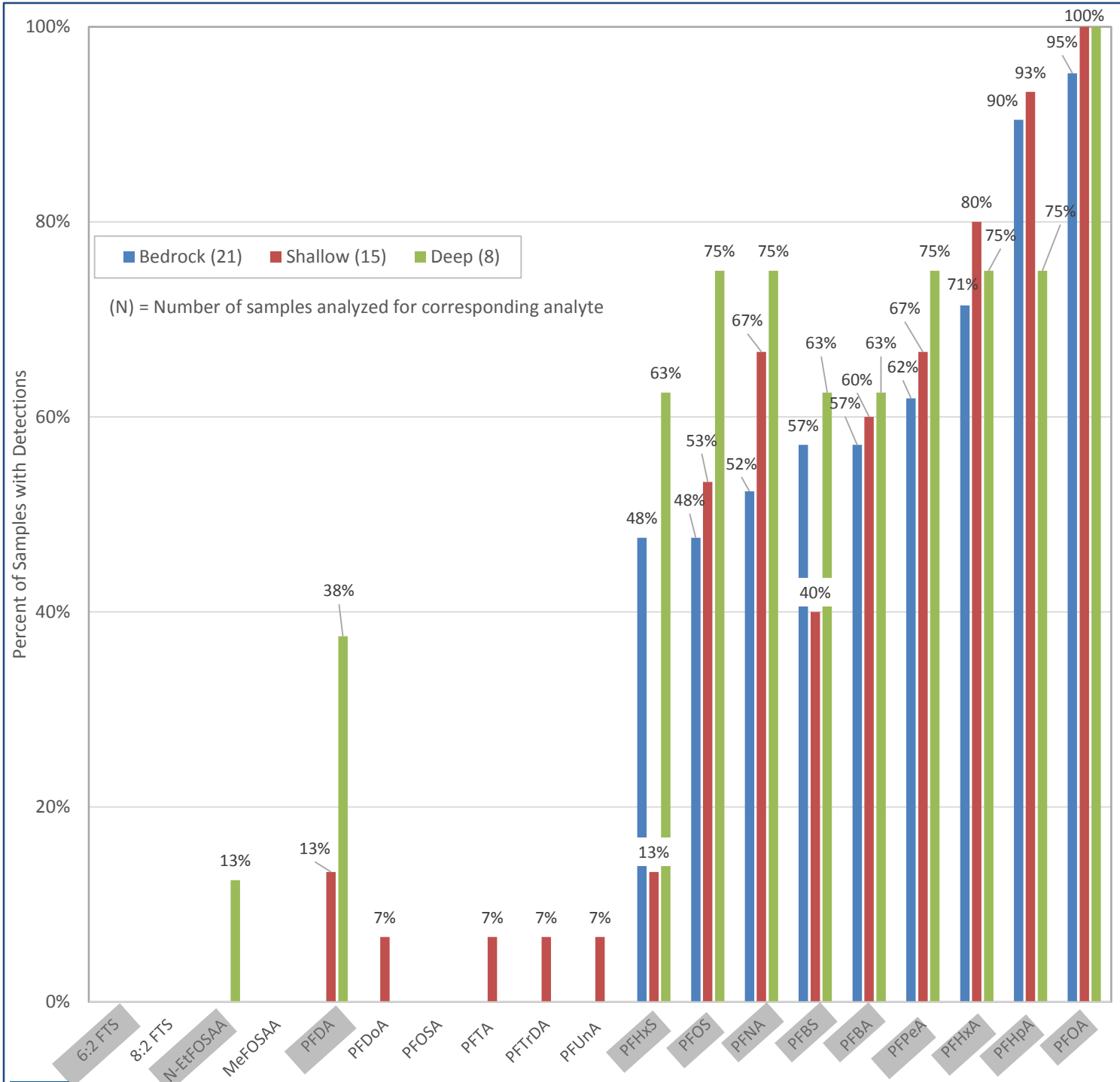
0 300
Feet

LANDFILL GROUNDWATER SAMPLE RESULTS: PFOS CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.24

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:56 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 3_24 Landfill Groundwater Sample Results - PFOS.mxd User: sal2



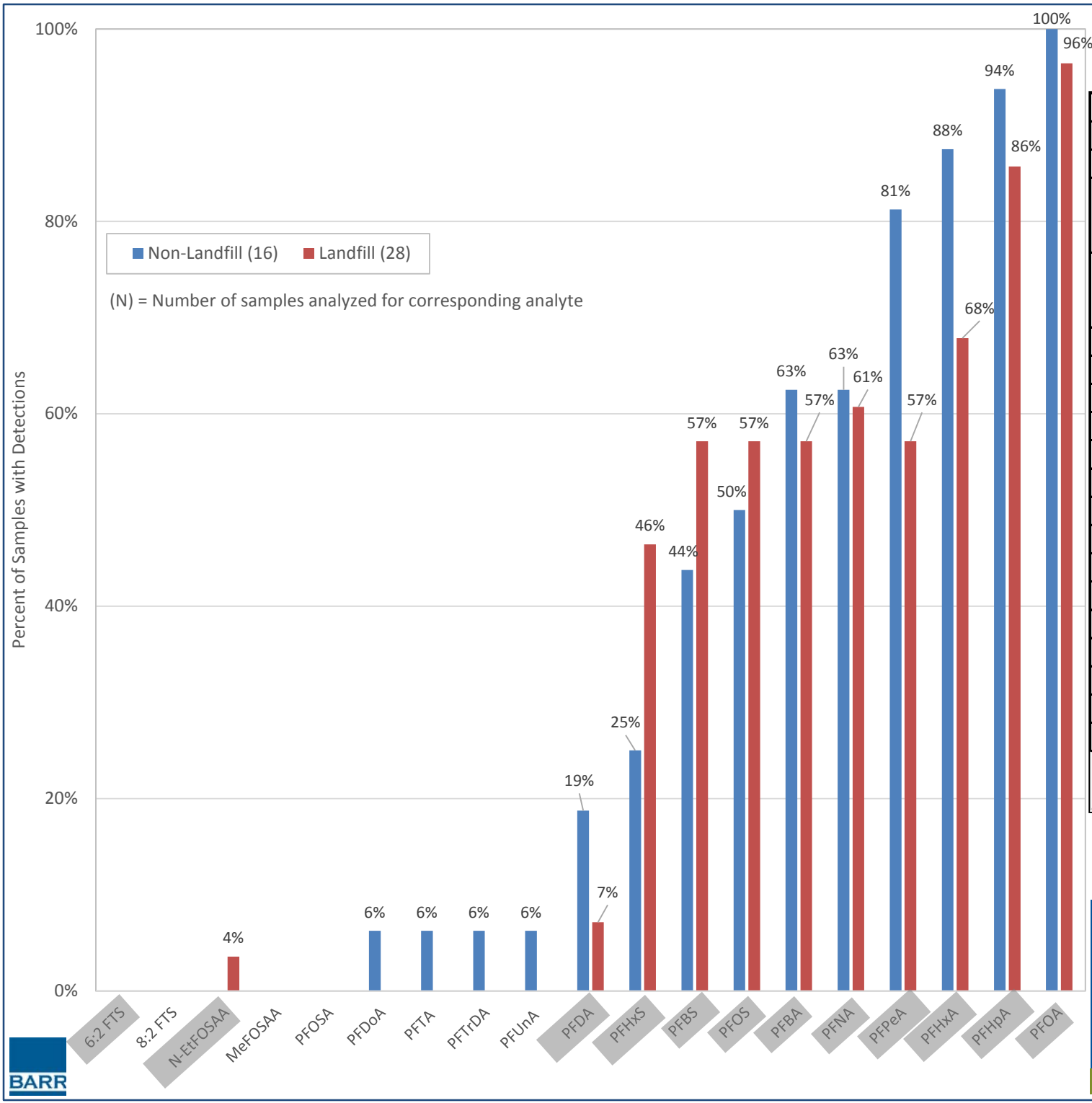
PFAS Analyte		Range (ng/l)
6:2 Fluorotelomer sulfonate	6:2 FTS	<3 - <20
8:2 Fluorotelomer sulfonate	8:2 FTS	<2 - <20
n-Ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	<0.4 - 0.6
n-Methyl perfluorooctanesulfonamidoacetic acid	MeFOSAA	<0.4 - <5
Perfluorodecanoic acid	PFDA	<0.4 - 63
Perfluorododecanoic acid	PFDoA	<0.3 - 6
Perfluorooctanesulfonamide	PFOSA	<0.3 - <20
Perfluorotetradecanoic acid	PFTA	<0.3 - 10
Perfluorotridecanoic acid	PFTrDA	<0.3 - 26
Perfluoroundecanoic acid	PFUnA	<0.4 - 18
Perfluorohexane sulfonate	PFHxS	<0.4 - 10
Perfluorooctanesulfonic acid	PFOS	<0.4 - 23
Perfluorononanoic acid	PFNA	<0.3 - 21
Perfluorobutane sulfonate	PFBS	<0.3 - 11
Perfluorobutanoic acid	PFBA	<2 - 280
Perfluoropentanoic acid	PFPeA	<0.3 - 250
Perfluorohexanoic acid	PFHxA	<0.3 - 77
Perfluoroheptanoic acid	PFHpA	<0.3 - 110
Perfluorooctanoic acid	PFOA	<0.6 - 4800

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

BARR

FREQUENCY OF PFAS DETECTIONS IN GROUNDWATER BY DEPTH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.25



PFAS Analyte		Range (ng/l)
6:2 Fluorotelomer sulfonate	6:2 FTS	<3 - <20
8:2 Fluorotelomer sulfonate	8:2 FTS	<2 - <20
n-Ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	<0.4 - 0.6
n-Methyl perfluorooctanesulfonamidoacetic acid	MeFOSAA	<0.4 - <5
Perfluorooctanesulfonamide	PFOSA	<0.3 - <20
Perfluorododecanoic acid	PFDoA	<0.3 - 6
Perfluorotetradecanoic acid	PFTA	<0.3 - 10
Perfluorotridecanoic acid	PFTrDA	<0.3 - 26
Perfluoroundecanoic acid	PFUnA	<0.4 - 18
Perfluorodecanoic acid	PFDA	<0.4 - 63
Perfluorohexane sulfonate	PFHxS	<0.4 - 10
Perfluorobutane sulfonate	PFBS	<0.3 - 11
Perfluorooctanesulfonic acid	PFOS	<0.4 - 23
Perfluorobutanoic acid	PFBA	<2 - 280
Perfluorononanoic acid	PFNA	<0.3 - 21
Perfluoropentanoic acid	PFPeA	<0.3 - 250
Perfluorohexanoic acid	PFHxA	<0.3 - 77
Perfluoroheptanoic acid	PFHpA	<0.3 - 110
Perfluorooctanoic acid	PFOA	<0.6 - 4800

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

BARR

FREQUENCY OF PFAS DETECTIONS IN GROUNDWATER BY AREA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.26

Well in Bedrock
Measured 1/9/2018

Well in Unconsolidated Materials *
Measured 11/2/2017
(Elevation label in italics)

Bedrock Static Water Level Contour
(50 ft contour interval)
(Kim and Dowey, 2017)

Former Chemfab Facility

Wastewater Treatment Plant

Bennington Landfill

Corrective Action Area I

Elevations in feet, NAVD88

* SG3-MW17-WWTP is completed in shallow, fractured quartzite immediately underlying unconsolidated materials.

Data sources include:
CSM Site Investigation

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

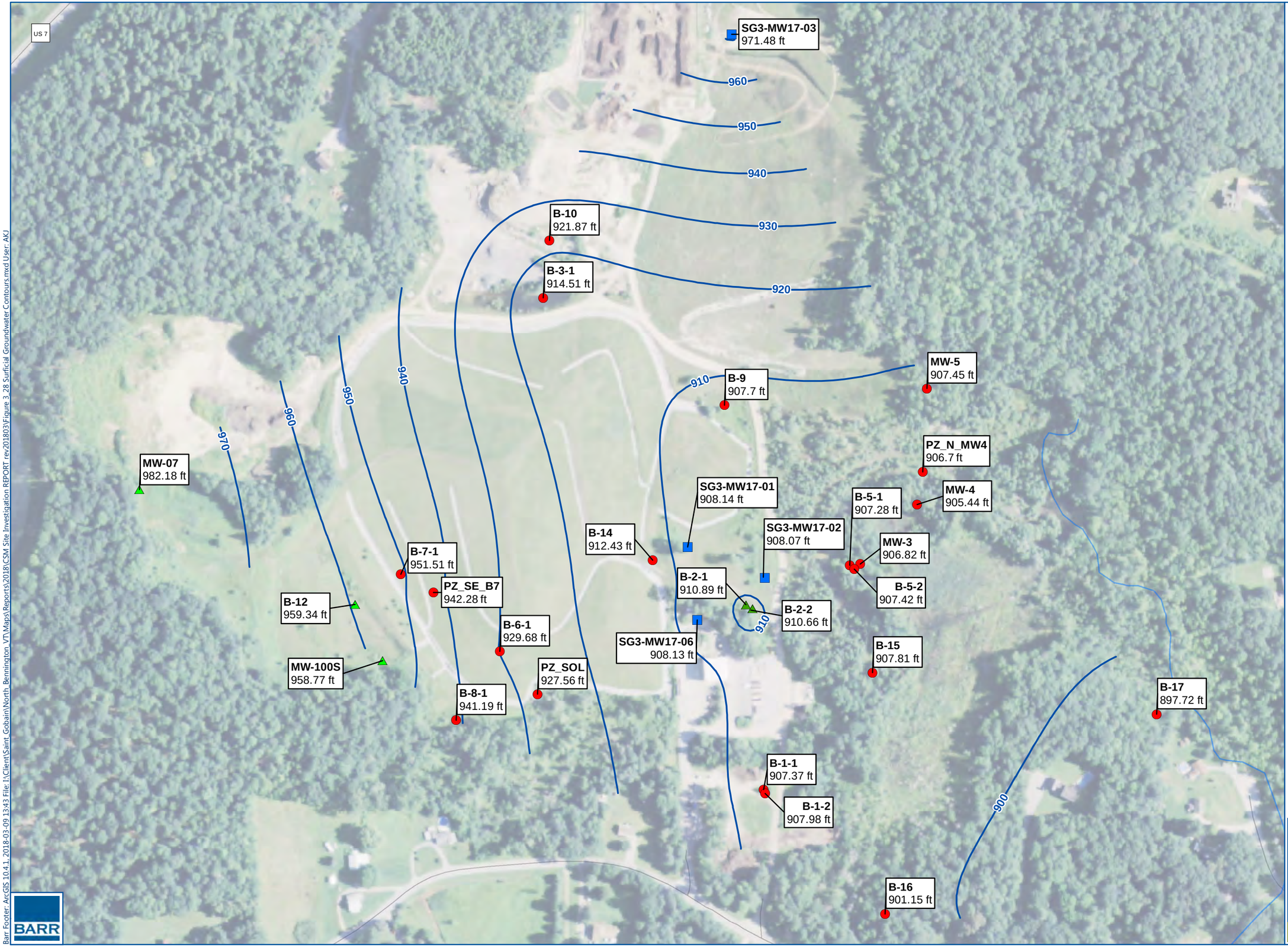
N

0 1,200
Feet

MEASURED GROUNDWATER ELEVATIONS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.27

Barr Footer: ArcGIS 10.4.1, 2018-03-09 13:42 File: I:\Client\Saint Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180323\Figure 3_27 Measured Groundwater Elevations.mxd User: AKJ



Measurement Date

- 11/2/2017
- 5/24/2017
- 5/25/2017
- 7/22/1997
- Water Level Contour

Elevations in feet, NAVD88

Contours are approximate due to range in water level measurement dates.

Data sources include:
CSM Site Investigation
2017 landfill split sampling
McLaren/Hart (1997)

N

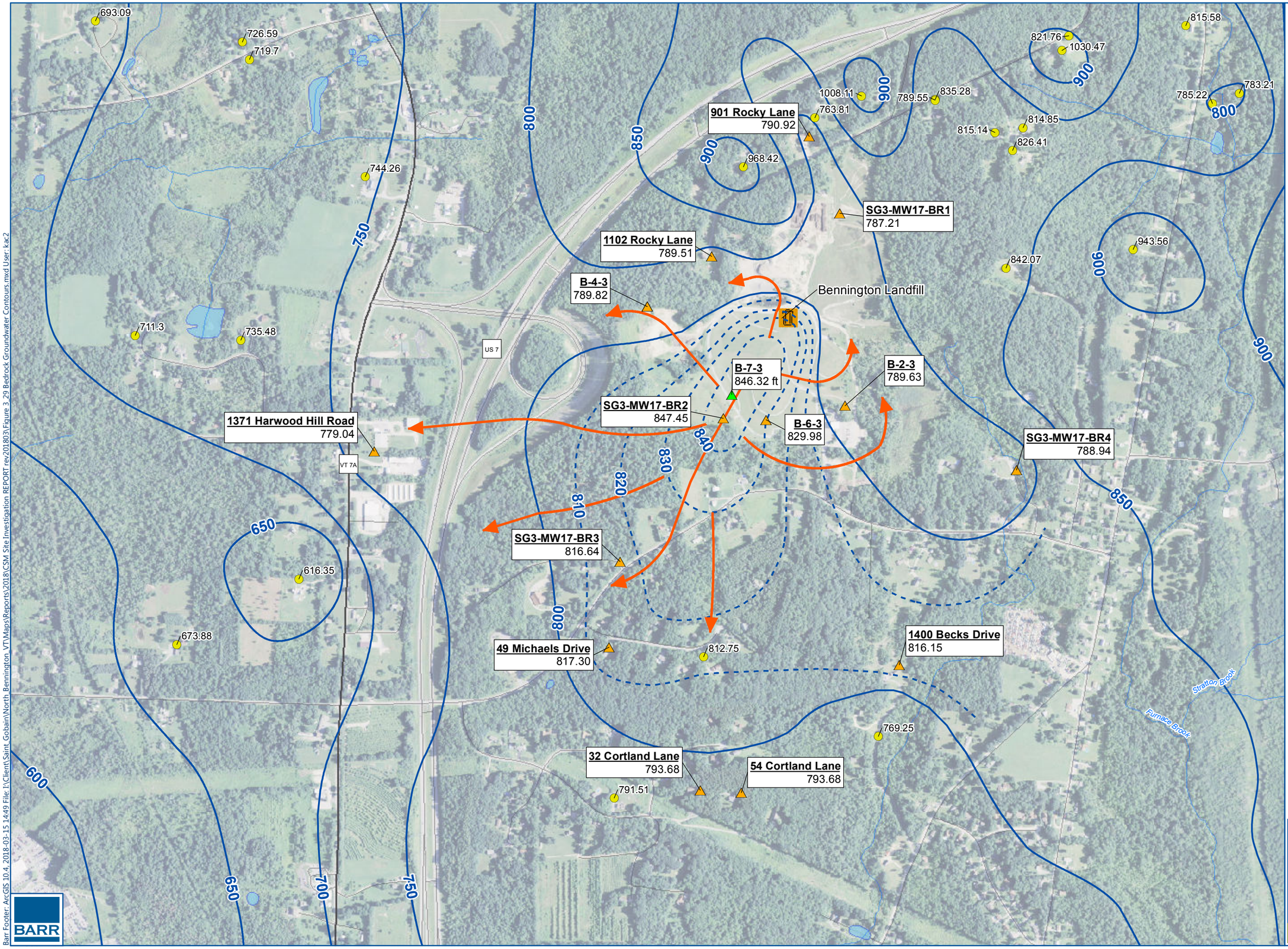
0 250
Feet

SURFICIAL GROUNDWATER CONTOURS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.28

BARR

Barr Footer: ArcGIS 10.4.1, 2018-03-09 13:43 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180323\Figure 3_28 Surficial Groundwater Contours.mxd User: AKJ



Well in Bedrock, Water Level Measured 1/9/2018

Bedrock Well Data Point, Kim and Dowey (2017)

Well in Bedrock, measured 2/12/1996 McLaren/Hart (1997)

Inferred Groundwater Flow Direction

Bedrock Static Water Level Contour, 50 foot interval (modified from Kim and Dowey, 2017) Supplementary contours dashed

Bennington Landfill

Contours are approximate due to range in water level measurement dates.

Data sources include:
CSM Site Investigation

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

McLaren/Hart, Inc., 1997. Long-Term Monitoring Plan Sampling Results Spring 1997. Bennington Municipal Landfill Site, Bennington, Vermont. Submitted to the United States Environmental Protection Agency, Region I, August 19, 1997.

0 750
Feet

BEDROCK GROUNDWATER CONTOURS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.29

BARR

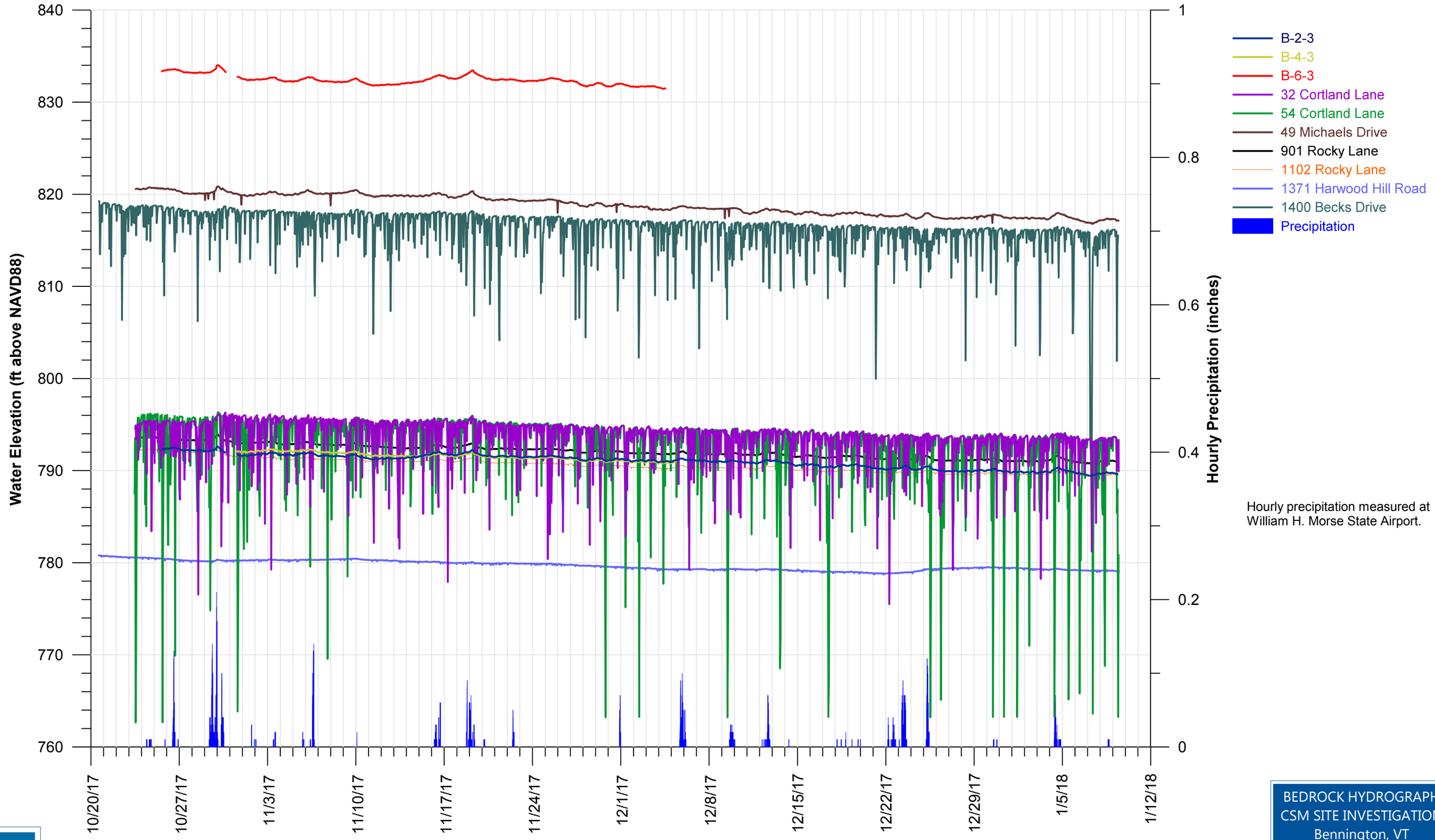
Barr Footer: ArcGIS 10.4, 2018-03-15 14:49 File: I:\Client\Saint_Gobain\North Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180301\Figure 3_29 Bedrock Groundwater Contours.mxd User: kac2

TRANSDUCER LOCATIONS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.30

BARR

Barr Footer: ArcGIS 10.4.1, 2018-03-09 13:44 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180301\Figure 3_30 Transducer Locations.mxd User: AKJ



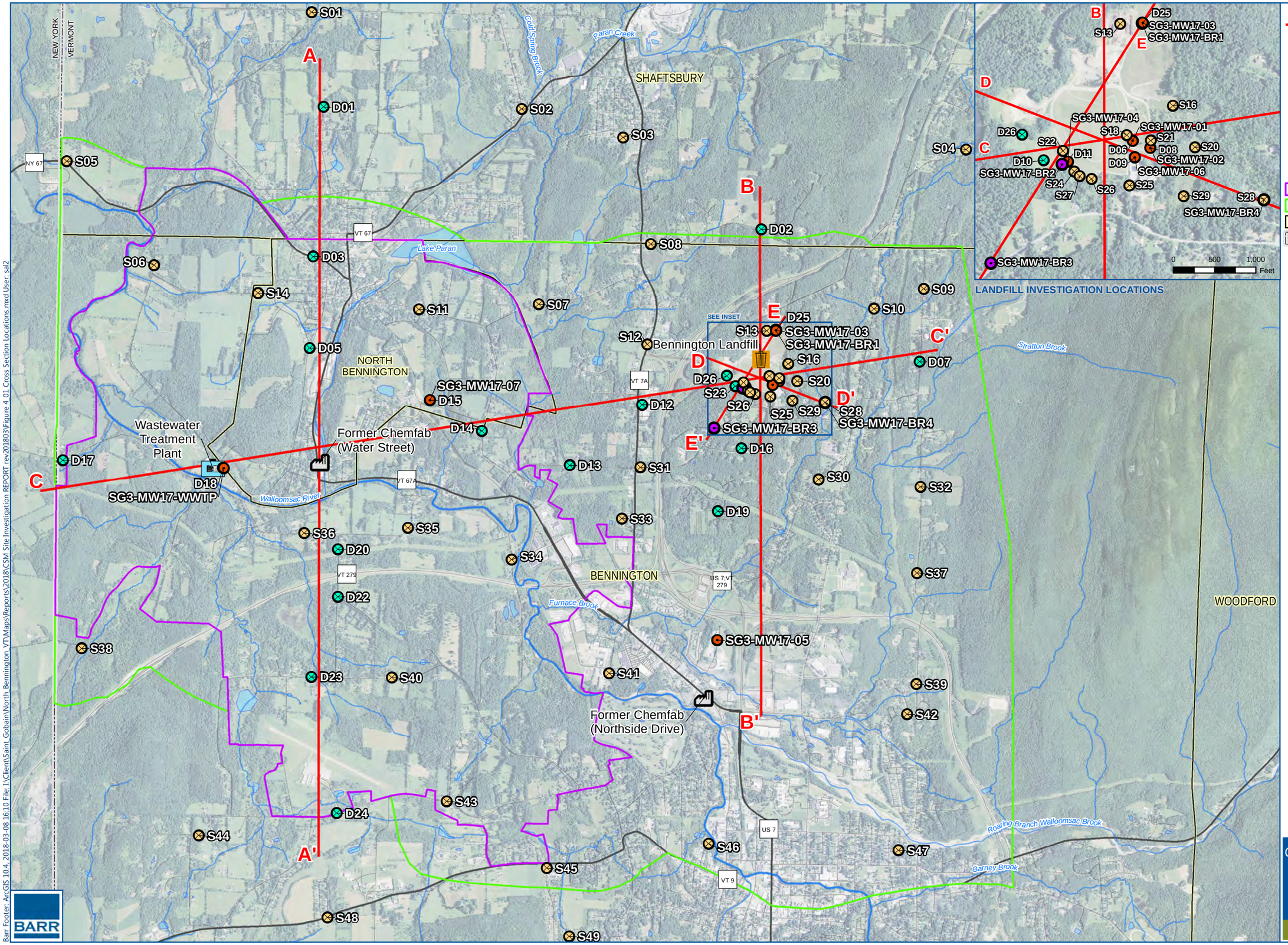
Hourly precipitation measured at William H. Morse State Airport.

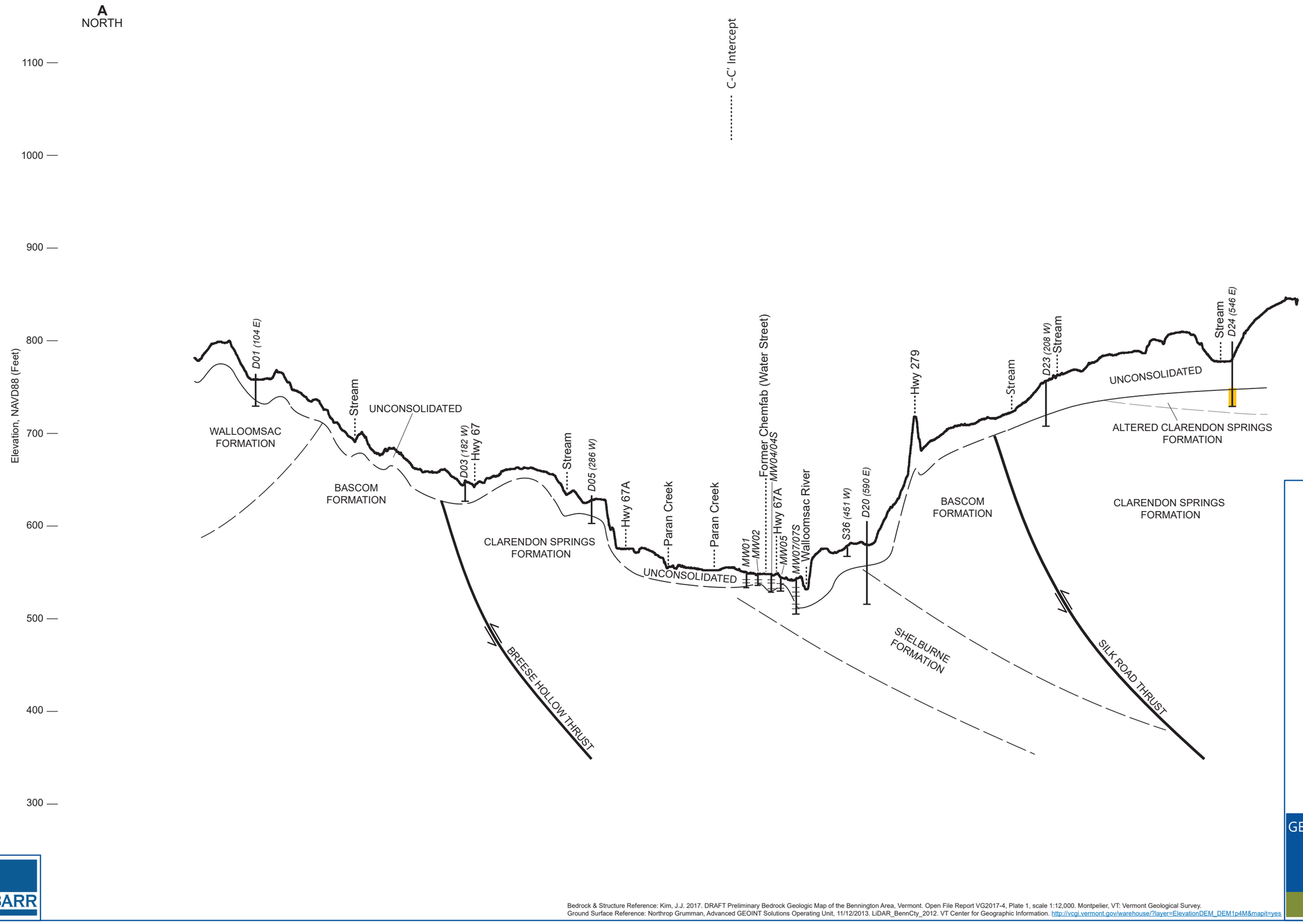
BARR

BEDROCK HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 3.31

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Investigation Activities\Transducers\Bennington_Hydrograph.grf


NEW YORK
VERMONT
A
A'
B
B'
C
C'
D
D'
E
E'
SHAFTSBURY
Cold Spring Brook
Paran Creek
Lake Paran
NORTH BENNINGTON
BENNINGTON
Bennington Landfill
Former Chemfab (Water Street)
Former Chemfab (Northside Drive)
Wastewater Treatment Plant
SG3-MW17-WWTP
SG3-MW17-07
SG3-MW17-03
SG3-MW17-BR1
SG3-MW17-BR3
SG3-MW17-BR4
SG3-MW17-05
Walloomsac River
Furnace Brook
Stratton Brook
Roaring Branch Walloomsac Brook
Barney Brook
WOODFORD
NY 67
VT 67
VT 7A
VT 67A
VT 279
US 7;VT 279
US 7
VT 9
SEE INSET
LANDFILL INVESTIGATION LOCATIONS
0 500 1,000 Feet
0 2,500 Feet
N
Cross Section Location
Monitoring Well in Bedrock
Shallow Soil Boring
Deep Soil Boring and Monitoring Well
Deep Soil Boring
Former Chemfab Facility
Wastewater Treatment Plant
Bennington Landfill
Corrective Action Area I
Corrective Action Area II
Village/Township Boundary
State Boundary
CROSS SECTION LOCATIONS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE 4.1
BARR
Barr Footer: ArcGIS 10.4, 2018-03-08 16:10 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180



Bedrock & Structure Reference: Kim, J.J. 2017. DRAFT Preliminary Bedrock Geologic Map of the Bennington Area, Vermont. Open File Report VG2017-4, Plate 1, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.
Ground Surface Reference: Northrop Grumman, Advanced GEOINT Solutions Operating Unit, 11/12/2013. LiDAR_BennCty_2012. VT Center for Geographic Information. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

GEOLOGIC CROSS SECTION A-A'
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.2

BARR

Barr Footer: P:\projects\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Cross Sections\Cross Section A-A'.v10

B
NORTH

B'
SOUTH

Elevation, NAVD88 (Feet)

1100
1000
900
800
700
600
500
400
300

SG3-MW17-BR1 (461 E)
SG3-MW17-03/D25 (460 E)
B-3-3 (54 W)
SG3-MW17-01/D06 (345 E)
SG3-MW17-02/D08 (558 E)
C-C' Intercept
SG3-MW17-06/D09 (372 E)
SG3-MW17-BR2 (516 W)
SG3-MW17-04/D11 (444 W)
B-6-3 (182 W)
B-1-3 (557 E)
SG3-MW17-BR3 (1,382 W)
D16 (566 W)
Hwy 7
D02
D19 (1,276 W)
SG3-MW17-05/D21 (1,302 W)
Former Chemfab (Northside Drive), Furnace Brook
Stream
Stream

UNCONSOLIDATED
UNCONSOLIDATED
UNCONSOLIDATED

ALTERED DUNHAN FORMATION
ALTERED CHESHIRE FORMATION
DUNHAM FORMATION
CHESHIRE FORMATION
MONKTON FORMATION

Ground Surface
Bennington Landfill Cap Extent
Geologic Contact
Fault
Inferred Geologic Contact
Inferred Boundary of Hydrothermal Alteration
Monitoring Well Screen
Open Borehole
Soil Boring/Piezometer
D99 (100 E) Location Name (distance and direction from transect in feet)

ALTERED BEDROCK GEOLOGY
Ocher
Kaolin
Kaolinitic Clay

500 1,000 1,500
Approximate Horizontal Scale in Feet

10X Vertical Exaggeration

Bedrock & Structure Reference: Kim, J.J. 2017. DRAFT Preliminary Bedrock Geologic Map of the Bennington Area, Vermont. Open File Report VG2017-4, Plate 1, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.
Ground Surface Reference: Northrop Grumman, Advanced GEOINT Solutions Operating Unit, 11/12/2013. LiDAR_BennCty_2012. VT Center for Geographic Information. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

GEOLOGIC CROSS SECTION B-B'
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.3

BARR

Barr Footer P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Cross Sections\Cross Section B-B'_v7.ai

C
WEST

C'
EAST

Elevation, NAVD88 (Feet)

1100
1000
900
800
700
600
500
400
300

A-A' Intercept

B-B' Intercept

D17 (785 N)

UNCONSOLIDATED

Wastewater Treatment Plant

SG3-MW17-WWTP/D18 (170 S)

Former Chemfab (Water Street)

Hwy 67A

UNCONSOLIDATED

SG3-MW17-07/D15 (855 N)

D14 (275 S)

D13 (1,701 S)

D12 (225 S)

Hwy 7A

Hwy 7

SG3-MW17-BR3 (1,263 S)

D26 (209 N)

B-4-3 (789 N)

SG3-MW17-04/D11 (197 S)

B-7-3 (30 S)

SG3-MW17-BR2 (218 S)

B-6-3 (280 S)

B-3-3 (680 N)

SG3-MW17-06/D09 (272 S)

SG3-MW17-01/D06 (67 S)

B-1-3 (778 S)

B-2-3 (274 S)

SG3-MW17-02/D08 (185 S)

B-5-3 (193 S)

SG3-MW17-BR4 (1,015 S)

D07 (265 S)

UNCONSOLIDATED

ALTERED DUNHAM FORMATION

CHESHIRE FORMATION

ALTERED CHESHIRE FORMATION

DUNHAM FORMATION

WALLOOMSAC FORMATION

WALLOOMSAC FORMATION

BREESE HOLLOW THRUSTS

BASCOM FORMATION

SHELBURNE FORMATION

SHELBURNE FORMATION

CLARENDON SPRINGS FORMATION

BASCOM FORMATION

SILK ROAD THRUST

— 700 Ground Surface

Bennington Landfill Cap Extent

Geologic Contact

Fault

Inferred Geologic Contact

Inferred Boundary of Hydrothermal Alteration

Open Borehole

Monitoring Well Screen

Soil Boring/Piezometer

D99 (100 E) Location Name (distance and direction from transect in feet)

ALTERED BEDROCK GEOLOGY

Ocher

Kaolin

Kaolinitic Clay

0 500 1,000 1,500

Approximate Horizontal Scale in Feet

10X Vertical Exaggeration

GEOLOGIC CROSS SECTION C-C'
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.4

Bedrock & Structure Reference: Kim, J.J. 2017. DRAFT Preliminary Bedrock Geologic Map of the Bennington Area, Vermont. Open File Report VG2017-4, Plate 1, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.
Ground Surface Reference: Northrop Grumman, Advanced GEOINT Solutions Operating Unit, 11/12/2013. LiDAR_BennCty_2012. VT Center for Geographic Information. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

BARR

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Cross Sections\Cross Section C-C' v9.ai

D
WEST

D'
EAST

Elevation, NAVD88 (Feet)

1100
1000
900
800
700
600
500
400
300

B-4-3
B-7-3
SG3-MW17-06/D09
B-2-3
B-15
SG3-MW17-BR4

LANDFILL
TILL
SURFICIAL SAND
TILL
SURFICIAL SAND
TILL

CHESHIRE FORMATION

ALTERED CHESHIRE FORMATION

ALTERED DUNHAM FORMATION

?

DUNHAM FORMATION

CHESHIRE FORMATION

Ground Surface
Bennington Landfill Cap Extent
Geologic Contact
Inferred Geologic Contact
Boundary of Hydrothermal Alteration
Monitoring Well Screen
Soil Boring/Well
B-9-9 Location Name

ALTERED BEDROCK GEOLOGY
Ocher
Kaolin
Kaolinitic Clay

0 150 300 450
Approximate Horizontal Scale in Feet
3X Vertical Exaggeration

GEOLOGIC CROSS SECTION D-D'
CSM Site Investigation
Bennington, VT
Saint-Gobain

FIGURE 4.5

Bedrock & Structure Reference: Kim, J.J. 2017. DRAFT Preliminary Bedrock Geologic Map of the Bennington Area, Vermont. Open File Report VG2017-4, Plate 1, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.
Ground Surface Reference: Northrop Grumman, Advanced GEOINT Solutions Operating Unit, 11/12/2013. LiDAR_BennCty_2012. VT Center for Geographic Information. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

BARR

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Cross Sections\Cross Section D-D' v2.ai

E
NORTHEAST

E'
SOUTHWEST

Elevation, NAVD88 (Feet)

1100
1000
900
800
700
600
500
400
300

SG3-MW17-BR1
B-3-3
B-7-3
SG3-MW17-BR2
SG3-MW17-BR3

LANDFILL
SURFICIAL SAND
TILL
TILL
SAND
ALTERED DUNHAM FORMATION
ALTERED BEDROCK
CHESHIRE FORMATION
CHESHIRE FORMATION
?
ALTERED CHESHIRE FORMATION
CHESHIRE FORMATION

Ground Surface
Bennington Landfill Cap Extent
Geologic Contact
Inferred Geologic Contact
Boundary of Hydrothermal Alteration
Inferred Boundary of Hydrothermal Alteration
Monitoring Well Screen
Open Bedrock Hole
Soil Boring/Piezometer
B-9-9 Location Name

ALTERED BEDROCK GEOLOGY
Ocher
Kaolin

0 150 300 450
Approximate Horizontal Scale in Feet
3X Vertical Exaggeration

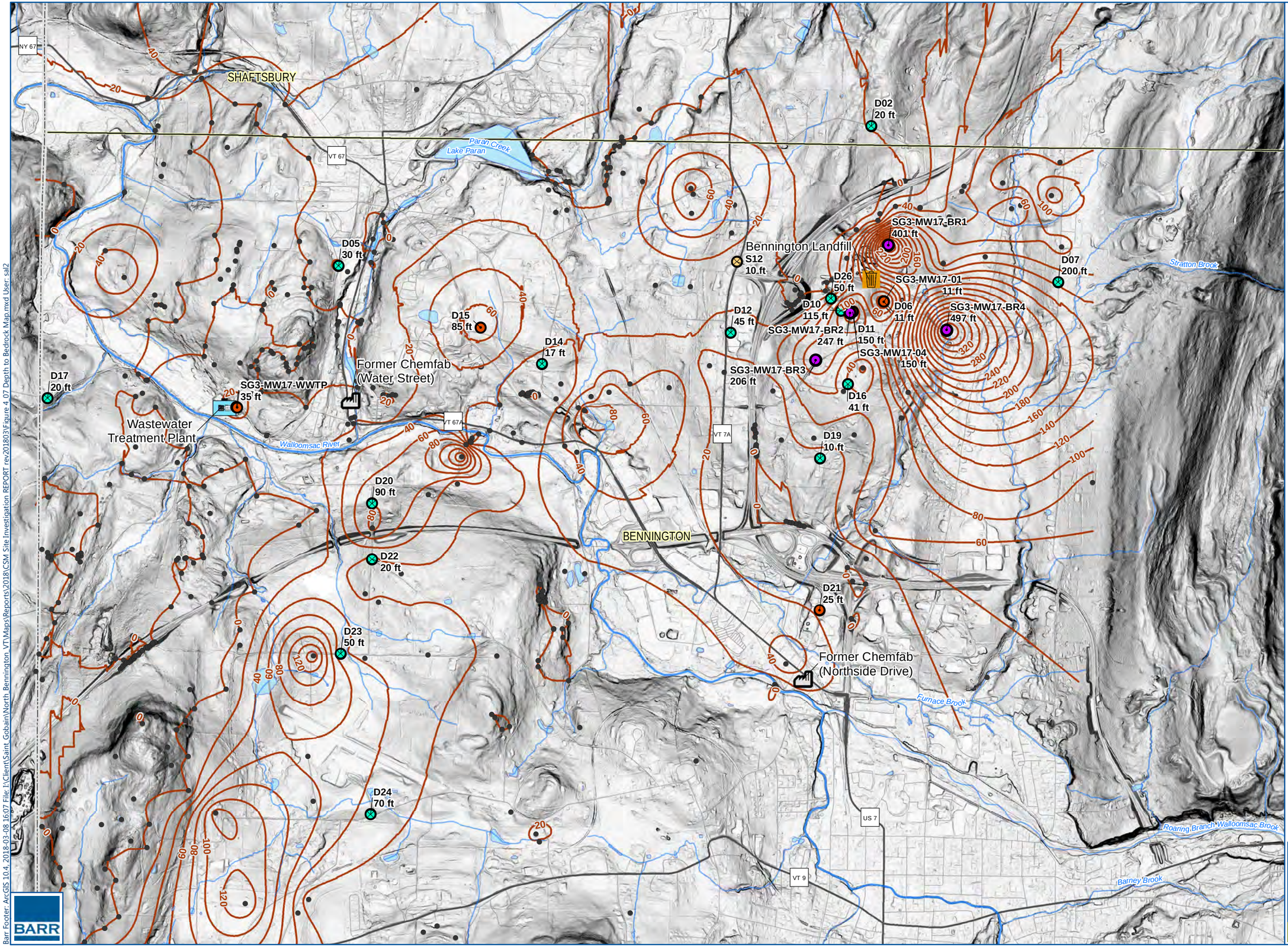
Bedrock & Structure Reference: Kim, J.J. 2017. DRAFT Preliminary Bedrock Geologic Map of the Bennington Area, Vermont. Open File Report VG2017-4, Plate 1, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.
Ground Surface Reference: Northrop Grumman, Advanced GEOINT Solutions Operating Unit, 11/12/2013. LiDAR_BennCty_2012. VT Center for Geographic Information. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

GEOLOGIC CROSS SECTION E-E'
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.6

BARR

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Figures\Cross Sections\Cross Section E-E'_v2.ai



Data sources include:
Kim, J., and C. Dowey, 2017. DRAFT Preliminary Isopach Map (Overburden Thickness) of the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3B, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

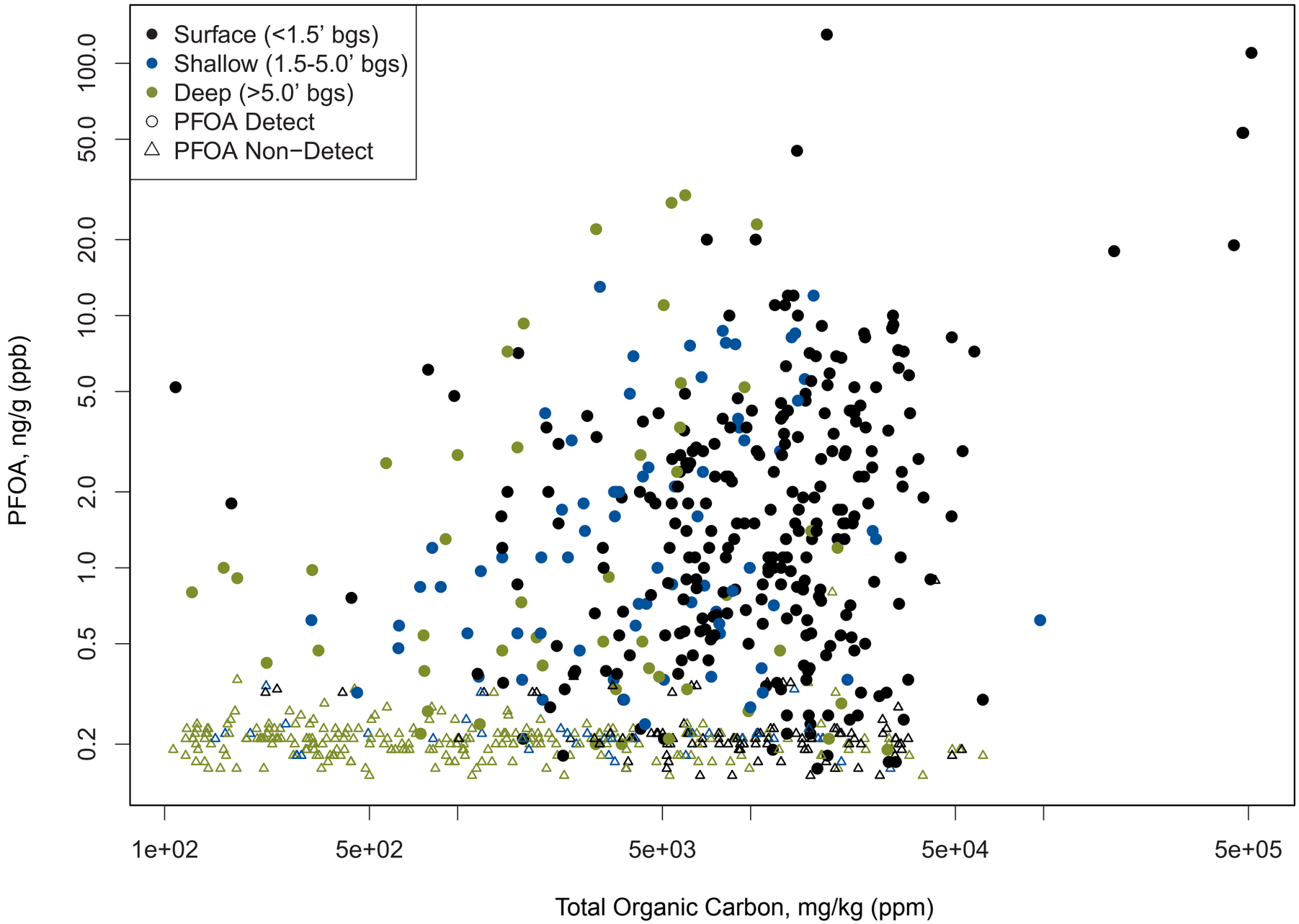
Northrop Grumman, Advanced GEOINT Solutions Operating Unit. LiDAR_BennCty_2012. VT Center for Geographic Information, 11/12/2013. http://vcgi.vermont.gov/warehouse/?layer=ElevationDEM_DEM1p4M&mapit=yes

DEPTH TO BEDROCK
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.7

BARR

Barr Footer: ArcGIS 10.4, 2018-03-08 16:07 File: J:\Client\Saint Gobain\North Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 4.07 Depth to Bedrock Map.mxd User: sal2



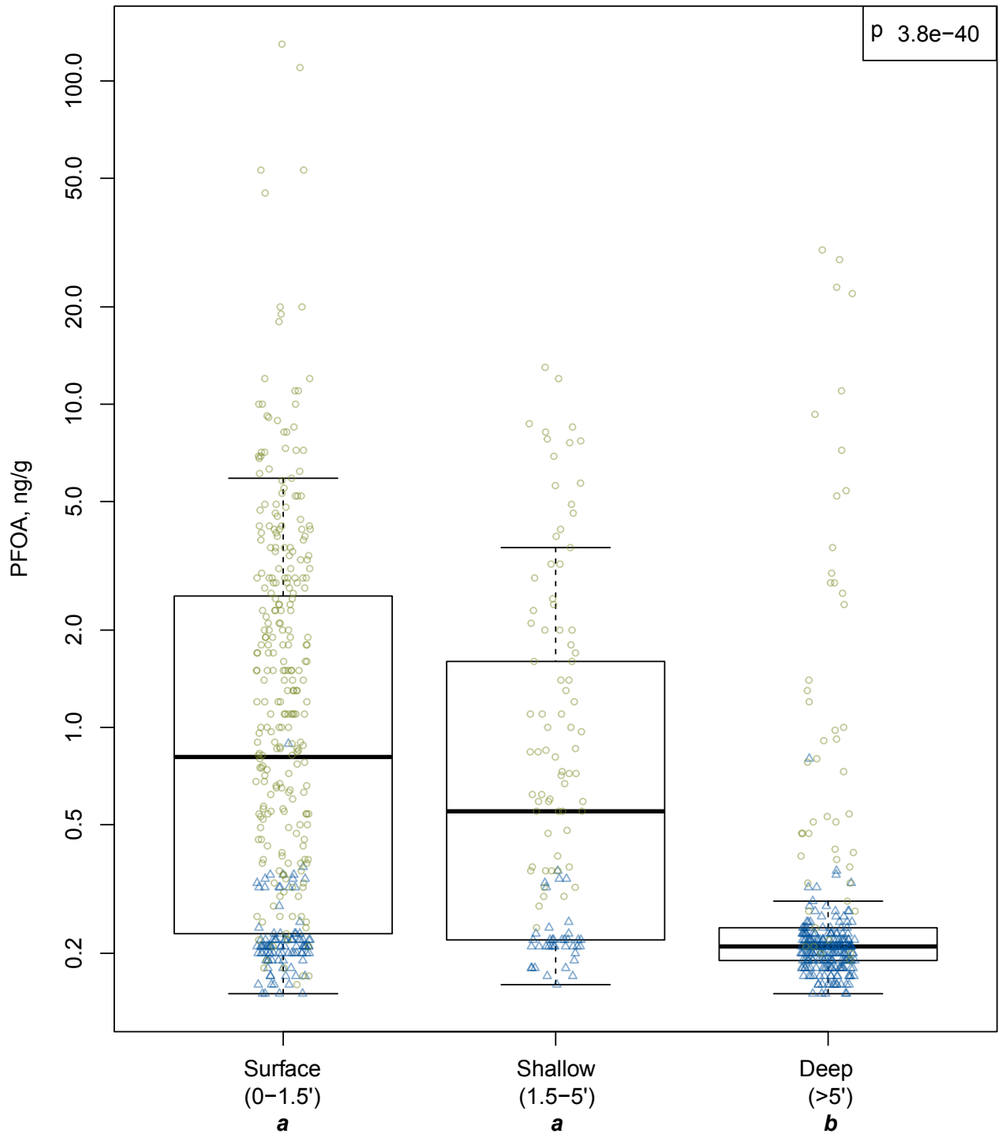
Data Sources Include:
CSM Site Investigation
C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation.
C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016.

PLOT OF SOIL TOC VS. PFOA
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE 4.8

BARR

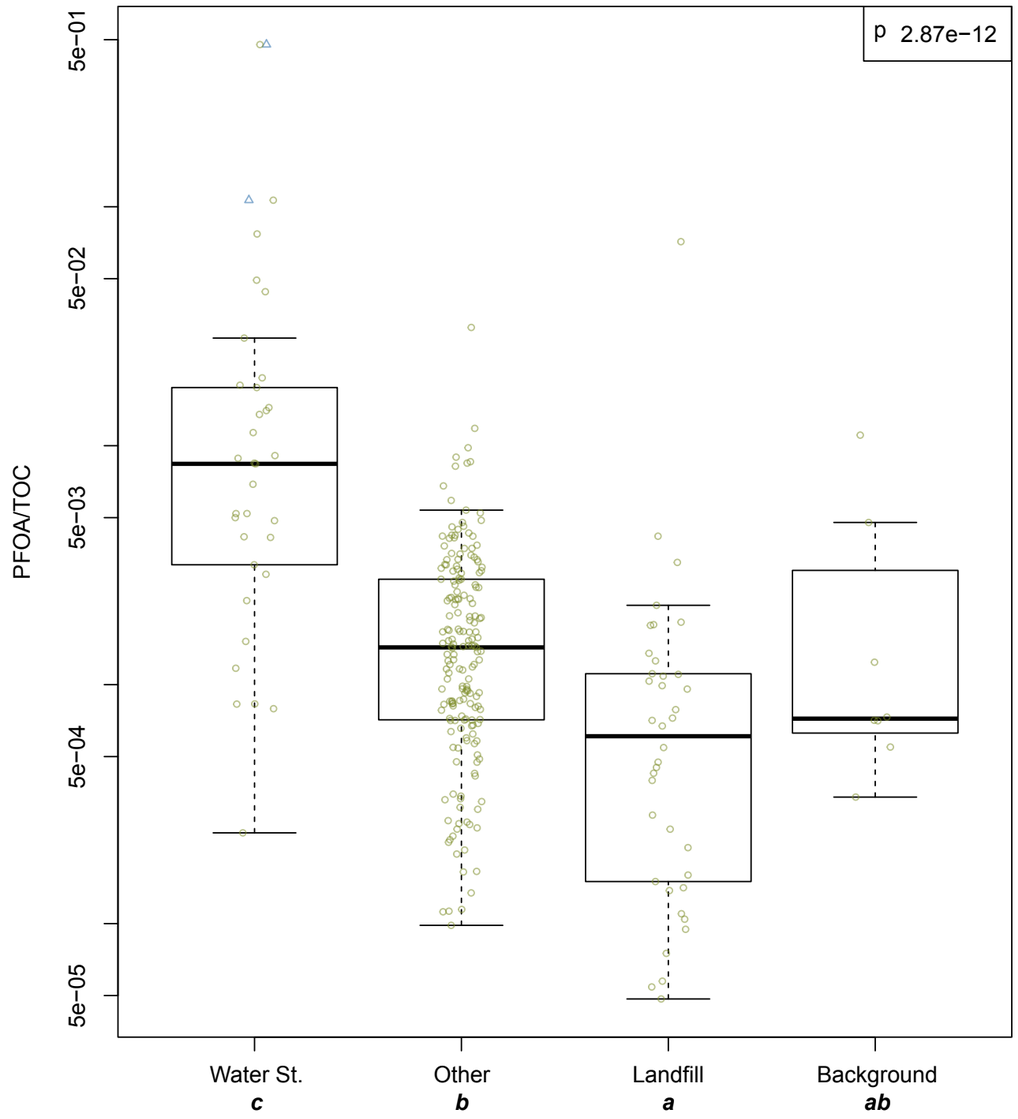
Barr Footer: \\barr.com\projects\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendices\Appendix D Statistical Evaluation\Appendix D.1a - Statistical Eval Soil\pieces\Figures

Soil PFOA Concentration, By Depth, All Areas



Depth Interval	Depth Statistical Grouping
Surface	a
Shallow	a
Deep	b

Soil PFOA/TOC Ratio, Surface Only, By Area



Location	Location Statistical Grouping
Water Street	c
Other	b
Landfill	a
Background	ab

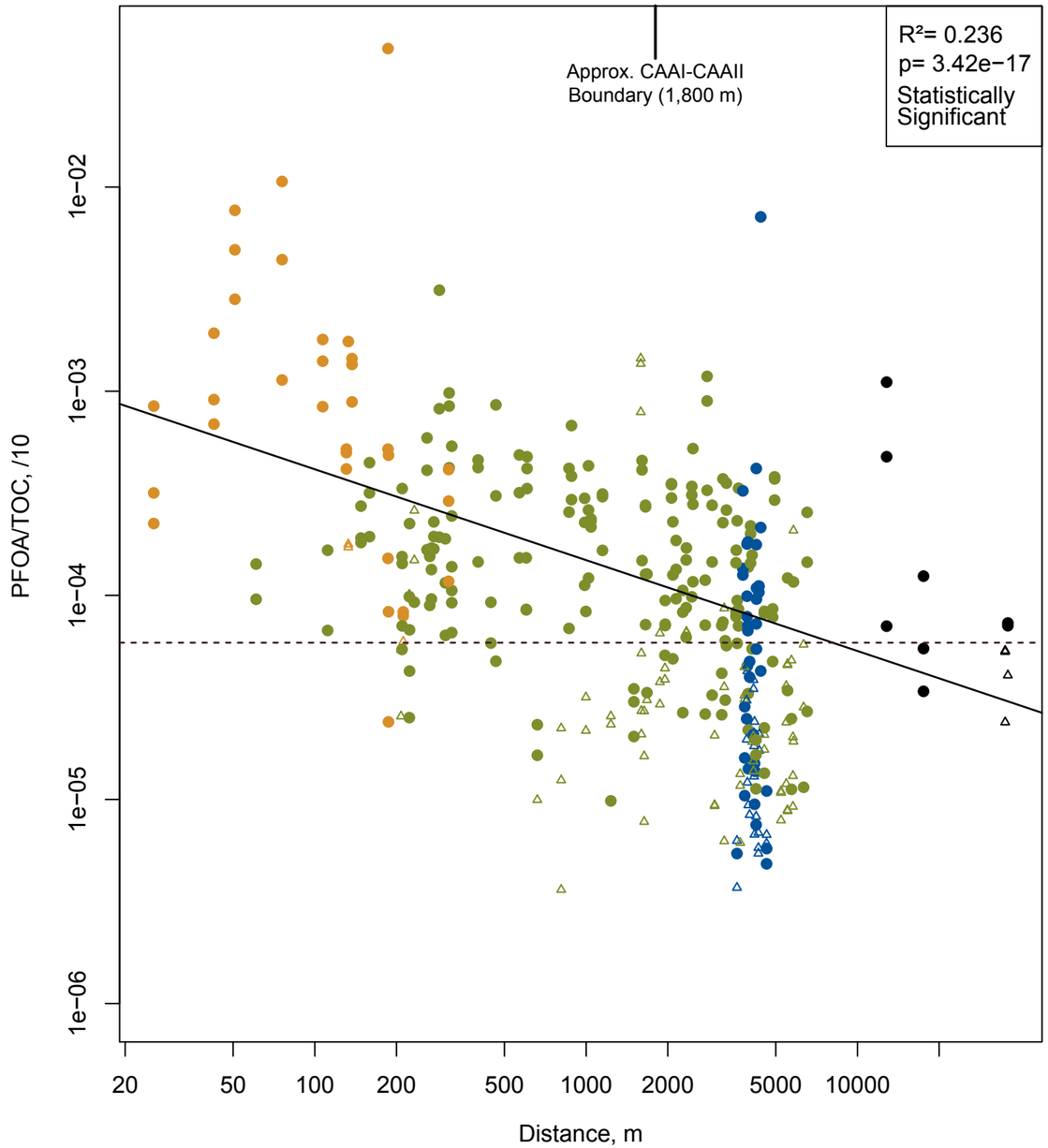
Notes: Letter groupings (*a,b*) indicate statistically significant groups. Combined letter groupings (*ab*) indicate overlap with both statistically significant groups.
"Other" is defined as analytical samples not collected at background, Water Street or Bennington Landfill locations.

Data Sources Include:
CSM Site Investigation
C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation.
C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016.

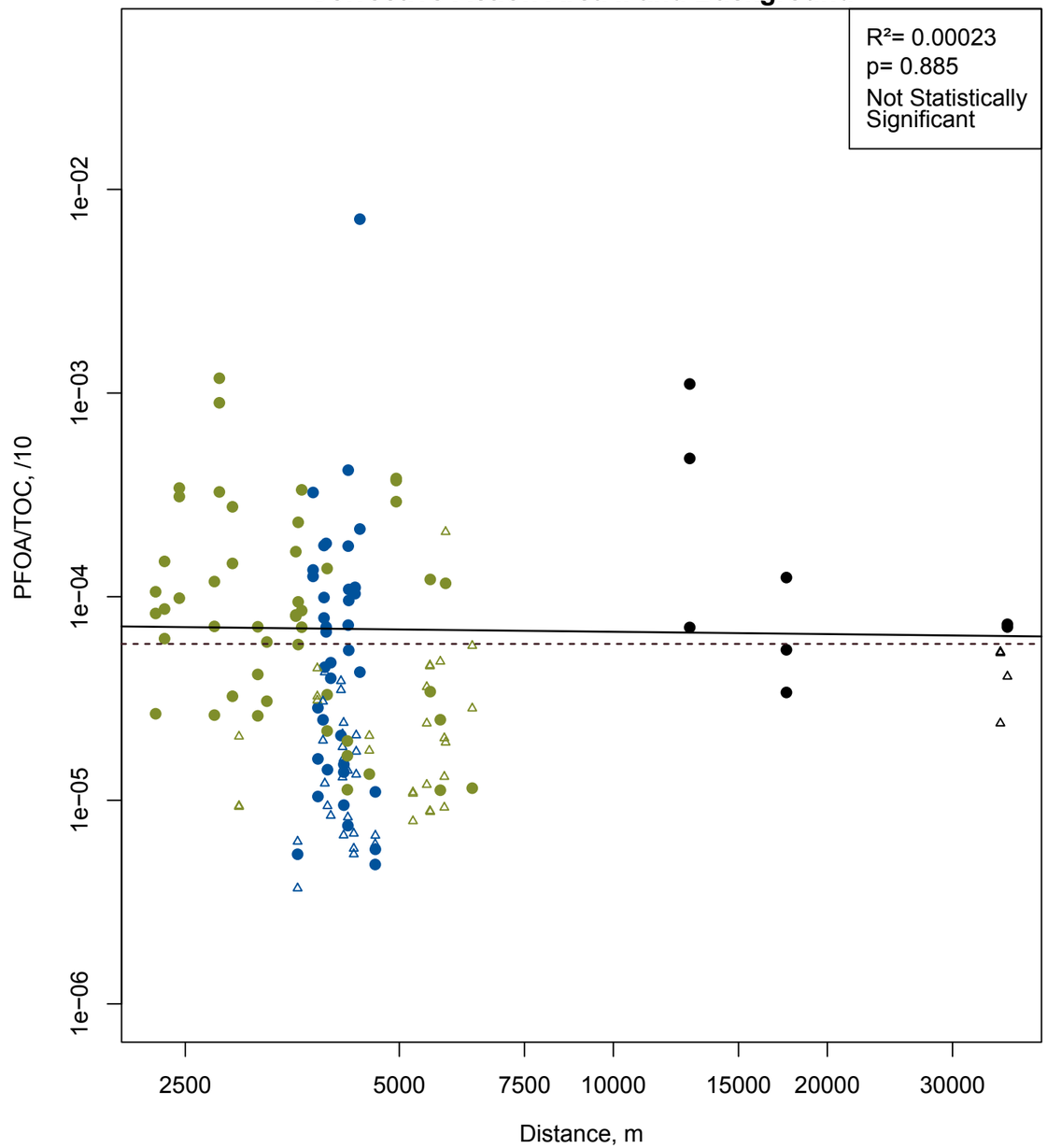
BOX PLOTS OF SOIL PFOA CONCENTRATIONS AND PFOA:TOC RATIOS BY SURFACE LOCATION AND DEPTH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE 4.9

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D Statistical Evaluation\Appendix D.1a - Statistical Eval Soil\pieces\Figures

Soil PFOA/TOC by Distance from Former Water Street Chemfab Facility
All Data



Soil PFOA/TOC by Distance from Former Water Street Chemfab Facility
Corrective Action Area II and Background



● Background ● Bennington Landfill ● Other ● Water Street ○ Detect △ Non−Detect —— Trend ---- Regional

Notes: "Other" is defined as analytical samples not collected at background, Water Street or Bennington Landfill locations.
Regional refers to the regional background of 0.0586 ng PFOA/mg TOC, discussed in Section 4.4.1 of this report.

Data Sources Include:
CSM Site Investigation
C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation.
C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016.

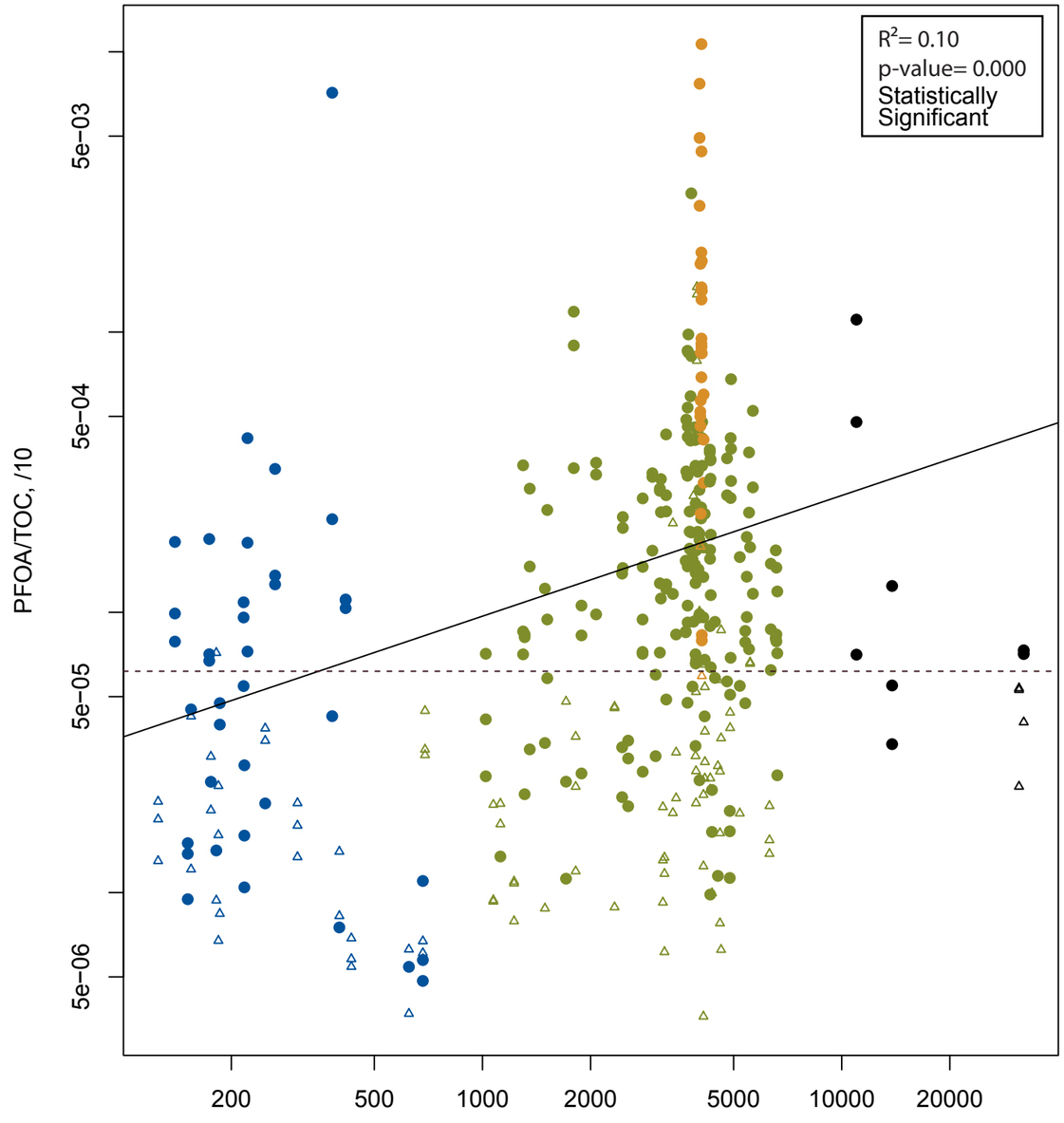
PLOTS OF SOIL PFOA:TOC RATIOS BY DISTANCE FROM FORMER WATER STREET CHEMFAB FACILITY
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.10

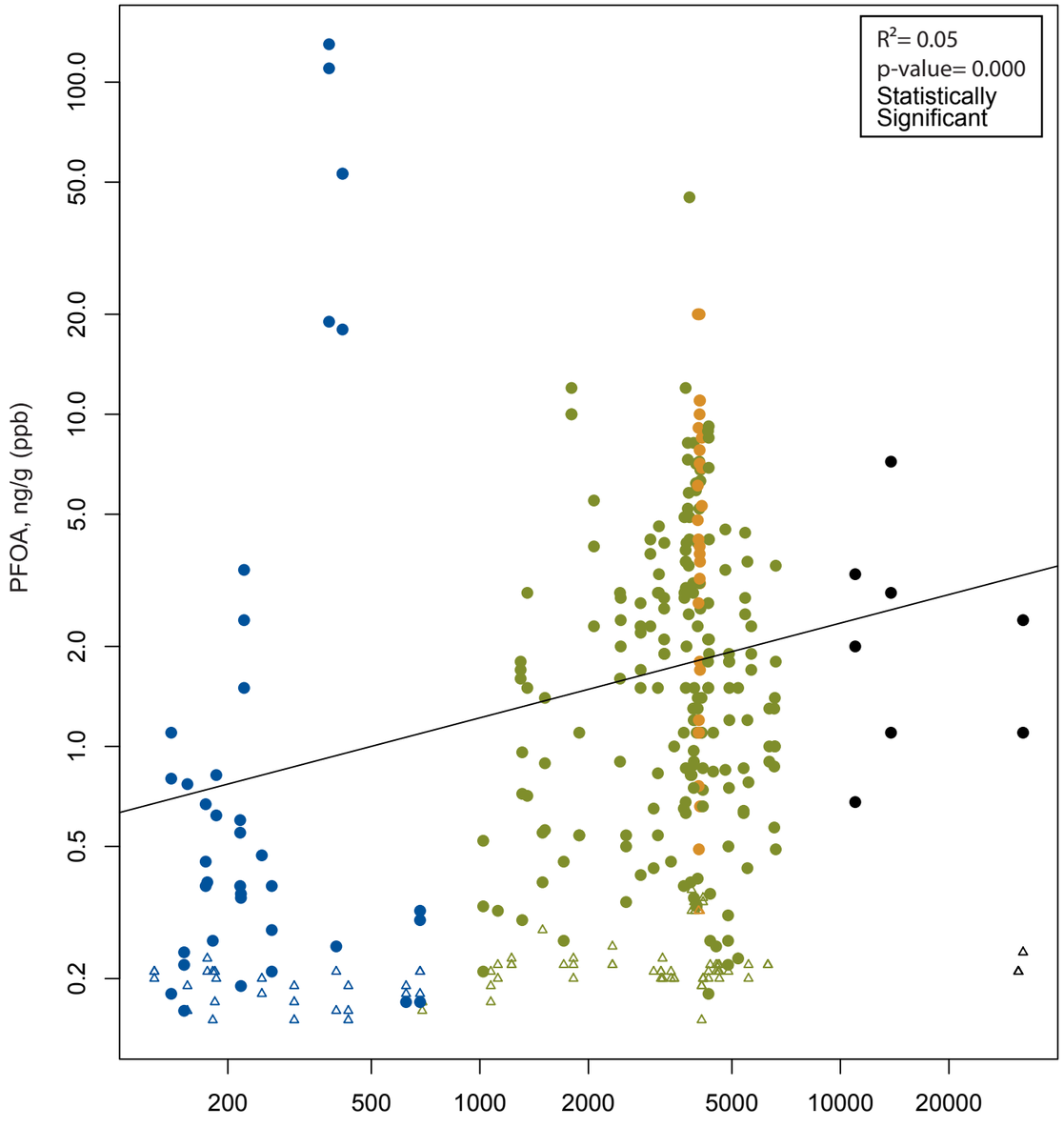
BARR

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D.1a - Statistical Eval Soil\pieces\Figures

Soil PFOA/TOC by Distance from Bennington Landfill



Soil PFOA by Distance from Bennington Landfill



Background · Bennington Landfill · Other · Water Street

Detect · Non−Detect · Trend · Regional

Notes: "Other" is defined as analytical samples not collected at background, Water Street or Bennington Landfill locations.
Regional refers to the regional background of 0.0586 ng PFOA/mg TOC, discussed in Section 4.4.1 of this report.

Data Sources Include:
CSM Site Investigation
C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation.
C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016.

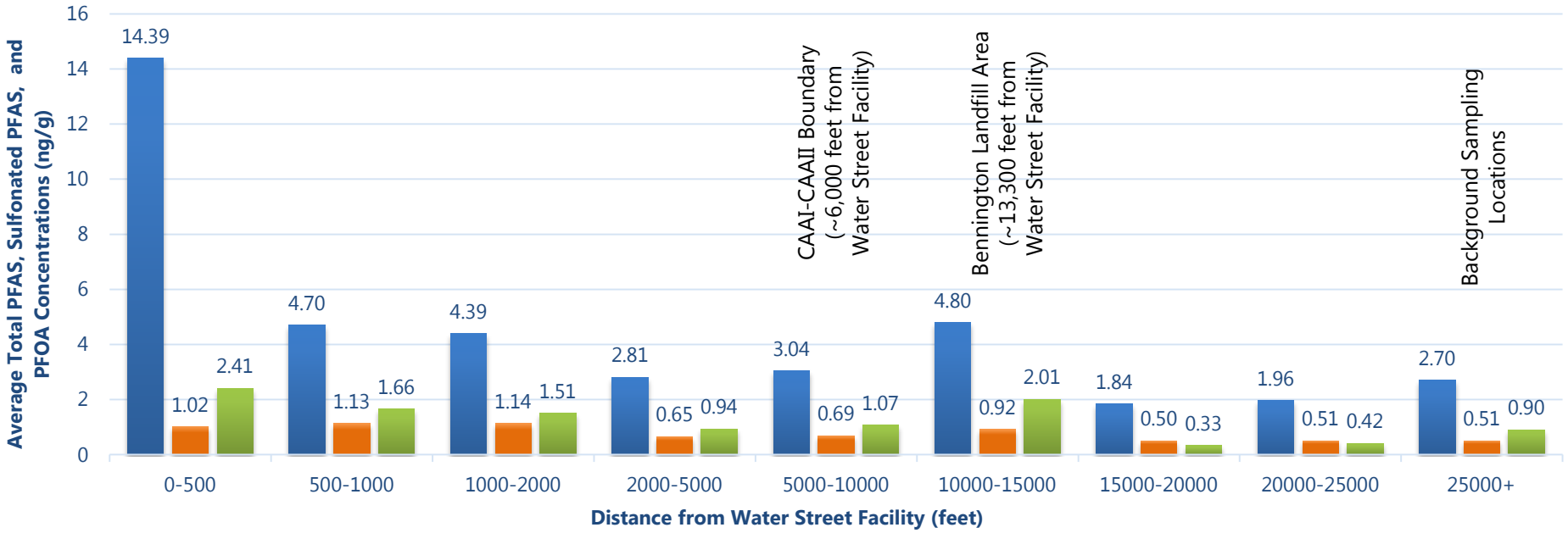
BARR

PLOTS OF SOIL PFOA:TOC RATIOS BY DISTANCE FROM BENNINGTON LANDFILL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

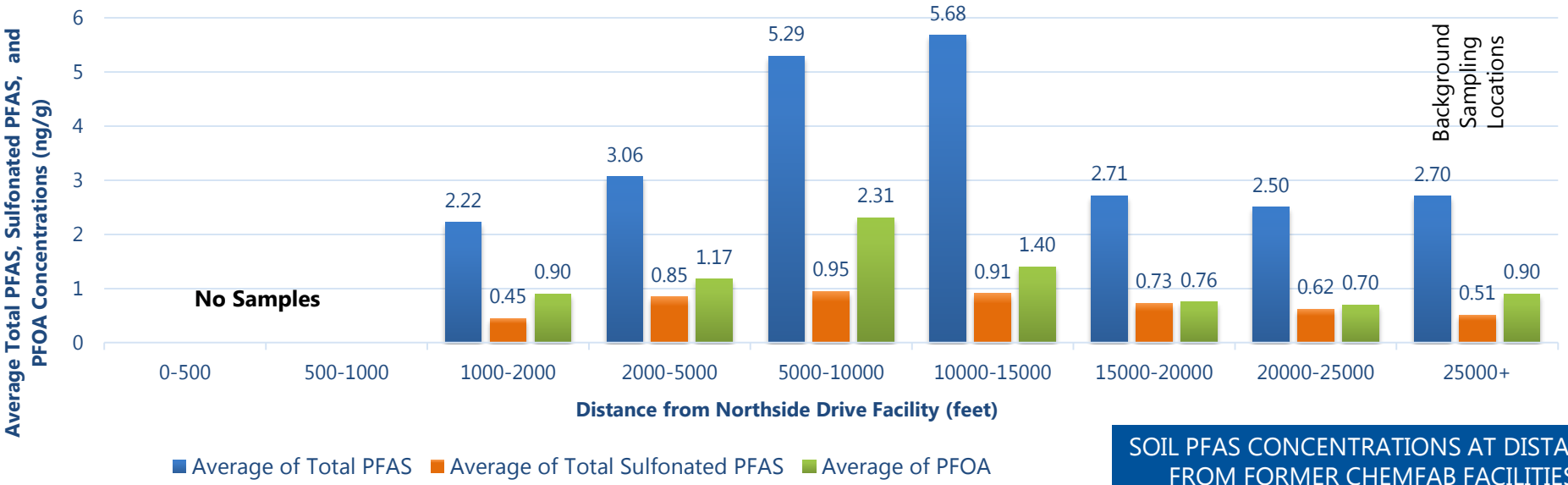
FIGURE 4.11

Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D Statistical Evaluation\Appendix D.1a - Statistical Eval Soil\pieces\Figures

Average Total PFAS, Total Sulfonated PFAS, and PFOA Concentrations from 0-2' bgs vs. Distance from Water Street Facility



Average Total PFAS, Total Sulfonated PFAS, and PFOA Concentrations from 0-2' bgs vs. Distance from Northside Drive Facility



Notes: Bennington Landfill Area is approximately 8,000 to 11,000 feet from Northside Drive facility.
Water Street facility is approximately 13,000 feet from Northside Drive facility.
Samples with no detection are included in calculation by assigning a value of half the corresponding method detection limit.

BARR

SOIL PFAS CONCENTRATIONS AT DISTANCE FROM FORMER CHEMFAB FACILITIES
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.12

NEW YORK
VERMONT
SHAFTSBURY
NORTH BENNINGTON
Former Chemfab (Water Street)
Wastewater Treatment Plant
Bennington Landfill
BENNINGTON
Former Chemfab (Northside Drive)

Cluster Group
- A - Primarily PFOA and PFHpA, sulfonated compounds <3%. Other PFAS <5%.
- B - Largely sulfonated (88 of 99 samples), PFOA is 59-92% total PFAS.
- C - PFOA 0-45% total PFAS, sulfonated compounds 44-79% where detected.

Former Chemfab Facility
Wastewater Treatment Plant
Bennington Landfill
Corrective Action Area I
Corrective Action Area II
Village/Township Boundary
State Boundary

Complete descriptions of groups are described in section 4.3.2.2.

Data sources include the CSM Site Investigation and private well sampling and POET monitoring data collected by VTDEC and Saint-Gobain.

N

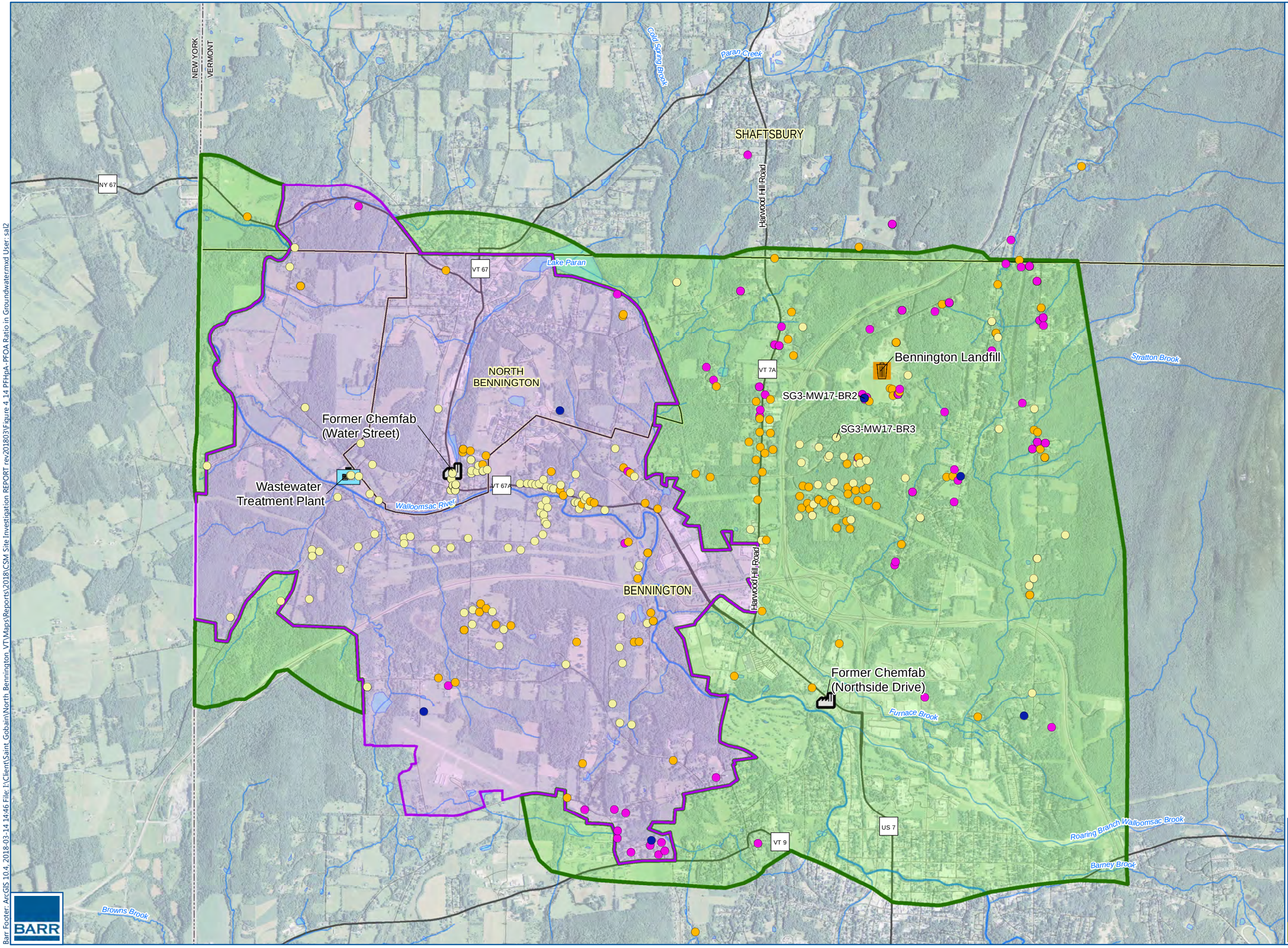
0 3,000
Feet

CLUSTER ANALYSIS OF PFAS IN GROUNDWATER CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.13

BARR

Barr Footer: ArcGIS 10.4, 2018-03-13 15:42 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 4_13 Cluster Analysis of PFAS in Groundwater.mxd User: sal2



PFHpA/PFOA Ratio
- 0.23 - 1.73
- 0.08 - 0.23
- 0.05 - 0.08
- 0.02 - 0.05

Former Chemfab Facility

Wastewater Treatment Plant

Bennington Landfill

Corrective Action Area I

Corrective Action Area II

Village/Township Boundary

State Boundary

Non Detect values for PFOA and/or PFHpA are not shown.

Data sources include the CSM Site Investigation, the site investigation at the former Water Street Chemfab facility, and private well sampling and POET monitoring data collected by VTDEC and Saint-Gobain.

N

0 3,000

Feet

PFHpA/PFOA RATIO IN GROUNDWATER CSM SITE INVESTIGATION

Bennington, VT

Saint-Gobain

FIGURE 4.14

BARR

Barr Footer: ArcGIS 10.4, 2018-03-14 14:46 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 4_14 PFHpA-PFOA Ratio in Groundwater.mxd User: sal2

PFOA Above Background (ng/g) *
- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Within Background Range

Sampling Interval
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

- Former Chemfab Facility
- Wastewater Treatment Plant
- Bennington Landfill
- Corrective Action Area I
- Corrective Action Area II
- Village/Township Boundary
- State Boundary

* ng/g = parts per billion (ppb)

** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

PFOA concentrations above background calculated by subtracting TOC-dependent background concentration from measured concentration. TOC-dependent background estimated to be 0.059 ng PFOA/mg TOC (Appendix D.2).

N

0 3,000

Feet

SOIL SAMPLE RESULTS: PFOA ABOVE BACKGROUND CSM SITE INVESTIGATION

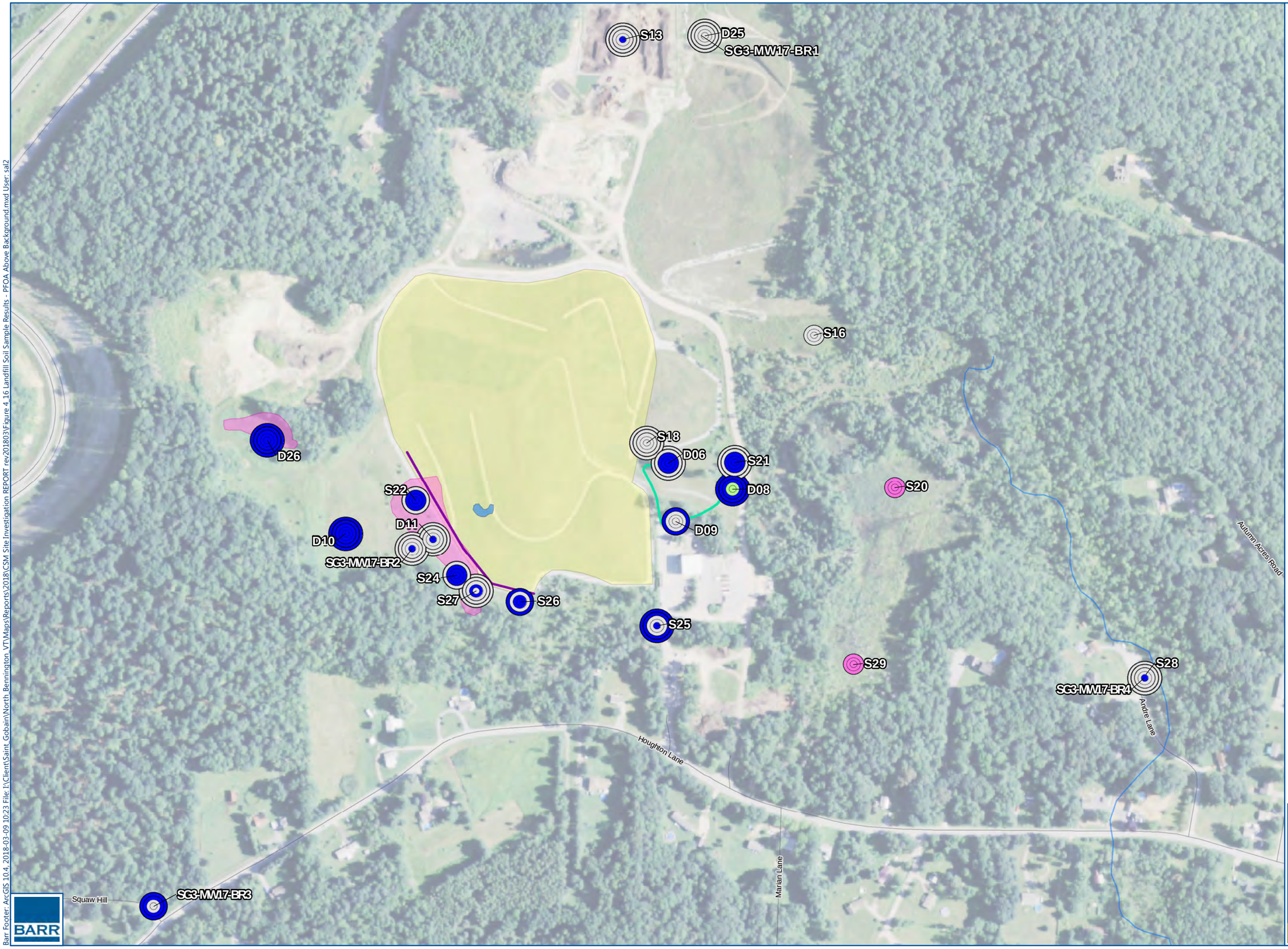
Bennington, VT

Saint-Gobain

FIGURE 4.15

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 10:35 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180



PFOA Above Background (ng/g) *

- > 10.01
- 5.01 - 10.0
- 1.51 - 5.0
- 0.76 - 1.5
- < 0.75
- Within Background Range

Sampling Interval

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

- Upgradient Groundwater Isolation Trench
- Historical Leachate Collection System
- Buried Lagoon (Approx.)
- Historical Leachate Treatment System (Approx.)
- Historical Sludge Storage (Approx.)
- Landfill Cap

* ng/g = parts per billion (ppb)

** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

PFOA concentrations above background calculated by subtracting TOC-dependent background concentration from measured concentration. TOC-dependent background estimated to be 0.059 ng PFOA/mg TOC (Appendix D.2).

N

0 300

Feet

LANDFILL SOIL SAMPLE RESULTS: PFOA ABOVE BACKGROUND CSM SITE INVESTIGATION

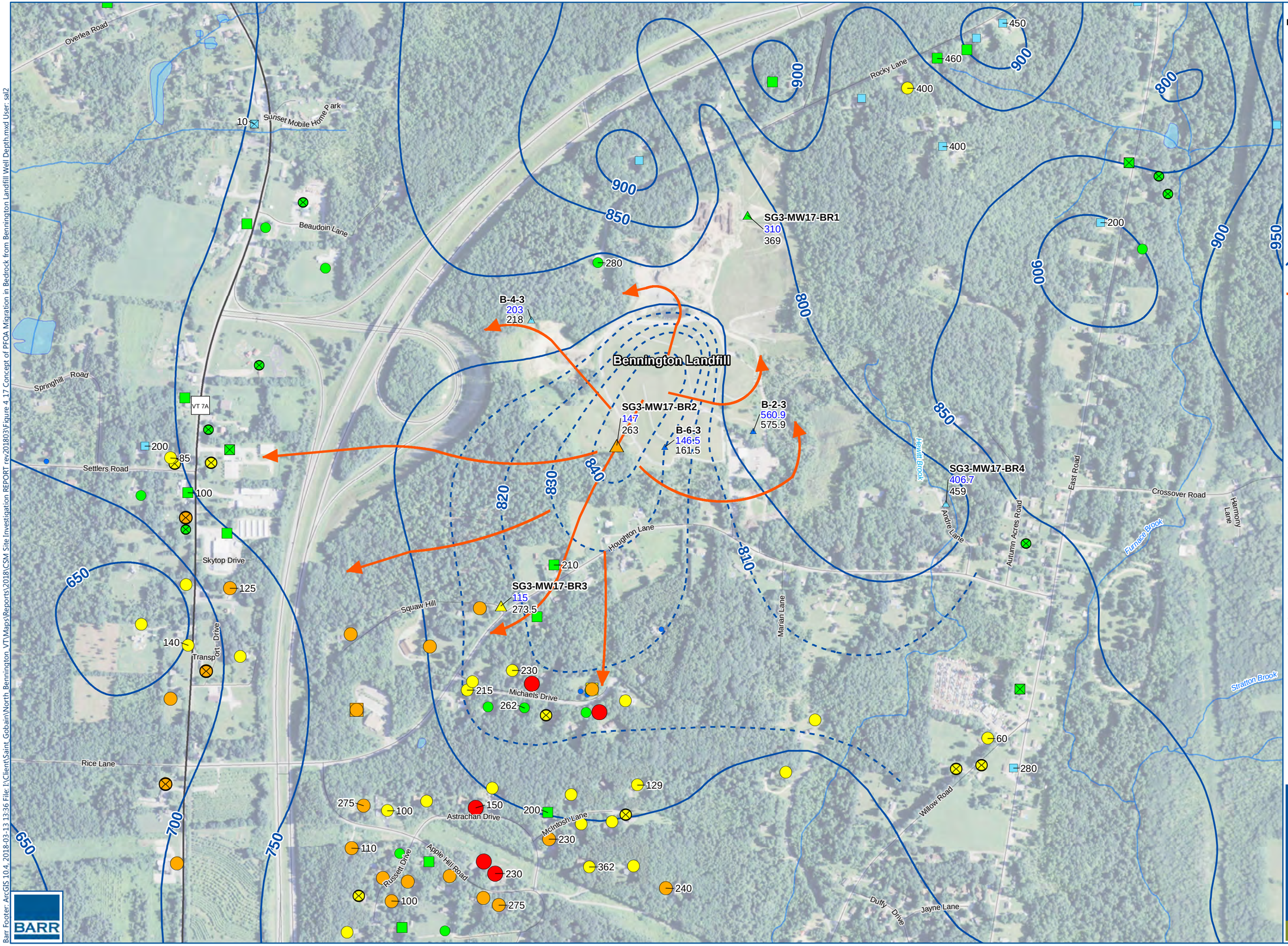
Bennington, VT

Saint-Gobain

FIGURE 4.16

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 10:23 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180303\Figure 4_16 Landfill Soil Sample Results - PFOA Above Background.mxd User: sal2



PFOA (ng/l) *

- 150 - 170
- 100 - 150
- 50 - 100
- 10 - 50
- < 10
- Non Detect
- Monitoring Well
- POET, Bedrock Well
- POET, Unknown Well Geology
- Raw Sample, Bedrock Well
- Raw Sample, Unknown Well Geology
- Bedrock Static Water Level Contour, 50 foot interval (modified from Kim and Dowey, 2017) Supplementary contours dashed
- Inferred Groundwater Flow Direction

Well Name
Casing Depth (feet)
Total Depth (feet)

* ng/l = parts per trillion (ppt)

Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

N

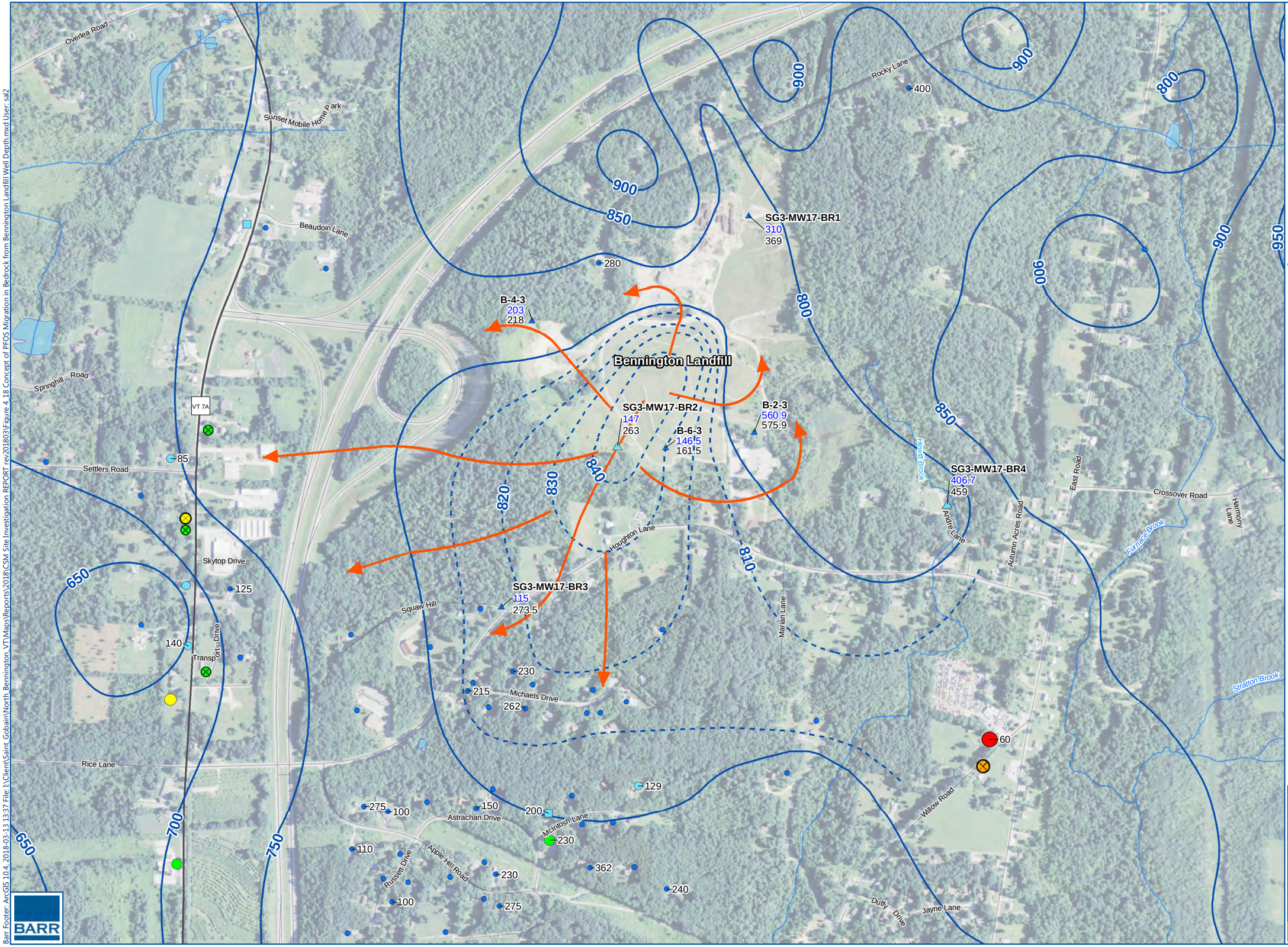
0 700
Feet

CONCEPT OF PFOA MIGRATION IN BEDROCK FROM BENNINGTON LANDFILL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.17

BARR

Barr Footer: ArcGIS 10.4, 2018-03-13 13:36 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev201803\Figure 4_17 Concept of PFOA Migration in Bedrock from Bennington Landfill Well Depth.mxd User: sal2



PFOS (ng/l) *

- 12 - 15
- 9 - 12
- 6 - 9
- 3 - 6
- < 3
- Non Detect
- Monitoring Well
- POET, Bedrock Well
- POET, Unknown Well Geology
- Raw Sample, Bedrock Well
- Raw Sample, Unknown Well Geology
- Bedrock Static Water Level Contour, 50 foot interval (modified from Kim and Dowey, 2017) Supplementary contours dashed
- Inferred Groundwater Flow Direction

Well Name
Casing Depth (feet)
Total Depth (feet)

* ng/l = parts per trillion (ppt)

Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

N

0 700
Feet

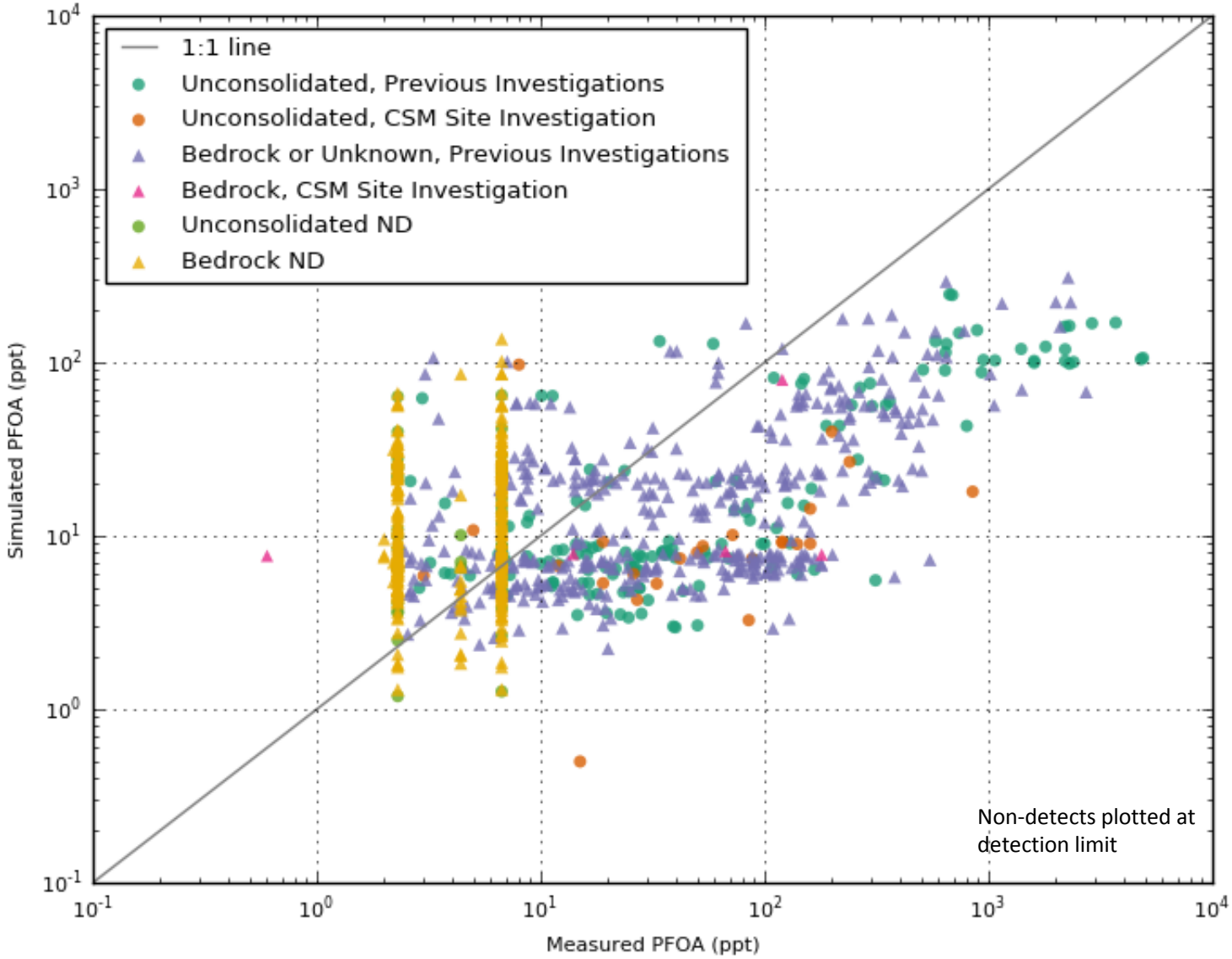
CONCEPT OF PFOS MIGRATION IN BEDROCK FROM BENNINGTON LANDFILL CSM SITE INVESTIGATION

Bennington, VT
Saint-Gobain

FIGURE 4.18

BARR

Barr Footer: ArcGIS 10.4, 2018-03-13 13:37 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev\20180313\Figure 4_18 Concept of PFOS Migration in Bedrock from Bennington Landfill Well Depth.mxd User: sal2



MEASURED VS. SIMULATED GROUNDWATER CONCENTRATION
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.19

BARR

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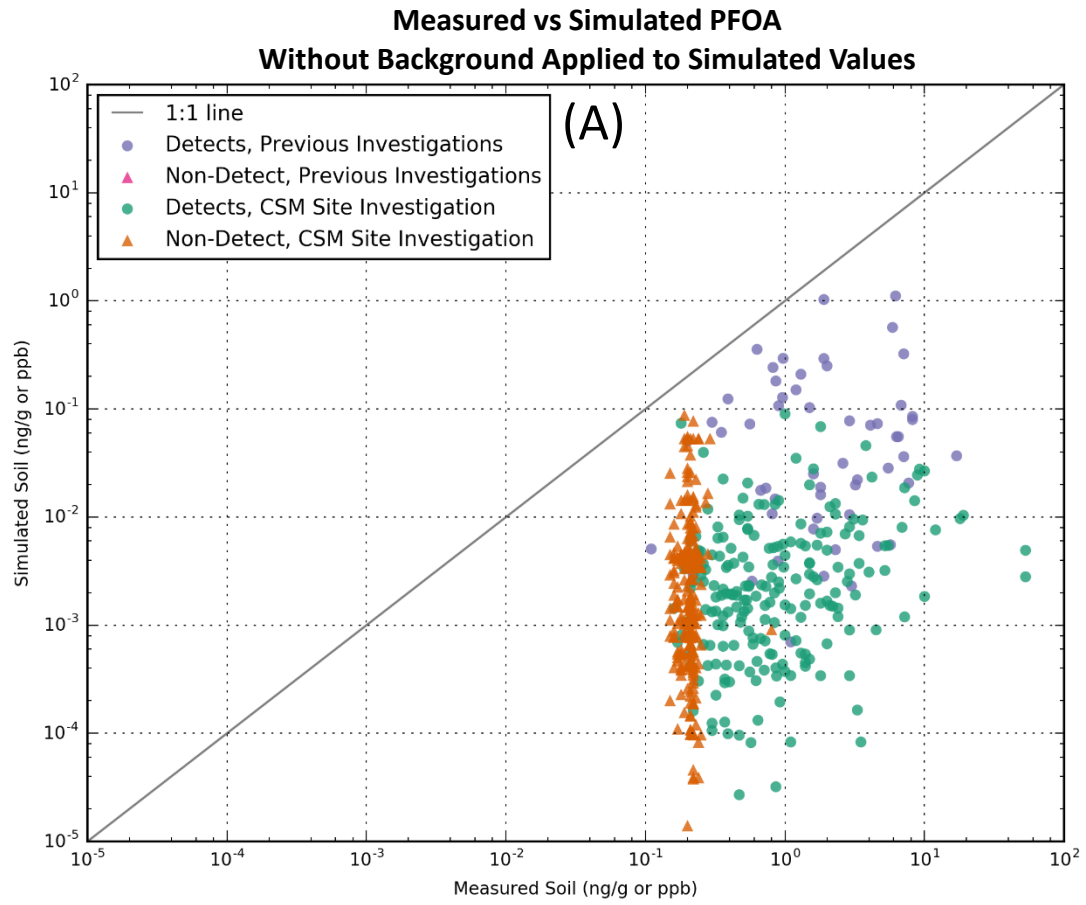

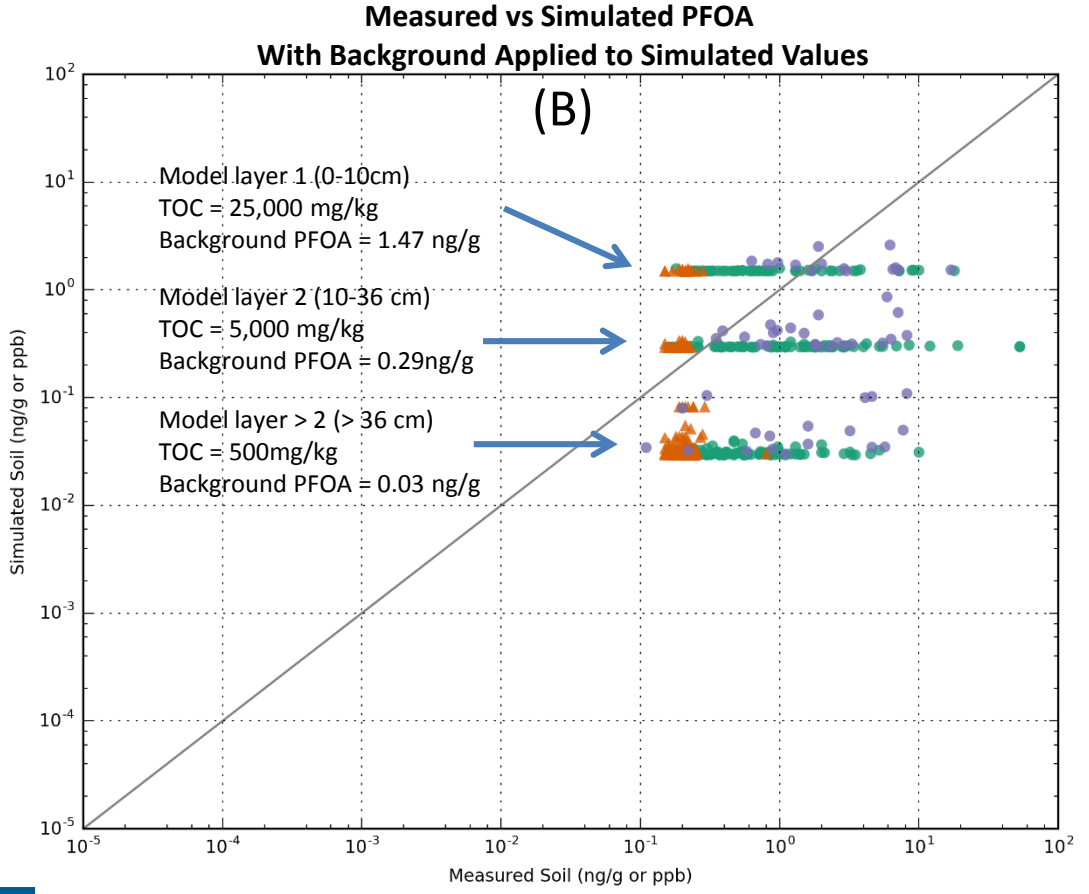

MEASURED VS. SIMULATED SOIL CONCENTRATION CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.20 A/B

BARR

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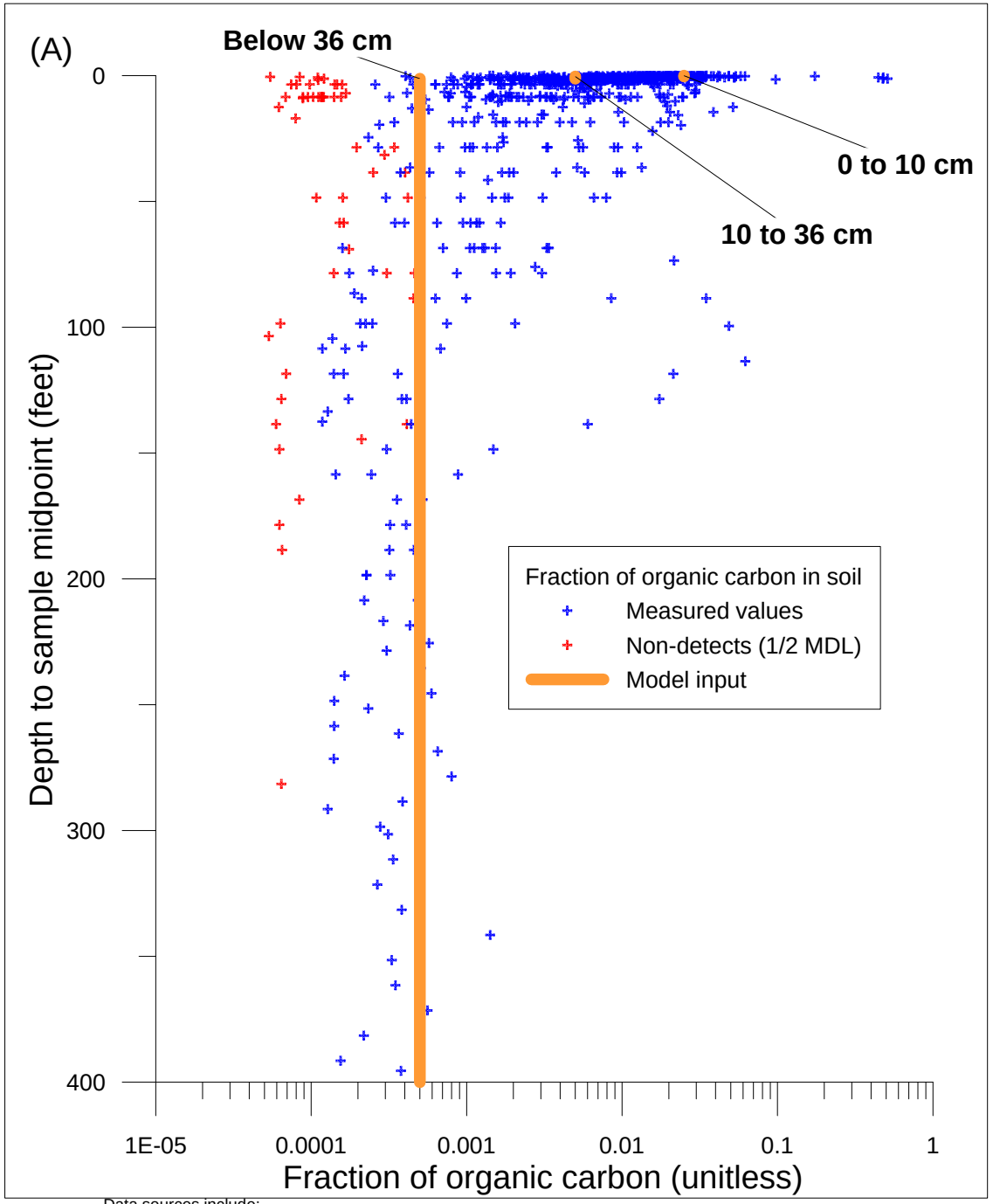

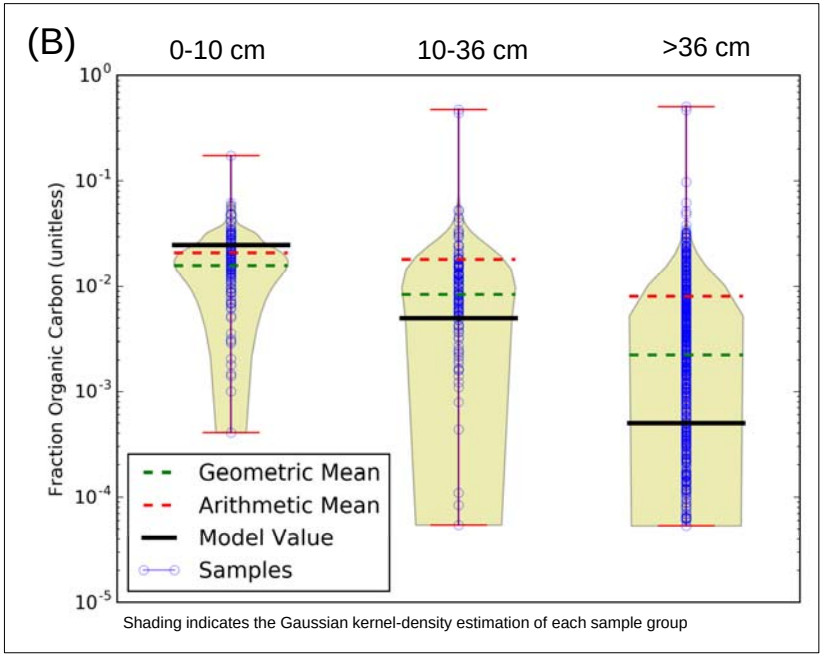

Data sources include:
CSM Site Investigation;
C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation;
C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016;
Bennington College (unpublished data)

f_{OC} VS DEPTH IN SOIL
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE 4.21 A/B

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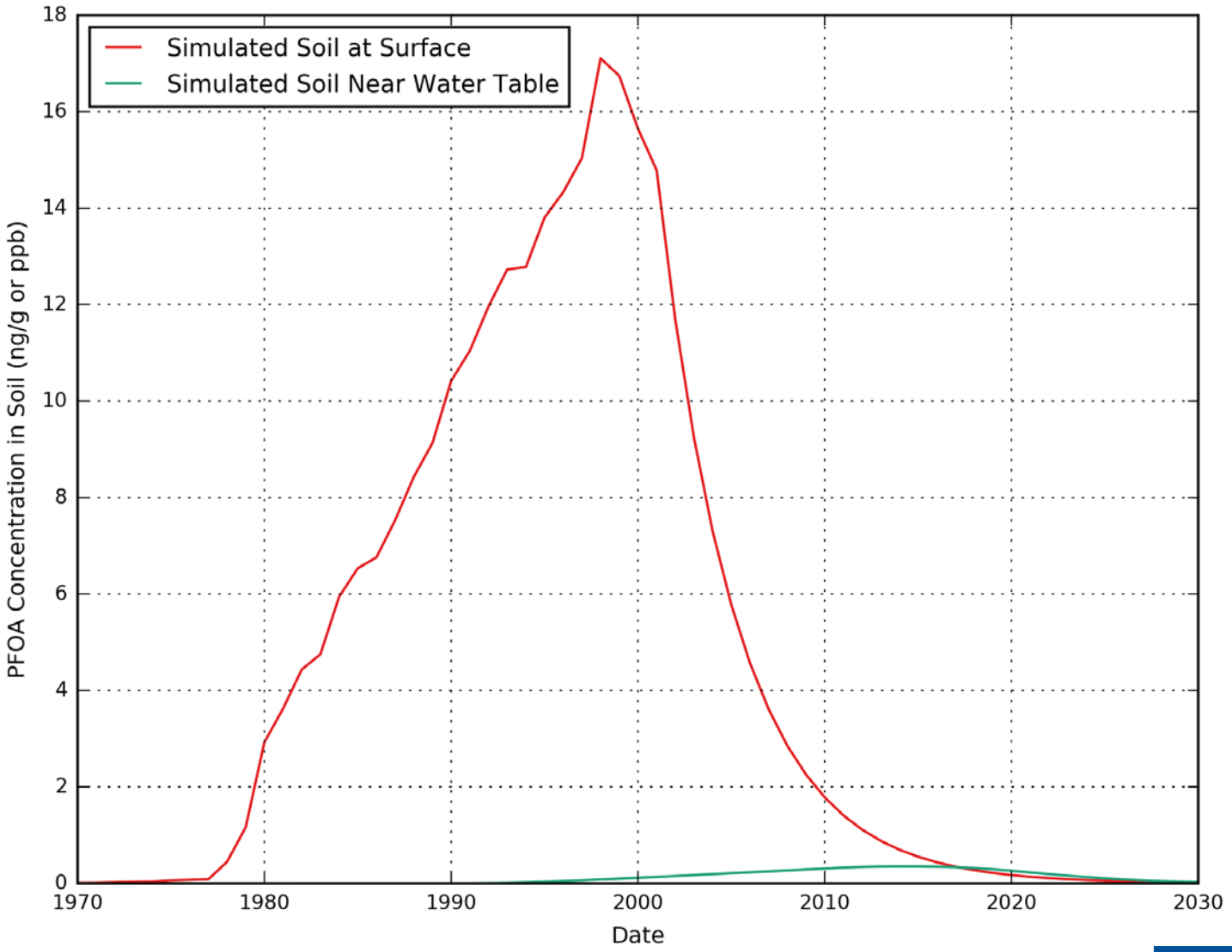

SIMULATED TIME SERIES
OF SOIL PFOA CONCENTRATION
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE 4.22

BARR

Appendices

Appendix A

Field Investigation

Appendix A.1 Boring Logs
Appendix A.2 Environmental Services Field Log
Appendix A.3 Field Boring Logs
Appendix A.4 Well Development Logs
Appendix A.5 Monitoring Well Construction Logs
Appendix A.6 Photo Log
Appendix A.7 Minor Modifications/Deviations from the Work Plan
Appendix A.8 Investigative Derived Waste Handling Summary
Appendix A.9 Survey Summary

Appendix A

Field Investigation

Appendix A.1 Boring Logs
Appendix A.2 Environmental Services Field Logs
Appendix A.3 Field Boring Logs
Appendix A.4 Well Development Logs
Appendix A.5 Monitoring Well Construction Logs
Appendix A.6 Photo Log
Appendix A.7 Minor Modifications/Deviations from the Work Plan
Appendix A.8 Investigative Derived Waste Handling Summary
Appendix A.9 Survey Summary

Appendix A.1

Boring Logs

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING S01

Project:	CSM Investigation	Surface Elevation:	717.4 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.95217475° Long: -73.24617927°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S01 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; light brown; dry; loose; some coarse to fine gravel; little clayey silt; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
		S01 (0.5-1')	**PID:**0.9 **D/O/S:**None/ None/ None					
		S01 (1-1.5')	**PID:**0.9 **D/O/S:**None/ None/ None					
2.5			**PID:**0.9 **D/O/S:**None/ None/ None	ML		CLAYEY SILT (ML): light brown; dry; soft; trace fine sand; [NATIVE].	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **+1'-4' bgs**	715.0
		S01 (3-4')		SM		SILTY SAND (SM): fine to coarse grained; light brown; dry; loose; some coarse to fine gravel; little clayey silt; [NATIVE].	GROUT Type: **N/A** Interval: **N/A**	
5.0							SEAL Type: **N/A** Interval: **N/A**	712.5
			PID:1.0 **D/O/S:**None/ None/ None				SANDPACK Type: **N/A** Interval: **N/A**	
		S01 (6.5-7.5')					SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **4-9'**	
7.5						At 7.5 feet; saturated. From 7.6 to 7.8 feet; clayey silt layer.	Temp Well SG3-S01	710.0
			PID:1.2 **D/O/S:**None/ None/ None					
10.0						End of boring 10.0 feet		707.5

Date Boring Started:	9/5/17
Date Boring Completed:	9/5/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S01-170905.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

O:\GINT\PROJECTS\32421001.03 SGPP BENNINGTON\32421001 SGPP BENNINGTON.GPJ BARRLIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING S02

Project:	CSM Investigation	Surface Elevation:	703.0 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.94390657° Long: -73.2230101°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S02 (0-0.5')	**PID:**1.4 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; medium brown; moist; loose; little clayey silt; little fine to coarse gravel; [FILL].	702.5
		S02 (0.5-1')	**PID:**4.3 **D/O/S:**None/ Slight/ None			From 0.5 to 1 feet; slight odor.	
		S02 (1-1.5')	**PID:**33 **D/O/S:**Dark/ Moderate/ None			From 1 to 1.5 feet; moderate odor, dark discoloration.	
2.5			**PID:**17 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND WITH GRAVEL (SP): fine to coarse grained; light brown; dry; loose; some coarse to fine gravel; [FILL].	700.0
		S02 (3-4')	**PID:**1.1 **D/O/S:**None/ None/ None				
5.0							697.5
7.5			**PID:**1.0 **D/O/S:**None/ None/ None				695.0
		S02 (8-9')					
10.0				CL/ ML		CLAYEY SILT (CL/ ML): light brown; dry to moist; soft; some coarse to fine sand; some fine gravel; [NATIVE].	
						End of boring 10.0 feet	

Date Boring Started:	9/7/17
Date Boring Completed:	9/7/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Grain size analysis samples collected.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S03

Project:	CSM Investigation	Surface Elevation:	732.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.94138152° Long: -73.21176251°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S03 (0-0.5')	**PID:**1.1 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND WITH GRAVEL (SP): medium brown; dry; loose; coarse to fine sand; coarse to fine gravel/crushed stone; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	732.5
		S03 (0.5-1')	**PID:**1.0 **D/O/S:**None/ None/ None					
		S03 (1-1.5')	**PID:**1.0 **D/O/S:**None/ None/ None	SC-SM		CLAYEY TO SILTY SAND WITH GRAVEL (SC- SM): fine to coarse grained; medium brown; moist; loose; some clayey silt; some coarse to fine gravel; [FILL].	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'**	
2.5			**PID:**0.8 **D/O/S:**None/ None/ None					730.0
		S03 (3-4')	**PID:**1.1 **D/O/S:**None/ None/ None	OL		ORGANIC CLAY (OL): medium brown; moist; soft; [NATIVE].	GROUT Type: **N/A** Interval: **N/A** SEAL Type: **N/A** Interval: **N/A**	
5.0								727.5
		S03 (6.6-7.6')					SANDPACK Type: **N/A** Interval: **N/A** SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'** Temp Well SG3-S03	
7.5				SM		SILTY SAND WITH GRAVEL (SM): medium brown; wet to saturated; coarse to fine sand; coarse to fine gravel; some clayey silt; [NATIVE]. At 7.6 feet; saturated.		725.0
10.0						End of boring 10.0 feet		

Date Boring Started:	9/7/17
Date Boring Completed:	9/7/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S03-170907.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S04

Project:	CSM Investigation	Surface Elevation:	1086.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.93981458° Long: -73.17360077°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S04 (0-0.5')	**PID:**0.8 **D/O/S:**None/ None/ None	GM		SILTY GRAVEL WITH SAND (GM): medium brown; dry; loose; coarse to fine gravel; some coarse to fine sand; little clayey silt; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	1085.0
		S04 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None					
		S04 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): medium brown; moist; little loose medium to fine gravel; trace medium to fine sand; [FILL].		
2.5			**PID:**0.7 **D/O/S:**None/ None/ None			POORLY GRADED SAND WITH GRAVEL (SP): light brown; dry; loose; fine sand; coarse to fine gravel; penetrating cobbles; [NATIVE].	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'**	
		S04 (3-4')	**PID:**0.9 **D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	1082.5
5.0			**PID:**0.9 **D/O/S:**None/ None/ None	SP			SEAL Type: **N/A** Interval: **N/A** SANDPACK Type: **N/A** Interval: **N/A**	
7.5		S04 (7-8')	**PID:**0.9 **D/O/S:**None/ None/ None			At 8 feet; saturated.	SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'** Temp Well SG3-S04	1080.0
								1077.5
10.0						End of boring 10.0 feet		

Date Boring Started:	9/6/17
Date Boring Completed:	9/6/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S04-170906.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S05

Project:	CSM Investigation	Surface Elevation:	528.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.94042453° Long: -73.27379613°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S05 (0-0.5')	**PID:**0.9 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): medium brown; moist; soft; little coarse to fine sand; little coarse to fine gravel; [NATIVE].	528.1
		S05 (0.5-1')	**PID:**1.0 **D/O/S:**None/ None/ None				527.5
		S05 (1-1.5')	**PID:**0.9 **D/O/S:**None/ None/ None				
2.5			**PID:**1.0 **D/O/S:**None/ None/ None				525.0
		S05 (3-4')	**PID:**1.1 **D/O/S:**None/ None/ None				
5.0							522.5
			PID:0.9 **D/O/S:**None/ None/ None				
				CL/ ML		CLAYEY SILT (CL/ ML): medium-light brown; dry; medium stiff; trace fine sand; [NATIVE].	
7.5							520.0
		S05 (8-9')					
				CL/ ML		CLAYEY SILT (CL/ ML): light brown; dry; medium stiff; some coarse to fine gravel; [NATIVE].	
			PID:1.1 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	9/5/17
Date Boring Completed:	9/5/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING S06

Project:	CSM Investigation	Surface Elevation:	535.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Geoprobe
Location:	Bennington, VT	Sampling Method:	Macrocore
Coordinates:	Lat: 42.93176475° Long: -73.26431308°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	9.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S06 (0-0.5')					
		S06 (0.5-1')	**PID:**0.0 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; grayish brown; moist; little fine gravel; gravel decreases with depth; [FILL].	535.0
		S06 (1-1.5')				LEAN CLAY WITH SAND (CL): dark grayish brown; moist; soft; little fine to medium grained mostly sand; low plasticity; low toughness; [NATIVE].	
2.5			**PID:**0.0 **D/O/S:**None/ None/ None	CL			532.5
		S06 (3-4')					
5.0			**PID:**0.0 **D/O/S:**None/ None/ None	SC		CLAYEY SAND WITH GRAVEL (SC): fine to coarse grained; dark grayish brown; moist; little fine gravel; predominantly quartzite and slate; [NATIVE].	530.0
7.5			**PID:**0.0 **D/O/S:**None/ None/ None				527.5
		S06 (8-9')				At 8.5 feet; encountered cobble.	
						End of boring 9.0 feet	
10.0							

Date Boring Started:	8/14/17
Date Boring Completed:	8/14/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered. Complete multiple pushes for each depth to obtain sufficient sample volume.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S07

Project:	CSM Investigation	Surface Elevation:	710.0 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92789945° Long: -73.22157578°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S07 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH/ SM		ORGANIC SOIL (OL/ OH): very dark brown; sandy topsoil; clayey fines; trace fine gravel; grass at surface; abundant rootlets; [FILL].	710.0
		S07 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine to coarse grained; brown; moist; few fine gravel; trace roots; fines increasing with depth; [FILL].	
		S07 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None			LEAN CLAY (CL): soft; trace sand and fine gravel; silty; few to trace roots in upper portion; [NATIVE].	
2.5			**PID:**0.2 **D/O/S:**None/ None/ None				707.5
		S07 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None	CL			
5.0							705.0
			PID:0.3 **D/O/S:**None/ None/ None				
7.5				CL/ ML		CLAYEY SILT (CL/ ML): trace fine grained sand; trace to few angular to subrounded fine gravel; [NATIVE].	702.5
		S07 (8-9')	**PID:**0.4 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): moist; firm; some fine to coarse sand; few fine angular to subrounded gravel; pulverized rock in the cutting shoe; low to medium plasticity; low toughness; [NATIVE].	
			PID:0.3 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/18/17
Date Boring Completed:	8/18/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING S08

Project:	CSM Investigation	Surface Elevation:	776.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.93264° Long: -73.20893719°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S08 (0-0.5')	**PID:**3.0 **D/O/S:**None/ None/ None	OL		ORGANIC SILT (OL): light brown; moist; soft; trace fine sand; [NATIVE].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	775.0
		S08 (0.5-1')	**PID:**1.1 **D/O/S:**None/ None/ None					
		S08 (1-1.5')	**PID:**1.1 **D/O/S:**None/ None/ None			At 1.2 feet; color changes to dark brown.		
2.5		S08 (1.5-2.2')	**PID:**0.6 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **+2-3' bgs**	
			PID:1.1 **D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	772.5
				GM		SILTY GRAVEL (GM): medium brown; saturated; soft; medium to fine; some clayey silt; [NATIVE].		
5.0				CL/ ML		CLAYEY SILT (CL/ ML): medium brown and gray; moist; stiff; trace fine sand; [NATIVE].	SEAL Type: **N/A** Interval: **N/A**	
							SANDPACK Type: **N/A** Interval: **N/A**	770.0
			PID:0.8 **D/O/S:**None/ None/ None				SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **3-8'**	
7.5						End of boring 8.0 feet	Temp Well SG3-S08	
10.0								

Date Boring Started:	9/8/17
Date Boring Completed:	9/8/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S08-170908.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S09

Project:	CSM Investigation	Surface Elevation:	1044.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92847616° Long: -73.17866222°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S09 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; some fine grained sand; mostly silt; grass at surface; pine needles and acorns; [FILL].	
		S09 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None				
		S09 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine grained; light tan to light pale brown; moist; some silt fines; few rounded gravel; [FILL].	1042.5
2.5			**PID:**0.3 **D/O/S:**None/ None/ None				
		S09 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None	ML		SANDY SILT (ML): yellowish brown to dark yellowish brown; moist; some fine grained sand; non-plastic; rapid dilatancy; [NATIVE].	1040.0
5.0			**PID:**0.6 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine grained; dark yellow brown to yellowish brown; moist; some silt fines; trace fine gravel; [NATIVE].	1037.5
7.5		S09 (8-9')	**PID:**0.3 **D/O/S:**None/ None/ None			At 8.5 feet; becomes yellow brown.	1035.0
			PID:0.3 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/22/17
Date Boring Completed:	8/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S10

Project:	CSM Investigation	Surface Elevation:	961.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92696021° Long: -73.18425606°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S10 (0-0.5')	**PID:**1.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; little fine gravel; abundant roots.	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	960.0
		S10 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY (CL): dark brown; moist; some fine to coarse grained sand; some fine gravel; trace roots; low to medium plasticity; [NATIVE].		
		S10 (1-1.5')	**PID:**1.0 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): brown to light brown; firm; little quartzite gravel; abundant roots; low to medium plasticity; slow dilatancy; [NATIVE].	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **+2-3' bgs**	
2.5			**PID:**0.8 **D/O/S:**None/ None/ None					
		S10 (3-4')	**PID:**0.6 **D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	957.5
5.0		S10 (4.1-5.1')	**PID:**0.2 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY (CL): brown; moist; little to some quartzite gravel; low to medium plasticity; [NATIVE].	SEAL Type: **N/A** Interval: **N/A**	
		S10 (3-8') GW		GC		CLAYEY GRAVEL (GC): brown; wet; fine to coarse angular gravel; soft; medium plasticity clayey matrix; [NATIVE].	SANDPACK Type: **N/A** Interval: **N/A**	955.0
7.5							SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **3-8'**	
10.0						End of boring 8.0 feet	Temp Well SG3-S10	

Date Boring Started:	8/23/17
Date Boring Completed:	8/23/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S10-170823.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING S11

Project:	CSM Investigation	Surface Elevation:	698.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92769289° Long: -73.23491612°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S11 (0-0.5')	**PID:**7.8 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; mostly root material; [FILL].	
		S11 (0.5-1')	**PID:**9.0 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; brown to light brown; moist; trace roots to 0.6 feet; [FILL].	697.5
		S11 (1-1.5')	**PID:**9.1 **D/O/S:**None/ None/ None				
2.5			**PID:**6.3 **D/O/S:**None/ None/ None				695.0
		S11 (3-4')					
5.0				CL		LEAN CLAY (CL): light brown to tan; moist; thin silty layers; trace angular gravel; medium plasticity; no dilatancy; [NATIVE].	692.5
			PID:5.1 **D/O/S:**None/ None/ None				
7.5				CH		FAT CLAY (CH): light grayish brown to brownish gray; thin laminations of gray silt; high plasticity; no dilatancy; high toughness; weak HCl reaction; [NATIVE].	690.0
		S11 (8-9')					
			PID:4.3 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/28/17
Date Boring Completed:	8/28/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING S11-2

Project:	CSM Investigation	Surface Elevation:	698.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92769289° Long: -73.23491612°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S11 (0-0.5')	**PID:**2.1 **D/O/S:**None/ None/ None	CL/ ML		SILTY CLAY (CL/ ML): light brown; moist; loose; some coarse to fine sand; some medium to fine gravel; [FILL].	697.5
		S11 (0.5-1')	**PID:**35 **D/O/S:**None/ None/ None				
		S11 (1-1.5')	**PID:**18 **D/O/S:**None/ None/ None				
2.5			**PID:**5.2 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND WITH GRAVEL (SP): fine to coarse grained; medium brown; moist; loose; some coarse to fine gravel; trace clayey silt; [FILL].	695.0
		S11 (3-4')	**PID:**11 **D/O/S:**None/ None/ None				
5.0			**PID:**1.0 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): light brown; dry; medium stiff; trace fine sand; [NATIVE].	692.5
7.5		S11 (7.4-8.4')					
				SP		POORLY GRADED SAND (SP): fine to coarse grained; light brown; saturated; loose; trace clayey silt; [NATIVE].	690.0
			PID:2.4 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): light brown and gray; moist to dry; medium stiff; trace fine sand; [NATIVE].	
10.0						End of boring 10.0 feet	

Date Boring Started:	9/7/17
Date Boring Completed:	9/7/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Ambient air reading inside PID bag = 5.5 ppm.
No groundwater sample collected; insufficient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S12

Project:	CSM Investigation	Surface Elevation:	812.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92441478° Long: -73.20958116°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S12 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	OL		ORGANIC SOIL (OL): brown; moist; fine to medium grained sand; trace to few fine gravel; abundant roots; [FILL].	812.5
		S12 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; brown; moist; few fine gravel; trace organics; [FILL].	
		S12 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; brown; moist; little to some fine gravel; [FILL].	
2.5			**PID:**0.6 **D/O/S:**None/ None/ None				810.0
				CL		SANDY LEAN CLAY (CL): brown; moist; little to some fine to coarse grained sand and gravel; medium plasticity; [TILL].	
		S12 (3-4')		CH		FAT CLAY WITH GRAVEL (CH): dark brownish gray; moist; little fine gravel; trace to few sand; blocky; medium to high plasticity; [TILL].	
		S12 (4.5-4.9')		CL		LEAN CLAY (CL): brown; moist; very hard; few fine gravel; few fine to coarse grained sand; medium plasticity; [TILL]. From 4.5 to 4.9 feet; very dark brown to black; organic soil (peat); abundant roots and wood fragments.	
5.0							807.5
			PID:2.2 **D/O/S:**None/ None/ None				
7.5						DECOMPOSED SCHIST: very dark gray to black; platy/foliated; chlorite present; trace reddish brown oxidation on fracture planes.	805.0
		S12 (8-9')	**PID:**0.3 **D/O/S:**None/ None/ None				
			PID:0.2 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/25/17
Date Boring Completed:	8/25/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S13

Project:	CSM Investigation	Surface Elevation:	977.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.9253324° Long: -73.19625096°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S13 (0-0.5')	**D/O/S:**None/ Slight/ None	OL		ORGANIC SILT (OL): black; moist; soft; little coarse to fine sand; little medium to fine gravel; compost odor; [FILL].	
		S13 (0.5-1')	**PID:**2.1 **D/O/S:**None/ None/ None			SAND (SP): fine to coarse grained; light tan; dry; loose; little coarse to fine gravel; little cobbles; [FILL].	
		S13 (1-1.5')	**PID:**2.1 **D/O/S:**None/ None/ None				
2.5			**PID:**1.2 **D/O/S:**None/ None/ None				975.0
		S13 (3-4')	**D/O/S:**None/ None/ None	SP			
5.0							972.5
			PID:1.1 **D/O/S:**None/ None/ None				
7.5						CLAYEY SILT WITH SAND AND GRAVEL (CL- ML): light brown; dry to moist; medium stiff; some coarse to fine sand; some medium to fine gravel; [NATIVE].	970.0
		S13 (8-9')	**PID:**1.2 **D/O/S:**None/ None/ None	CL-ML			
			PID:0.9 **D/O/S:**None/ None/ None				967.5
10.0						End of boring 10.0 feet	

Date Boring Started:	9/18/17
Date Boring Completed:	9/18/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S14

Project:	CSM Investigation	Surface Elevation:	684.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92929998° Long: -73.25278514°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S14 (0-0.5')	**PID:**5.8 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; silty; abundant roots; trace asphalt debris; [FILL].	
		S14 (0.5-1')	**PID:**5.7 **D/O/S:**None/ None/ None			SILTY SAND TO CLAYEY SAND (SM/ SC): fine to coarse grained; brown; moist; few fine gravel; some silty to clayey fines; [FILL].	
		S14 (0-0.5')	**PID:**5.8 **D/O/S:**None/ None/ None				
2.5			**PID:**4.6 **D/O/S:**None/ None/ None	SM/ SC		At 2.5 feet; becomes moist to wet; increased moisture above observed schist clast.	682.5
		S14 (3-4')	**PID:**3.2 **D/O/S:**None/ None/ None			At 3.5 feet; 3 inch layer of schist; weathered and fractured in planes; some fracture planes have orange oxidation.	
5.0			**PID:**3.1 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY (CL): brownish gray to brown; moist; some gravel and decomposed schist; low to medium plasticity; [TILL].	680.0
						From 5.0 to 8.0 feet; increased clasts of weathered schist and angular gravel.	
7.5		S14 (8-9')				From 8.6 to 10.0 feet; mostly clasts of weathered schist.	677.5
			PID:3.0 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	675.0

Date Boring Started:	8/28/17
Date Boring Completed:	8/28/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S16

Project:	CSM Investigation	Surface Elevation:	910.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Stainless Spoon/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92258282° Long: -73.19394426°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	6.9 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0	S16 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None		TOPSOIL: wetland vegetation.	910.0
	S16 (0.5-1')	**PID:**0.7 **D/O/S:**None/ None/ None		COBBLES: brown; moist to wet; infilled with sand and subround gravel with few subround boulders; trace fines.	
	S16 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None			
2.5			SM	SILTY SAND (SM): brown; saturated; fine grained with some medium to coarse grained sand; fine to coarse subround gravel; little fines.	907.5
5.0		**PID:**0.3 **D/O/S:**None/ None/ None			905.0
7.5				End of boring 6.9 feet	
10.0					

WELL OR PIEZOMETER CONSTRUCTION DETAIL

PRO. CASING
Diameter: **N/A**
Type: **N/A**
Interval: **N/A**

RISER CASING
Diameter: **1"**
Type: **Sch. 40 PVC**
Interval: **0-1.9'**

GROUT
Type: **N/A**
Interval: **N/A**

SEAL
Type: **N/A**
Interval: **N/A**

SANDPACK
Type: **N/A**
Interval: **N/A**

SCREEN
Diameter: **2"**
Type: **0.010 Sch. 40 PVC**
Interval: **1.9-6.9'**

Temp Well SG3-S21

Date Boring Started:	9/20/17
Date Boring Completed:	9/21/17
Logged By:	DJZ/R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S06-170921. Upper 1.5' of soil sampled by combination of Hand Auger and a Stainless Steel spoon after removing cobbles by hand.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S18

Project:	CSM Investigation	Surface Elevation:	920.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92162847° Long: -73.19605999°	Completion Depth:	6.3 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S18 (0-0.5')	**PID:**1.8 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT WITH SAND AND GRAVEL (CL/ ML): medium brown; moist; loose; little coarse to fine gravel; little coarse to fine sand; [FILL].	920.0
		S18 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None				
		S18 (1-1.5')	**PID:**1.4 **D/O/S:**None/ None/ None				
2.5			**PID:**1.0 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND WITH GRAVEL (SP): light brown; moist; loose; fine to coarse grained sand; coarse to fine gravel; trace clayey silt; [FILL].	917.5
		S18 (3-4')	**PID:**0.7 **D/O/S:**None/ None/ None				
5.0			**PID:**1.2 **D/O/S:**None/ None/ None				915.0
		S18 (5.3-6.3')	**PID:**0.6 **D/O/S:**None/ None/ None			Refusal at 6.3 feet.	
						End of boring 6.3 feet	
7.5							
10.0							

Date Boring Started:	9/13/17
Date Boring Completed:	9/13/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Encountered refusal at 6.3' bgs due to rock/probable boulders. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S20

Project:	CSM Investigation	Surface Elevation:	908.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger
Location:	Bennington, VT	Sampling Method:	Hand Auger
Coordinates:	Lat: 42.92117077° Long: -73.19297849°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	1.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0							908.0
				OL/ OH		ORGANIC SOIL (OL/ OH): roots/wood fragments/plant material, little to trace biogenic sheen at groundwater contact.	
0.5			**PID:**NA **D/O/S:**None/ None/ Biogenic				907.5
1.0				PT		PEAT (PT): brown to dark brown to black.	907.0
1.5						End of boring 1.5 feet	
2.0							
2.5							
3.0							
3.5							
4.0							
4.5							
5.0							

Date Boring Started:	9/22/17
Date Boring Completed:	9/22/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater sample not collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S21

Project:	CSM Investigation	Surface Elevation:	915.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92144335° Long: -73.19497038°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S21 (0-0.5')	**PID:**21 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT WITH SAND AND GRAVEL (CL/ ML): medium brown; moist; soft; little coarse to fine sand; little coarse to fine gravel; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	915.0
		S21 (0.5-1')	**PID:**4.8 **D/O/S:**None/ None/ None					
		S21 (1-1.5')	**PID:**3.1 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'**	
2.5			**PID:**1.0 **D/O/S:**None/ None/ None			POORLY GRADED SAND (SP): fine to coarse grained; tan; dry; loose; trace fine gravel; [FILL].		912.5
		S21 (3-4')	**D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	
							SEAL Type: **N/A** Interval: **N/A**	
5.0			**PID:**0.7 **D/O/S:**None/ None/ None			At 5.4 feet; increased to some medium to fine gravel.	SANDPACK Type: **N/A** Interval: **N/A**	910.0
				SP				
			D/O/S: None/ None/ None				SCREEN Diameter: **2"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'**	
7.5			**PID:**0.5 **D/O/S:**None/ None/ None			At 7.3 feet, saturated.	Temp Well SG3-S21	907.5
10.0			**PID:**0.4 **D/O/S:**None/ None/ None			End of boring 10.0 feet		

Date Boring Started:	9/13/17
Date Boring Completed:	9/13/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S21-170913.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S22

Project:	CSM Investigation	Surface Elevation:	955.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92114789° Long: -73.19895721°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S22 (0-0.5')	**PID:**1.4 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT WITH SAND AND GRAVEL (CL/ ML): medium brown; dry; soft; little coarse to fine sand; little coarse to fine gravel; [FILL].	955.0
		S22 (0.5-1')	**PID:**1.3 **D/O/S:**None/ None/ None				
		S22 (1-1.5')	**PID:**1.1 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; medium brown; dry to moist; loose; trace clayey silt; little coarse to fine gravel; [FILL].	
2.5			**PID:**1.0 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT WITH SAND AND GRAVEL (CL/ ML): medium brown; dry to moist; soft; little coarse to fine sand; little coarse to fine gravel; [NATIVE].	952.5
		S22 (3-4')	**PID:**0.9 **D/O/S:**None/ None/ None				
5.0			**PID:**1.1 **D/O/S:**None/ None/ None				950.0
7.5			**PID:**1.4 **D/O/S:**None/ None/ None			From 7.1 to 7.4 feet; cobbles. From 8.2 to 9 feet; cobbles.	947.5
		S22 (9-10')	**D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	9/18/17
Date Boring Completed:	9/18/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S24

Project:	CSM Investigation	Surface Elevation:	948.0 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92045328° Long: -73.19846865°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S24 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None			TOPSOIL: grass/vegetated surface hill side.		947.5
		S24 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None	ML		SANDY SILT (ML): brown; moist; fine sand with trace medium to coarse grained sand; trace fine to coarse subround gravel; organics/roots within matrix.	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
		S24 (1-1.5')	**PID:**0.5 **D/O/S:**None/ None/ None	ML		CLAYEY SILT (ML): brown; moist to wet; fine sand with trace medium to coarse grained sand; trace fine to coarse subround gravel; roots.		
2.5			**PID:**2.2 **D/O/S:**None/ None/ None			SILTY SAND (SM): very fine to fine grained; grayish brown; moist; trace medium to coarse grained sand; little silt; trace fine gravel; trace roots.	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-3'**	945.0
		S24 (2.7-3.7')	**PID:**1.1 **D/O/S:**None/ None/ None			At 3 feet; 1 inch lens of black organics.	GROUT Type: **N/A** Interval: **N/A**	
5.0				SM		At 3.5 feet, thin black fine sand lenses.	SEAL Type: **N/A** Interval: **N/A**	942.5
			PID:0.7 **D/O/S:**None/ None/ None				SANDPACK Type: **N/A** Interval: **N/A**	
7.5							SCREEN Diameter: **2"** Type: **0.010 Sch. 40** Interval: **PVC** **3-8'**	
						End of boring 8.0 feet	Temp Well SG3-S21	
10.0								

Date Boring Started:	9/19/17
Date Boring Completed:	9/19/17
Logged By:	DJZ/R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S24-170919.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S25

Project:	CSM Investigation	Surface Elevation:	919.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.91995146° Long: -73.1959826°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0						TOPSOIL: dark brown; grass at surface; silty with very fine sand.	
		S25 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): very fine to fine with few medium grained; brown; moist; few roots.	
		S25 (0.5-1')	**PID:**0.5 **D/O/S:**None/ None/ None			At 0.5 feet; tan; few silt with very fine sand; few roots/organics.	
		S25 (1-1.5')	**PID:**0.3 **D/O/S:**None/ None/ None				917.5
2.5			**PID:**0.4 **D/O/S:**None/ None/ None	ML		SILT (ML): brown to tan; moist; few lenses of fine to very fine grained sand; little clay within zones with reddish brown and brown color laminations; few black organics/manganese oxidation spots.	
		S25 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None			At 3.5 feet; trace gravel.	
						SANDY SILT (ML): brown; wet; few lenses of fine to very fine grained sand; little clay within zones with reddish brown and brown color laminations; few black organics/manganese oxidation spots. At 4 feet, higher moisture content.	915.0
5.0		S25 (4.6-5.6')					
			PID:0.6 **D/O/S:**None/ None/ None	ML		At 5.8 feet; wet sandy lenses.	912.5
7.5						From 8.5 to 9.2 feet; very hard rock encountered; very soft below. At 9 feet; saturated; manganese oxidation stains within mottles and laminations.	
			PID:0.9 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): brown; moist; fine with little medium to coarse sand; little silt, trace subround gravel; [TILL].	910.0
10.0						End of boring 10.0 feet	

Date Boring Started:	9/21/17
Date Boring Completed:	9/21/17
Logged By:	DJZ/R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Temporary well constructed at this location, however no GW sample collected due to insufficient volume of water. Therefore well construction was not reported on this log.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S26

Project:	CSM Investigation	Surface Elevation:	940.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92019588° Long: -73.19768723°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S26 (0-0.5')	**PID:**1.0 **D/O/S:**None/ None/ None	ML		TOPSOIL (ML): dark brown; moist; silty with little fine with medium to coarse grained sand; surface is vegetated grass/plants; little subround and elongated gravel; low to medium plasticity.	
		S26 (0.5-1')	**PID:**3.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to very fine grained; brown; moist; some medium to coarse grained subround sand; little subround gravel; decreasing silt with depth; [FILL].	940.0
		S26 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None			At 1.75 feet; 4 inch thick geotextile liner.	
				ML		SILT (ML): brown; moist; little fine sand.	
2.5			**PID:**0.5 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): very grained; brown; moist; very fine to fine with little medium to coarse grained sand; few to little fine to coarse subround gravel.	937.5
		S26 (3-4')	**PID:**0.5 **D/O/S:**None/ None/ None				
5.0							935.0
			PID:0.5 **D/O/S:**None/ None/ None				
7.5				ML		SANDY SILT (ML): dark brown; moist; fine with very fine sand with few medium to coarse grained sand; black organic fragments and roots; few subround gravel; low plasticity.	932.5
		S26 (8-9')	**PID:**0.5 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): very fine to fine grained; brown; moist to wet; trace subround gravel; low plasticity.	
			PID:0.3 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	9/20/17
Date Boring Completed:	9/20/17
Logged By:	DJZ/R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S27

Project:	CSM Investigation	Surface Elevation:	945.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.92030679° Long: -73.19822983°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S27 (0-0.5')	**PID:**5.3 **D/O/S:**None/ None/ None			Grass at surface.	
		S27 (0.5-1')	**PID:**4.7 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): very fine grained; brown; moist; roots; little silt; little medium to coarse subround to subangular sand; little fine to coarse subrounded gravel; [FILL].	945.0
		S27 (1-1.5')	**PID:**1.1 **D/O/S:**None/ None/ None			At 1.75 feet; geotextile liner.	
2.5			**PID:**0.6 **D/O/S:**None/ None/ None			SILTY SAND (SM): very fine grained; brown/grayish brown/golden/orange mix of colors; some gray mottles with few rusty orange oxidation; few black organics/lenses; [FILL].	942.5
		S27 (3-4')	**PID:**0.7 **D/O/S:**None/ None/ None	SM		At 3 feet; only grayish color.	
5.0						At 5 feet; higher moisture content.	940.0
						At 6 feet; trace gravel.	
			PID:1.2 **D/O/S:**None/ None/ None			SILT (ML): tan; moist; little very fine sand; low plasticity; [NATIVE].	
7.5		S27 (7-8')		ML		At 8 feet; saturated; becoming more sandy.	937.5
			PID:0.3 **D/O/S:**None/ None/ None			At 9.5 feet; trace gravel.	
10.0						End of boring 10.0 feet	

Date Boring Started:	9/20/17
Date Boring Completed:	9/20/17
Logged By:	DJZ/R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: No groundwater sample collected; insufficient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S28

Project:	CSM Investigation	Surface Elevation:	894.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.91941028° Long: -73.18989212°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S28 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; medium brown; dry; loose; little silt; little coarse to fine gravel; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	892.5
		S28 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None					
		S28 (1-1.5')	**PID:**0.6 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-3'**	
2.5		S28 (2.7-3.7')	**PID:**0.5 **D/O/S:**None/ None/ None			From 3.1-3.7 feet; encountered quartzite cobble.	GROUT Type: **N/A** Interval: **N/A**	890.0
				OL		ORGANIC CLAY (OL): dark brown; saturated; soft; [NATIVE].	SEAL Type: **N/A** Interval: **N/A**	
5.0				SM		SILTY SAND (SM): fine to coarse grained; medium brown; saturated; loose; little silt; [NATIVE]. At 4 feet; little cobble.	SANDPACK Type: **N/A** Interval: **N/A**	887.5
			PID:0.5 **D/O/S:**None/ None/ None				SCREEN Diameter: **2"** Type: **0.010 Sch. 40** Interval: **PVC** **3-8'**	
7.5						End of boring 8.0 feet	Temp Well SG3-S21	
10.0								

Date Boring Started:	9/28/17
Date Boring Completed:	9/28/17
Logged By:	L. Cameron (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S28-170928.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S29

Project:	CSM Investigation	Surface Elevation:	908.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger
Location:	Bennington, VT	Sampling Method:	Hand Auger
Coordinates:	Lat: 42.91955943° Long: -73.19354239°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	1.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0							908.5
				OL/ OH		ORGANIC SOIL (OL/ OH): roots/wood fragments/plant material, trace biogenic sheen at groundwater contact.	
0.5			**PID:**NA **D/O/S:**None/ None/ Biogenic				908.0
1.0				PT		PEAT (PT): brown to dark brown to black.	907.5
1.5						End of boring 1.5 feet	
2.0							
2.5							
3.0							
3.5							
4.0							
4.5							
5.0							

Date Boring Started:	9/22/17
Date Boring Completed:	9/22/17
Logged By:	DJZ/RAK
Drilling Contractor:	NA
Drill Rig:	NA

Remarks: Groundwater sample not collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S30

Project:	CSM Investigation	Surface Elevation:	871.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.9130689° Long: -73.19080765°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S30 (0-0.5')		OL/ OH		ORGANIC SOIL (OL/ OH): grass at surface; [NATIVE].	
		S30 (0.5-1')	**PID:**1.8 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine to medium grained; very dark brown; moist; trace to few fine subangular to subrounded gravel; abundant rootlets; increasing coarse grained sand and fine gravel with depth; [NATIVE].	
		S30 (1-1.5')	**PID:**1.9 **D/O/S:**None/ None/ None				870.0
2.5			**PID:**0.4 **D/O/S:**None/ None/ None				
		S30 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None			From 3.0 to 10.0 feet; very dark brown grades into yellowish brown.	867.5
5.0				SM			
			PID:0.4 **D/O/S:**None/ None/ None				865.0
7.5		S30 (8-9')	**PID:**0.5 **D/O/S:**None/ None/ None			Below 9 feet; very moist.	862.5
10.0			**PID:**0.4 **D/O/S:**None/ None/ None			End of boring 10.0 feet	

Date Boring Started:	8/18/17
Date Boring Completed:	8/18/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Temporary well was constructed at this location, however no GW sample collected due to insufficient volume of water. Therefore, well construction was not reported on this log.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S31

Project:	CSM Investigation	Surface Elevation:	790.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.9143776° Long: -73.21064609°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S31 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; little fine grained sand; abundant roots; [NATIVE].	790.0
		S31 (0.5-1')	**PID:**1.1 **D/O/S:**None/ None/ None	CL/ GC		GRAVELLY CLAY TO CLAYEY GRAVEL (CL/ GC): brown; moist; little to some fine to coarse gravel; few fine grained sand; low to medium plasticity; [NATIVE]. At 1.0 feet; cobble observed.	
		S31 (1-1.5')	**D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): dark brown; moist; some coarse grained sand and fine gravel; silty; subangular to subround sand and gravel; medium plasticity; [TILL].	
2.5			**PID:**0.2 **D/O/S:**None/ None/ None				787.5
		S31 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None				
5.0				CL			785.0
			PID:0.3 **D/O/S:**None/ None/ None			At 6.0 feet; boulder or cobble encountered.	
7.5							782.5
		S31 (8-9')				At 9.0 feet; 0.2 inch layer of medium grained clayey sand.	
			PID:0.3 **D/O/S:**None/ None/ None			From 9.5 to 10.0 feet; trace iron oxidation.	
10.0						End of boring 10.0 feet	

Date Boring Started:	8/25/17
Date Boring Completed:	8/25/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S32

Project:	CSM Investigation	Surface Elevation:	911.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.91230538° Long: -73.17948664°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S32 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	OL/ OH/ SC		ORGANIC SOIL (OL/ OH): very dark brown; moist; some fine to coarse grained sand and gravel; trace silt; low plasticity; [NATIVE].	
		S32 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None			CLAYEY SAND (SC): fine to coarse grained; brown; moist; some clay fines; trace organics; [NATIVE].	
		S32 (1-1.5')	**PID:**0.3 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; brown; moist; trace fine gravel; [NATIVE].	
						SILTY SAND (SM): fine to coarse grained; brown; moist; few fine gravel; [NATIVE].	910.0
2.5			**PID:**0.3 **D/O/S:**None/ None/ None	SM		At 2.7 feet; 3.5 inch layer of very dark brown organic soil (peat).	
		S32 (3-4')				At 3.5 feet; becomes mostly silt.	907.5
5.0			**PID:**0.4 **D/O/S:**None/ None/ None	SM/ ML		SILTY SAND TO SANDY SILT (SM/ ML): fine to medium grained; brown; moist; few fine gravel; [TILL].	905.0
7.5		S32 (8-9')	**D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): brown; moist; little fine grained sand; trace to few fine angular gravel; [TILL].	902.5
10.0			**PID:**0.2 **D/O/S:**None/ None/ None			End of boring 10.0 feet	

Date Boring Started:	8/24/17
Date Boring Completed:	8/24/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S33

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91023262° Long: -73.2128252°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 664.1 ft
Drilling Method: Hand Auger/Geoprobe
Sampling Method: Hand Auger/Macrocore
Completion Depth: 10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S33 (0-0.5')	**PID:**1.0 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): medium brown; dry; soft; little fine to medium sand; [NATIVE].	664.1
		S33 (0.5-1')	**PID:**1.0 **D/O/S:**None/ None/ None			Below 0.5 feet; trace medium to fine gravel.	
		S33 (1-1.5')	**PID:**1.0 **D/O/S:**None/ None/ None				
							662.5
			PID:1.6 **D/O/S:**None/ None/ None			Below 2 feet; little coarse to fine gravel.	
2.5							
		S33 (3-4')	**PID:**1.8 **D/O/S:**None/ None/ None				
							660.0
5.0						Below 5.5 feet; moist; medium stiff.	
			PID:1.0 **D/O/S:**None/ None/ None				
							657.5
7.5							
		S33 (8-9')	**PID:**1.5 **D/O/S:**None/ None/ None				
							655.0
			PID:0.9 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started: 9/27/17
Date Boring Completed: 9/27/17
Logged By: R. Koslosky (CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: 7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S34

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.9070635° Long: -73.22516882°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 573.0 ft
Drilling Method: Hand Auger/Geoprobe
Sampling Method: Hand Auger/Macrocore
Completion Depth: 8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S49 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None	CL/ ML		SILTY CLAY (CL/ ML): dark brown; moist; soft; trace coarse to fine sand; trace coarse to fine gravel; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	572.5
		S49 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None					
		S49 (1-1.5')	**PID:**0.9 **D/O/S:**None/ None/ None					
			PID:0.9 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **+2'-3' bgs**	
2.5		S49 (2.2-3.2')						570.0
			PID:0.9 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND WITH GRAVEL (SP): medium brown; moist; loose; fine to coarse grained sand; medium to fine gravel; trace clayey silt; [FILL]. At 3.2 feet; saturated.	GROUT Type: **N/A** Interval: **N/A** SEAL Type: **N/A** Interval: **N/A**	
5.0								567.5
			D/O/S: None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): light brown; wet; soft; [FILL].	SANDPACK Type: **N/A** Interval: **N/A**	
				CL/ ML		CLAYEY SILT (CL/ ML): dark gray; wet; medium stiff; some medium to fine gravel; trace fine sand; [NATIVE].	SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **3-8'**	
7.5								
10.0						End of boring 8.0 feet	Temp Well SG3-S34	

Date Boring Started: 9/11/17
Date Boring Completed: 9/11/17
Logged By: R. Koslosky (CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: 7822DT

Remarks: Collected groundwater sample SG3-S34-170911.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S35

Project:	CSM Investigation	Surface Elevation:	583.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.90984469° Long: -73.23664697°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S35 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None	OL/ OH/ CL		ORGANIC SOIL (OL/ OH): very dark brown; moist; silty; abundant roots; [FILL].	
		S35 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None			SANDY LEAN CLAY (CL): dark brown; moist; few to little fine to coarse grained sand; trace gravel; low to medium plasticity; [FILL].	
		S35 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None	SM/ SC		SILTY SAND TO CLAYEY SAND (SM/ SC): fine to coarse grained; brown; moist; trace fine gravel; [FILL].	
				SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; brown; moist; little fine gravel; some silt fines; [FILL].	582.5
2.5			**PID:**0.2 **D/O/S:**None/ None/ None	ML		SILT (ML): light brown; moist to wet; few to little fine grained sand; trace to few clay fines; rapid dilatancy; [NATIVE].	580.0
		S35 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None				
5.0			**PID:**0.3 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND (CL): tannish brown; moist; little fine grained sand; trace gravel; silty; low to medium plasticity; [NATIVE].	577.5
7.5						At 7.2 feet; becomes oxidized brownish red mottled with brownish gray.	
		S35 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None			At 8.0 feet; becomes laminated with brownish red oxidized silty layers; grades to tannish brown to brownish gray to grayish brown; strong reaction with HCl; occasional very dark gray to black layers.	575.0
			PID:0.1 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/22/17
Date Boring Completed:	8/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S36

Project:	CSM Investigation	Surface Elevation:	577.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.9095773° Long: -73.24819926°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S36 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; abundant roots; [FILL].	
		S36 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND (CL): dark brown; moist; few to little fine to medium grained sand; trace roots; low to medium plasticity; [FILL].	
		S36 (1-1.5')	**PID:**0.6 **D/O/S:**None/ None/ None				
2.5			**PID:**0.3 **D/O/S:**None/ None/ None				575.0
		S36 (3-4')	**PID:**0.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): brown; moist; medium grained with trace fine grained sand; trace clay fines; [FILL].	
5.0							572.5
			PID:0.1 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): brown; moist; few to some fine to coarse grained sand and fine angular gravel; medium plasticity; [NATIVE].	
7.5							570.0
		S36 (8-9')	**PID:**0.4 **D/O/S:**None/ None/ None			At 9 feet; 1.25 inch layer of light brown sandy silt with rapid dilatancy.	
			PID:0.1 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	567.5

Date Boring Started:	8/22/17
Date Boring Completed:	8/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S37

Project:	CSM Investigation	Surface Elevation:	862.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.90525839° Long: -73.18008651°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	4.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S37 (0-0.5')	**PID:**1.0 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; moist; silty; abundant roots; [NATIVE].		862.5
		S37 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None	SM/ SC		SILTY TO CLAYEY SAND WITH GRAVEL (SM/ SC): tan to light brown; moist to wet; fine to coarse grained sand; few to little rounded to subrounded gravel; [NATIVE].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
		S37 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None			1.5 feet; wet.	RISER CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
2.5			**PID:**0.1 **D/O/S:**None/ None/ None					860.0
				PT		PEAT (PT): very dark brown; moist to wet; root fibers; low plasticity; no dilatancy; [NATIVE].	GROUT Type: **N/A** Interval: **N/A**	
						End of boring 4.0 feet	SEAL Type: **N/A** Interval: **N/A**	
5.0							SANDPACK Type: **N/A** Interval: **N/A**	
7.5							SCREEN Diameter: **1"** Type: **0.010 Sch. 40** Interval: **PVC** **+0.8-4.2' bgs**	
10.0							Temp Well SG3-S37	

Date Boring Started:	8/24/17
Date Boring Completed:	8/24/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG-S37-170824.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S38

Project:	CSM Investigation	Surface Elevation:	692.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.90055207° Long: -73.2732435°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S38 (0-0.5')	**PID:**3.9 **D/O/S:**None/ None/ None	OL/ OH/ SC		ORGANIC SOIL (OL/ OH): dark brown to black; abundant roots; [NATIVE].	692.5
		S38 (0.5-1')	**PID:**7.9 **D/O/S:**None/ None/ None			SANDY CLAY (SC): very dark brown to black; coarse grained sand; some clay fines; trace roots; low to medium plasticity; [NATIVE].	
		S38 (1-1.5')	**PID:**4.0 **D/O/S:**None/ None/ None	CL		CLAYEY SAND (CL): very dark brown to black; trace to few silt; little fine to coarse sand; low to medium plasticity; [NATIVE].	
2.5			**PID:**0.2 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND AND GRAVEL (CL): grayish brown; little fine to coarse sand; little fine angular gravel; silty; low to medium plasticity; [TILL].	690.0
		S38 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None			From 4 to 8 feet; very silty; slow dilatancy; occasional intervals with trace to few sand.	
5.0			**PID:**0.2 **D/O/S:**None/ None/ None				687.5
7.5							685.0
				OL		ORGANIC CLAY (OL): dark brown; trace to few roots; few fine to coarse sand; [NATIVE].	
		S38 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None	ML		SILT (ML): light brown; few fine sand; non-plastic plasticity; rapid dilatancy; [NATIVE].	
			PID:0.2 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND AND GRAVEL (CL): grayish brown; little fine to coarse sand and fine angular gravel; silty; low to medium plasticity; [TILL].	
10.0						End of boring 10.0 feet	

Date Boring Started:	8/22/17
Date Boring Completed:	8/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S39

Project:	CSM Investigation	Surface Elevation:	833.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.89616589° Long: -73.18043364°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S39 (0-0.5')	**PID:**0.1 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown to black; moist; abundant roots; [FILL].	
		S39 (0.5-1')	**PID:**0.0 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; brown; moist; mostly fine grained sand; few fine gravel; some fines; [FILL].	832.5
		S39 (1-1.5')	**PID:**0.0 **D/O/S:**None/ None/ None				
2.5			**PID:**0.0 **D/O/S:**None/ None/ None				830.0
		S39 (3-4')	**PID:**0.0 **D/O/S:**None/ None/ None	PT		PEAT (PT): very dark brown to black; soft; organics; roots and fibrous material; low to medium plasticity; no dilatancy; [NATIVE].	
5.0			**PID:**0.0 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine grained; light yellowish brown to yellowish brown; moist; trace fine gravel; some fines; [NATIVE].	827.5
7.5		S39 (8-9')				From 8 to 8.5 feet; dark brown; little fines; some fine gravel.	825.0
			PID:0.0 **D/O/S:**None/ None/ None	ML		GRAVELLY SILT (ML): light yellowish brown to yellowish brown; little fine gravel; few fine sand; non-plastic plasticity; slow dilatancy; [TILL].	
10.0						End of boring 10.0 feet	

Date Boring Started:	8/24/17
Date Boring Completed:	8/24/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: No groundwater encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S40

Project:	CSM Investigation	Surface Elevation:	816.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.89762101° Long: -73.23880711°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S40 (0-0.5')	**PID:**0.2 **D/O/S:**None/ None/ None			CLAYEY SILT (CL/ ML): medium brown; dry; soft; trace coarse to fine sand; trace coarse to fine gravel.	
		S40 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None				
		S40 (1-1.5')	**PID:**0.5 **D/O/S:**None/ None/ None				
							815.0
2.5			**PID:**1.8 **D/O/S:**None/ None/ None			At 2 feet; medium stiff; little coarse to fine gravel.	
		S40 (3-4')	**PID:**0.8 **D/O/S:**None/ None/ None				
						From 4-8 feet; becoming more clayey.	812.5
5.0				CL/ ML			
			PID:0.2 **D/O/S:**None/ None/ None				
						Below 7 feet; moist.	810.0
7.5							
		S40 (8-9')	**PID:**0.8 **D/O/S:**None/ None/ None				
			PID:0.7 **D/O/S:**None/ None/ None				807.5
10.0						End of boring 10.0 feet	

Date Boring Started:	9/27/17
Date Boring Completed:	9/27/17
Logged By:	R. Koslosky (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S41

Project:	CSM Investigation	Surface Elevation:	587.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.89758929° Long: -73.21458708°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S41 (0-0.5')	**PID:**0.2 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; grass and roots at surface; clayey.	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	587.5
		S41 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; trace fine gravel; little fines.		
		S41 (1-1.5')						
2.5			**PID:**0.3 **D/O/S:**None/ None/ None			COBBLES AND GRAVEL: crushed cobbles and gravel; trace fine to coarse grained sand; generally light gray.	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'** GROUT Type: **N/A** Interval: **N/A** SEAL Type: **N/A** Interval: **N/A**	585.0
5.0								582.5
			PID:0.7 **D/O/S:**None/ None/ None				SANDPACK Type: **N/A** Interval: **N/A** SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'**	
7.5						End of boring 8.0 feet	Temp Well SG3-S41	580.0
10.0								

Date Boring Started:	8/15/17
Date Boring Completed:	8/15/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-41-170815.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S42

Project:	CSM Investigation	Surface Elevation:	779.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.89372237° Long: -73.18152981°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S42 (0-0.5')	**PID:**0.2 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; silty; grass at surface; abundant roots; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
		S42 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None			POORLY GRADED SAND (SP): fine to medium grained; brown to dark brown; moist; little coarse sand; few fine gravel; few fines; subangular to subround grains/clasts; some small roots; [FILL].		
		S42 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None	SP				777.5
2.5			**PID:**0.1 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'**	
		S42 (3-4')				SILTY SAND TO SANDY SILT (SM/ ML): fine grained; brown to light brown; moist; little fines increasing with depth to mostly silt; trace fine gravel; [FILL].	GROUT Type: **N/A** Interval: **N/A**	775.0
5.0							SEAL Type: **N/A** Interval: **N/A**	
			PID:0.2 **D/O/S:**None/ None/ None	SM/ ML			SANDPACK Type: **N/A** Interval: **N/A**	772.5
7.5						At 8.0 feet; becomes very moist.	SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'**	
		S42 (8-9')					Temp Well SG3-S42	
			PID:0.1 **D/O/S:**None/ None/ None					770.0
10.0						End of boring 10.0 feet		

Date Boring Started:	8/16/17
Date Boring Completed:	8/16/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S42-170816; well pumped dry during sampling and limited volume for analysis.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S43

Project:	CSM Investigation	Surface Elevation:	842.0 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.88741903° Long: -73.23297225°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S43 (0-0.5')	**PID:**3.2 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown to black; moist; silty; grass at surface; abundant roots; [FILL].	
		S43 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to medium grained; brown; moist; trace fine gravel; few roots; roots decreasing with depth; [FILL].	
		S43 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None				
			PID:0.0 **D/O/S:**None/ None/ None	CL-ML		CLAYEY SILT (CL- ML): yellowish brown to grayish brown; moist; trace fine to coarse sand; trace fine gravel; [NATIVE].	840.0
2.5							
		S43 (3-4')		CL		LEAN CLAY WITH SAND (CL): grayish brown; moist; soft; trace fine angular gravel; medium plasticity; [TILL].	837.5
5.0			**PID:**0.0 **D/O/S:**None/ None/ None				835.0
7.5		S43 (8-9')				At 8 feet; pulverized quartzite cobble.	
			PID:0.0 **D/O/S:**None/ None/ None				832.5
10.0						End of boring 10.0 feet	

Date Boring Started:	8/21/17
Date Boring Completed:	8/21/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S44

Project:	CSM Investigation	Surface Elevation:	871.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.88502101° Long: -73.26063994°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S44 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown to brown; moist; vegetation at surface; trace silt; abundant roots; [FILL].	
		S44 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None			LEAN CLAY (CL): dark brown to brown; moist; trace to few fine to coarse sand; trace roots; medium plasticity; [NATIVE].	
		S44 (1-1.5')	**PID:**0.1 **D/O/S:**None/ None/ None	CL			870.0
2.5			**PID:**0.0 **D/O/S:**None/ None/ None			SANDY LEAN CLAY (CL): dark brown to brown; moist; few to little fine to coarse sand and fine angular gravel; trace inclusions of oxidized silt (brownish red); medium to high plasticity; [TILL].	
		S44 (3-4')	**PID:**0.0 **D/O/S:**None/ None/ None				867.5
5.0			**PID:**0.0 **D/O/S:**None/ None/ None	CL			865.0
7.5		S44 (8-9')				From 8 to 10 feet; little fine to coarse sand and fine gravel; clasts of metamorphic rock.	
			PID:0.0 **D/O/S:**None/ None/ None				862.5
10.0						End of boring 10.0 feet	

Date Boring Started:	8/21/17
Date Boring Completed:	8/21/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S45

Project:	CSM Investigation	Surface Elevation:	828.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.88177045° Long: -73.22200087°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S45 (0-0.5')	**PID:**0.8 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to medium grained; brown; dry; loose; little silt; trace fine to coarse gravel; becomes little fine to coarse gravel with depth; [FILL].	827.5
		S45 (0.5-1')	**PID:**0.9 **D/O/S:**None/ None/ None				
		S45 (1-1.5')	**PID:**0.9 **D/O/S:**None/ None/ None			CLAYEY SILT WITH GRAVEL (CL/ ML): light brown; moist; stiff; little fine to coarse gravel; trace fine sand; [NATIVE].	
2.5			**PID:**0.7 **D/O/S:**None/ None/ None			At 2.5 feet; white cobble fragments.	825.0
		S45 (3-4')	**PID:**0.6 **D/O/S:**None/ None/ None				
5.0				CL/ ML		From 5 to 6.5 feet; soft.	822.5
			PID:0.4 **D/O/S:**None/ None/ None				
7.5						At 7.7 feet; gray cobble fragments.	820.0
		S45 (8-9')	**PID:**0.4 **D/O/S:**None/ None/ None				
			PID:0.3 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	9/12/17
Date Boring Completed:	9/12/17
Logged By:	J. Scheetz (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S46

Project:	CSM Investigation	Surface Elevation:	669.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.88349784° Long: -73.20391738°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S46 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): grass at surface; [FILL].	
		S46 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to medium with trace coarse grained; brown; trace fine gravel; little silty fines; small roots; fines and roots decreasing with depth; gravel increasing with depth (little); [FILL].	
		S46 (1-1.5')	**PID:**0.1 **D/O/S:**None/ None/ None				
2.5			**PID:**0.2 **D/O/S:**None/ None/ None			CLAYEY SILT (CL- ML): mottled light gray and brown; few small rootlets; rapid dilatancy; [TILL].	667.5
		S46 (3-4')					
5.0				CL-ML		From 4.2 to 4.5 feet; very fine pale brown sand lens.	665.0
			PID:0.1 **D/O/S:**None/ None/ None				
		S46 (6-7')					
7.5							662.5
			PID:0.2 **D/O/S:**None/ None/ None			Below 9 feet; laminated.	
	▼						660.0
10.0						End of boring 10.0 feet	

Date Boring Started:	8/16/17
Date Boring Completed:	8/16/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Temporary well was constructed at this location, however no GW sample collected due to insufficient volume of water. Therefore, well construction was not reported on this log.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S47

Project:	CSM Investigation	Surface Elevation:	748.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.8826214° Long: -73.18281424°	Completion Depth:	5.3 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S47 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; grass at surface; silty; abundant roots; [FILL].	
		S47 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL (SP- SM): fine to coarse grained; brown to grayish brown; moist; little fine subangular to subround gravel; [FILL].	747.5
		S47 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None				
2.5						COBBLES: crushed/pulverized rock; trace interstitial soil; [NATIVE].	745.0
			PID:0.3 **D/O/S:**None/ None/ None				
		S47 (3-5.3')					
5.0						End of boring 5.3 feet	
7.5							
10.0							

Date Boring Started:	8/16/17
Date Boring Completed:	8/16/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Encountered obstruction at 5.3 feet bgs.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S48

Project:	CSM Investigation	Surface Elevation:	913.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.8781137° Long: -73.2465214°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	7.4 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		S48 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND (CL): dark brown; moist; few to little fine to coarse sand; grass at surface; trace roots to 0.25 feet.; low to medium plasticity; [NATIVE].	
		S48 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None			From 0.5 to 2.5 feet; medium plasticity.	
		S48 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None				912.5
2.5			**PID:**0.5 **D/O/S:**None/ None/ None	CH		FAT CLAY (CH): grayish brown to dark grayish brown; moist; trace sand; high plasticity; [NATIVE].	
		S48 (3-4')	**PID:**0.6 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): grayish brown to dark grayish brown; moist; few fine to coarse sand; medium plasticity; [TILL].	910.0
5.0			**PID:**0.5 **D/O/S:**None/ None/ None				907.5
		S48 (6.4-7.4')				From 6.4 to 7.4 feet; moist to wet; medium to high plasticity.	
7.5						End of boring 7.4 feet	
10.0							

Date Boring Started:	8/21/17
Date Boring Completed:	8/21/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Encountered obstruction at 7.4 feet bgs.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING S49

Project:	CSM Investigation	Surface Elevation:	916.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.87614157° Long: -73.21965326°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		S49 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; medium brown; dry; loose; little clayey silt; little fine to coarse gravel; [FILL].	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	
		S49 (0.5-1')	**PID:**1.5 **D/O/S:**None/ None/ None	CL/ ML		CLAY AND SILT (CL/ ML): light brown; moist; soft; trace fine sand; [FILL].		
		S49 (1-1.5')	**PID:**1.5 **D/O/S:**None/ None/ None			CLAYEY SILT WITH SAND AND GRAVEL (CL/ ML): light brown; moist; stiff; some fine to coarse gravel; little fine to coarse sand; [NATIVE].		915.0
2.5			**PID:**1.4 **D/O/S:**None/ None/ None				RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-5'**	
		S49 (3-4')	**PID:**1.7 **D/O/S:**None/ None/ None	CL/ ML			GROUT Type: **N/A** Interval: **N/A**	912.5
5.0						CLAY AND SILT (CL/ ML): light brown; moist; hard; trace fine sand; [NATIVE].	SEAL Type: **N/A** Interval: **N/A**	
		S49 (5.3-6.3')	**PID:**1.6 **D/O/S:**None/ None/ None				SANDPACK Type: **N/A** Interval: **N/A**	910.0
7.5				CL/ ML			SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **5-10'** Temp Well SG3-S49	
		S49 (8-9')	**PID:**1.7 **D/O/S:**None/ None/ None			SILTY CLAY WITH SAND AND GRAVEL (CL/ ML): light brown; moist; stiff; little fine to coarse gravel; little fine to coarse sand; [NATIVE].		907.5
			PID:1.1 **D/O/S:**None/ None/ None	CL/ ML				
10.0						End of boring 10.0 feet		

Date Boring Started:	9/12/17
Date Boring Completed:	9/12/17
Logged By:	J. Scheetz (CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-S49-170912.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING BG1

Project:	CSM Investigation	Surface Elevation:	857.0 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 43.02002206° Long: -73.18040355°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		BG1 (0-0.5')	**PID:**17.1 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown to black; moist; leaves and grass at surface.	
		BG1 (0.5-1')	**PID:**1.5 **D/O/S:**None/ None/ None			CLAYEY SILT (ML): brown; moist; trace fine to coarse grained sand and fine gravel; grades to sandy silt with depth; [NATIVE].	
		BG1 (1-1.5')	**PID:**0.5 **D/O/S:**None/ None/ None				
							855.0
2.5			**PID:**2.3 **D/O/S:**None/ None/ None				
		BG1 (3-4')	**PID:**14.8 **D/O/S:**None/ None/ None				
							852.5
5.0				ML			
							850.0
7.5			**PID:**0.6 **D/O/S:**None/ None/ None				
		BG1 (8-9')					
			PID:0.5 **D/O/S:**None/ None/ None				847.5
10.0						End of boring 10.0 feet	

Date Boring Started:	8/18/17
Date Boring Completed:	8/18/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Temporary well was constructed at this location, however no GW sample collected due to insufficient volume of water. Therefore, well construction was not reported on this log.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING BG2

Project:	CSM Investigation	Surface Elevation:	2380.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.88641297° Long: -73.03542279°	Completion Depth:	10.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		BG2 (0-0.5')	**PID:**0.4 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown; moist; abundant roots.	
		BG2 (0.5-1')	**PID:**0.4 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): dark reddish brown; moist; few organics (roots); trace fine grained sand; trace silt; medium to high plasticity; [NATIVE].	2380.0
		BG2 (1-1.5')	**PID:**0.3 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): dark reddish brown; moist; little fine to coarse grained sand; trace fine gravel and silt; medium plasticity; [NATIVE].	
2.5			**PID:**0.3 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; tannish brown to light grayish brown; moist; few clay fines; trace angular gravel; [NATIVE].	2377.5
		BG2 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None				
5.0							2375.0
			PID:0.1 **D/O/S:**None/ None/ None			From 7.0 to 10.0 feet; little fine gravel.	
7.5							2372.5
		BG2 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None				
			PID:0.1 **D/O/S:**None/ None/ None				
10.0						End of boring 10.0 feet	

Date Boring Started:	8/23/17
Date Boring Completed:	8/23/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING BG3

Project:	CSM Investigation	Surface Elevation:	1862.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.8842164° Long: -72.81943854°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	3.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		BG3 (0-0.5')	**PID:**2.2 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown to black; moist; leaves and grass at surface.	
		BG3 (0.5-1')	**PID:**1.1 **D/O/S:**None/ None/ None			POORLY GRADED SAND WITH SILT (SP-SM): fine to coarse grained; brown to dark yellowish brown; moist; trace fine gravel; subangular to subrounded; gravel and pulverized rock increase with depth; [FILL].	
		BG3 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None	SP-SM			1860.0
2.5		BG3 (3-4')	**PID:**0.0 **D/O/S:**None/ None/ None			End of boring 3.5 feet	
5.0							
7.5							
10.0							

Date Boring Started:	8/17/17
Date Boring Completed:	8/17/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Multiple attempts encountered obstruction between 2.9 to 4' bgs. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING BG4

Project:	CSM Investigation	Surface Elevation:	1883.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Hand Auger/Geoprobe
Location:	Bennington, VT	Sampling Method:	Hand Auger/Macrocore
Coordinates:	Lat: 42.85188312° Long: -72.81612249°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	8.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		BG4 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown to black; moist; trace fine grained sand; abundant roots.	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	1882.5
		BG4 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine grained; brown; moist; increased fines and moisture with depth; [NATIVE].		
		BG4 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None	SM			RISER CASING Diameter: **1'** Type: **PVC** Interval: **0-3'**	
2.5		BG4 (3-4')	**PID:**0.1 **D/O/S:**None/ None/ None			At 3.8 feet; layer of weathered gneiss.	GROUT Type: **N/A** Interval: **N/A**	1880.0
						SANDY LEAN CLAY (CL): grayish brown; wet; soft; some gravel; silty sand lenses present; [NATIVE].	SEAL Type: **N/A** Interval: **N/A**	
5.0							SANDPACK Type: **N/A** Interval: **N/A**	1877.5
			PID:0.2 **D/O/S:**None/ None/ None	CL			SCREEN Diameter: **1"** Type: **0.010 Sch. 40** Interval: **PVC** **3-8'**	
7.5						End of boring 8.0 feet	Temp Well SG3-BG4	
10.0								

Date Boring Started:	8/17/17
Date Boring Completed:	8/17/17
Logged By:	KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	7822DT

Remarks: Collected groundwater sample SG3-BG4-170817.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Telephone: 952-832-2600

LOG OF BORING D01

Project:	CSM Investigation	Surface Elevation:	763.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.94440719° Long: -73.24506742°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	35.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0		D01 (0-0.5')	**PID:**0.8 **D/O/S:**None/ None/ None	OL/ OH		TOPSOIL (OL/ OH): black; wet; grass road side; organics/roots.	
		D01 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None			POORLY GRADED SAND WITH SILT AND GRAVEL (SP- SM): fine grained; brown; moist; with some fine to coarse subround gravel; approximately 30% gravel, 60% sand, 10% fines; [ROAD FILL].	
		D01 (1-1.5')	**PID:**0.8 **D/O/S:**None/ None/ None				762.5
2.5			**PID:**1.1 **D/O/S:**None/ None/ None	SP-SM			
		D01 (3-4')	**PID:**1.2 **D/O/S:**None/ None/ None				760.0
5.0						LEAN CLAY WITH SAND AND GRAVEL (CL): olive brown; moist; few areas of gray mottling; areas with thin silt laminations; fine sand with few medium to coarse sand; increasing sand/gravel content with depth; little subround gravels; high cohesiveness; high plasticity; [TILL].	
			PID:0.9 **D/O/S:**None/ None/ None				757.5
7.5				CL			
		D01 (8-9')	**PID:**0.9 **D/O/S:**None/ None/ None			From 9 to 11 feet; trace subround cobbles.	755.0
10.0			**PID:**1.4 **D/O/S:**None/ None/ None				
						CLAYEY SAND WITH GRAVEL (SC): gray; moist; with silty clay; consists of fine to coarse sand mix of black slate fragments with some elongated and subangular gravels-mostly slate; trace subround cobbles.	752.5
12.5		D01 (12-13')	**PID:**0.7 **D/O/S:**None/ None/ None	SC			
							750.0
15.0						SILT (ML/ CL): olive brown; moist; with some clay; low plasticity; [TILL].	
			PID:1.3 **D/O/S:**None/ None/ None	ML/ CL			747.5
17.5						At 17.5 feet, fine sand with some medium and coarse-grained size black slate fragments with some elongated/subangular gravels of black slate fragments.	
		D01 (18-19')	**PID:**1.0 **D/O/S:**None/ None/ None				745.0
20.0						At 19.5 feet, trace subround cobbles.	

Date Boring Started:	9/13/17
Date Boring Completed:	9/13/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered during drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D01

Project:	CSM Investigation	Surface Elevation:	763.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.94440719° Long: -73.24506742°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	35.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
20.0						SILT (ML/ CL): olive brown; moist; with some clay; low plasticity; [TILL]. *(continued)*	
						At 20.5 feet, trace rusty oxidation spots.	742.5
22.5			**PID:**2.2 **D/O/S:**None/ None/ None				740.0
25.0				ML/ CL		At 25 feet, color changes to yellowish brown mix with olive brown.	737.5
27.5		D01 (28-29')	**PID:**2.1 **D/O/S:**None/ None/ None **PID:**2.3 **D/O/S:**None/ None/ None				735.0
30.0						SLATE: black.	732.5
32.5						From 30-35 feet, recovery not recorded.	730.0
35.0						End of boring 35.0 feet	
37.5							
40.0							

Date Boring Started:	9/13/17
Date Boring Completed:	9/13/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered during drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D02

Project:	CSM Investigation	Surface Elevation:	960.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.93364241° Long: -73.19660821°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	20.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D02 (0-0.5')		OL/ OH		ORGANIC SOIL (OL/ OH): brown to dark brown; moist; few to little sand; grass at surface; abundant roots; silty; [FILL].	960
		D02 (0.5-1')	**PID:**0.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; brown; moist; some fine to coarse gravel; [FILL].	
		D02 (1-1.5')				QUARTZITE: medium grained; gray with rusty oxidation; very hard; severely fractured/broken to ~5 feet.	
		D02 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None				
5							955
			PID:0.1 **D/O/S:**None/ None/ None				
10							950
			PID:0.0 **D/O/S:**None/ None/ None				
15							945
			PID:0.0 **D/O/S:**None/ None/ None				
20						End of boring 20.0 feet	
25							

Date Boring Started:	9/20/17
Date Boring Completed:	9/20/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
Began rock coring at 5 feet.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D03

Project:	CSM Investigation	Surface Elevation:	645.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.93219281° Long: -73.24657128°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	20.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		D03 (0-0.5')	**PID:**11.8 **D/O/S:**None/ None/ None	SM		SILTY SAND WITH GRAVEL (SM): brown; moist; subround gravel; fine some with medium and coarse grained sand; little subround cobbles.	PRO. CASING Diameter: **N/A** Type: **N/A** Interval: **N/A**	645
		D03 (0.5-1')	**PID:**17.3 **D/O/S:**None/ None/ None					
		D03 (1-1.5')	**PID:**14.1 **D/O/S:**None/ None/ None					
			PID:10.7 **D/O/S:**None/ None/ None					
		D03 (3-4')	**PID:**15.8 **D/O/S:**None/ None/ None			At 4 feet, dry to moist, brown clay.	RISER CASING Diameter: **1"** Type: **Sch. 40 PVC** Interval: **0-4'**	
5						At 5.0 feet; broken cobble of black slate.		640
			PID:15.2 **D/O/S:**None/ None/ None			At 6 feet, moist, fine and medium with some coarse sand.	GROUT Type: **N/A** Interval: **N/A**	
		D03 (8-9')	**PID:**11.8 **D/O/S:**None/ None/ None					
			PID:14.4 **D/O/S:**None/ None/ None				SEAL Type: **N/A** Interval: **N/A**	
10						At 10.5 feet, moist to wet.		635
			PID:15.9 **D/O/S:**None/ None/ None				SANDPACK Type: **N/A** Interval: **N/A**	
		D03 (12-13')	**PID:**6.1 **D/O/S:**None/ None/ None			At 13.2 feet; saturated.		
			PID:11.2 **D/O/S:**None/ None/ None				SCREEN Diameter: **1"** Type: **0.010 Sch. 40 PVC** Interval: **4-9'**	
15		D03 (15-16')	**PID:**11.5 **D/O/S:**None/ None/ None	SP-SM/ SP-SC		POORLY GRADED SAND WITH SILT AND GRAVEL TO POORLY GRADED SAND WITH CLAY AND GRAVEL (SP-SM/ SP-SC): brown; fine to coarse subrounded sand mix; little subrounded gravel; silty to clayey fines.		630
			PID:7.8 **D/O/S:**None/ None/ None				Temp Well SG3-S04	
20						End of boring 20.0 feet		
25								

Date Boring Started:	8/28/17
Date Boring Completed:	8/28/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Collected groundwater sample SG3-D03-170828.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D05

Project:	CSM Investigation	Surface Elevation:	633.4 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92472048° Long: -73.24716811°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	30.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D05 (0-0.5')	**PID:**9.8 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; moist; few fine to coarse grained sand; silty; roots; gravel and elongated green schist.	
		D05 (0.5-1')	**PID:**1.2 **D/O/S:**None/ None/ None				
		D05 (1-1.5')	**PID:**2.3 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist; some silt/clay mix; some fine to coarse sand; little subrounded gravel; few subrounded cobbles; schist/slate gravel; [TILL].	
			PID:0.6 **D/O/S:**None/ None/ None				
		D05 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None				630
5			**PID:**0.4 **D/O/S:**None/ None/ None	SM-SC		SILTY TO CLAYEY SAND (SM- SC): brown; moist to wet; mostly very fine to fine sand with few medium to coarse areas; some silty clay; few subrounded gravel. At 7 feet; trace roots.	
		D05 (8-9')	**PID:**0.3 **D/O/S:**None/ None/ None			At 9 feet, thin laminations.	625
10			**PID:**7.1 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY WITH SAND (CL): brown; moist to wet; mostly silty clay; some subrounded gravel; little fine with few medium and coarse sand; few subrounded cobbles.	
			PID:14.6 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY WITH SAND (CL): brown; moist; mostly silty clay; little subrounded gravel; little subrounded cobbles/boulders; few fine to coarse sand; few rusty orange oxidation spots.	620
15			**PID:**4.7 **D/O/S:**None/ None/ None	CL		SANDY TO GRAVELLY LEAN CLAY (CL): gray; dry to moist; mostly silty clay; little subrounded gravel and elongated shale/black schist; few fine to coarse sand; few subrounded cobbles.	
		D05 (16-17')	**PID:**3.6 **D/O/S:**None/ None/ None				
			PID:3.2 **D/O/S:**None/ None/ None				615
20			**PID:**7.7 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY WITH SAND (CL): light brown; dry to moist; some silty clay; little subrounded gravel; little rounded cobbles/boulders; little fine with few medium to coarse sand; few rusty oxidation spots. At 21 feet; boulder.	610
25							

Date Boring Started:	8/28/17
Date Boring Completed:	8/28/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. No groundwater encountered during drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D05

Project:	CSM Investigation	Surface Elevation:	633.4 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92472048° Long: -73.24716811°	Completion Depth:	30.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
25		D05 (26-27')	**PID:**14.6 **D/O/S:**None/ None/ None	CL		GRAVELLY LEAN CLAY WITH SAND (CL): light brown; dry to moist; some silty clay; little subrounded gravel; little rounded cobbles/boulders; little fine with few medium to coarse sand; few rusty oxidation spots. *(continued)*	
			PID:11.6 **D/O/S:**None/ None/ None			QUARTZITE: gray; very hard; medium grained; fractured; iron oxidation on fracture planes in upper 4 inches.	605
30						End of boring 30.0 feet	
35							
40							
45							
50							

Date Boring Started:	8/28/17
Date Boring Completed:	8/28/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. No groundwater encountered during drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D07 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None			TOPSOIL: dark brown/black; wet; silty with fine to coarse sand; with roots/organics.	
		D07 (0.5-1')	**PID:**1.3 **D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): light brown; moist to wet; fine with few medium/coarse grained sand; with subround to subangular gravel; low cohesiveness; medium to high plasticity; [TILL].	
		D07 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None				
			PID:0.7 **D/O/S:**None/ None/ None				1010
		D07 (3-4')	**PID:**0.9 **D/O/S:**None/ None/ None			From 4 to 5 feet; few cobbles.	
5			**PID:**2.2 **D/O/S:**None/ None/ None			At 7.5 feet; few cobbles.	1005
		D07 (8-9')	**PID:**1.0 **D/O/S:**None/ None/ None			At 9 feet, color changes to light yellowish brown to olive brown.	
10			**PID:**2.9 **D/O/S:**None/ None/ None	CL			1000
						At 13.8 feet, few subrounded cobbles.	
15			**PID:**2.5 **D/O/S:**None/ None/ None				995
		D07 (18-19')	**PID:**0.9 **D/O/S:**None/ None/ None				
20			**PID:**3.6 **D/O/S:**None/ None/ None				990
25							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
25				CL		SANDY LEAN CLAY WITH GRAVEL (CL): light brown; moist to wet; fine with few medium/coarse grained sand; with subround to subangular gravel; low cohesiveness; medium to high plasticity; [TILL]. *(continued)*	
			PID:2.3 **D/O/S:**None/ None/ None				
		D07 (28-29')	**PID:**1.5 **D/O/S:**None/ None/ None				985
30			**PID:**9.3 **D/O/S:**None/ None/ None	SC		CLAYEY SAND WITH GRAVEL (SC): light yellowish brown; moist; fine with some medium/coarse grained sand; subround to subangular gravel; subround cobbles.	
						From 31 to 32.5 feet; quartzite boulder.	
						SANDY TO GRAVELLY LEAN CLAY (CL): light yellowish brown; moist; fine/very fine with few medium/coarse grained sand; subround to subangular gravel; subround cobbles; [TILL].	980
35			**PID:**3.5 **D/O/S:**None/ None/ None				
		D07 (38-39')	**PID:**1.1 **D/O/S:**None/ None/ None				975
40				CL		At 40 feet, increasing silt.	
			PID:1.7 **D/O/S:**None/ None/ None				970
45			**PID:**2.0 **D/O/S:**None/ None/ None				
		D07 (48-49')	**PID:**2.4 **D/O/S:**None/ None/ None				965
50							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

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LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
50			**PID:**0.8 **D/O/S:**None/ None/ None			SANDY TO GRAVELLY LEAN CLAY (CL): light yellowish brown; moist; fine/very fine with few medium/coarse grained sand; subround to subangular gravel; subround cobbles; [TILL]. *(continued)* From 50 to 52 feet; large gray quartzite boulder.	960
55			**PID:**4.8 **D/O/S:**None/ None/ None			At 57 feet; cobbles.	955
		D07 (58-59')	**PID:**1.9 **D/O/S:**None/ None/ None				
60			**PID:**2.6 **D/O/S:**None/ None/ None				
			PID:4.3 **D/O/S:**None/ None/ None	CL			950
65			**PID:**1.2 **D/O/S:**None/ None/ None			At 66 feet, increasing moisture and softer than above.	945
		D07 (68-69')	**PID:**1.6 **D/O/S:**None/ None/ None				
70			**PID:**7.8 **D/O/S:**None/ None/ None			At 72 feet, decreased moisture.	940
75							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
75							
			PID:3.5 **D/O/S:**None/ None/ None			SANDY TO GRAVELLY LEAN CLAY (CL): strong brown; moist; larger subround/subangular gravel; fine grained with medium to coarse grained; [TILL].	
		D07 (77-78')	**PID:**2.5 **D/O/S:**None/ None/ None	CL		From 78 to 79 feet; white low grade coarse marble boulder.	935
80						LEAN CLAY WITH SAND (CL): yellowish red; moist; lower sand and gravel content than above.	
			PID:2.0 **D/O/S:**None/ None/ None	CL			930
85						OCHER: appears as sandy lean clay to gravelly lean clay; red; gravel fragments are white marble with trace quartzite; [ALTERED BEDROCK].	
			PID:6.2 **D/O/S:**None/ None/ None				
		D07 (86-87')	**PID:**3.2 **D/O/S:**None/ None/ None			From 87 to 89 feet, white marble boulder and gravel fragments.	925
			PID:20.4 **D/O/S:**None/ Metallic odor/ None				
90						OCHER: appears as sandy lean clay with gravel; fine marble sand with some medium/coarse grained sand; subangular quartzite and marble gravel; [ALTERED BEDROCK].	
			PID:3.4 **D/O/S:**None/ None/ None			At 92.5 feet; white marble cobble. From 93 to 94 feet; white marble boulder.	920
95						QUARTZITE: white; hard.	
						OCHER: appears as sandy silt; tan; moist; some clay; very fine sand with few medium/coarse grained sand; trace white marble and quartzite gravel; red laminations within; [ALTERED BEDROCK].	
			PID:1.1 **D/O/S:**None/ None/ None				915
		D07 (98-99')	**PID:**0.9 **D/O/S:**None/ None/ None				
100			**PID:**0.8				

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

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Telephone: 952-832-2600

LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
100			**D/O/S:**None/ None/ None			KAOLIN: appears as lean clay with sand and gravel; reddish colors; moist; fine to very fine sand with few medium to coarse grained sand; few subangular quartzite and marble gravel; trace marble cobbles; medium to high plasticity sand and gravel; [ALTERED BEDROCK].	
			PID:2.6 **D/O/S:**None/ None/ None				910
105						OCHER: appears as sandy to gravelly lean clay; reddish colors; [ALTERED BEDROCK].	
		D07 (107-108)	**PID:**0.9 **D/O/S:**None/ None/ None			At 107 feet; more sandy within. At 108 feet, less cohesive; mix of sand; gravel; boulder; and clay.	905
			PID:1.2 **D/O/S:**None/ None/ None			At 109 feet; crushed boulder/cobble.	
110						OCHER: appears as sandy silt; red; wet; some clay; fine to very fine sand with few medium to coarse marble sand; few quartzite and marble subrounded to subangular gravel; trace subround to subangular marble cobbles; areas of thin red and yellowish red laminations; low cohesiveness; medium plasticity; [ALTERED BEDROCK].	
			PID:0.6 **D/O/S:**None/ None/ None				900
115							
			PID:0.7 **D/O/S:**None/ None/ None				895
		D07 (118-119)	**PID:**1.0 **D/O/S:**None/ None/ None				
120						OCHER: appears as silty sand with gravel; [ALTERED BEDROCK].	
			PID:4.2 **D/O/S:**None/ None/ None			From 122.5 to 123.4 feet; crushed marble boulders/cobbles. From 123.4 to 123.6 feet; dark red silty clay lens. From 123.6 to 124.5 feet; crushed marble boulders/cobbles.	890
125							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
125			**PID:**2.5 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND (SP): very fine to fine grained; pale yellow; few medium to coarse sand; few subangular to subround quartzite gravel; few subround quartzite cobbles; [ALTERED BEDROCK].	885
		D07 (128-129)	**PID:**1.1 **D/O/S:**None/ None/ None			At 129 feet, high moisture.	
130			**PID:**6.0 **D/O/S:**None/ None/ None				
			PID:1.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): very fine to fine grained; white; some silt; few medium to coarse sand; little subround to subangular quartzite gravel; trace subround quartzite cobbles; [ALTERED BEDROCK].	880
135		D07 (138-139)	**PID:**1.5 **D/O/S:**None/ None/ None				875
140			**PID:**3.1 **D/O/S:**None/ None/ None				870
145			**PID:**1.4 **D/O/S:**None/ None/ None			OCHER: appears as poorly graded sand with gravel; very fine to fine grained; brownish yellow; moist; few medium to coarse quartzite sand; some fine to coarse subround to subangular gravel; few subround quartzite cobbles; [ALTERED BEDROCK].	865
		D07 (148-149)	**PID:**0.8 **D/O/S:**None/ None/ None				
150							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
150						OCHER: appears as poorly graded sand with gravel; very fine to fine grained; brownish yellow; moist; few medium to coarse quartzite sand; some fine to coarse subround to subangular gravel; few subround quartzite cobbles; [ALTERED BEDROCK]. *(continued)*	
						At 152 feet; 1.5 foot quartzite boulder.	860
			PID:1.5 **D/O/S:**None/ None/ None				
						OCHER: appears as clayey sand with gravel; very fine to fine grained; brownish yellow; moist; dense; few medium to coarse grained sand; some subround to subangular quartzite gravel; trace subround quartzite cobbles; [ALTERED BEDROCK].	
155						From 157.5 to 158.5 feet; quartzite/marble boulder/cobbles.	855
		D07 (158-159)	**PID:**1.2 **D/O/S:**None/ None/ None				
160						From 160 to 163 feet; increasing sand.	
			PID:0.7 **D/O/S:**None/ None/ None			OCHER: appears as clayey sand; yellow; brown; and red mix; moist; some fine to medium with few coarse sand; little subround to subangular gravel; high cohesiveness; low plasticity; [ALTERED BEDROCK].	850
						KAOLIN: appears as sandy lean clay with gravel; moist; many very thin red; pink; brown; yellow; and white laminations; trace very fine sand lenses; few quartz gravel and coarse sand fragments; low cohesiveness; medium plasticity; appears to be hydrothermally altered bedrock; [ALTERED BEDROCK].	
165						At 165 feet; subround quartz cobble.	
			PID:0.4 **D/O/S:**None/ None/ None				845
		D07 (168-169)	**PID:**0.3 **D/O/S:**None/ None/ None			At 169 feet, few fragments of muscovite.	
170						From 170 to 190 feet; more pink.	
						At 171 feet, few subround to subangular quartz gravels and cobbles.	
			PID:0.6 **D/O/S:**None/ None/ None				840
175							

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

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LOG OF BORING D07

Project:	CSM Investigation	Surface Elevation:	1012.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92253179° Long: -73.17930022°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	200.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
175						KAOLIN: appears as sandy lean clay with gravel; moist; many very thin red; pink; brown; yellow; and white laminations; trace very fine sand lenses; few quartz gravel and coarse sand fragments; low cohesiveness; medium plasticity; appears to be hydrothermally altered bedrock; [ALTERED BEDROCK]. *(continued)*	
			PID:0.6 **D/O/S:**None/ None/ None				
		D07 (178-179)	**PID:**0.5 **D/O/S:**None/ None/ None			At 178 feet, start getting dark gray lamination and pockets (muscovite).	835
180							
			PID:0.9 **D/O/S:**None/ None/ None			At 182 feet; 1/4 inch hydrothermal quartz vein. At 183 feet; hydrothermal quartz vein. At 184 feet, few subangular quartz gravels within.	830
185							
			PID:0.8 **D/O/S:**None/ None/ None				825
		D07 (188-189)	**PID:**0.7 **D/O/S:**None/ None/ None			At 189 feet; color changes to more white; no pinks. At 189.5 feet; 2.5 inch sandstone fragment (quartz).	
190						At 191 feet, fine/very fine sand lenses/lamination and pockets with few quartz gravels.	
			PID:0.6 **D/O/S:**None/ None/ None			At 193 feet, rusty orange laminations.	820
195							
			PID:0.8 **D/O/S:**None/ None/ None				815
		D07 (198-199)	**PID:**0.8 **D/O/S:**None/ None/ None **PID:**0.9 **D/O/S:**None/ None/ None			At 198 feet, few dark gray laminations/pockets of muscovite fragments.	
200						End of boring 200.0 feet	

Date Boring Started:	9/8/17
Date Boring Completed:	9/11/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D10

Project:	CSM Investigation	Surface Elevation:	955.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92085685° Long: -73.19983997°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	115.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D22 (0-0.5')	**PID:**23.0 **D/O/S:**None/ None/ None			SILTY SAND (SM): brown; low moisture; loose; very fine sand with few to little medium to coarse grained sand, few to little subround to subangular gravel, cohesive; medium plasticity; [TILL]. From 0-5 feet, with organics/roots.	955
		D22 (0.5-1')	**PID:**2.0 **D/O/S:**None/ None/ None				
		D22 (1-1.5')	**PID:**1.5 **D/O/S:**None/ None/ None				
		1	**PID:**0.7 **D/O/S:**None/ None/ None				
		D22 (3-4')	**PID:**0.9 **D/O/S:**None/ None/ None				
5						At 5 feet, trace subrounded cobbles.	950
			PID:3.3 **D/O/S:**None/ None/ None				
		2					
		D22 (8-9')	**PID:**4.3 **D/O/S:**None/ None/ None				
10						At 10 feet, color changes to grayish brown.	945
		3					
			PID:1.5 **D/O/S:**None/ None/ None				
15				SM			940
		4					
		D22 (18-19')	**PID:**1.3 **D/O/S:**None/ None/ None				
20						At 20 feet, low moisture; color changes to orangish brown, becomes very hard and crumbly.	935
		5					
						At 23 feet, few areas of rusty orange oxidation.	
			PID:1.0 **D/O/S:**None/ None/ None				
25							930
		6					
		D22 (28-29')	**PID:**0.8 **D/O/S:**None/ None/ None				
30							

Date Boring Started:	10/7/17
Date Boring Completed:	10/10/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D10

Project:	CSM Investigation	Surface Elevation:	955.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92085685° Long: -73.19983997°	Completion Depth:	115.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
30						SILTY CLAY (CL- ML): brown; [TILL].	925
35		7	**PID:**0.8 **D/O/S:**None/ None/ None			At 34 feet, few subrounded cobbles.	920
		D22 (38-39')	**PID:**0.6 **D/O/S:**None/ None/ None				
40						From 40-41 feet, small boulder.	915
			PID:0.7 **D/O/S:**None/ None/ None			At 42 feet, low moisture; hard; cohesive; high plasticity; high dry strength.	
45		8		CL-ML			910
		D22 (48-49')	**PID:**0.7 **D/O/S:**None/ None/ None				
50							905
55		9	**PID:**0.7 **D/O/S:**None/ None/ None				900
		D22 (58-59') SOIL	**PID:**0.5 **D/O/S:**None/ None/ None				
60							

Date Boring Started:	10/7/17
Date Boring Completed:	10/10/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D10

Project:	CSM Investigation	Surface Elevation:	955.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92085685° Long: -73.19983997°	Completion Depth:	115.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
60				CL-ML		SILTY CLAY (CL- ML): brown; [TILL]. *(continued)*	895
						SANDY LEAN CLAY WITH GRAVEL (CL): brown; low moisture; hard; little to some subrounded to subangular gravel, trace to few subround cobbles, some fine to coarse sand; [TILL].	
			PID:0.8 **D/O/S:**None/ None/ None				
65		10					890
		D22 (68-69') SOIL	**PID:**0.6 **D/O/S:**None/ None/ None				
70							885
			PID:3.4 **D/O/S:**None/ None/ None				
75		11		CL			880
		D22 (78-79') SOIL	**PID:**0.3 **D/O/S:**None/ None/ None				
80							875
			PID:0.2 **D/O/S:**None/ None/ None				
85		12					870
		D22 (88-89') SOIL	**PID:**0.2 **D/O/S:**None/ None/ None				
90							

Date Boring Started:	10/7/17
Date Boring Completed:	10/10/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

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LOG OF BORING D10

Project:	CSM Investigation	Surface Elevation:	955.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92085685° Long: -73.19983997°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	115.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
90				CL		SANDY LEAN CLAY (CL): tan with orange-brown laminations; low moisture; hard; with red oxidation, < 0.5 inch fine sand lenses, cohesive; high plasticity; [TILL].	865
			PID:0.5 **D/O/S:**None/ None/ None				
95		13		SP-SM		POORLY GRADED SAND WITH SILT (SP- SM): brown to orange-brown; low moisture; few to little silt to clay fines, mainly fine sand with few to little medium to coarse subangular sand, few smaller subangular gravels, little red oxidation, not very cohesive; [TILL]. At 96 feet, black iron concentrations.	860
		D22 (98-99') SOIL	**PID:**0.5 **D/O/S:**None/ None/ None				
100							855
			PID:3.0 **D/O/S:**None/ None/ None	SP		SAND (SP): brown to orange-brown; moist; possibly weathered quartzite, stratified, fine with little medium to coarse sand, sand to gravel sized fragments of weathered quartzite, fragments of "cemented sandstone" gravel; [TILL].	
		14 D22 (103-104') SOIL	**PID:**0.5 **D/O/S:**None/ None/ None				
105			**PID:**1.2 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): brown/tan/gray; moist; few 1 inch diameter iron concretions, black stratification/lenses.	850
		15				CHESHIRE QUARTZITE: white/cream/orange; fine to medium quartz sand grains, near vertical fractures, areas of crossbedding, black manganese and rusty red oxidation, few pinholes.	
110							845
		16					
115						End of boring 115.0 feet	
120							

Date Boring Started:	10/7/17
Date Boring Completed:	10/10/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D12

Project:	CSM Investigation	Surface Elevation:	822.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.9195192° Long: -73.21029824°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	45.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D12 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None			CLAYEY GRAVEL WITH SAND (GC): grayish brown; moist; some fine to coarse subround to subangular sand, some fine to coarse subround gravel; medium plasticity; [FILL].	
		D12 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None			From 0-1.5 feet, more silty fines.	
		D12 (1-1.5')	**PID:**0.5 **D/O/S:**None/ None/ None			Below 1 feet, increased clay.	
		1	**PID:**0.4 **D/O/S:**None/ None/ None				820
		D12 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None	GC			
5						At 5.5 feet, trace plastic debris.	
			PID:0.3 **D/O/S:**None/ None/ None			From 6 feet, increasing fines with depth, fragments of sand-size slate.	
		2				At 7.5 feet, trace rusty orange oxidation.	815
		D12 (8-9')	**PID:**0.3 **D/O/S:**None/ None/ None			From 8-9 feet, few quartzite cobbles.	
10						GRAVELLY LEAN CLAY WITH SAND (CL): gray; moist; some fine to coarse subround to subangular sand, some fine to coarse subround gravel, few cobbles, trace to few zones of rusty orange oxidation, few elongated black slate fragments of mostly sand-size slate; medium plasticity; [TILL].	
		3	**PID:**0.4 **D/O/S:**None/ None/ None				
		4					810
15			**PID:**0.3 **D/O/S:**None/ None/ None				
		5					805
		D12 (18-19')	**PID:**0.3 **D/O/S:**None/ None/ None	CL			
20						From 22 feet, less clay, increased silt.	
		6				At 23 feet, increased sand.	800
			PID:1.1 **D/O/S:**None/ None/ None			At 23.5 feet, less gravel, decreased moisture content.	
25						At 25 feet, few cobbles.	
		7				At 27 feet, decreased moisture content.	795
		D12 (28-29')	**PID:**0.3 **D/O/S:**None/ None/ None			At 29 feet, increased toughness.	
30							

Date Boring Started:	10/3/17
Date Boring Completed:	10/4/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING D12

Project:	CSM Investigation	Surface Elevation:	822.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.9195192° Long: -73.21029824°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	45.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
30						GRAVELLY LEAN CLAY WITH SAND (CL): gray; moist; some fine to coarse subround to subangular sand, some fine to coarse subround gravel, few cobbles, trace to few zones of rusty orange oxidation, few elongated black slate fragments of mostly sand-size slate; medium plasticity; [TILL]. *(continued)*	
						At 30 feet, high dry strength.	790
		8	**PID:**0.3 **D/O/S:**None/ None/ None	CL		At 34 feet, little areas of gray and brownish gray mottling.	
35						At 36 feet, some sandy areas, hard/stiff, cohesive.	
		D12 (36-37') 9	**PID:**0.2 **D/O/S:**None/ None/ None			DOLOMITIC QUARTZITE: with quartz veins.	785
40		10					780
45						End of boring 45.0 feet	
50							
55							
60							

Date Boring Started:	10/3/17
Date Boring Completed:	10/4/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D13

Project:	CSM Investigation	Surface Elevation:	642.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91467751° Long: -73.21849552°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	25.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION
0		D13 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None			TOPSOIL: brown; wet; sandy clay with silt; roots; fine with few medium to coarse grained sand; grass at surface.
		D13 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): brown; wet; fine sand with some medium to coarse grained sand; few grave; [TILL].
		D13 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None			
		D13 (3-4')	**PID:**0.9 **D/O/S:**None/ None/ None	CL-ML		SILTY CLAY (CL- ML): brown; wet; few fine sand; medium plasticity.
			PID:0.6 **D/O/S:**None/ None/ None	CL		SANDY TO GRAVELLY LEAN CLAY (CL): brown; wet; fine with few medium to coarse grained sand; subround gravel; subrounded cobbles; [TILL]. At 5 feet; 4 inch diameter cobble.
5			**PID:**0.3 **D/O/S:**None/ None/ None			
		D13 (8-9')	**PID:**0.8 **D/O/S:**None/ None/ None			
10			**PID:**3.2 **D/O/S:**None/ None/ None			
15		D13 (15-16')	**PID:**1.7 **D/O/S:**None/ None/ None	SM-SC		SILTY TO CLAYEY SAND WITH GRAVEL (SM- SC).
			PID:2.3 **D/O/S:**None/ None/ None			
		D13 (18-19')	**PID:**1.2 **D/O/S:**None/ None/ None			
20			**PID:**1.2 **D/O/S:**None/ None/ None			
		D13 (24-25')	**PID:**1.0 **D/O/S:**None/ None/ None			
25						End of boring 25.0 feet
30						

WELL OR PIEZOMETER CONSTRUCTION DETAIL

PRO. CASING
Diameter: **N/A**
Type: **N/A**
Interval: **N/A**

RISER CASING
Diameter: **1"**
Type: **Sch. 40 PVC**
Interval: **0-5'**

GROUT
Type: **N/A**
Interval: **N/A**

SEAL
Type: **N/A**
Interval: **N/A**

SANDPACK
Type: **N/A**
Interval: **N/A**

SCREEN
Diameter: **1"**
Type: **0.010 Sch. 40 PVC**
Interval: **5-10'**

Temp Well SG3-S04

Elevation, feet: 640, 635, 630, 625, 620

Date Boring Started:	9/6/17
Date Boring Completed:	9/6/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Collected groundwater sample SG3-D13-170906.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D14

Project:	CSM Investigation	Surface Elevation:	647.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91762789° Long: -73.2281902°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	17.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D14 (0-0.5')	**PID:**2.1 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; moist; silty in upper 3 inches; clayey in lower foot; trace to few organics; abundant roots; [FILL].	
		D14 (0.5-1')	**PID:**2.2 **D/O/S:**None/ None/ None	GC		CLAYEY GRAVEL (GC): fine to coarse grained; brown; moist; angular; some clay; some coarse sand; [FILL].	
		D14 (1-1.5')	**PID:**2.1 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): brown to dark yellowish brown; moist; soft to hard; few fine gravel; few fine to coarse grained sand; low to medium plasticity; [FILL].	645
		D14 (2-3')	**PID:**1.9 **D/O/S:**None/ None/ None				
		D14 (3-4')	**PID:**1.9 **D/O/S:**None/ None/ None			SILTY SAND WITH GRAVEL (SM): pale brown; moist; little to some fine to coarse gravel and cobbles; little to some fines; [FILL].	
			PID:1.2 **D/O/S:**None/ None/ None				
5			**PID:**1.7 **D/O/S:**None/ None/ None	SM			
			PID:3.4 **D/O/S:**None/ None/ None				640
		D14 (8-9')	**PID:**1.4 **D/O/S:**None/ None/ None				
10		D14 (9.5-10.5')	**PID:**1.0 **D/O/S:**None/ None/ None	SM/ ML		SILTY SAND TO SANDY SILT (SM/ ML): reddish brown to brownish red; moist; fine grained sand; few fine gravel; some silt; [FILL]. From 9.25 to 9.6 feet; brownish gray.	
			PID:2.1 **D/O/S:**None/ None/ None				
						MARBLE: gray; hard; very fine; fine grained; strong HCl reaction; [NATIVE].	635
15							
						End of boring 17.0 feet	
20							
25							

Date Boring Started:	8/29/17
Date Boring Completed:	8/29/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
No groundwater sample collected; insufficient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D16

Project:	CSM Investigation	Surface Elevation:	945.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91577436° Long: -73.1993381°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	41.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D16 (0-0.5')	**PID:**0.8 **D/O/S:**None/ None/ None	OL/ OH/ SM		ORGANIC SOIL (OL/ OH): tan to brown; moist; some fine sand; abundant roots; trace asphalt debris; [FILL].	945
		D16 (0.5-1')	**PID:**0.9 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine to coarse grained; brown; mostly medium sand; little fine gravel; trace asphalt debris; trace roots; [FILL].	
		D16 (1-1.5')	**PID:**1.0 **D/O/S:**None/ None/ None			SANDY CLAY (CL): grayish brown; moist; little to some some and fine gravel; medium to high plasticity; no dilatancy.	
		D16 (3-4')	**PID:**1.1/0.5 **D/O/S:**None/ None/ None	CL		At 4 feet; becomes brownish gray; decreased sand.	
5							940
			PID:2.8 **D/O/S:**None/ None/ None				
		D16 (8-9')	**PID:**1.5 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; reddish brown; moist; mostly fine sand; occasional clay fines; few oxidized silt inclusions.	
10				CL		LEAN CLAY (CL): grayish brown with reddish brown mottling; few coarse sand few fine gravel; few to little fine to medium sand; trace inclusions of silt; becomes harder with depth; medium plasticity; no dilatancy.	935
			PID:1.7 **D/O/S:**None/ None/ None				
				CL/ CH		LEAN TO FAT CLAY (CL/ CH): grayish brown; few sand; trace gravel; medium to high plasticity; no dilatancy; high toughness.	
15							930
			PID:1.7 **D/O/S:**None/ None/ None				
		D16 (18-19')	**PID:**1.3 **D/O/S:**None/ None/ None				
			PID:1.6 **D/O/S:**None/ None/ None				
20				CH		FAT CLAY (CH): grayish brown; very hard; trace to few fine to coarse sand; trace gravel; high plasticity; high toughness.	925
			PID:0.9 **D/O/S:**None/ None/ None			At 23 feet; 3 inch cobble. At 23.5 feet; becomes gray; finely laminated; harder than above.	
25							

Date Boring Started:	9/20/17
Date Boring Completed:	9/21/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
Encountered refusal at 41 feet bgs.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D16

Project:	CSM Investigation	Surface Elevation:	945.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91577436° Long: -73.1993381°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	41.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
25				CH		FAT CLAY (CH): grayish brown; very hard; trace to few fine to coarse sand; trace gravel; high plasticity; high toughness. *(continued)*	920
			PID:1.3 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; gray; moist; little fine grain angular gravel; trace cobbles; little silt.	
		D16 (28-29')	**PID:**1.0 **D/O/S:**None/ None/ None			LEAN TO FAT CLAY (CL/ CH): brownish gray; moist; hard to very hard; some fine to coarse mostly rounded gravel; few to little fine to coarse sand; medium to high plasticity; no dilatancy; high toughness.	
30			**PID:**1.0 **D/O/S:**None/ None/ None				915
				CL/ CH		From 31 to 33 feet; few gravel.	
			PID:0.9 **D/O/S:**None/ None/ None				
35						From 35.7-37 feet; reddish brown; moist to wet; soft to very soft; only trace to few sand and gravel.	910
		D16 (36-37')					
						QUARTZITE: medium to coarse grained; light gray; very hard; fractures observed to dip at 10 and 60°.	
40							905
						End of boring 41.0 feet	
45							
50							

Date Boring Started:	9/20/17
Date Boring Completed:	9/21/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
Encountered refusal at 41 feet bgs.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D17

Project:	CSM Investigation	Surface Elevation:	674.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91596336° Long: -73.27491529°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	20.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D17 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None			FILL: brownish gray to gray; low moisture; few roots, reworked soil fill, weathered slate bedrock reworked road base, some silt within, fine to coarse sand (slate fragments), with slate gravels (elongated fragments), low cohesion; low plasticity.	
		D17 (0.5-1')	**PID:**0.5 **D/O/S:**None/ None/ None				
		D17 (1-1.5')	**PID:**0.3 **D/O/S:**None/ None/ None				
		D17 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None				
5			**PID:**0.3 **D/O/S:**None/ None/ None				670
		2					
		D17 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None				
		D17 (9-10')	**PID:**0.0 **D/O/S:**None/ None/ None			WEATHERED SLATE: black/dark gray.	665
10						UNWEATHERED SLATE: black/dark gray; trace fragments (fine grain sized) of pyrite.	
		3					
15						At 15 feet, 4 inch fragment of quartz vein with pyrite.	660
		4					
20						End of boring 20.0 feet	655
25							
30							

Date Boring Started:	10/6/17
Date Boring Completed:	10/6/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D19

Project:	CSM Investigation	Surface Elevation:	806.4 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91067461° Long: -73.20211119°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	10.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D19 (0-0.5')	**PID:**0.8 **D/O/S:**None/ None/ None	OL/ OH		SILTY CLAY TOPSOIL: brown; moist; little sand fine with trace medium and coarse sand; trace gravel; roots; grass on surface; [FILL].	
		D19 (0.5-1')	**PID:**0.9 **D/O/S:**None/ None/ None			SILTY ORGANIC SOIL (OL/ OH): brown; moist; fine with trace medium and coarse sand; trace gravel; roots; [FILL].	805
		D19 (1-1.5')	**PID:**0.8 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): brown; moist; few subrounded gravel; trace inclusions of oxidized silt; trace roots/organics; low to medium plasticity; [FILL].	
		D19 (2-3')	**PID:**0.8 **D/O/S:**None/ None/ None			MARBLE: gray; very hard; quartz in veins; reacts with HCl; massive; [NATIVE].	
5			**PID:**2.2 **D/O/S:**None/ None/ None				800
10						End of boring 10.0 feet	
15							
20							
25							

Date Boring Started:	8/30/17
Date Boring Completed:	8/30/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING D20

Project:	CSM Investigation	Surface Elevation:	606.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.90819493° Long: -73.24449819°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	90.0 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
0	D20 (0-0.5')	**PID:**0.9 **D/O/S:**None/ None/ None	OL/ OH	ORGANIC SOIL (OL/ OH): very dark brown; moist; some organics.	
	D20 (0.5-1')	**PID:**0.7 **D/O/S:**None/ None/ None	OL	ORGANIC SOIL (PEAT) (OL): brown; moist; abundant root material; medium to high plasticity; slow dilatancy.	605
	D20 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None			
	D20 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None			
5		**PID:**0.4 **D/O/S:**None/ None/ None	SC	CLAYEY SAND (SC): brown; moist; mostly fine to coarse sand and fine gravel; medium plasticity.	600
	D20 (6.5-7.5')	**PID:**0.5 **D/O/S:**None/ None/ None	ML	SILT (ML): brown; moist to wet; some fine sand; trace medium to coarse sand and gravel; non-plastic plasticity; rapid dilatancy.	
	D20 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None		At 10 feet; becomes wet.	595
10		**PID:**0.3 **D/O/S:**None/ None/ None	CL	LEAN CLAY (CL): brown with occasional dark gray mottling; moist; hard to very hard; silty; medium plasticity.	
15			ML	SILT (ML): brown; wet to saturated; some fine sand; trace medium to coarse sand and gravel; non-plastic plasticity; rapid dilatancy.	590
	D20 (18-19')	**PID:**0.3 **D/O/S:**None/ None/ None	CL	LEAN CLAY (CL): brown with occasional dark gray mottling; moist; hard to very hard; trace to few fine gravel; few fine to coarse sand; silty; medium plasticity.	
20				At 20 feet; increase sand content (some).	585
		PID:0.2 **D/O/S:**None/ None/ None			
25			CL	SANDY LEAN CLAY WITH GRAVEL (CL): light brown to brown; moist; some gravel; some fine sand; very silty in 3 inch layers; low to medium plasticity.	
				From 26 to 30 feet; decreased gravel (little); hard drilling.	580
	D20 (28-29')	**PID:**0.2 **D/O/S:**None/ None/ None			
30					

Date Boring Started:	9/18/17
Date Boring Completed:	9/18/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Temporary well constucted at this location, however no groundwater sample collected due to insuffieient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING D20

Project:	CSM Investigation	Surface Elevation:	606.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.90819493° Long: -73.24449819°	Completion Depth:	90.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
30						SANDY LEAN CLAY WITH GRAVEL (CL): light brown to brown; moist; some gravel; some fine sand; very silty in 3 inch layers; low to medium plasticity. *(continued)*	
			PID:0.3 **D/O/S:**None/ None/ None			From 30 to 60 feet; decreased gravel (little).	575
35						From 35 to 40 feet; moisture baked out of sample.	570
		D20 (38-39')	**PID:**0.2 **D/O/S:**None/ None/ None			At 37.5 feet; color changes to brownish gray to grayish brown.	
40			**PID:**0.1 **D/O/S:**None/ None/ None			From 42.5 to 48 feet; large very hard gray quartzite boulder.	565
45				CL			560
		D20 (48-49')				At 48 feet; increase sand content (some); becomes laminated.	
			PID:0.1 **D/O/S:**None/ None/ None			At 50 feet; no longer laminated.	
50							555
55			**PID:**0.1 **D/O/S:**None/ None/ None				550
		D20 (58-59')	**PID:**0.2 **D/O/S:**None/ None/ None				
60							

Date Boring Started:	9/18/17
Date Boring Completed:	9/18/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Temporary well constucted at this location, however no groundwater sample collected due to insuffieient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING D20

Project:	CSM Investigation	Surface Elevation:	606.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.90819493° Long: -73.24449819°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	90.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
60			**PID:**0.2 **D/O/S:**None/ None/ None	SC		CLAYEY SAND (SC): fine to medium grained; gray; few to little fine gravel; some medium plasticity clay fines; mostly sand.	
						QUARTZITE: gray; very hard; trace oxidation.	545
			PID:0.2 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY (CL): reddish brown; moist; soft to hard; some fine sand; few medium to coarse sand and gravel; silty.	
65							540
			PID:0.1 **D/O/S:**None/ None/ None	SC		CLAYEY SAND (SC): medium grained; dark grayish brown to dark brown; moist to wet; trace fine gravel and coarse sand.	
		D20 (68.5-69.5')		ML		SILT (ML): reddish brown with orangish oxidized laminations; moist to wet; very soft; non-plastic plasticity; rapid dilatancy.	
70						At 70 feet; 4 inch cobble.	
				CL		SANDY LEAN CLAY (CL): reddish brown; moist; soft to hard; some fine sand; few medium to coarse sand and gravel; silty.	535
			PID:0.1 **D/O/S:**None/ None/ None				
				SM		SILTY SAND (SM): fine to coarse grained; dark brown; moist; mostly medium sand; trace to few fine gravel; some fines.	
75		D20 (75-77')		SC		SANDY CLAY (SC): fine to medium grained; reddish brown; saturated; some fines.	530
						BOULDER.	
		D20 (78-79')	**PID:**15.3 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): reddish brown with dark brown mottling; some fine to coarse sand and gravel; single half inch layer of black (manganese?) material; medium plasticity.	
80						DOLOMITE: gray; very hard.	
							525
85			**PID:**0.2 **D/O/S:**None/ None/ None				
							520
90						End of boring 90.0 feet	

Date Boring Started:	9/18/17
Date Boring Completed:	9/18/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Temporary well constucted at this location, however no groundwater sample collected due to insuffieient volume of water.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D22

Project:	CSM Investigation	Surface Elevation:	742.5 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.90432718° Long: -73.24459719°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	20.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D22 (0-0.5')	**PID:**0.2 **D/O/S:**None/ None/ None	ML		CLAYEY SILT (ML): brown; moist; with some fine sand with few medium to coarse sand; trace gravel, roots within; medium plasticity; [FILL].	
		D22 (0.5-1')	**PID:**0.2 **D/O/S:**None/ None/ None	CL-ML		SILTY CLAY (CL- ML): brown; moist; soft; with some fine sand and few medium to coarse sand, with little subrounded gravel, cohesive; high plasticity; [NATIVE],[TILL]. From 2-4 feet, wet but not yielding.	740
		D22 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None				
		D22 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None			From ~3-4 feet, trace areas of black organics.	
5			**PID:**0.2 **D/O/S:**None/ None/ None				735
		D22 (8-9')	**PID:**0.2 **D/O/S:**None/ None/ None			At 9 feet, low moisture; harder.	
10			**PID:**0.5 **D/O/S:**None/ None/ None			At 10 feet, few areas of rusty orange oxidation.	
						SLATE BOULDER: dark gray to bluish gray; very hard; some horizontal/slatey cleavage.	730
				CL		SANDY LEAN CLAY (CL): light brown with some gray mottles; hard; some find sand and few to little medium to coarse grained sand, few to little subround gravel, cohesive; high plasticity; [TILL].	
15		D22 (14-15')	**PID:**0.4 **D/O/S:**None/ None/ None			SLATE: dark bluish gray; very hard; with horizontal and vertical slatey cleavage. From 15-17 feet, carbonate and quartz veins.	725
20						End of boring 20.0 feet	
25							
30							

Date Boring Started:	10/6/17
Date Boring Completed:	10/6/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING D23

Project:	CSM Investigation	Surface Elevation:	757.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.89782193° Long: -73.2477362°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	50.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D23 (0-0.5')	**PID:**1.1 **D/O/S:**None/ None/ None			TOPSOIL: dark brown; wet; silty clay; with fine grained sand; trace medium to coarse grained sand; roots.	
		D23 (0.5-1')	**PID:**0.7 **D/O/S:**None/ None/ None	SC		CLAYEY SAND (SC): fine grained with few medium and coarse grained; brown; wet; few subround gravel; [FILL].	
		D23 (1-1.5')	**PID:**0.8 **D/O/S:**None/ None/ None				
			PID:1.0 **D/O/S:**None/ None/ None				755
			PID:0.9 **D/O/S:**None/ None/ None			QUARTZITE BOULDER: gray; very hard; shards and fragments recovered.	
5			**PID:**0.8 **D/O/S:**None/ None/ None			SANDY TO GRAVELLY LEAN CLAY (CL): brown; moist; fine grained with some medium to coarse grained sand; subrounded gravel; trace cobbles; [TILL].	
		D23 (6-7')	**PID:**0.9 **D/O/S:**None/ None/ None			At 6 feet, gray mottles with few rusty red oxidation spots.	
			PID:0.9 **D/O/S:**None/ None/ None	CL			750
10			**PID:**0.9 **D/O/S:**None/ None/ None			SANDY TO GRAVELLY LEAN CLAY (CL): gray; moist; little fine to coarse sand mixed with little subrounded gravel, some brown/rusty mottles; [TILL].	
		D23 (12-13')	**PID:**0.9 **D/O/S:**None/ None/ None				745
15			**PID:**1.0 **D/O/S:**None/ None/ None			At 16 feet; trace cobble.	
		D23 (18-19')	**PID:**1.1 **D/O/S:**None/ None/ None	CL			740
20			**PID:**1.5 **D/O/S:**None/ None/ None				735
25							

Date Boring Started:	9/7/17
Date Boring Completed:	9/7/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D23

Project:	CSM Investigation	Surface Elevation:	757.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.89782193° Long: -73.2477362°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	50.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
25			**PID:**1.2 **D/O/S:**None/ None/ None			SANDY TO GRAVELLY LEAN CLAY (CL): gray; moist; little fine to coarse sand mixed with little subrounded gravel, some brown/rusty mottles; [TILL]. *(continued)*	730
		D23 (28-29')	**PID:**1.3 **D/O/S:**None/ None/ None				
30			**PID:**1.4 **D/O/S:**None/ None/ None	CL		At 31 feet, elongated gravel size fragments of black slate.	725
35			**PID:**1.5 **D/O/S:**None/ None/ None			At 36 feet, pockets and veins of bluish clay with metallic luster; most likely slate residue.	
		D23 (36-37')	**PID:**1.5 **D/O/S:**None/ None/ None				720
			PID:1.7 **D/O/S:**None/ None/ None			CLAY/SAPROLITE (CL): grayish green; moist; soft; subangular sand size slate fragments; few medium/coarse sand; "slippery" feeling.	
40			**PID:**3.4 **D/O/S:**None/ None/ None	CL			
		D23 (41-42')	**PID:**2.1 **D/O/S:**None/ None/ None				715
			PID:6.1 **D/O/S:**None/ None/ None			HEAVILY WEATHERED SLATE: green; some rusty orange oxidation stains; some softer easily, weathered zones and some consolidated rock layers "discs".	
45			**PID:**1.3 **D/O/S:**None/ None/ None				710
		D23 (48-49')	**PID:**1.6 **D/O/S:**None/ None/ None				
50			**PID:**1.4			End of boring 50.0 feet	

Date Boring Started: 9/7/17
Date Boring Completed: 9/7/17
Logged By: DJZ/KMJ2
Drilling Contractor: Cascade Drilling
Drill Rig: MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D23

Project:	CSM Investigation	Surface Elevation:	757.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.89782193° Long: -73.2477362°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	50.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
50			**D/O/S:**None/ None/ None				
55							
60							
65							
70							
75							

Date Boring Started:	9/7/17
Date Boring Completed:	9/7/17
Logged By:	DJZ/KMJ2
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D24

Project:	CSM Investigation	Surface Elevation:	799.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.88662954° Long: -73.24525181°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0		D24 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None			Mowed grass area; minimal topsoil.	
		D24 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None			SILTY CLAY (CL- ML): brown; moist; little to some fine to coarse sand, little subround to subangular gravel with flat sand to gravel sized fragments of slate, trace subround cobbles with zones of rusty orange oxidation spots; medium to high plasticity; [TILL].	
		D24 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None				
			PID:0.6 **D/O/S:**None/ None/ None				
		D24 (3-4')	**PID:**0.8 **D/O/S:**None/ None/ None	CL-ML			795
5							
			PID:0.6 **D/O/S:**None/ None/ None				
						QUARTZITE: dark gray; hard; boulder.	
		D24 (9-10')	**PID:**0.7 **D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): dark gray; moist; some fine to coarse grained sand, little subround to subangular gravel with flat sand to gravel sized fragments of black slate with trace subround cobbles; [TILL]. At 9.5 feet; quartzite cobble.	790
10							
			PID:3.1 **D/O/S:**None/ None/ None				
			PID:0.7 **D/O/S:**None/ None/ None				785
15						At 15 feet, medium to high plasticity, weak reaction to HCl.	
			PID:2.0 **D/O/S:**None/ None/ None				
		D24 (18-19')	**PID:**1.1 **D/O/S:**None/ None/ None	CL		At 19 feet, harder/tough, dense.	780
20							
						At 23 feet; quartzite cobble.	
			PID:1.3 **D/O/S:**None/ None/ None				775
25						At 27 feet, high dry strength.	
		D24 (28-29')	**PID:**1.4 **D/O/S:**None/ None/ None				770
30							

Date Boring Started:	9/23/17
Date Boring Completed:	9/24/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. No groundwater encountered while drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING D24

Project:	CSM Investigation	Surface Elevation:	799.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.88662954° Long: -73.24525181°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
30				CL			
						QUARTZITE: dark gray; very hard; boulder.	
			PID:1.8 **D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): dark gray; moist; some fine to coarse grained sand, little subround to subangular gravel with flat sand to gravel sized fragments of black slate with trace subround cobbles.	765
35							
		D24 (38-39')	**PID:**1.3 **D/O/S:**None/ None/ None				760
40				CL			
			PID:0.7 **D/O/S:**None/ None/ None				755
45						At 45 feet, brown, moist.	
			PID:0.8 **D/O/S:**None/ None/ None				
		D24 (48-49')	**PID:**0.6 **D/O/S:**None/ None/ None	ML		SANDY SILT (ML): brown; wet, but not yielding; very fine to fine grained sand; thin laminations; low plasticity; rapid dilatancy.	750
50						OCHER: appears as sandy clay and sandy silt; interbedded; brown; moist to wet; very fine to fine grained sand with few to little medium to coarse sand, few gravel pockets; [ALTERED BEDROCK].	
						At 53 feet; hydrothermal quartz vein (1-2 inch).	
			PID:0.7 **D/O/S:**None/ None/ None				745
55						At 55 feet, sand to gravel sized quartz fragments.	
						At 57 feet; 1 inch diameter quartz nodule (secondary mineralization); laminations and mottles of various brown and reddish brown colors.	
		D24 (58-59')	**PID:**0.7 **D/O/S:**None/ None/ None				740
60							

Date Boring Started:	9/23/17
Date Boring Completed:	9/24/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. No groundwater encountered while drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D24

Project:	CSM Investigation	Surface Elevation:	799.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.88662954° Long: -73.24525181°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
60						OCHER: appears as sandy clay and sandy silt; interbedded; brown; moist to wet; very fine to fine grained sand with few to little medium to coarse sand, few gravel pockets; [ALTERED BEDROCK]. *(continued)*	
						At 60 feet, 3 inch quartz nodule.	
						At 61 feet, several 1-2 inch zones of quartz gravels/sand.	
			PID:0.9 **D/O/S:**None/ None/ None			At 64 feet, quartz inclusions up to 2 inches throughout.	735
65						At 66 feet, several 1-2 inch zones of quartz gravel/sand.	
		D24 (68-69')				At 68 feet, few pieces of chert.	
			PID:1.0 **D/O/S:**None/ None/ None			At 69 feet, few white silt laminations.	730
70			**PID:**1.0 **D/O/S:**None/ None/ None			End of boring 70.0 feet	
75							
80							
85							
90							

Date Boring Started:	9/23/17
Date Boring Completed:	9/24/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. No groundwater encountered while drilling.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING D26

Project:	CSM Investigation	Surface Elevation:	1004.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92172723° Long: -73.20079481°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	50.0 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
0	D26 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	CL	SANDY TO GRAVELLY LEAN CLAY (CL): brown; low moisture; little subangular fine to coarse sand, little subangular fine to medium gravels, trace cobbles, cohesive; high plasticity; [TILL].	
	D26 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None	CL-ML	SILTY CLAY (CL- ML): brown; low moisture; few subangular fine to coarse sand, few subangular fine to medium gravel, trace cobbles, cohesive; high plasticity; [TILL].	
	D26 (1-1.5')	**PID:**0.7 **D/O/S:**None/ None/ None			
		PID:0.8 **D/O/S:**None/ None/ None			
	D26 (3-4')	**PID:**0.8 **D/O/S:**None/ None/ None		SANDY LEAN CLAY WITH GRAVEL: gray; moist; subangular fine to coarse sand, subangular fine to coarse gravel, trace cobbles, cohesive; high plasticity; [TILL].	1000
5		**PID:**0.6 **D/O/S:**None/ None/ None		From 6-7 feet, pushed boulder/rock/cobble with auger, some to 10 feet, causing low recovery.	
	D26 (8-9')	**PID:**4.8 **D/O/S:**None/ None/ None		SANDY TO GRAVELLY LEAN CLAY (CL): brown; low moisture; hard; little fine sand with few medium to coarse grained sand, little subround to subangular fine to coarse gravel, trace cobbles, few to little silt fines, trace red oxidation; high plasticity; [TILL].	995
10		**PID:**0.8 **D/O/S:**None/ None/ None			
					990
15		**PID:**2.0 **D/O/S:**None/ None/ None			
	D26 (18-19')	**PID:**0.5 **D/O/S:**None/ None/ None	CL	At 19 feet, few zones with black manganese oxidation.	985
20				At 21 feet, trace coarse gravel.	
		PID:1.0 **D/O/S:**None/ None/ None			980
25				From 25-30 feet, increased sand and moisture content.	
	D26 (28-29')	**PID:**0.6 **D/O/S:**None/ None/ None			975
30					

Date Boring Started:	10/10/17
Date Boring Completed:	10/11/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING D26

Project:	CSM Investigation	Surface Elevation:	1004.2 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92172723° Long: -73.20079481°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	50.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
30						SANDY TO GRAVELLY LEAN CLAY (CL): brown; low moisture; hard; little fine sand with few medium to coarse grained sand, little subround to subangular fine to coarse gravel, trace cobbles, few to little silt fines, trace red oxidation; high plasticity; [TILL]. *(continued)*	
						At 33 feet, trace large gravels.	
			PID:1.3 **D/O/S:**None/ None/ None				970
35				CL		At 36 feet, moist; hard; cohesive; high plasticity.	
		D26 (38-39')				From 38-40 feet, increased sand/silt, very fine sand.	
			PID:0.7 **D/O/S:**None/ None/ None				965
40			**PID:**1.6 **D/O/S:**None/ None/ None			At 40 feet, moist; cohesive; medium plasticity.	
		9				QUARTZITE: white/cream; fine to medium grained quartz sand, zones of crossbedding/bedding, black manganese and rusty red oxidation, few pinholes/vugs, few wormholes infilled, near vertical fractures; [CHESHIRE FORMATION].	
							960
45							
		10					
							955
50						End of boring 50.0 feet	
55							
60							

Date Boring Started:	10/10/17
Date Boring Completed:	10/11/17
Logged By:	DJZ
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected. Groundwater not encountered.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING SG3-MW17-01

Associated Boring #: D06

Project:	CSM Investigation	Surface Elevation:	914.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.9214404° Long: -73.1957975°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	10.2 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		D06 (0-0.5')	**PID:**5.5 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): moist; abundant roots; [FILL].		
		D06 (0.5-1')	**PID:**2.4 **D/O/S:**None/ None/ None	SC		CLAYEY SAND (SC): fine to coarse grained; brown to dark brown; moist; mostly fine sand; silty; some clay fines; few to little fine gravel; trace organics to 1 foot bgs; [FILL].	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	915.0
		D06 (1-1.5')	**PID:**1.1 **D/O/S:**None/ None/ None				RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-11'**	
2.5						SILTY SAND (SM): fine to coarse grained; brown; moist; little fine to coarse gravel and cobbles; gravel and cobbles are angular to subround; [FILL]. After 3 feet; hard drilling.		
		D06 (3-4')	**PID:**1.0 **D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	912.5
5.0				SM			SEAL Type: **Bentonite** Interval: **Chips** **0-4'**	
							SANDPACK Type: **#5 US Silica** Interval: **4-11'**	910.0
			PID:1.0 **D/O/S:**None/ None/ None				SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC** **4-11'**	
7.5						POORLY GRADED GRAVEL (GP): brown; wet; fine to coarse gravel with some cobbles; little coarse with few fine to medium sand; angular to subrounded grains and clasts; [FILL].		
		D06 (8-9')		GP				907.5
			PID:0.9 **D/O/S:**None/ None/ None					
10.0						QUARTZITE: gray to light gray; very hard; medium grained.		
						End of boring 10.2 feet		

Date Boring Started:	9/22/17
Date Boring Completed:	9/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-02

Associated Boring #: D08

Project:	CSM Investigation	Surface Elevation:	916.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92118992° Long: -73.19500108°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	15.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0		D08 (0-0.5')	**PID:**4.3 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; mostly fine sand; very silty; abundant roots; [FILL].	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	912.5
		D08 (0.5-1')	**PID:**4.0 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine to coarse grained; light brown to brown; mostly fine to medium sand; some fine to coarse subrounded gravel and cobbles; trace organics to ~1.25 feet; [FILL]. At 1.25 feet; ~1 inch layer of sandy lean clay (CL). From 2-5 feet; low recovery likely due to rock.		
2.5		D08 (1-1.5')	**PID:**2.0 **D/O/S:**None/ None/ None					
		D08 (3-5')	**PID:**1.8 **D/O/S:**None/ None/ None	SM			RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-15'**	910.0
5.0								
7.5		D08 (7-8')	**PID:**1.2 **D/O/S:**None/ None/ None				GROUT Type: Interval: **0-3'**	907.5
							SEAL Type: **Bentonite** Interval: **Chips 0-5'**	
10.0		D08 (10-11')	**PID:**4.3 **D/O/S:**None/ None/ None	GP		POORLY GRADED GRAVEL (GP): brown; fine to coarse gravel with few cobbles; mostly subrounded to rounded with trace to few angular (quartz); trace silt fines; few to little medium to coarse sand; trace fine sand; [FILL].	SANDPACK Type: **#5 US Silica** Interval: **18-30'**	905.0
12.5			**PID:**1.1 **D/O/S:**None/ None/ None				SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC 5-15'**	902.5
15.0						At 14.5 feet; becomes mostly approximately 4 inch diameter cobbles. End of boring 15.0 feet		900.0
17.5								
20.0								

Date Boring Started:	9/22/17
Date Boring Completed:	9/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-03

Associated Boring #: D25

Project:	CSM Investigation	Surface Elevation:	978.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92535221° Long: -73.19522627°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	20.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		D25 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	SM		TOPSOIL: sparse weeds in sand; abundant roots.		
		D25 (0.5-1')	**PID:**0.5 **D/O/S:**None/ None/ None			SILTY SAND (SM): fine to coarse grained; light brown; moist; trace rounded fine gravel.		
		D25 (1-1.5')	**PID:**0.5 **D/O/S:**None/ None/ None	ML		SANDY SILT (ML): pale brown; moist; some very fine sand.	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	975
		D25 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None			After 4 feet; finely laminated. At 4.5 feet; half inch layer of fine silty sand.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-5'**	
5				CL		SANDY CLAY (CL): brown; moist; hard to very hard; trace fine to coarse gravel and cobbles; silty in some layers (<2 inch); medium plasticity; slow dilatancy. At 6 feet; ~2 inch layer of brown, medium grained silty sand.		
		D25 (6.5-7.5')	**PID:**1.0 **D/O/S:**None/ None/ None				GROUT Type: **N/A** Interval: **N/A**	970
		D25 (8-9')	**PID:**0.4 **D/O/S:**None/ None/ None					
10				SC		CLAYEY SAND (SC): fine grained; brown; moist to wet; trace to few gravel and cobbles; some fines; [TILL].	SEAL Type: **Bentonite** Interval: **Chips 0-4'** SANDPACK Type: **#5 US Silica** Interval: **4-20'**	
				SM		SILTY SAND (SM): fine to coarse grained; moist to wet; mostly fine sand; trace fine gravel; some fines.		965
15				ML/ SM		SANDY SILT TO SILTY SAND (ML/ SM): brown; wet; fine grained; trace gravel and cobbles; mostly silt fines; occasional thin (<2 inch) layers have clay fines; low plasticity.	SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **5-20'**	
		D25 (18-19')	**PID:**1.1 **D/O/S:**None/ None/ None					960
20						End of boring 20.0 feet		
25								

Date Boring Started:	9/22/17
Date Boring Completed:	9/22/17
Logged By:	RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.
Groundwater sample SG3-D25-171024 collected on 10/24/17 after monitoring well construction.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-04

Associated Boring #: D11

Project:	CSM Investigation	Surface Elevation:	954.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92078764° Long: -73.19875351°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	150.0 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
0	D11 (0-0.5')	**PID:**2.2 **D/O/S:**None/ None/ None	SM-SC	SILTY TO CLAYEY SAND WITH GRAVEL (SM- SC): brown; moist; fine to very fine sand; little subround to subangular gravel; grass/vegetation at surface; [FILL].	
	D11 (0.5-1')	**PID:**0.9 **D/O/S:**None/ None/ None		At 1 foot; geotextile liner observed.	
	D11 (1-1.5')	**PID:**1.0 **D/O/S:**None/ None/ None		SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist; fine with little medium to coarse grained sand; little subround to subangular gravel; trace subround cobbles; medium to high plasticity; [TILL].	
	D11 (3-4')	**PID:**1.3 **D/O/S:**None/ None/ None			
		PID:1.1 **D/O/S:**None/ None/ None		From 4 to 10 feet; wet/saturated area; below 10 feet is moist.	
5					950
		PID:1.1 **D/O/S:**None/ None/ None			
	D11 (8-9')	**PID:**1.2 **D/O/S:**None/ None/ None			
		PID:1.2 **D/O/S:**None/ None/ None			
10					945
				At 11 feet, some silty zones.	
				From 13.5 to 14.5 feet; crushed boulder/cobbles.	
		PID:2.8 **D/O/S:**None/ None/ None			
15			CL		940
				At 17 feet, harder.	
	D11 (18-19')	**PID:**1.2 **D/O/S:**None/ None/ None			
		PID:0.8 **D/O/S:**None/ None/ None			
20					935
				From 21 to 23 feet; several dark gray quartzite boulders/cobbles.	
25					930
		PID:4.1 **D/O/S:**None/ None/ None			
	D11 (28-29')	**PID:**1.7 **D/O/S:**None/ None/ None			
30					925

WELL OR PIEZOMETER CONSTRUCTION DETAIL

PRO. CASING
Diameter: **4"**
Type: **Steel**
Interval: **N/A**

RISER CASING
Diameter: **2"**
Type: **Sch. 40 PVC**
Interval: **0-145'**

GROUT
Type: **Cement**
Interval: **0-3'**

SEAL
Type: **Bentonite**
Interval: **Chips**
3-133'

SANDPACK
Type: **#5 US Silica**
Interval: **133-150'**

SCREEN
Diameter: **2"**
Type: **0.010 Sch 40**
Interval: **PVC**
145-150'

Date Boring Started:	9/25/17
Date Boring Completed:	9/27/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-04

Associated Boring #: D11

Project:	CSM Investigation	Surface Elevation:	954.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92078764° Long: -73.19875351°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	150.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30						SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist; fine with little medium to coarse grained sand; little subround to subangular gravel; trace subround cobbles; medium to high plasticity; [TILL]. *(continued)*		
			PID:1.2 **D/O/S:**None/ None/ None			At 31 feet, color becomes more golden brown.	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	
35						From 36 to 38 feet; dark gray quartzite boulder.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-145'**	920
		D11 (38-39')				At 38 feet, quartzite gravels.	GROUT Type: **Cement** Interval: **0-3'**	
40			**PID:**0.9 **D/O/S:**None/ None/ None			At 41 feet, increase to few subround cobbles.	SEAL Type: **Bentonite** Interval: **Chips 3-133'**	915
			PID:1.6 **D/O/S:**None/ None/ None			At 43 feet, moist with few areas of dark gray mottles and reddish mottles; few sand size fragments of slate.	SANDPACK Type: **#5 US Silica** Interval: **133-150'**	
45				CL			SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **145-150'**	910
			PID:0.9 **D/O/S:**None/ None/ None					
		D11 (48-49')	**PID:**1.3 **D/O/S:**None/ None/ None					
50						At 51 feet, lower moisture; harder.		905
			PID:2.6 **D/O/S:**None/ None/ None					
55						At 56 feet, darker brown.		900
		D11 (58-59')	**PID:**1.4 **D/O/S:**None/ None/ None			At 59 feet, dense/tight/hard.		
60								895

Date Boring Started:	9/25/17
Date Boring Completed:	9/27/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-04

Associated Boring #: D11

Project:	CSM Investigation	Surface Elevation:	954.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92078764° Long: -73.19875351°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	150.0 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
60				SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist; fine with little medium to coarse grained sand; little subround to subangular gravel; trace subround cobbles; medium to high plasticity; [TILL]. *(continued)*	
		PID:0.8 **D/O/S:**None/ None/ None			
65				At 66 feet, moist, hard.	890
	D11 (68-69')	**PID:**0.6 **D/O/S:**None/ None/ None			
70					885
		PID:1.4 **D/O/S:**None/ None/ None	CL		
75				At 77 feet, trace subround cobbles.	880
	D11 (78-79')	**PID:**1.4 **D/O/S:**None/ None/ None			
80				At 80.5 feet; several cobbles.	875
				From 82 to 84 feet; area of very thin laminations with dark gray/black and browns; possible sheared boulder area.	
		PID:1.6 **D/O/S:**None/ None/ None			
85					870
	D11 (88-89')	**PID:**1.1 **D/O/S:**None/ None/ None		At 88 feet, low moist; hard.	
90			CL/ CH		865

WELL OR PIEZOMETER CONSTRUCTION DETAIL

PRO. CASING
Diameter: **4"**
Type: **Steel**
Interval: **N/A**

RISER CASING
Diameter: **2"**
Type: **Sch. 40 PVC**
Interval: **0-145'**

GROUT
Type: **Cement**
Interval: **0-3'**

SEAL
Type: **Bentonite**
Interval: **Chips**
3-133'

SANDPACK
Type: **#5 US Silica**
Interval: **133-150'**

SCREEN
Diameter: **2"**
Type: **0.010 Sch 40**
Interval: **PVC**
145-150'

Date Boring Started:	9/25/17
Date Boring Completed:	9/27/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-04

Associated Boring #: D11

Project:	CSM Investigation	Surface Elevation:	954.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92078764° Long: -73.19875351°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	150.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
90				CL/ CH		CLAY (CL/ CH): dark brown; moist; some silty zones; few fine sand; few areas of whitish silty clay inclusions; few gravel; high plasticity; high dry strength. *(continued)*	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	
95			**PID:**3.2 **D/O/S:**None/ None/ None			BOULDER: white powder cuttings from pulverized boulder.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-145'**	860
100		D11 (99-100')	**PID:**0.8 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY WITH GRAVEL (CL): light brown; moist; medium plasticity.	GROUT Type: **Cement** Interval: **0-3'**	855
			PID:18.1 **D/O/S:**None/ None/ None			GRAVELLY LEAN CLAY LENS.	SEAL Type: **Bentonite** Interval: **Chips** **3-133'**	
105			**PID:**1.5 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): with weathered phyllite; fine to coarse sand; fine gravel.	SANDPACK Type: **#5 US Silica** Interval: **133-150'**	850
						BOULDER: dolomitic quartzite; dark gray; weak HCl reaction.	SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **145-150'**	
110			**PID:**0.6 **D/O/S:**None/ None/ None	CL		SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist.		845
		D11 (113-114')				At 114 feet, moist.		
115			**PID:**0.8 **D/O/S:**None/ None/ None			At 116 feet, low moist. At 117 feet, weathered gravel to sand size quartzite fragments; breaks down to sand size fairly easily (kaolin).		840
		D11 (118-119')	**PID:**1.5 **D/O/S:**None/ None/ None			At 119 feet, silty inclusions.		
120								835

Date Boring Started:	9/25/17
Date Boring Completed:	9/27/17
Logged By:	DJZ/RQM/KAM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING SG3-MW17-04

Associated Boring #: D11

Project:	CSM Investigation	Surface Elevation:	954.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92078764° Long: -73.19875351°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	150.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
120				CL		SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist. *(continued)*		
			PID:0.8 **D/O/S:**None/ None/ None	CL-ML		SILTY CLAY (CL- ML): dark brown; wet; few weathered quartzite gravel; trace sand; fragments of slate; dark brown to brown mottles; black manganese oxidation spots; high plasticity.	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	
						WEATHERED QUARTZITE AND CLAY: moist.		
125						BOULDER: dolomitic quartzite; dark gray with white.		830
			PID:1.5 **D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): brown; moist; glacial till.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-145'**	
		D11 (128-129')	**PID:**0.8 **D/O/S:**None/ None/ None			From 128 to 133 feet; more gravel sized weathered quartzite fragments.	GROUT Type: **Cement** Interval: **0-3'**	
130								825
							SEAL Type: **Bentonite** Interval: **Chips 3-133'**	
			PID:1.5 **D/O/S:**None/ None/ None			At 134 feet, more silty than clayey; orange and dark brown mottles; few black manganese oxidation stains; pockets of weathered quartzite fragments/kaolin; medium plasticity.	SANDPACK Type: **#5 US Silica** Interval: **133-150'**	
135				CL				820
							SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **145-150'**	
		D11 (138-139')	**PID:**1.1 **D/O/S:**None/ None/ None			At 138 feet, brown, moist to wet, little to some fine to coarse sand; few to little fine to coarse gravel.		
140								815
			PID:1.2 **D/O/S:**None/ None/ None			At 142 feet, fragments of quartzite; quartz; thin laminations of black; orange brown; and dark brown; black manganese oxidation lenses/discoloration areas; abundant quartz inclusions.		
		D11 (144-145')	**PID:**1.3 **D/O/S:**None/ None/ None	SP		POORLY GRADED SAND (SP): fine with little medium to coarse grained; brown; wet to saturated; weathered gravel to coarse sand sized cheshire quartzite fragments.		810
145						CHESHIRE QUARTZITE: fine to medium grained; white/cream; near vertical fracture; areas of crossbedding black manganese and rusty red oxidation with few pinholes.		
150						End of boring 150.0 feet		805

Date Boring Started: 9/25/17
Date Boring Completed: 9/27/17
Logged By: DJZ/RQM/KAM
Drilling Contractor: Cascade Drilling
Drill Rig: MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-05

Associated Boring #: D21

Project:	CSM Investigation	Surface Elevation:	649.7 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.90012857° Long: -73.20247603°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	25.0 ft

Depth, feet	Sample No.	ENVIRONMENTAL DATA	USCS	LITHOLOGIC DESCRIPTION	Elevation, feet
0	D21 (0-0.5')	**PID:**0.7 **D/O/S:**None/ None/ None	ML	CLAYEY SILT (ML): medium brown; dry; soft; little fine sand, little coarse to fine gravel.	
	D21 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None			
	D21 (1-1.5')	**PID:**0.9 **D/O/S:**None/ None/ None			
	D21 (3-4')	**PID:**1.1 **D/O/S:**None/ None/ None		At 3.5 feet, color changes to light brown, increasing gravel content.	
5		**PID:**0.6 **D/O/S:**None/ None/ None		SANDY SILT WITH GRAVEL (ML): light brown; moist to wet; very fine sand within silt, few to little medium to coarse sand, little to some subround to subangular gravel, trace subround cobbles, weak to moderate cohesion, few areas with rusty orange oxidation spots; low plasticity; [TILL].	645
		PID:1.0 **D/O/S:**None/ None/ None			
	D21 (8-9')	**PID:**1.0 **D/O/S:**None/ None/ None			
10			ML		640
		PID:1.5 **D/O/S:**None/ None/ None			
				At 13 feet, increasing moisture.	
	D21 (14-15')	**PID:**0.7 **D/O/S:**None/ None/ None			
15					635
				DOLOMITIC QUARTZITE: gray; very hard.	
20					630
25				End of boring 25.0 feet	625
30					

WELL OR PIEZOMETER CONSTRUCTION DETAIL

PRO. CASING
Diameter: **8"**
Type: **Flush mount**
Interval: **N/A**

RISER CASING
Diameter: **2"**
Type: **Sch. 40 PVC**
Interval: **0-6.5'**

GROUT
Type:
Interval: **N/A**

SEAL
Type: **Bentonite**
Interval: **Chips**
0-5'

SANDPACK
Type: **#5 US Silica**
Interval: **5-16.5'**

SCREEN
Diameter: **2"**
Type: **0.010 Sch 40**
Interval: **PVC**
6.5-16.5'

Date Boring Started:	10/5/17
Date Boring Completed:	10/5/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-06

Associated Boring #: D09

Project:	CSM Investigation	Surface Elevation:	929.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92090524° Long: -73.19572004°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		D09 (0-0.5')	**PID:**0.4 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): black; with roots.	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	929
		D09 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None			SILTY TO CLAYEY SAND (SM/ SC): brown to tan; moist; loose; fine sand with some medium sand, little subround gravel, trace subround cobbles, little silt/clay fines, trace garbage (plastic fragments) to 3 feet; [FILL].		
		D09 (1-1.5') 1	**PID:**0.3 **D/O/S:**None/ None/ None					
		D09 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None			At 3 feet, color changes to reddish brown.		
			PID:0.4 **D/O/S:**None/ None/ None					
5								925
			PID:0.3 **D/O/S:**None/ None/ None	SM/ SC		At 7 feet, color changes to tan.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-20'**	
		2						
		D09 (8-9')	**PID:**0.4 **D/O/S:**None/ None/ None				GROUT Type: **Cement** Interval: **0-3'**	
10								920
			PID:0.3 **D/O/S:**None/ None/ None			At 12 feet, few cobbles.	SEAL Type: **Bentonite** Interval: **Chips 3-18'**	
		3				At 13 feet, increase to some silt.		
		D09 (14-15')	**PID:**1.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): brown to tan; moist; fine sand with some medium sand, little subround gravel, trace subround cobbles, some silt to clay fines; [FILL].	SANDPACK Type: **#5 US Silica** Interval: **18-30'**	
15								915
		4	**PID:**0.7 **D/O/S:**None/ None/ None	GP-GM		POORLY GRADED GRAVEL WITH SILT AND SAND (GP- GM): brown; loose; fine to coarse subround to subangular gravel, few fine with some medium to coarse sand, few silty to clayey fines, trace subround cobbles; [FILL]. At 16 feet boulder.	SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **20-30'**	
20								910
		5						
25			**PID:**0.7 **D/O/S:**None/ None/ None					905
		6		CL		LEAN CLAY WITH SAND (CL): brown; moist; hard; with few subround gravel, few to little fine to coarse sand, cohesive; high plasticity; [TILL], [NATIVE]. From 27.5-29.5 feet, loose gravelly sand lens.		
		D09 (28-29')						
30								900

Date Boring Started:	10/16/17
Date Boring Completed:	10/17/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Monitoring well completed in borehole offset 5 feet from boring D09 due to boring being advanced below the water table significantly. Boring D09 was grouted prior to well constuction.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-06

Associated Boring #: D09

Project:	CSM Investigation	Surface Elevation:	929.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92090524° Long: -73.19572004°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30				CL		LEAN CLAY WITH SAND (CL): brown; moist; hard; with few subround gravel, few to little fine to coarse sand, cohesive; high plasticity; [TILL], [NATIVE]. *(continued)*	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	
35		7	**PID:**0.7 **D/O/S:**None/ None/ None	CL		LEAN CLAY WITH SAND (CL): reddish brown; low moisture; few subround to subangular gravel, few to little fine to coarse sand, trace cobbles, areas of trace rusty red oxidation, cohesive; high plasticity; [TILL].	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-20'**	895
		D09 (38-39')					GROUT Type: **Cement** Interval: **0-3'**	
40							SEAL Type: **Bentonite** Interval: **Chips** **3-18'**	890
45		8	**PID:**1.3 **D/O/S:**None/ None/ None				SANDPACK Type: **#5 US Silica** Interval: **18-30'**	885
		D09 (48-49')				At 49 feet, small boulder/cobble.	SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC** **20-30'**	
50						At 50 feet, color transitions to brown. At 51 feet, increased silt content. At 53 feet, low moisture; cohesive; high plasticity; high dry strength.		880
55		9	**PID:**0.9 **D/O/S:**None/ None/ None			At 55 feet, large cobble.		875
		D09 (58-59')	**PID:**0.8 **D/O/S:**None/ None/ None			At 58 feet, few small cobbles.		
60								870

Date Boring Started:	10/16/17
Date Boring Completed:	10/17/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Monitoring well completed in borehole offset 5 feet from boring D09 due to boring being advanced below the water table significantly. Boring D09 was grouted prior to well constuction.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-06

Associated Boring #: D09

Project:	CSM Investigation	Surface Elevation:	929.6 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92090524° Long: -73.19572004°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	70.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60						LEAN CLAY WITH SAND (CL): reddish brown; low moisture; few subround to subangular gravel, few to little fine to coarse sand, trace cobbles, areas of trace rusty red oxidation, cohesive; high plasticity; [TILL]. *(continued)*	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	
						At 60 feet, small fragments of kaolin.		
65		10	**PID:**1.3 **D/O/S:**None/ None/ None	CL		At 65 feet, few small fragments of phyllite.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-20'**	865
		D09 (68-69')	**PID:**0.8 **D/O/S:**None/ None/ None				GROUT Type: **Cement** Interval: **0-3'**	860
70						End of boring 70.0 feet	SEAL Type: **Bentonite** Interval: **Chips 3-18'**	
75							SANDPACK Type: **#5 US Silica** Interval: **18-30'**	
80							SCREEN Diameter: **2"** Type: **0.010 Sch 40 PVC** Interval: **20-30'**	
85								
90								

Date Boring Started:	10/16/17
Date Boring Completed:	10/17/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Monitoring well completed in borehole offset 5 feet from boring D09 due to boring being advanced below the water table significantly. Boring D09 was grouted prior to well constuction.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-07

Associated Boring #: D15

Project:	CSM Investigation	Surface Elevation:	680.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92023618° Long: -73.23388803°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	85.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		D15 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): dark brown; moist; silty with little clay and trace fine sand, roots; high plasticity; [NATIVE].	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	680
		D15 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None			SANDY SILT WITH GRAVEL (ML): brown; moist to low moist; little subround to subangular fine to coarse sand, little subround to subangular fine to medium gravels, sand to gravel sized fragments of elongated slate, trace subround cobbles, trace coarse gravels.		
		D15 (1-1.5')	**PID:**0.4 **D/O/S:**None/ None/ None					
		1	**PID:**0.4 **D/O/S:**None/ None/ None					
		D15 (3-4')	**PID:**0.4 **D/O/S:**None/ None/ None					
5			**PID:**0.7 **D/O/S:**None/ None/ None				RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-55'**	675
		2						
		D15 (8-9')	**PID:**0.8 **D/O/S:**None/ None/ None				GROUT Type: Interval: **0-3'**	
10								670
		3				At 12 feet, few cobbles.	SEAL Type: **Bentonite** Interval: **Chips 3-53'**	
			PID:4.9 **D/O/S:**None/ None/ None				SANDPACK Type: **#5 US Silica** Interval: **53-85'**	
15				ML		At 15 feet, color changes to gray to light gray.		665
		4					SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC 55-75'**	
		D15 (18-19')	**PID:**1.4 **D/O/S:**None/ None/ None			At 18 feet, few cobbles.		
20						At 20 feet, 1 foot quartzite boulder.		660
		5						
			PID:2.3 **D/O/S:**None/ None/ None			At 24 feet, 8 inch boulder fragments.		
25						At 25 feet, very hard.		655
		6						
		D15 (28-29')	**PID:**1.1 **D/O/S:**None/ None/ None					
30								

Date Boring Started:	10/18/17
Date Boring Completed:	10/19/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Water level measured on 11/2/2017 at approximately 11.8' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-07

Associated Boring #: D15

Project:	CSM Investigation	Surface Elevation:	680.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92023618° Long: -73.23388803°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	85.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30						SANDY SILT WITH GRAVEL (ML): brown; moist to low moist; little subround to subangular fine to coarse sand, little subround to subangular fine to medium gravels, sand to gravel sized fragments of elongated slate, trace subround cobbles, trace coarse gravels. *(continued)*	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	650
35		7	**PID:**1.1 **D/O/S:**None/ None/ None				RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-55'**	645
40		D15 (38-39')	**PID:**0.5 **D/O/S:**None/ None/ None				GROUT Type: Interval: **0-3'**	640
		8	**PID:**0.8 **D/O/S:**None/ None/ None	ML		From 44-46.5 feet, quartzite boulder.	SEAL Type: **Bentonite** Interval: **Chips 3-53'** SANDPACK Type: **#5 US Silica** Interval: **53-85'**	635
45		D15 (48-49')	**PID:**0.4 **D/O/S:**None/ None/ None				SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC 55-75'**	
50		9	**PID:**0.6 **D/O/S:**None/ None/ None					630
55						From 55-65 feet, 1foot recovery of gravels and cobbles, drilling water may have washed out sand and fines, gravel were subround to rounded quartzite and slate.		625
60								

Date Boring Started:	10/18/17
Date Boring Completed:	10/19/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Water level measured on 11/2/2017 at approximately 11.8' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-07

Associated Boring #: D15

Project:	CSM Investigation	Surface Elevation:	680.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.92023618° Long: -73.23388803°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	85.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60		10				From 55-65 feet, 1foot recovery of gravels and cobbles, drilling water may have washed out sand and fines, gravel were subround to rounded quartzite and slate. *(continued)*	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	620
65						DOLOMITE BOULDER: very fine grained; dark gray to bluish gray; nearly 5 feet recovery.	RISER CASING Diameter: **2"** Type: **Sch. 40 PVC** Interval: **0-55'**	615
70		11	**PID:**1.4 **D/O/S:**None/ None/ None	ML		SILT WITH SAND (ML): brown; moist; little very fine to fine sand with little medium to coarse sand, few gravel, few subround cobbles; [TILL].	GROUT Type: Interval: **0-3'** SEAL Type: **Bentonite** Interval: **Chips** **3-53'**	610
		D15 (73-74')	**PID:**0.7 **D/O/S:**None/ None/ None				SANDPACK Type: **#5 US Silica** Interval: **53-85'**	
75		12				DOLOMITE: very fine grained; dark gray to bluish gray. At 78 feet, weak HCl reaction.	SCREEN Diameter: **2"** Type: **0.010 Sch 40** Interval: **PVC** **55-75'**	605
80								600
85						End of boring 85.0 feet		
90								

Date Boring Started:	10/18/17
Date Boring Completed:	10/19/17
Logged By:	DJZ/RAK
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Water level measured on 11/2/2017 at approximately 11.8' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING SG3-MW17-WWTP

Associated Boring #: D18

Project:	CSM Investigation	Surface Elevation:	565.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91504344° Long: -73.25701416°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	35.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		D18 (0-0.5')	**PID:**0.6 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): fine to medium grained; light brown to brown; moist; trace to few gravel and cobbles; roots; [NATIVE].	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	565
		D18 (0.5-1')	**PID:**0.3 **D/O/S:**None/ None/ None			At 1 foot; increasing clay content and decreased sand.		
		D18 (1-1.5')	**PID:**0.2 **D/O/S:**None/ None/ None	CH		FAT CLAY (CH): light brown with gray mottling; moist; hard; few thin laminations; trace roots; high plasticity; [NATIVE].		
		D18 (3-4')	**PID:**0.2 **D/O/S:**None/ None/ None				RISER CASING Diameter: **2"** Type: **Sch. 40** Interval: **0-25**	
5			**PID:**0.1 **D/O/S:**None/ None/ None					560
				ML		SANDY SILT (ML): brown; saturated; little to some fine grained sand; [NATIVE].	GROUT Type: **Cement** Interval: **0-2'**	
		D18 (8-9')	**PID:**0.1 **D/O/S:**None/ None/ None	CH		FAT CLAY (CH): gray; moist to wet; soft; very thin/fine laminations; varying hardness; silty pockets; high plasticity; [NATIVE].	SEAL Type: **Bentonite** Interval: **Chips 2-23'**	
10			**PID:**0.1 **D/O/S:**None/ None/ None					555
			PID:0.2 **D/O/S:**None/ None/ None			From 13.5 to 14.5 feet; silty; low dry strength.	SANDPACK Type: **#5 US Silica** Interval: **23-35'**	
15		D18 (15-16')				At 15 feet; strong HCL reaction when dry; none when wet.	SCREEN Diameter: **2"** Type: **0.010 Sch. 40** Interval: **PVC 25-35'**	550
			PID:0.0 **D/O/S:**None/ None/ None			At 17 feet; silty lenses.		
		D18 (18-19')	**PID:**0.2 **D/O/S:**None/ None/ None			From 18 to 19 feet; silty.		
			PID:0.1 **D/O/S:**None/ None/ None	CL-ML		SILTY CLAY (CL- ML): gray; moist; little fine to coarse sand with elongated and rounded gravels and cobbles (black shale or schist); [TILL].		
20								545
			PID:0.1 **D/O/S:**None/ None/ None			From 19-25 feet; increasing sand; gravel; and cobbles with depth.		
25		D18 (24-25')						

Date Boring Started:	8/25/17
Date Boring Completed:	8/25/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-WWTP

Associated Boring #: D18

Project:	CSM Investigation	Surface Elevation:	565.1 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic
Location:	Bennington, VT	Sampling Method:	4" Core
Coordinates:	Lat: 42.91504344° Long: -73.25701416°		
Datum:	North American Datum 1983 (NAD83)	Completion Depth:	35.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
25						QUARTZITE: gray; very hard; medium grained; fractured; rusty orange oxidation in fracture planes; fracture planes dipped at ~60-70° from horizontal; [NATIVE].	PRO. CASING Diameter: **4"** Type: **Steel** Interval: **N/A**	540
			PID:0.2 **D/O/S:**None/ None/ None			At 28 feet; possible 2 inch shear zone.	RISER CASING Diameter: **2"** Type: **Sch. 40** Interval: **0-25**	
30								535
			PID:0.1 **D/O/S:**None/ None/ None				GROUT Type: **Cement** Interval: **0-2'**	
35						End of boring 35.0 feet	SEAL Type: **Bentonite** Interval: **Chips** **2-23'**	
							SANDPACK Type: **#5 US Silica** Interval: **23-35'**	
40							SCREEN Diameter: **2"** Type: **0.010 Sch. 40** Interval: **PVC** **25-35'**	
45								
50								

Date Boring Started:	8/25/17
Date Boring Completed:	8/25/17
Logged By:	DJZ/RQM
Drilling Contractor:	Cascade Drilling
Drill Rig:	MiniSonic

Remarks: Grain size analysis samples collected.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project:	CSM Investigation	Surface Elevation:	977.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Coordinates:	Lat: 42.92534982° Long: -73.19525145°	Completion Depth:	380.0 ft
Datum:	Horizontal: NAD83, Vertical: NAVD88		

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0				SM		TOPSOIL: sparse weeds in sand; abundant roots; [NATIVE].		
						SILTY SAND (SM): fine to coarse grained; light brown; moist; mostly fine to medium sand; trace gravel; trace to few rounded gravel; [NATIVE].		
				ML		SANDY SILT (ML): pale brown; moist; some very fine sand; platy structure; very well packed; [NATIVE].		975
5						After 4 feet; finely laminated. At 4.5 feet; half inch layer of fine silty sand.		
				CL		SANDY CLAY (CL): brown; moist; hard to very hard; trace gravel and cobbles; silty in some layers (<2 inch); medium plasticity; slow dilatancy. At 6 feet; ~2 inch layer of brown medium silty sand.		970
10				SC		CLAYEY SAND (SC): fine grained; brown; moist to wet; very well packed; trace to few gravel and cobbles; some fines; [TILL].		
				SM		SILTY SAND (SM): fine to coarse grained; moist to wet; mostly fine sand; trace fine gravel; some fines.		965
15				ML/ SM		SANDY SILT TO SILTY SAND (ML/ SM): fine grained; brown; wet; hard; very well packed; trace gravel and cobbles; mostly silt fines; occasional thin (<2 inch) layers have clay fines; low plasticity.	6" Permanent casing +3-310' bgs	960
20						SANDY LEAN CLAY (CL): reddish brown; moist to dry; very hard; some fine to coarse sand and fine to coarse gravel, trace cobbles up to 9 inches in diameter; [TILL].		955
25			**PID:**1.4 **D/O/S:**None/ None/ None	CL				
		SG3-MW17-BR1 (28-29')	**PID:**0.2 **D/O/S:**None/ None/ None					950
30								

Date Boring Started:	9/26/17
Date Boring Completed:	11/20/17
Logged By:	RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30				CL		(continued).		
		SG3-MW17-BR1 (31-32')	**PID:**0.1 **D/O/S:**None/ None/ None	SM		SILTY SAND (SM): fine to coarse grained; reddish brown; wet; mostly fine to medium sand, trace gravel, some silt fines.		945
						SANDY LEAN CLAY (CL): reddish brown; moist to dry; some fine to coarse sand and fine to coarse gravel, trace cobbles up to 9 inches in diameter.		
35								
		SG3-MW17-BR1 (38-39')	**PID:**0.1 **D/O/S:**None/ None/ None					940
40								
			PID:0.6 **D/O/S:**None/ None/ None			From 43-45 feet, dark gray to black mottling, possible manganese secondary mineralization.		935
45				CL			6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (48-49')	**PID:**0.0 **D/O/S:**None/ None/ None					930
50						At 50 feet, slight decrease in sand content (little).		
			PID:0.5 **D/O/S:**None/ None/ None					925
55								
		SG3-MW17-BR1 (58-59')	**PID:**0.7 **D/O/S:**None/ None/ None			At 57.9 feet, 1 inch layer of fine to coarse gravel sized cheshire quartzite particles. At 58.8 feet, 1 inch distinct layer of fine to coarse gravel sized cheshire quartzite particles.		920
60								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60						At 59 feet, 1 inch distinct layer of fine to coarse gravel sized cheshire quartzite particles. SANDY LEAN CLAY (CL): reddish brown; moist to dry; some fine to coarse sand and fine to coarse gravel, trace cobbles up to 9 inches in diameter. *(continued)* At 62 feet, ~0.5 inch layer of soft saturated silt.		
			PID:1.1 **D/O/S:**None/ None/ None					915
65		SG3-MW17-BR1 (68-69')	**PID:**0.6 **D/O/S:**None/ None/ None					910
70			**PID:**1.4 **D/O/S:**None/ None/ None					905
75			**PID:**0.9 **D/O/S:**None/ None/ None	CL			6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (78-79')	**PID:**0.8 **D/O/S:**None/ None/ None					900
80			**PID:**3.1 **D/O/S:**None/ None/ None					895
85			**PID:**0.7 **D/O/S:**None/ None/ None					890
		SG3-MW17-BR1 (88-89')	**PID:**0.7 **D/O/S:**None/ None/ None					
90								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
90						SANDY LEAN CLAY (CL): reddish brown; moist to dry; some fine to coarse sand and fine to coarse gravel, trace cobbles up to 9 inches in diameter. *(continued)*		
						At 90 feet, becomes reddish brown to brown.		885
95			**PID:**3.3 **D/O/S:**None/ None/ None					
		SG3-MW17-BR1 (98-99')	**PID:**2.2 **D/O/S:**None/ None/ None					880
100						At 100 feet, slight decrease in sand content (little).		
								875
105				CL			6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (108-109')	**PID:**0.6 **D/O/S:**None/ None/ None					870
110								
			PID:8.9 **D/O/S:**None/ None/ None					865
115						From 116-123 feet, mottled with deep reddish brown, some quartzite cobbles.		
		SG3-MW17-BR1 (118-119')	**PID:**9.3 **D/O/S:**None/ None/ None					860
120								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
120						SANDY LEAN CLAY (CL): reddish brown; moist to dry; some fine to coarse sand and fine to coarse gravel, trace cobbles up to 9 inches in diameter. *(continued)*		
			PID:8.2 **D/O/S:**None/ None/ None					855
125				CL		At 123 feet, color changed to deep reddish brown with some quartzite cobbles, trace to few quartzite cobbles with phyllite onlapped on upper surface. At 124 feet, decreased cobbles (little), increased sand (some).		
			PID:1.5 **D/O/S:**None/ None/ None					
		SG3-MW17-BR1 (128-129')	**PID:**0.6 **D/O/S:**None/ None/ None					850
130						OCHER: dark reddish brown; moist; clay matrix, little fine to coarse gravel and cobbles, few angular quartz inclusions; low to medium plasticity; [ALTERED BEDROCK].		
			PID:0.6 **D/O/S:**None/ None/ None					845
135							6" Permanent casing +3-310' bgs	
						KAOLIN: very light reddish brown to white; moist; clay matrix, friable, few light gray inclusions, occasional layers of mostly silt matrix, light gray inclusions occasionally exhibit vitreous luster, clay matrix has few fine to coarse sand; low to medium plasticity; [ALTERED BEDROCK].		
		SG3-MW17-BR1 (138-139')	**PID:**0.7 **D/O/S:**None/ None/ None					840
140								
			PID:0.5 **D/O/S:**None/ None/ None					835
145						At 146 feet, decreased sand (little), increased plasticity (medium to high).		
		SG3-MW17-BR1 (148-149')	**PID:**0.5 **D/O/S:**None/ None/ None					830
150			**PID:**0.6					

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
150			**D/O/S:**None/ None/ None			KAOLIN: very light reddish brown to white; moist; clay matrix, friable, few light gray inclusions, occasional layers of mostly silt matrix, light gray inclusions occasionally exhibit vitreous luster, clay matrix has few fine to coarse sand; low to medium plasticity; [ALTERED BEDROCK]. *(continued)*		
								825
155			**PID:**0.5 **D/O/S:**None/ None/ None				6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (158-159)						820
			PID:0.5 **D/O/S:**None/ None/ None					
160								
								815
			PID:0.4 **D/O/S:**None/ None/ None					
165						From 166-167.5 feet, weathered zone of kaolin, pink mineralization in upper 3 inches, then mostly yellowish white to light gray below, friable, occasional planes exhibit vitreous luster.		
		SG3-MW17-BR1 (168-169)				From 168-170 feet, moist to wet, very silty.		810
			PID:0.5 **D/O/S:**None/ None/ None					
170						OCHER: reddish brown to dark reddish brown; moist; clay matrix with few to little sand, trace quartz inclusions; [ALTERED BEDROCK]. From 170-174 feet, some kaolin inclusions are white and light gray.		
								805
			PID:0.5 **D/O/S:**None/ None/ None					
175						From 177 feet, 4 inch layer with little quartz inclusions.		
		SG3-MW17-BR1 (178-179)						800
			PID:0.5 **D/O/S:**None/ None/ None			KAOLIN: light grayish brown; moist; some inclusions of white to gray, clay matrix, clay matrix is occasionally sandy, trace to little sand throughout, friable; medium plasticity; [ALTERED BEDROCK].		
180								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
180						KAOLIN: light grayish brown; moist; some inclusions of white to gray, clay matrix, clay matrix is occasionally sandy, trace to little sand throughout, friable; medium plasticity; [ALTERED BEDROCK]. *(continued)*		
						At 182 feet, 9 inch zone of pink to grayish red mineralization. From 182-188 feet, most kaolin material is light gray to bluish gray.		795
			PID:0.4 **D/O/S:**None/ None/ None					
185								
		SG3-MW17-BR1 (188-189)	**PID:**0.3 **D/O/S:**None/ None/ None					790
190						From 190-192 feet, brown, medium plasticity clay with only few zone of kaolin mineralization.		
						At 192 feet, becomes mostly very light reddish brown, white, light gray.		785
			PID:0.3 **D/O/S:**None/ None/ None					
195							6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (198-199)	**PID:**0.1 **D/O/S:**None/ None/ None			At 198 feet, 9 inch layer of light reddish brown with few kaolin.		780
200						OCHER: light reddish brown; moist; little to some layers and lenses of light tan and brown to dark brown, clay matrix, occasional layers of clay are sandy, trace to few quartz inclusions in dark brown material; low to medium plasticity; [ALTERED BEDROCK]. From 202-205 feet, apparent vertical dipping strata/layers.		
			PID:0.1 **D/O/S:**None/ None/ None					775
205								
		SG3-MW17-BR1 (208-209)	**PID:**0.3 **D/O/S:**None/ None/ None					770
210								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
210						(continued).		
						KAOLIN: gray; moist; some inclusions of light reddish brown, clay matrix, occasional layers/lenses are mostly silt with slow dilatancy, few to little inclusions of dark red and reddish brown; medium plasticity; [ALTERED BEDROCK].		765
			PID:0.6 **D/O/S:**None/ None/ None					
215						From 215-215.5 feet, weathered gray schist.		
		SG3-MW17-BR1 (218-219')				From 218-219 feet, very dark brown to black altered rock, silty, few angular gravel.		760
			PID:0.9 **D/O/S:**None/ None/ None			From 219-220 feet, weathered gray schist.		
220								
						OCHER: reddish brown; with few to some inclusions of light reddish brown, dark brown, and tan, trace to few quartz inclusions in dark brown material, trace inclusions of white to gray material with evaporite-like appearance, little fine to coarse sand; no HCl reaction; [ALTERED BEDROCK].		755
			PID:0.8 **D/O/S:**None/ None/ None			At 225 feet, variable clay/silt content in layers of varying thickness.	6" Permanent casing +3-310' bgs	
225						At 226 feet, becomes medium plasticity with decreased sand (little).		
		SG3-MW17-BR1 (228-229')				At 228 feet, 3 inch zone with little quartz inclusions.		750
			PID:0.8 **D/O/S:**None/ None/ None					
230								
			PID:0.4 **D/O/S:**None/ None/ None					745
235								
		SG3-MW17-BR1 (239-239')						740
			PID:0.4 **D/O/S:**None/ None/ None					
240								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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4300 MarketPointe Drive Suite 200
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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
240						OCHER: reddish brown; with few to some inclusions of light reddish brown, dark brown, and tan, trace to few quartz inclusions in dark brown material, trace inclusions of white to gray material with evaporite-like appearance, little fine to coarse sand; no HCl reaction; [ALTERED BEDROCK]. *(continued)* At 242 feet, 6 inch zone with some kaolin mineralization.		735
			PID:0.3 **D/O/S:**None/ None/ None					
245						At 245 feet, 5 inch zone with some kaolin mineralization. At 246 feet, becomes medium to high plasticity clay matrix.		730
		SG3-MW17-BR1 (248-249')	**PID:**0.3 **D/O/S:**None/ None/ None					
250						At 252 feet, becomes very silty with low to medium plasticity, slow to rapid dilatancy.		725
			PID:0.4 **D/O/S:**None/ None/ None				6" Permanent casing +3-310' bgs	
255								720
		SG3-MW17-BR1 (258-259')	**PID:**0.2 **D/O/S:**None/ None/ None					
260						At 260 feet, becomes dark reddish brown clayey sand with mostly sand (fine to coarse, mostly medium to coarse), trace to few fine gravel, fines are clayey with low to medium plasticity, becomes wet.		715
			PID:0.4 **D/O/S:**None/ None/ None			From 264-266 feet, sandy silt, bright reddish brown to orange, some sand.		
265						At 266 feet, becomes very dark brown sandy silt (some sand) with 2 inch layer of coarse sand on top, coarse sand layer contains fine gravel sized iron concretions with coarse sand sized quartz inclusions on particles.		710
		SG3-MW17-BR1 (268-269')	**PID:**0.4 **D/O/S:**None/ None/ None					
270								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
270						OCHER: reddish brown; with few to some inclusions of light reddish brown, dark brown, and tan, trace to few quartz inclusions in dark brown material, trace inclusions of white to gray material with evaporite-like appearance, little fine to coarse sand; no HCl reaction; [ALTERED BEDROCK]. *(continued)* At 270 feet, becomes reddish brown (still wet silty sand).		
			PID:0.3 **D/O/S:**None/ None/ None					705
275						At 276 feet, ~0.5 inch layer of very dark brown sandy silt (some sand) with 2 inch layer of coarse sand on top, coarse sand layer contains fine gravel sized iron concretions with coarse sand sized quartz inclusions on particles. At 277.5 feet, 2 inch layer of very dark brown sandy silt (some sand) with 2 inch layer of coarse sand on top, coarse sand layer contains fine gravel sized iron concretions with coarse sand sized quartz inclusions on particles.		
		SG3-MW17-BR1 (278-279)	**PID:**0.5 **D/O/S:**None/ None/ None					700
280						From 280-281.5 feet, bright brownish red/orangish coarse sand with few angular fine gravel (largely composed of iron concretions), sand. At 281.5 feet, becomes brown, medium to high plasticity clay and silt with highly variable sand and silt content (few to little).		
			PID:0.4 **D/O/S:**None/ None/ None					695
285						At 286 feet, becomes mottled with tan and gray silt (little to some).	6" Permanent casing +3-310' bgs	
		SG3-MW17-BR1 (288-289)	**PID:**0.4 **D/O/S:**None/ None/ None					690
290						From 290-299 feet, interbedded medium to high plasticity clay and silt with highly variable sand content, some clay intervals (<1 inch) are very hard and high plasticity.		
			PID:0.8 **D/O/S:**None/ None/ None					685
295						At 299 feet, becomes white coarse sand, little fines, possibly a highly decomposed sandstone or quartzite, contains trace to few pieces of fine gravel composed of coarse sand particles stuck together.		
		SG3-MW17-BR1 (298-299)	**PID:**0.4 **D/O/S:**None/ None/ None				4" 10 slot screen from 299-369' bgs	680
300			**PID:**0.1					

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

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LOG OF BORING SG3-MW17-BR1

Project:	CSM Investigation	Surface Elevation:	977.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Coordinates:	Lat: 42.92534982° Long: -73.19525145°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
300			**D/O/S:**None/ None/ None			OCHER: reddish brown; with few to some inclusions of light reddish brown, dark brown, and tan, trace to few quartz inclusions in dark brown material, trace inclusions of white to gray material with evaporite-like appearance, little fine to coarse sand; no HCl reaction; [ALTERED BEDROCK]. *(continued)* From 300-301 feet, quartzite gravel in a sandy clay matrix, gravel is subangular to subrounded and generally brown. From 301-304 feet, fractured and broken weathered quartzite, angular to subangular pieces (fine gravel to cobble size), silty to clayey sand filling of fractures/joints makes up matrix material (cheshire). QUARTZITE: very strong; fine to medium grained; pinkish gray with rusty weathering; hard; fresh to slightly decomposed, competent, moderately to intensely fractured and jointed, shallow dipping (approximately. 20-25°) sets of tight, iron stained, quartz healed fractures are common; no HCl reaction; massive; [CHESHIRE FORMATION].		675
305								
310								670
315								665
320								660
325								655
330							4" 10 slot screen from 299-369' bgs	650

Date Boring Started:	9/26/17
Date Boring Completed:	11/20/17
Logged By:	RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
330						QUARTZITE: very strong; gray with brown beds of altered bed rock (kaolin/ocher); fresh to slightly decomposed quartzite with beds of moderately to highly decomposed altered rock; medium to thickly bedded; Competent quartzite is moderately to intensely fractured. Fracture characterization where sonic coring was used to collect the sample was not completed due to low recovery and condition of recovered rock. Beds of the altered bedrock were not recovered but were noted as soft zones for drilling and brown colored return water. [CHESHIRE FORMATION].	4" 10 slot screen from 299-369' bgs	645
335								640
340								635
345								630
350								625
355								620
360								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR1

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92534982° Long: -73.19525145°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 977.9 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 9" Rotasonic Core to ~100', then 4" Rotasonic Core, PQ Core Barrel
Completion Depth: 380.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
360						QUARTZITE: very strong; gray with brown beds of altered bed rock (kaolin/ocher); fresh to slightly decomposed quartzite with beds of moderately to highly decomposed altered rock; medium to thickly bedded; Competent quartzite is moderately to intensely fractured. Fracture characterization where sonic coring was used to collect the sample was not completed due to low recovery and condition of recovered rock. Beds of the altered bedrock were not recovered but were noted as soft zones for drilling and brown colored return water. [CHESHIRE FORMATION]. *(continued)*		615
365							4" 10 slot screen from 299-369' bgs	610
370								605
375							Collapse from 369-380' bgs	600
380						End of boring 380.0 feet		
385								
390								

Date Boring Started: 9/26/17
Date Boring Completed: 11/20/17
Logged By: RQM/KAM/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Blind drilled to 15' bgs, information taken from D25.
Grain size analysis samples collected.
Collected groundwater samples on 11/29/17, 12/6/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		SG3-MW17-BR2 (0-0.5')	**PID:**0.4 **D/O/S:**None/ None/ None	CL/ ML		CLAYEY SILT (CL/ ML): medium brown; dry to moist; soft; trace fine sand, trace coarse to fine gravel; [NATIVE].		956
		SG3-MW17-BR2 (0.5-1')	**PID:**0.8 **D/O/S:**None/ None/ None					
		SG3-MW17-BR2 (1.1.5')	**PID:**1.0 **D/O/S:**None/ None/ None					955
			PID:0.5 **D/O/S:**None/ None/ None					
5		SG3-MW17-BR2 (3-4')	**PID:**0.5 **D/O/S:**None/ None/ None			From 4.2-19.5 feet, saturated to wet.		950
			PID:0.4 **D/O/S:**None/ None/ None					
		SG3-MW17-BR2 (8-9')	**PID:**0.5 **D/O/S:**None/ None/ None			SANDY LEAN CLAY WITH GRAVEL (CL): medium brown; moist to dry below 20'; hard to very hard; some coarse to fine sand, some coarse to fine gravel; [TILL].		945
10								
			PID:1.0 **D/O/S:**None/ None/ None					
15						At 16.5 feet, cobbles.	6" Permanent casing from +3-147' bgs	940
		SG3-MW17-BR2 (18-19')	**PID:**0.4 **D/O/S:**None/ None/ None	CL				
20								935
			PID:0.7 **D/O/S:**None/ None/ None					
25								930
		SG3-MW17-BR2 (28-29')	**PID:**1.3 **D/O/S:**None/ None/ None					
30								

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30						SANDY LEAN CLAY WITH GRAVEL (CL): medium brown; moist to dry below 20'; hard to very hard; some coarse to fine sand, some coarse to fine gravel; [TILL]. *(continued)*		925
35			**PID:**1.1 **D/O/S:**None/ None/ None			At 37 feet, cobbles.		920
40		SG3-MW17-BR2 (38-39')	**PID:**1.3 **D/O/S:**None/ None/ None					915
45			**PID:**0.7 **D/O/S:**None/ None/ None	CL			6" Permanent casing from +3-147' bgs	910
50		SG3-MW17-BR2 (48-49')	**PID:**0.7 **D/O/S:**None/ None/ None			From 49-53 feet, silty layer without gravel.		905
55			**PID:**1.0 **D/O/S:**None/ None/ None					900
60		SG3-MW17-BR2 (58-59')	**PID:**2.4 **D/O/S:**None/ None/ None			At 58.5 feet, cobbles.		

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

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LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60						SANDY LEAN CLAY WITH GRAVEL (CL): medium brown; moist to dry below 20'; hard to very hard; some coarse to fine sand, some coarse to fine gravel; [TILL]. *(continued)*		895
65			**PID:**1.1 **D/O/S:**None/ None/ None					890
		SG3-MW17-BR2 (68-69')	**PID:**1.6 **D/O/S:**None/ None/ None					
70								885
			PID:1.6 **D/O/S:**None/ None/ None				6" Permanent casing from +3-147' bgs	
75				CL				880
		SG3-MW17-BR2 (78-79')	**PID:**0.9 **D/O/S:**None/ None/ None					
80								875
			PID:0.4 **D/O/S:**None/ None/ None			From 82.5-84.5 feet, thinly laminated light brown, brown, and dark gray.		
85						From 86-87 feet, quartzite and slate gravel.		870
		SG3-MW17-BR2 (88-89')	**PID:**0.5 **D/O/S:**None/ None/ None			At 89 feet, dry, medium dense, higher percentage (some) of medium to fine gravel of angular slate and quartzite, possible kaolin clasts included.		
90								

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
90						SANDY LEAN CLAY WITH GRAVEL (CL): medium brown; moist to dry below 20'; hard to very hard; some coarse to fine sand, some coarse to fine gravel; [TILL]. *(continued)*		865
95		SG3-MW17-BR2 (98-99')	**PID:**0.3 **D/O/S:**None/ None/ None **PID:**0.5 **D/O/S:**None/ None/ None					860
100			**PID:**0.6 **D/O/S:**None/ None/ None	CL			6" Permanent casing from +3-147' bgs	855
105		SG3-MW17-BR2 (108-109')	**PID:**0.4 **D/O/S:**None/ None/ None					850
110								845
115			**PID:**0.6 **D/O/S:**None/ None/ None					840
120		SG3-MW17-BR2 (118-119')	**PID:**0.3 **D/O/S:**None/ None/ None					

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
120						SANDY LEAN CLAY WITH GRAVEL (CL): medium brown; moist to dry below 20'; hard to very hard; some coarse to fine sand, some coarse to fine gravel; [TILL]. *(continued)*		835
125			**PID:**0.3 **D/O/S:**None/ None/ None	CL				830
		SG3-MW17-BR2 (128-129)	**PID:**0.8 **D/O/S:**None/ None/ None					
130			**PID:**0.8 **D/O/S:**None/ None/ None					825
		SG3-MW17-BR2 (133-134)	**PID:**0.5 **D/O/S:**None/ None/ None			POORLY GRADED SAND (SP): coarse to fine grained; light orangish brown; moist; loose; trace coarse to fine gravel, trace silt.		
135			**PID:**0.5 **D/O/S:**None/ None/ None	SP			6" Permanent casing from +3-147' bgs	820
		SG3-MW17-BR2 (137-138)	**PID:**0.7 **D/O/S:**None/ None/ None			QUARTZITE: tan; dry; some thin horizontal discontinuous layers near top (upper 0.3 feet of core). Near vertical fracture (join-unfilled, no slickensides) through core; [CHESHIRE FORMATION].		
140								815
145						From 146-153 feet, medium gray and light tan quartzite, fine sand to fine gravel cuttings, no HCl reaction.	6" Open hole from 147-263' bgs	810
150								

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
150						Medium gray and light tan; fine sand to fine gravel cuttings, no HCl reaction.		805
155						From 153-183 feet, tan quartzite, coarse to fine-grained sand, gray quartzite near bottom, no HCl reaction.		800
160								795
165							6" Open hole from 147-263' bgs	790
170								785
175								780
180								

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR2

Project:	CSM Investigation	Surface Elevation:	956.8 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.92070651° Long: -73.19901737°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
180						Medium gray and light tan; fine sand to fine gravel cuttings, no HCl reaction. *(continued)*		775
185						From 183-213 feet, tan and medium gray quartzite, fine to coarse sand sized cuttings, no HCl reaction.		770
190								765
195							6" Open hole from 147-263' bgs	760
200								755
205							6" Open hole from 147-263' bgs	750
210								

Date Boring Started:	10/11/17
Date Boring Completed:	12/9/17
Logged By:	R.Koslosky/K.Donovan(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

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LOG OF BORING SG3-MW17-BR2

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92070651° Long: -73.19901737°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 956.8 ft
Drilling Method: Rotasonic/Air Rotary with Down the Hole Hammer
Sampling Method: 4" Rotasonic Core/ Grab
Completion Depth: 263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
210						Medium gray and light tan; fine sand to fine gravel cuttings, no HCl reaction. *(continued)*		745
215						From 213-253 feet, tan quartzite, coarse to fine sand sized cuttings, no HCl reaction.		740
220								735
225							6" Open hole from 147-263' bgs	730
230								725
235								720
240								

Date Boring Started: 10/11/17
Date Boring Completed: 12/9/17
Logged By: R.Koslosky/K.Donovan(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING SG3-MW17-BR2

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.92070651° Long: -73.19901737°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 956.8 ft
Drilling Method: Rotasonic/Air Rotary with Down the Hole Hammer
Sampling Method: 4" Rotasonic Core/ Grab
Completion Depth: 263.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
240						Medium gray and light tan; fine sand to fine gravel cuttings, no HCl reaction. *(continued)*		715
245								710
250						From 253-263 feet, tan and dark gray quartzite and phyllitic quartzite, coarse to fine sand sized cuttings, no HCl reaction.		705
255								700
260								695
265						End of boring 263.0 feet		
270								

Date Boring Started: 10/11/17
Date Boring Completed: 12/9/17
Logged By: R.Koslosky/K.Donovan(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. 6" casing broke during initial bedrock drilling. Original well sealed and new well installed approximately 10' west. Collected groundwater samples on 12/10/17, 1/26/18. Collected discrete-interval groundwater samples at 144-154, 165-175, 199-219, 243-264' bgs.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		SG3-MW17-BR3 (0-0.5')	**PID:**0.3 **D/O/S:**None/ None/ None	SP-SM		POORLY GRADED SAND WITH SILT AND GRAVEL (SP- SM): tan/light brown; moist; subangular fine sand with few medium to coarse grained sand, little subround to subangular fine to coarse gravel, few silt/clay fines; [FILL].		945
		SG3-MW17-BR3 (0.5-1')	**PID:**0.6 **D/O/S:**None/ None/ None					
			PID:0.3 **D/O/S:**None/ None/ None					
		SG3-MW17-BR3 (1-1.5')	**PID:**0.3 **D/O/S:**None/ None/ None					
			PID:0.3 **D/O/S:**None/ None/ None					
5		SG3-MW17-BR3 (3-4')	**PID:**0.3 **D/O/S:**None/ None/ None					940
		SG3-MW17-BR3 (6.5-7.5')	**PID:**0.3 **D/O/S:**None/ None/ None					
		SG3-MW17-BR3 (8-9')	**PID:**0.3 **D/O/S:**None/ None/ None					
10				CL		GRAVELLY LEAN CLAY WITH SAND (CL): brown; moist; little subround to subangular little fine to coarse grained sand, little subround to subangular fine to coarse gravel, few subround cobbles, cohesive; medium to high plasticity; [TILL].		935
			PID:0.7 **D/O/S:**None/ None/ None					
15						At 15 feet, large cobbles. From 15-17 feet, possible boulder.	6" Permanent casing 0-115' bgs	930
		SG3-MW17-BR3 (18-19')	**PID:**0.2 **D/O/S:**None/ None/ None					
20						At 22 feet, trace cobbles.		925
			PID:0.9 **D/O/S:**None/ None/ None					
25		SG3-MW17-BR3 (28-29')	**PID:**2.2 **D/O/S:**None/ None/ None					920
30								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR3

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91747841° Long: -73.20233543°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 945.9 ft
Drilling Method: Rotasonic/Air Rotary with Down the Hole Hammer
Sampling Method: 4" Rotasonic Core/ Grab
Completion Depth: 273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30						GRAVELLY LEAN CLAY WITH SAND (CL): brown; moist; little subround to subangular little fine to coarse grained sand, little subround to subangular fine to coarse gravel, few subround cobbles, cohesive; medium to high plasticity; [TILL]. *(continued)* From 30-31.5 feet, cobbles/possible boulder.		915
			PID:2.2 **D/O/S:**None/ None/ None					
35						At 36 feet, potential trace small gravel sized fragments of kaolin.		910
		SG3-MW17-BR3 (38-39')	**PID:**0.3 **D/O/S:**None/ None/ None					
40						At 40 feet, color changes to reddish brown, increased plasticity.		905
			PID:1.0 **D/O/S:**None/ None/ None					
45				CL		At 45 feet, few sand to gravel size fragments of slate.	6" Permanent casing 0-115' bgs	900
		SG3-MW17-BR3 (48-49')	**PID:**0.5 **D/O/S:**None/ None/ None			At 48 feet, increased toughness.		
50								895
			PID:0.6 **D/O/S:**None/ None/ None					
55								890
		SG3-MW17-BR3 (58-59')	**PID:**0.4 **D/O/S:**None/ None/ None			At 59 feet, large cobble.		
60								

Date Boring Started: 10/23/17
Date Boring Completed: 12/21/17
Logged By: DJZ/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60						GRAVELLY LEAN CLAY WITH SAND (CL): brown; moist; little subround to subangular little fine to coarse grained sand, little subround to subangular fine to coarse gravel, few subround cobbles, cohesive; medium to high plasticity; [TILL]. *(continued)*		885
			PID:0.3 **D/O/S:**None/ None/ None					
65								880
		SG3-MW17-BR3 (68-69')	**PID:**0.5 **D/O/S:**None/ None/ None			At 67 feet, areas of weathered slate and schist metamorphic rock fragments.		
70				CL				875
			PID:0.4 **D/O/S:**None/ None/ None					
75						At 76 feet, sand to gravel size elongated slate fragments.	6" Permanent casing 0-115' bgs	870
		SG3-MW17-BR3 (78-79')	**PID:**0.4 **D/O/S:**None/ None/ None					
80								865
			PID:0.3 **D/O/S:**None/ None/ None	CH		FAT CLAY (CH): brown, varied; moist; very hard; trace to few medium and coarse grained sand fragments, cohesive; high plasticity; high toughness; glacial lacustrine deposits/varve.		
85						From 85-86 feet, very thin silt laminations.		860
		SG3-MW17-BR3 (88-89')	**PID:**0.3 **D/O/S:**None/ None/ None			From 88-89 feet, very thin silt laminations.		
90								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
90						SANDY LEAN CLAY (CL): brown; moist; some fine sand, orange-brown and light gray laminations, some 1 to 2 inch layers with increased sand.		855
			PID:0.5 **D/O/S:**None/ None/ None	CL				
95								850
		SG3-MW17-BR3 (98-99')	**PID:**0.7 **D/O/S:**None/ None/ None			LEAN CLAY WITH SAND (CL): orange-brown; moist; mostly lean with some fat clay, few fine to medium sand with trace coarse sand, trace fine to coarse subround to subangular gravel, black manganese and reddish iron oxide inclusions; high plasticity; [TILL].		
100				CL				845
			PID:1.3 **D/O/S:**None/ None/ None			At 103 feet, increased silt and fine sand.		
		SG3-MW17-BR3 (104-105')	**PID:**0.4 **D/O/S:**None/ None/ None				6" Permanent casing 0-115' bgs	
105								840
						CHESHIRE QUARTZITE: white/cream; some fine/medium quartz sand, near vertical fracture, black manganese and rusty red oxidation; [CHESHIRE FORMATION].		
110								835
115						From 113.5-123.5 feet, light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction.		830
							4" 10 slot screen from 112-272' bgs	
120								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
120						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction.		825
125						From 123.5-143.5 feet, light tan quartzite, coarse to fine sand size cuttings (breaks around original sand grains), few fine gravel size chips, no gray/clear/milky quartz observed, no HCl reaction.		820
130								815
135								810
140								805
145						From 143.5-183.5 feet, light tan quartzite with little medium to dark gray quartzite, few coarse to fine gravel size pieces of quartzite, trace coarse to fine sand size grains of milky quartz, no HCl reaction.	4" 10 slot screen from 112-272' bgs	800
150								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
150						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction. *(continued)*		795
155						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction.		790
160						From 143.5-183.5 feet, light tan quartzite with little medium to dark gray quartzite, few coarse to fine gravel size pieces of quartzite, trace coarse to fine sand size grains of milky quartz, no HCl reaction.		785
165								780
170								775
175							4" 10 slot screen from 112-272' bgs	770
180								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
180						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction. *(continued)*		765
185						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction. From 183.5-223.5 feet, very light tan quartzite, trace clear and light gray sand, cuttings are coarse to fine sand size, some fine gravel size, trace coarse gravel size, no HCl reaction.		760
190								755
195							4" 10 slot screen from 112-272' bgs	750
200								745
205								740
210								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project:	CSM Investigation	Surface Elevation:	945.9 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Air Rotary with Down the Hole Hammer
Location:	Bennington, VT	Sampling Method:	4" Rotasonic Core/ Grab
Coordinates:	Lat: 42.91747841° Long: -73.20233543°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
210						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction. *(continued)*		735
215						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction.		730
220								725
225						From 223.5-253.5 feet, light gray tan quartzite and dark gray phyllitic slate, coarse to fine sand and fine gravel size cuttings, trace coarse to fine sand grains of milky and clear quartz, no HCl reaction.	4" 10 slot screen from 112-272' bgs	720
230								715
235								710
240								

Date Boring Started:	10/23/17
Date Boring Completed:	12/21/17
Logged By:	DJZ/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR3

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91747841° Long: -73.20233543°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 945.9 ft
Drilling Method: Rotasonic/Air Rotary with Down the Hole Hammer
Sampling Method: 4" Rotasonic Core/ Grab
Completion Depth: 273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
240						Light tan quartzite, coarse to fine sand size cuttings, few chips of medium gray quartzite, few grains of clear and milky quartz, no HCl reaction. *(continued)*		705
245								700
250						PHYLLITIC SLATE: dark gray; coarse to fine sand size cuttings, trace fine gravel size cuttings, trace coarse to fine size sand grains of milky quartz.		695
255							4" 10 slot screen from 112-272' bgs	690
260								685
265								680
270								

Date Boring Started: 10/23/17
Date Boring Completed: 12/21/17
Logged By: DJZ/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR3

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91747841° Long: -73.20233543°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 945.9 ft
Drilling Method: Rotasonic/Air Rotary with Down the Hole Hammer
Sampling Method: 4" Rotasonic Core/ Grab
Completion Depth: 273.5 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
270						PHYLLITIC SLATE: dark gray; coarse to fine sand size cuttings, trace fine gravel size cuttings, trace coarse to fine size sand grains of milky quartz. *(continued)*	−4" 10 slot screen from 112-272' bgs −Collapse from 272-273.5' bgs	675
						End of boring 273.5 feet		
275								
280								
285								
290								
295								
300								

Date Boring Started: 10/23/17
Date Boring Completed: 12/21/17
Logged By: DJZ/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Crawler

Remarks: Grain size analysis samples collected. Collected groundwater samples on 1/4/18, 1/10/18. Collected discrete-interval groundwater sample from 131-160' bgs on 1/25/18. During discrete-interval sampling, the open hole collapsed and a 4" PVC well screen was installed. Well could not be installed at original location, offset 6' southeast.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0		SG3-MW17-BR4 (0-0.5')	**PID:**0.5 **D/O/S:**None/ None/ None	OL/ OH		ORGANIC SOIL (OL/ OH): very dark brown to black; moist; few fine sand, trace fine gravel, abundant roots; [FILL].		
		SG3-MW17-BR4 (0.5-1')	**PID:**0 **D/O/S:**None/ None/ None			SILTY SAND WITH GRAVEL (SM): fine to coarse grained; grayish brown; moist; loose; some fine to coarse subround to round gravel, trace angular to round cobbles up to 5 inch, little silt fines, trace organics to ~2 feet; [FILL].		
		SG3-MW17-BR4 (1-1.5')	**PID:**0 **D/O/S:**None/ None/ None					
5		SG3-MW17-BR4 (3-4')	**PID:**3 **D/O/S:**None/ None/ None					890
						At 7 feet, 10 inch zone of mostly cobbles and fine to coarse gravel.		
		SG3-MW17-BR4 (8-9')	**PID:**0.9 **D/O/S:**None/ None/ None			At 8 feet, becomes saturated, dark grayish brown to grayish brown, slight increase in fines, trace organics.; [NATIVE].		885
10				SM				
			PID:0.3 **D/O/S:**None/ None/ None					
15						At 16 feet, 9 inch layer of very silty fine sand, gray, soft, cohesive, nonplastic.	6 Permanent casing from 0-406.7' bgs	880
		SG3-MW17-BR4 (19-20')	**PID:**0 **D/O/S:**None/ None/ None			At 19 feet, becomes dark yellowish brown with decreased gravel (to few), fine to medium sand, packed, slightly cohesive.		875
20								
						CLAYEY SAND (SC): dark yellowish brown to brown; moist; hard; fine to medium sand with trace coarse sand, trace to few angular gravel, some clay fines; [TILL].		
			PID:0.2 **D/O/S:**None/ None/ None					870
25				SC				
		SG3-MW17-BR4 (28-29')	**PID:**0 **D/O/S:**None/ None/ None					865
30								

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
30						SANDY LEAN CLAY (CL): reddish brown; moist; hard to very hard; little to some angular to subround gravel, trace cobbles; medium plasticity; medium to high toughness; [TILL].		
35		SG3-MW17-BR4 (38-39')	**PID:**0 **D/O/S:**None/ None/ None					860
40			**PID:**0.1 **D/O/S:**None/ None/ None					855
45		SG3-MW17-BR4 (48-49')	**PID:**5.3 **D/O/S:**None/ None/ None	CL		From 47-50 feet, medium to high plasticity, decreased sand (to little).	6 Permanent casing from 0-406.7' bgs	850
50			**PID:**0.2 **D/O/S:**None/ None/ None					845
55		SG3-MW17-BR4 (58-59')	**PID:**0 **D/O/S:**None/ None/ None					840
60			**PID:**0.1 **D/O/S:**None/ None/ None					835

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
60						SANDY LEAN CLAY (CL): reddish brown; moist; hard to very hard; little to some angular to subround gravel, trace cobbles; medium plasticity; medium to high toughness; [TILL]. *(continued)*		
65			**PID:**0.1 **D/O/S:**None/ None/ None	CL				830
		SG3-MW17-BR4 (68-69')	**PID:**0 **D/O/S:**None/ None/ None			SILTY SAND (SM): pale brown to light tannish gray; wet; soft; few to some fine sand, laminated, very difficult to advance through sand; non-plastic; rapid dilatancy.		
70						From 71-80 feet, tan to light brown, packed, occasional thin (<4 inch) silt laminations, some silt fines.		825
			PID:0 **D/O/S:**None/ None/ None	SM				
75							6 Permanent casing from 0-406.7' bgs	820
		SG3-MW17-BR4 (78-79')				At 78 feet, fine to medium sand.		
			PID:0 **D/O/S:**None/ None/ None					815
80				CH		FAT CLAY (CH): brown; moist to wet; hard; blocky, trace to few fine sand; high plasticity; high toughness.		
				CL		SANDY LEAN CLAY (CL): reddish brown; wet; some fine sand, trace to few coarse sand and fine gravel, sand content increases with depth; low to medium plasticity; slow dilatancy; medium toughness.		
			PID:0 **D/O/S:**None/ None/ None					
85				SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; reddish brown; wet; loose; mostly fine sand, little fine to coarse gravel, trace cobbles, trace particles/clasts of very hard sandy clay, some fines.		810
		SG3-MW17-BR4 (88-89')				At 87 feet, 2.5 inch layer of poorly graded, brown, medium sand with little fines. From 88-92 feet, some subround to round coarse gravel and cobbles, some fines in sand matrix.		
			PID:0 **D/O/S:**None/ None/ None					805
90								

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
90				SM		SILTY SAND WITH GRAVEL (SM): fine to coarse grained; reddish brown; wet; loose; mostly fine sand, little fine to coarse gravel, trace cobbles, trace particles/clasts of very hard sandy clay, some fines. *(continued)*		
						OCHER: reddish brown; moist; moistly fine to medium sand, occasional layers (<6 inch) with up to 70% sand, variable fines (clay/silt) with primarily clay, little to some coarse sand and fine gravel including angular quartz inclusions, distinct iron oxide color; [ALTERED BEDROCK].		
95			**PID:**0.2 **D/O/S:**None/ None/ None					800
		SG3-MW17-BR4 (98-99')	**PID:**0.2 **D/O/S:**None/ None/ None			KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK].		795
100						From 100-102 feet, some gray inclusions.		
			PID:0.1 **D/O/S:**None/ None/ None			At 104 feet, 5 inch thick layers of white medium grained sand with orange oxidation.	6 Permanent casing from 0-406.7' bgs	790
105						At 107 feet, 5 inch thick layers of white medium grained sand with orange oxidation.		
		SG3-MW17-BR4 (108-109')	**PID:**0 **D/O/S:**None/ None/ None			At 108 feet, 5 inch thick layers of white medium grained sand with orange oxidation. At 109 feet, becomes very light tan to yellowish white.		785
110						At 111 feet, possible cross stratification.		
			PID:0 **D/O/S:**None/ None/ None					780
115						At 116 feet, becomes platy with alternating light tan and gray laminations. From 117-120 feet, few fine to medium sand, mostly fine, low to medium plasticity, moist, light brown, tan, yellow, and orange laminations, trace pinkish red or black (manganese) laminations.		
		SG3-MW17-BR4 (118-119')	**PID:**0 **D/O/S:**None/ None/ None					775
120								

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

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Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
120						KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK]. *(continued)* From 120-121.5 feet, gray phyllite, moist. From 121.5-137 feet, little to some sand, moist.		
			PID:0 **D/O/S:**None/ None/ None					770
125								
		SG3-MW17-BR4 (128-129)	**PID:**0 **D/O/S:**None/ None/ None					765
130								
			PID:0 **D/O/S:**None/ None/ None					760
135							6 Permanent casing from 0-406.7' bgs	
		SG3-MW17-BR4 (138-139)	**PID:**0.1 **D/O/S:**None/ None/ None			At 137 feet, 12 inch bed of dark gray material, silty, trace sand, medium plasticity, dry to moist, friable. From 138-142 feet, light tan and gray to dark gray laminations, trace laminations of orange-brown or red, some thin laminations (<1 inch) have vitreous luster and may be phyllitic.		755
140								
			PID:0.1 **D/O/S:**None/ None/ None			From 142-143.5 feet, distinct alternating 0.25 inch layers of dark gray medium plasticity with little fine sand and light tan laminations with few to some sand. At 143.5 feet, 12 inch layer of very dark gray material with platy texture. From 144.5-148 feet, becomes light tan and sandy with some fine sand.		750
145								
		SG3-MW17-BR4 (148-149)	**PID:**0 **D/O/S:**None/ None/ None			From 148-150 feet, 0.1-0.3 inch thick layers of dark gray, light tan, and orange-brown, highly variable sand content and plasticity.		745
150								

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

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Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
150						KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK]. *(continued)* From 150-156 feet, alternating laminations of light tan and brown, varying in silt content, some brown laminations are mostly silt.		
			PID:0 **D/O/S:**None/ None/ None					740
155						From 156-157 feet, laminated, mostly very dark gray to dark greenish gray high plasticity laminations alternating with light tan and orange-brown low plasticity silty layers. From 157-166 feet, becomes brown, very silty clay interbedded with sandy layers in 3-9 inch intervals, sandy layers are silty or clayey and highly variable in plasticity, mostly non-plastic to medium plasticity, trace high plasticity.		
		SG3-MW17-BR4 (158-159)	**PID:**0 **D/O/S:**None/ None/ None					735
160								
			PID:0 **D/O/S:**None/ None/ None					730
165						From 166-170 feet, same as 157-166 feet with trace <1 inch sand laminations.	6 Permanent casing from 0-406.7' bgs	
		SG3-MW17-BR4 (168-169)	**PID:**0 **D/O/S:**None/ None/ None					725
170						From 170-175 feet, mostly medium plasticity light tan to brown clay with little (0.25-2 inch) layers of dark gray argillicious phyllite with vitreous luster.		
			PID:0.1 **D/O/S:**None/ None/ None					720
175						From 175-177 feet, some fine to coarse sand that is mostly medium sand, layers of inconsistent thickness (0.1-2 inch) are white, light tan, brown, and dark gray, white sandy layers may be mostly sand. From 177-184.5 feet, medium brown saturated sand, mostly sand, well sorted, likely highly decomposed quartzite.		
		SG3-MW17-BR4 (178-179)	**PID:**0 **D/O/S:**None/ None/ None					715
180								

Date Boring Started: 10/20/17
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Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
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LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
180						KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK]. *(continued)*		
			PID:0 **D/O/S:**None/ None/ None					710
185						From 184.5-207 feet, primarily sandy silt with few to some sand, saturated, soft to firm, rapid dilatancy, brown, tan, and light tan beds.		
		SG3-MW17-BR4 (188-189)	**PID:**0.2 **D/O/S:**None/ None/ None					705
190								
			PID:0.1 **D/O/S:**None/ None/ None					700
195							6 Permanent casing from 0-406.7' bgs	
		SG3-MW17-BR4 (198-199)	**PID:**0.3 **D/O/S:**None/ None/ None					695
200								
			PID:0 **D/O/S:**None/ None/ None				6 Permanent casing from 0-406.7' bgs	690
205						From 207-216.5 feet, same as 184.5-207 feet layer but with mostly dark brown and contains trace fine to gravel sized angular quartz inclusions.		
		SG3-MW17-BR4 (208-209)	**PID:**0 **D/O/S:**None/ None/ None					685
210								

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
210						KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK]. *(continued)*		
			PID:0 **D/O/S:**None/ None/ None					
215		SG3-MW17-BR4 (216.5-217')	**PID:**0.9 **D/O/S:**None/ None/ None			At 216.5 feet, 6 inch layers of black friable material, likely manganese deposit with orange-brown silty inclusions, some faces of material have glassy luster. From 217-226 feet, some fine sand, reddish brown with trace to some deep reddish brown oxidized inclusions, saturated, soft to firm, medium plasticity, slow dilatancy.		680
220			**PID:**0 **D/O/S:**None/ None/ None					675
225		SG3-MW17-BR4 (225-226')	**PID:**0 **D/O/S:**None/ None/ None			From 226-242 feet, little fine sand, moist to wet, very silty, mostly grayish brown with thin laminations of brownish gray, dark brownish gray, reddish brown, and tan, low to medium plasticity, slow dilatancy.		670
230			**PID:**0 **D/O/S:**None/ None/ None					665
235		SG3-MW17-BR4 (235-236')	**PID:**0 **D/O/S:**None/ None/ None					660
			PID:0 **D/O/S:**None/ None/ None					
240								655

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
240			**PID:**0 **D/O/S:**None/ None/ None			KAOLIN: light tan with occasional gray inclusions; dry to moist; light tan material is medium plasticity and gray material is non-plastic to low plasticity, friable, gray inclusions/zones approximately 2 inch thick; [ALTERED BEDROCK]. *(continued)* At 242 feet, 6 inch layer of mostly phyllite. At 242.5 feet, 12 inch layer of mostly phyllite/decomposed schist.		
245		SG3-MW17-BR4 (245-246)	**PID:**0 **D/O/S:**None/ None/ None			From 243.5-245 feet, little to some fine sand, moist, mostly reddish brown with brown, light tan, and light gray laminations, occasional thin (1-6 inch) layers are very silty, medium plasticity, slow dilatancy, firm to hard. From 245-247 feet, mostly phyllite/decomposed schist.		650
			PID:0 **D/O/S:**None/ None/ None			From 247-252 feet, little to some fine sand, moist, mostly reddish brown with brown, light tan, and light gray laminations, occasional thin (1-6 inch) layers are very silty, medium plasticity, slow dilatancy, firm to hard.		
250		SG3-MW17-BR4 (251-252)	**PID:**0 **D/O/S:**None/ None/ None			From 252-257 feet, no recovery.		645
255							6 Permanent casing from 0-406.7' bgs	640
						From 257-262 feet, brown, moist, medium to high plasticity, cohesive, trace to few sand.		
260		SG3-MW17-BR4 (261-262)	**PID:**0 **D/O/S:**None/ None/ None			From 262-271 feet, brown to reddish brown, moist, medium plasticity, few to little fine sand.		635
			PID:0 **D/O/S:**None/ None/ None					630
265			**PID:**0.2 **D/O/S:**None/ None/ None					
270								625

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

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LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
270						(continued).		
		SG3-MW17-BR4 (271-272)	**PID:**0.3 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): kaolinitic; tan and light gray; slightly moist; medium stiff; discontinuous/convoluted, intercalated lamina of medium brown clay; [ALTERED BEDROCK].		620
275			**PID:**0.4 **D/O/S:**None/ None/ None			OCHER: dark brown and orange-brown; slightly moist; medium stiff; convoluted/discontinuous kaolinitic lamina; [ALTERED BEDROCK].		615
280		SG3-MW17-BR4 (281-282)	**PID:**0.4 **D/O/S:**None/ None/ None					
285			**PID:**0.5 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): kaolinitic; light tan; very slightly moist; medium stiff; trace fine sand with discontinuous/convoluted medium brown clay lamina; [ALTERED BEDROCK].	6 Permanent casing from 0-406.7' bgs	610
290		SG3-MW17-BR4 (291-292)	**PID:**0.4 **D/O/S:**None/ None/ None			OCHER: orange-brown and medium brown; very slightly moist; medium stiff; trace fine sand with discontinuous/convoluted medium brown kaolinitic clay lamina; [ALTERED BEDROCK].		605
295			**PID:**0 **D/O/S:**None/ None/ None					600
300								595

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
300		SG3-MW17-BR4 (301-302)	**PID:**0.2 **D/O/S:**None/ None/ None			OCHER: orange-brown and medium brown; very slightly moist; medium stiff; trace fine sand with discontinuous/convoluted medium brown kaolinitic clay lamina; [ALTERED BEDROCK]. *(continued)*		
305			**PID:**0.2 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): kaolinitic; light tan and light gray; slightly moist; medium stiff; discontinuous/convoluted lamina and thin interbeds or orangish brown clay; [ALTERED BEDROCK].		590
310		SG3-MW17-BR4 (311-312)	**PID:**0.3 **D/O/S:**None/ None/ None			OCHER: medium brown and orangish brown; slightly moist; stiff; discontinuous/convoluted lamina clay with intercalated kaolin; [ALTERED BEDROCK].		585
315			**PID:**0.1 **D/O/S:**None/ None/ None			At 313 feet, color changes to dark brown/dark orange-brown.	6 Permanent casing from 0-406.7' bgs	580
320		SG3-MW17-BR4 (321-322)	**PID:**0.2 **D/O/S:**None/ None/ None			OCHER: dark brown and orange-brown; soft; trace fine sand with few kaolin nodules and few discontinuous/convoluted kaolinitic lamina; [ALTERED BEDROCK].		575
325			**PID:**0.3 **D/O/S:**None/ None/ None			From 325-327 feet, medium stiff with kaolinitic lamina.		570
330								565

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
330								
		SG3-MW17-BR4 (331-332)	**PID:**0.3 **D/O/S:**None/ None/ None			OCHER: light brown and light orangish brown; slightly moist; medium stiff; trace fine sand, discontinuously/convoluted laminated with intercalated medium to fine gravel sized pieced of dark gray to black phyllite; [ALTERED BEDROCK].		
		SG3-MW17-BR4 (334-335)						560
335			**PID:**3.2 **D/O/S:**None/ None/ None					
								555
340		SG3-MW17-BR4 (341-342)	**PID:**1 **D/O/S:**None/ None/ None	CL		LEAN CLAY (CL): kaolinitic; light tan and light gray; very slightly moist; stiff; discontinuous/convoluted laminated, trace fine sand, trace medium to fine altered quartzite gravel with orangish brown and dark gray laminations; [ALTERED BEDROCK]. From 342-343 feet, ocher layer. From 344-345 feet, ocher layer.	6 Permanent casing from 0-406.7' bgs	
345			**PID:**0.3 **D/O/S:**None/ None/ None					550
						OCHER: medium and light brown; slightly moist to moist; soft to medium stiff; silty clay, trace coarse to fine sand, little coarse to fine gravel, unlaminated/massive with intercalated 1-3 inch nodules of kaolinitic material. Gravel is angular/altered phyllitic slate and quartzite; [ALTERED BEDROCK].		
350		SG3-MW17-BR4 (351-352)	**PID:**0.2 **D/O/S:**None/ None/ None					545
		SG3-MW17-BR4 (353-354)						
355			**PID:**1.3 **D/O/S:**None/ None/ None					540
								535
360								

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
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LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
360		SG3-MW17-BR4 (361-362)	**PID:**1.4 **D/O/S:**None/ None/ None			OCHER: medium and light brown; slightly moist to moist; soft to medium stiff; silty clay, trace coarse to fine sand, little coarse to fine gravel, unlaminated/massive with intercalated 1-3 inch nodules of kaolinitic material. Gravel is angular/altered phyllitic slate and quartzite; [ALTERED BEDROCK]. *(continued)*		
365				CL		LEAN CLAY (CL): kaolinitic; tan; very slightly moist; stiff; kaolinitic, trace coarse to fine sand, some angular unaltered and altered black phyllitic slate and quartzite; [ALTERED BEDROCK].		530
			PID:2.1 **D/O/S:**None/ None/ None			OCHER: light brown, dark brown, and gray; slightly moist to moist; soft to medium stiff; silty clay, little coarse to fine sand, some coarse to fine gravel, few cobbles, gravel and cobbles are relatively unaltered black phyllitic slate and quartzite, unlaminated to massive; [ALTERED BEDROCK].		
370		SG3-MW17-BR4 (371-372)	**PID:**2.8 **D/O/S:**None/ None/ None					525
		SG3-MW17-BR4 (374-375)						
375				CL		LEAN CLAY (CL): kaolinitic; slightly moist; stiff; kaolinitic, altered and relatively unaltered black phyllitic slate and quartzite; [ALTERED BEDROCK].	6 Permanent casing from 0-406.7' bgs	520
			PID:0.7 **D/O/S:**None/ None/ None			OCHER: orange brown and medium brown; moist; soft to medium stiff; silty clay, little coarse to fine sand, little coarse to fine angular altered and relatively unaltered quartzite and phyllite with kaolinitic inclusions, unlaminated to massive; [ALTERED BEDROCK].		
380		SG3-MW17-BR4 (381-382)	**PID:**0.5 **D/O/S:**None/ None/ None					515
385			**PID:**0.1 **D/O/S:**None/ None/ None			From 385.5-385.9 feet, dark brown coarse to fine sand, moist, loose. From 386-387 feet, kaolin lamina.		510
390							4 10 slot screen from 389.2-447.5' bgs	505

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

O:\GINT\PROJECTS\32421001.03 SGPP BENNINGTON\32421001 SGPP BENNINGTON.GPJ BARRLIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project:	CSM Investigation	Surface Elevation:	894.3 ft
Project No.:	45/02-1004.00	Drilling Method:	Rotasonic/Diamond Coring
Location:	Bennington, VT	Sampling Method:	4 Rotasonic Core/PQ Core Barrel
Coordinates:	Lat: 42.91937741° Long: -73.18991411°		
Datum:	Horizontal: NAD83, Vertical: NAVD88	Completion Depth:	459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
390		SG3-MW17-BR4 (391-392)	**PID:**0.1 **D/O/S:**None/ None/ None			OCHER: orange brown and medium brown; moist; soft to medium stiff; silty clay, little coarse to fine sand, little coarse to fine angular altered and relatively unaltered quartzite and phyllite with kaolinitic inclusions, unlaminated to massive; [ALTERED BEDROCK]. *(continued)*		
						POORLY GRADED SAND (SP): medium to fine grained; orange brown; wet; loose; trace silt.		
395		SG3-MW17-BR4 (394-395)	**PID:**0.1 **D/O/S:**None/ None/ None	SP				500
		SG3-MW17-BR4 (395-396)				UNWEATHERED QUARTZITE: gray; massive layers (recrystallization of original sand), exhibiting conchoidal fracture and ayers, quartz sand grains present.		
400						DOLOMITIC QUARTZITE: with phyllitic quartzite and dolostone, strong to very strong; gray; weak HCl reaction; think to thickly bedded; fresh to slightly decomposed, very intensely to slightly fractured and jointed, dipping sub-horizontal (approximately. 20-35°) along bedding planes to near vertical (approximately. 80°) fractures, extremely narrow to wide apperatures, some iron staining, pitting and vugs present in discrete zones, partly to moderately healed with quartz and a few fractures/joints filled with kaolin. [DUNHAM FORMATION].		495
405							4 10 slot screen from 389.2-447.5' bgs	490
410								485
415								480
420							4 10 slot screen from 389.2-447.5' bgs	475

Date Boring Started:	10/20/17
Date Boring Completed:	12/14/17
Logged By:	RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor:	Cascade Drilling
Drill Rig:	Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

O:\GINT\PROJECTS\32421001.03 SGPP BENNINGTON\32421001 SGPP BENNINGTON.GPJ BARRLIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
420						DOLOMITIC QUARTZITE: with phyllitic quartzite and dolostone, strong to very strong; gray; weak HCl reaction; think to thickly bedded; fresh to slightly decomposed, very intensely to slightly fractured and jointed, dipping sub-horizontal (approximately. 20-35°) along bedding planes to near vertical (approximately. 80°) fractures, extremely narrow to wide apperatures, some iron staining, pitting and vugs present in discrete zones, partly to moderately healed with quartz and a few fractures/joints filled with kaolin. [DUNHAM FORMATION]. *(continued)*		470
425								
430								465
435							4 10 slot screen from 389.2-447.5' bgs	460
440								455
445							5" Open hole from 447.5-459' bgs	450
450								445

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

O:\GINT\PROJECTS\32421001.03 SGPP BENNINGTON\32421001 SGPP BENNINGTON.GPJ BARRLIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SG3-MW17-BR4

Project: CSM Investigation
Project No.: 45/02-1004.00
Location: Bennington, VT
Coordinates: Lat: 42.91937741° Long: -73.18991411°
Datum: Horizontal: NAD83, Vertical: NAVD88

Surface Elevation: 894.3 ft
Drilling Method: Rotasonic/Diamond Coring
Sampling Method: 4 Rotasonic Core/PQ Core Barrel
Completion Depth: 459.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
450						DOLOMITIC QUARTZITE: with phyllitic quartzite and dolostone, strong to very strong; gray; weak HCl reaction; think to thickly bedded; fresh to slightly decomposed, very intensely to slightly fractured and jointed, dipping sub-horizontal (approximately. 20-35°) along bedding planes to near vertical (approximately. 80°) fractures, extremely narrow to wide apperatures, some iron staining, pitting and vugs present in discrete zones, partly to moderately healed with quartz and a few fractures/joints filled with kaolin. [DUNHAM FORMATION]. *(continued)*	5" Open hole from 447.5-459' bgs	
455								440
						End of boring 459.0 feet		
460								
465								
470								
475								
480								

Date Boring Started: 10/20/17
Date Boring Completed: 12/14/17
Logged By: RQM/K.Donovan/R.Koslowsky(CT Male)
Drilling Contractor: Cascade Drilling
Drill Rig: Full Size Sonic Truck Mounted

Remarks: Grain size analysis samples collected.
Collected groundwater samples on 12/17/17, 12/21/17.

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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Appendix A.2

Environmental Services Field Logs

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 6/14/17 Time On-Site: 07:00 Time Off-Site: 18:30

Project Name: SGpp Bennington Vt. Project No.: 32421001.03

Purpose: Soil borings Field Report No:

Weather Conditions: Clear ~70-80°F Lt. Breeze

Present at Site:

Observations:

07:00 Mob to Hoosic Falls

08:00 at Hoosic Falls SGpp site at McCaffrey St, Meet w/ Brandi Smith & go through Safety training. Meet w/ Jonathan Dippert (CTM) pick up equipment & Sample coolers

13:30 Meet Cascade at Home Depot

14:00 Mob to BOL

~~15:~~ 17:30 Finish up at BOL demob to Hotel, prep for Tues

18:30 End

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/15/17 Time On-Site: 07:00 Time Off-Site: 07:00

Project Name: SGPP - Bennington Project No.: 3242.1001.03

Purpose: Soil borings Field Report No:

Weather Conditions: overcast

Present at Site: Kam, Marty, John (Eastlake)

Observations:

07:00 organize equip/sample materials

08:00 pick up U-Haul trailer & Drop at Hotel, prep to Sample

10:00 Meet Cascade at Home Depot.

Sample SH1 - collect H_2O @ 14:30 -

15:00 not enough time to start another boring. Have water Sample w/ 48hr. Hold - prep to ship.

18:00 Bring H_2O to Jonathan Dippert (CTM) and transfer for Delivery to FedEx.

Pick up additional Sample coolers at Hoosick Falls, prep for Thurs.

19:00 End Field

20:00 End Admin.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/16/17 Time On-Site: 07:30 Time Off-Site: 18:20

Project Name: SGPP Project No.: 3242100L03

Purpose: Soil Borings Field Report No:

Weather Conditions: P.C. ~ 70

Present at Site:

Observations:

07:30 meet Cascade at Home Depot parking lot - Safety Meeting.

09:30 set up on S46 begin drilling / sampling

12:00 Break for lunch - will mob to S47

13:00 Start at S47

15:00 S47 complete

15:30 Start S42
Set temp well @ ~1' of Water

17:30 purge ~ ½ Liter before going day

17:35 - Sampled ~ 40 ml of tinted Water

18:00 - sampled ~ 100 ml of H2O - Boring Not yielding Sufficient H2O. Abandon boring. Filled ½ of pre Tedlar bottle

18:20 off site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/17/17 Time On-Site: 07:30 Time Off-Site: 18:00

Project Name: Sappi Bennington Project No.: 32421001.03

Purpose: Soil borings Field Report No:

Weather Conditions:

Present at Site:

Observations:

07:30 - Meet at Home depot parking lot, conduct Safety Meeting - mob to Molly Stark State park

08:30 at Molly Stark State park - check in w/ Ranger locate staked Loc'n

09:00 Find location & begin sampling

12:30 Finish up at Molly Stark State park mob to Lake Raponda boat Ramp.

12:50 At Lake Raponda - Find Loc'ns - Staked Loc'n Kayser to Boat Ramp Cascade Says they cant access with thier Rig but we can get to the Alt. Loc'n

15:00 BG-3 complete demob to Hotel to finish Sample prep/pack for Shipping.

17:00 Meet Courier & Ship Samples; prep for Fri.

18:00 End,

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/18/17 Time On-Site: 07:30 Time Off-Site: 15:00

Project Name: SGPP Bennington VT Project No.: 3242.001.03

Purpose: Soil Borings Field Report No:

Weather Conditions: 70°F, Lt Rain

Present at Site: KAM, RAK, Marty, Mike, Johnny (Cascade) Steve Shaw (VT oversight from Weston & Sampson)

Observations:

07:30 meet at Home Depot parking lot. choose S07 so VTDEC can collect splits. (Weston & Sampson - (WSC)

08:00 Set up traffic control to close down one lane. Conduct Safety meeting; calibrate PID. Set up to drill; Note WSC is using a tire in the rain field book.

10:10 S07 complete Decon H20 at Trailer Meet & Home Depot & Mob to S30 Loc'n

11:00 Start at S30

12:00 finish up at S30 mob to BG-1

13:00 Start on BG1

16:00 Finish up on BG1 - No water - Mob to Hotel to prep samples

17:30 Samples picked up by courier organize Subsubsubs

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/21/17 Time On-Site: 07:00 Time Off-Site:

Project Name: SGPP Bennington VT Project No.: 3242.001.03

Purpose: Soil borings Field Report No:

Weather Conditions: Clear, High 80's, Solar Eclipse

Present at Site: KAM, RAK, Marty B,

Observations:

07:00 prepare for sampling - plan is to start at S43

07:50 RAK on site

08:00 Cascade on site. Safety mtg. prep for the day

09:00 Mob to ~~S34~~ S43

09:20 at ~~S44~~ - Knock & Ring bell at 981 Walloomsac - No one home

11:00 Mob to S44 Loc'n

12:40 Finish up @ S-44, heading to Home Depot

14:10 Setting up on S-48, spoke w/ owner @ 1800 West Rd., knocked on 1802 W Rd but no answer.

16:30 Done for the day

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 08/22/2017 Time On-Site: 07:30 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Sunny, humid, 85°F

Present at Site: RAM (Barr), RAK (CT Male), Marty + 2 o'ds (cascade)

Observations:

730 - Meet @ Home Depot in Bennington

830 - Setting up on S38, no nearby homes, parking vehicles on Emmons Rd.
Tailgate meeting

845 - Starting S38, stray kitten roaming work area, collected MS/MSD 0-0.5'

1000 - Done @ S38, packing up.

1020 - Move to S36.

1035 - Setting up on S36. Talked to owner @ 993 Murphy Road. Collected SG-FB04-170822

1200 - Packing up @ S36.

1220 - Breaking for lunch, leaving rig @ S35

1255 - Setting up on S35

1420 - Packing up @ S35, collected SG3-FD04-170822 from 0-0.5'

1515 - Dropped samples @ hotel (for 5 o'clock pickup), now @ S-09 setting up.
knocked on doors @ 2761 & 276(x) - no answers.

1615 - Packing up @ S-09

1700 - Done for the day

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 08/23/2017 Time On-Site: Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Sunny. 70's

Present at Site: RQM, DJZ, RAK, Marty, Jason

Observations:

0700 - @ Home Depot getting plywood.
0730 - Headed to Hoosick Falls for SG plant training
0800 - Starting training
0830 - Headed back
0900 - Prepping for BG-02
0940 - Got permit from KAM for Woodford State Park.
1030 - @ BG-02 setting up, campfire burning in adjacent site.
1035 - Collected MS/MSD, FB, FD all 0-0.5'; FB was rinsate from bowl.
1205 - Done @ BG-02, packing up.
1400 - took lunch, refueled, setting up on S10, spoke to landowner @ 2395 E. Rd. & knocked on door @ 2285 but no answer. Wetland delineation flags ~40' E of boring.
1545 - Collected water sample, screened 3-8', collected water DUP (SG3-FD06-170823)
1730 - Back @ hotel prepping samples for shipping.
1800 - Done for day

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

YSI cal for H_2O sample @ S-10 (SG3-S10-170823):

D.O. = 4.99 mg/L in filtered water
Cond 7 = 6.834 SPC-$\frac{mS}{cm}$
pH 7.0 = 7.04
pH 4.0 = 4.09
pH 10.0 = 9.98

Values:

D.O. = ~~27~~ 1.93 mg/l
Sp. Cond. = .77 ~~mS~~ mS/cm
pH = 7.28
ORP = 158.3 mv
T(°C) = 19.1 °

NTUs = 50.4 @ start of sampling, 26.2 @ end of FD06 collection

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/24/2017 Time On-Site: Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Partly cloudy, ~75°F

Present at Site: RQM, RAK, DJZ, Travis, Marty, Jason, Rich, Steve

Observations:

0730 - Meet @ hotel

0755 - Rig arrived, held safety meeting

0840 - Arrived @ S-32, setting up, Steve arrived. Collected FB06 (pour) + will collect FD07 from 0-0.5'. Weston & Sampson collecting split samples.

1100 - Done @ S-32, packing to move to S-37

1125 - @ S-37, knocked & spoke to Mr. Rogers @ 1126 Chapel Rd., starting now. Cigarette smoke from walker smelt while filling 0-0.5', collected MS/MSD 0-0.5'

1340 - Done @ S-37, collected water sample SG3-S37-170824, weston & sampson rep here on behalf of state (Travis) filled a split sample - We alternated containers, he had no preserved containers.

1430 - @ S-39 setting up.

1600 - Done @ S-39, heading to hotel to ship.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

YSI Calibration

Sp Cond. 7 = 6811 SPC-$\frac{MS}{cm}$
pH 4 = 4.08
pH 7 = 6.98
pH 10 = 10.04
DO in filt. water = 6.22 mg/L
ORP @ 20°C = 237.5mV (st.) = 233.4mV (YSI)

SG3-S37-170824 readings:

Sp Cond: 0.66 SPC-$\frac{MS}{cm}$
pH : 7.19
DO : 1.71 mg/L
ORP : 144.1 mV
T°C = 19.5°C

~430 NTUs @ start, 34 NTUs after 1 gal before sample, 7 NTUs @ finish

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8-25-17 Time On-Site: _____ Time Off-Site: _____

Project Name: SGPP Bennington Project No.: _____

Purpose: _____ Field Report No: _____

Weather Conditions: _____

Present at Site: DJZ, RQM, Ron (CT), Travis (WHS), Frank Cascade, Marshall Cascade, KAM

Observations:

1300 Onsite at wastewater treatment plant (D-18), set up.
1400 Begin drilling D-18
1540 Stopped at 20 ft, pulled casing up to 17 ft to let water accumulate if any.
- Drillers offsite until Sunday
- Clean up
- Left rig, bobcat, some equipment at hole & semi trailer at WW plant.
1625 DJZ / RQM offsite.
- Locked gate per Ron Bull

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/25/2017 Time On-Site: _____ Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No: _____

Weather Conditions: _____

Present at Site: _____

Observations: _____

0730 - Meet @ hotel

0805 - Safety meeting held, vehicles loaded, mobing to

0820 - @ S-31, starting now. Knocked on door @ 50 Houghton Ln, nobody home.

1000 - Done @ S-31, packing up to move to S-12.

1030 - Setting up on S-12. Agriculture odor blowing over work zone (cattle).

1200 - Done @ S-12, packed up, going to hotel.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8-27-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: _____ Field Report No: _____

Weather Conditions: Few clouds, sunny, 65 °F

Present at Site: DJZ, RQM, Frank, Marshall

Observations:

0730 DJZ/RQm & Cascade onsite
- Safety

0745 Check water level D-18 WL = 16.6' bgs
Total Depth 17.7' bgs

0810 Continue drilling

0820 Large frags of shale @ 25ft, possible bedrock?

0830 Calibrate PID Zero = 0.0, Span = 100.0 ppm

0930 Complete drilling to 35 ft (10 ft bedrock)
- discussed w/ Kevin & Gary, set screen 25-35 ft in bedrock.

1015 Begin Setting MW Screen 25-35 ft bg
Sand 23-35 ft
Bentonite chips 2-23 ft

Will set concrete tomorrow around base.
Casing is 7ft → 4 ft bgs & 3 ft above ground

1250 offsite wastewater plant - dummy lock until later today

1300 Set up liner in roll off bin & tarp

1330 Look at D-05

1450 - Decon equipment & casings
- Look at D05 with Frank - will set up in morning

1500 Cascade offsite
DJZ & RQm organize coolers, equipment & look at sites

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8-28-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: _____ Field Report No: _____

Weather Conditions: 65 °F,

Present at Site: DJZ RAK Frank Marshall

Observations:

0730 Set up / Supplies @ hotel
0745 @ D-05. Cascade Setting up
0805 Calibrate PID Zero = 0.0 ppm Span = 100.0 ppm
0820 Begin drilling D-05
1030 Complete bore D-05 to 30 ft
1100 Drop off Conex box @ Water St.
1200 Done @ D-05 area, cleaned up & abandoned hole
1215 Look at D03, talked to Galen and he was OK with drilling today
1230 @ Water St, getting water from totes (Hoosick) + unload clean water
1245 @ D-03 set up + unload.
1300 Begin drilling D-03
- recalibrate PID Zero = 0.0 ppm Span = 100.0 ppm
1330 Complete D-03 to 20 ft, hit groundwater @ 13.2 ft bgs
1430 - Continue sampling
1500 - Issues w/ GW pump - hose clogging, clean out
1600 - going to get water sample tomorrow morning - not clearing up
1610 All offsite - rig + equipment left at site per Galens approval

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

YSI cal data:
DO = 5.55 mg/L in filt. water
ORP @ 20°C (237.5 mV) = 233.0 mV
pH 10 = 10.03
pH 7 = 7.01
pH 4 = 4.02
Sp Cond. 7 = 6389 SPC uS/cm

YSI SG3-D03-170828 data:
DO =
ORP =
pH =
SPC =
T°C =

Wait until 8-29-17

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/29/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions:

Present at Site: RQM, RAK, DJZ, Frank, Marshall

Observations:

0705 - Onsite to sample water @ D03, safety meeting, YSI cal'd yesterday afternoon - is good to go. WL = 16.51 BTOC, S.U. = 3.55 PID cal'd.

0900 - Done sampling water, turbidity never cleared.

1040 - Setup on D14, about to begin. State rep from Weston + Sampson here to collect split samples.

1320 - Done @ D-14, packing up.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

SG3-D03-170829 data:

YSI cal'd 8/28/17 @ 14:00

Turbidity off scale @ start of pumping

~~Cal data~~

YSI data:

15.4°C

DO = 4.48 mg/L

SPC = 1.74 ms/cm

pH = 7.22

ORP = -29.0

4-5 well volumes pumped + 4-5 yesterday afternoon.

Turbidity off scale

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 8/30/17 Time On-Site: Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions:

Present at Site: RQM, DJZ, RAK, Travis, Frank, Marshall

Observations:

0650 - RAK, RQM, DJZ @ hotel

0715 - Met drillers & Travis @ laydown,

0900 - Moved @ D-19, long move, took E Rd. to avoid low bridge & weight restricted roads. Held safety meeting, setting up to start.

0915 - Calibrate PID Span = 100.0 ppm Zero = 0.0 ppm

1000 - Hit B.R. @ 3' @ D-19, packing up.

1030 - Run to water St for supplies

1050 - @ D-16 unload

1110 - No underground utilities marked at D-16, underground cable sign nearby

1130 - Not going to do D16

1145 - offsite to water St. No available sites today w/out traffic control

1200 @ Water St - Demob, clean, organize, pack supplies

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.5.17 Time On-Site: 0700 Time Off-Site: 1705

Project Name: Saint Gobain - Bennington Project No.: 16.6131

Purpose: Soil Borings SG05, SG01 PID 0-5-1-7 Field Report No:

Weather Conditions: Cloudy, humid, low 70's

Present at Site: RAK, JMS, Marty Bachner, Mike Sarrow

Observations: Cal PID - Min. Rae 3000 # FA01710, Response = 100 ppm

0900 Samples SG3-SO5-0-0.5, 0.5-1, 1-1.5 by hand auger. 1.5-4, 4-8, 8-10 by Probe. Samples for 14 PFC, 5, % H_2O, TOC, pH from 0-0.5, 0.5-1, 1-1.5, 3-Hand 8-9 ft. No GW. Backfill with cuttings. No occupant at Alpaca farm

1300 - SO1 Rollin Rd + Horton Hill Rd NSW Corner - No adjacent resident. Samples SG3-SO1-0-0.5', 0.5-1', 1-1.5' by hand auger. MS/SD from 0-0.5, Duplicate from 0.5-1' SG3-FD11-170905 and Rinsate blank from SS bowl. Probe 1.5-4, 4-8, 8-10. Sample SG3-SO1-3-4'. Saturated at 7.5 ft Soil Sample SG3-SO1-6.5-7.5 ft. Set Screen from 4-9'. After ½ hr 1435 DTW = 5.8 ft. 1450 start pumping SO1 (peristaltic - dedicated poly tubing). 1505 - ½ gal purged. Turbidity = 21 NTU (Verify Cal. Hach 2100Q # 101165 = 100 NTU Std Reading = 99.8). Calibrate YSI Meter FA00747. 1515 Collect Sample SG3-SO14-170905 Groundwater: Sample pH = 6.76, Temp = 18.4°C, DO = 4.66 mg/l, Conductivity = 0.480 mS/cm, ORP = 150 mV. Final Turbidity = 7 NTU FINAL PID Check = 99.3 ppm.

1600 - Back to Water St. / Demob / Pack Samples

1700 - Samples to lab carrier.

~~Items to Verify~~: Boring Logs, Soil Profiles, PID Headspace Logs, Safety Checklist,

List of Attachments:

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.6.17 Time On-Site: 0700 Time Off-Site: 1700

Project Name: SG3-St. Gobain Bennington Project No.: 16.6131

Purpose: Borings SO4 Field Report No:

Cal. PID MiniRae 3000 FA01710. 100 ppm IsB. Reading = 102

Weather Conditions: Heavy Rain, Low 70's, Humid, Wind Calm,

Present at Site: RAK, KAM, KMJ2, Christ Ganser

Observations: 0930 Set up on SO4 - Lower East Road.
-Sample SG3-SO4-0-0.5', SG3-SO4-0.5-1', SG3-SO4-1-1.5 by hand auger. Probe below 1.5ft. Sample SG3-SO4-3-4' (needed 3 cores for sufficient volume). Saturated soil at 8ft - Collect Sample SG3-SO4-7-8' above GW. Set temp. 1" Screen 5-10', Needed 2 cores to collect volume for 7-8' Simple, 1315: DTW below ground surface = 6.2 ft. Check calibration Turbidity Meter: HACH 2100Q #4042 Std = 58 Reading = 59 NTU. 1330 - Pump SO4 at low flow, 1340 NTU = 588, 1350 = 154 NTU
Check Calibration YSI Quatro4 pH Meter FA00747.
1400 NTU = 33 - Collect GW Sample SG3-SO4-170906
Final NTU = 8. 15.3°C, DO = 3.2 mg/L, Cond = 396 mS/cm, pH = 6.56 ORP = -79 mV. SG3-LTB19-170906 = Trizma Trip Blank
-1600 - At Water St - Demob/Pack Samples
-1700 - Coolers to Courier.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-6-17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Field Report No:

Weather Conditions: 60°F, Heavy Rain

Present at Site:

Observations: 0700 onsite / prep Soil prep

0730 Geoprobe onsite

0745 Pick up 2 canopys

0800 KAM onsite, prep field work, collect rinsate on tents

0900 DJZ & John to D-13

1000 Start drilling D-13

1130 Complete to 25 ft bgs w/ GW

1215 Begin purging GW

1345 Turbidity @ 49.3 NTU, begin sampling

1400 DJZ + KAM to landfill to stake locations

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

@1215

YSI Calibration

SPC = 1306 uS/cm

pH7 = 7.02

pH10 = 9.97

ORP: 244.4 mV

DO: 7.22 mg/L

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-7-17 Time On-Site: 0730 Time Off-Site: 1800

Project Name: SG3 - St. Gobain Bennington Project No.: 16.6131

Purpose: Soil Borings SO2 Field Report No:

SO2 - Twitchell Hill Rd.

Weather Conditions: 65-70°F, Pt ly Cldy, humid, light S. Wind

Present at Site: DAK, RS, Marty Bachman, Christine Ganser, 2 flag men

Observations: Calibrate PID MiniRae 3000 #FA03246 Reading = 100 ppm Spoke with Resident at #43 - OK with work. 0900 - Sample SG3-SO2-0-0.5' 0910 SG3-SO2-0.5-1 (Petroleum odor), 0920: SG3-SO2-1-1.5 (Petroleum Odor and staining) 0945 SG3-SO2-3-4' (No stain, no odor), 1010 Sample SG3-SO2-8-9'. Tape for GW - None present.

1130 - Set upon S11 on Mechanic St, N. Bennington - Spoke with resident at 63 - OK with work. Spoke with H2O Company rep. - clear of waterlines, 1200 Sample SG3-S11-0-0.5, 1210: SG3-S11-0.5-1', 1220: SG3-S11-1-1.5', 1240 Sample SG3-S11-3-4, 1310 Sample SG3-S11-7.4-8.4'. Saturated Sand 8.4-8.9 ft. 1300-1330 - Well set screen 5-10ft - after 30 min GW at 8.8 below grade. 8.8 DAK 9.7.17. 1045 GW = 8.4' below grade.

1045 - Attempt pumping S11 at slow rate. Confirm with Kevin McGilp - insufficient volume to sample - well yields ¼ oz in 3 min with split sample = 4HR ½ - Sample time.

1440 - Kevin informs S11 has already been done.

1543 - Set upon SO3 - Cleveland Rd Shaftsbury - Rain Showers

1605 - SG3-SO3-0-0.5, 1615 - SG3-SO3-0.5-1, 1625 - SG3-SO3-1-1.5 1645 - SG3-SO3-3-4. 1700 - SG3-SO3-6.6-7.6. Saturated below 7.6 ft. Set Screen (1") 5-10 ft. GW at 7.3 ft. below ground. - Will Sample GW tomorrow AM.

Items to Verify:

List of Attachments:

Field Log Prepared by: DAK

Copies to:

8.4
8.9

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-7-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 3242100.03

Purpose: _____ Field Report No: _____

Weather Conditions: 65°F, Cloudy

Present at Site: DJZ KMJZ

Observations: 0730 @ Water St, safety & prep

0840 onsite @ D-23

0855 Rig onsite set up

0940 Calibrate PID SPAN = 100 ppm, Zero = 0.0 ppm

1345 EOB @ 50 ft for D-23.

* No Groundwater
* Mixed first sample accidently put crushed rock on top of topsoil, got a 2nd sample but it was wet after drilling through boulder 3-5 ft.
  - Hand dug samples 0-1 ft for better sample about 10 ft from actual bore hole.

* Bore backfilled with bentonite

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Blanks
21 - BLK Reg
22 - BLK Reg
23 - Trizma

Date: 9-8-17 Time On-Site: 0730 Time Off-Site: 1700

Project Name: SG3 - St. Gobain Bennington Project No.: 16.6131

Purpose: Borings SO3(GW) Field Report No:

Weather Conditions: AM Prtly Cldy, 50's, light W. Wind.

Present at Site: RAK, JMS, Marty Buchman, 2 Flaggmen

Observations: Attempt GW Sample from SO3. DTW = 6.5' below ground surface. 0900 Pump SO3 at low rate. Check calibration on Hach 2100Q Turbidity Meter # 4042: Std = 58 Reading = 57. Check calibration YSI Quatro 4M # FA00747 - Std = 7 Reading = 7.07 pH, Cond Std = 8.7 Reading = 6.5 MS/cm, Sorbel Soln @ 14°C Std = 244 mV: Reading = 247 mV, 0930 Turbidity = 205 NTU (initially off scale). RAK 9.8.17
0945: Turbidity = 27. Collect GW Sample SG3-SO3-170908. Temp = 16.4°C, 3.21 mg/L DO, Cond. = 0.86 mS/cm, pH = 7.07, ORP = 207 mV. Calibrate PID MiniRae 3000 # FA03246 Reading = 100 ppm. 1200 - Setup on SO8 - S. Side Townline Road. 1220: Sample SG3-SO8-0-0.5', 1240: Sample SG3-SO8-0.5-1', 1245: Sample SG3-SO8-1-1.5.
1330 GW at 2.1 ft below ground surface - RAK 9.8.17
1340 Pump SO8 at low flow rate. ~~Calibrate~~ Pickup YSI Meter from Perrick at DO7 - Calibrated yesterday (will check later no cal stds in box). YSI # 5109. 1445 Turb = 40 NTU - Collect Sample SG3-SO8-170908 Plus MS/SD. Temp = 18.3°C, 2.18 mg/L DO, Cond = 1.42 mS/cm, pH = 6.82, ORP = 234.2 mV
1630: At Water St - Verify YSI Calibration, demob, pack N Ship.

Items to Verify:

List of Attachments: Boring log, Profile Sheet, PID Log, COC

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-8-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: _____ Field Report No: _____

Weather Conditions: 50 °F Cloudy

Present at Site: DJZ KMJZ Frank / Marshall

Observations: 0730 @ Water St - prep + safety

0820 @ D-07, set up

0840 Calibrate PID SPAN = 100 ppm ZERO = 0.0 ppm

0855 Start drilling D-07

1140 @ 40 ft bgs - Frank to Hoosick to get water

1245 Back w/ water

1445 Out of water @ 60 ft - done for day

1545 Leave D-07 to Water St

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-9-17 Time On-Site: 0730 Time Off-Site:

Project Name: SCAPP Project No.: 32421001.03

Purpose: Field Report No:

Weather Conditions: 50°F cloudy / overcast

Present at Site: DJZ KMJZ KAM Frank / Marshall

Observations: 0730 Prep / Safety @ Water St.

0810 @ D-07 prep / set up

0820 Start drilling at 60 ft

1010 Frank to get water from Hoosick, currently @ 80 ft

1030 Calibrate PID Zero = 0.0 ppm SPAN = 100.0 ppm

1130 Frank back w/ water

1515 Stop drilling for day @ 110 ft - out of water

1630 Off site D-07 for day

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-10-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 3242100103

Purpose: Field Report No:

Weather Conditions: 50°F clearing

Present at Site: DJZ KAM KMJZ Frank/Marshall

Observations: 0730 Prep/Safety @ Water St.

0815 @ DOT set up

0840 Continue drilling @ 110 ft bgs

0900 Calibrate PID ZERO = 0.0 ppm SPAN = 100.1 ppm

1115 Frank leaves to get water, @ 140 ft

1225 Back w/ water, resume

1415 @ 157 ft, out of auger casing, more coming tomorrow

1515 Flaggers offsite

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.11.17 Time On-Site: 0800 Time Off-Site:

Project Name: SG3 - St Gobain Bennington Project No.: 16.6131

Purpose: Borings S34 Field Report No:

Weather Conditions: Sunny 55-75°F, light West Wind.

Present at Site: RAK, JMS, Marty Bachman, 2 Flagmen

Observations: 0930: Set up on S34, Left flyer at 1058 Silk Rd.

MS/MSD → 1000: SG3-534-0-0.5', 1020: SG3-534-0.5-1, 1025: SG3-534-1-1.5'. Calibrate PID Mini Rae 3000 FA03246 Std 100ppm ISB, Reading = 100ppm, Probe 1.5-4', GW at 3.2ft, 1045 Sample SG3-534-2.2-3.2'. Probe 4-8 ft - set 1" Screen 3-8 ft. 1115: Depth to water = 3.4ft, Pump S34 at low rate. Calibrate check Turbidity Meter Hach 2100Q #4042 Std = 58 NTU Reading = 57 NTU. Calibration Check: YSI Meter Quatro4M #FA00747 pH Std 7.0 Reading 7.0, Cond Std 7 - Reading 6.6 mS/cm, ORP Std = 244mV Reading = 246mV. 1145: turbidity = 11 NTU. Collect GW Sample SG3-534-170911 and collect an Equipment rinsate blank from clean, polyethylene/Silicon tubing (SG3-FB12-170911) at 1215. Sample SG3-534-170911 Temp = 18°C, DO 5.9 mg/L, Conductivity 479 mS/cm, pH 6.34, ORP 202 mV.

1300 - At Water St for repair of Cascades truck (transmission fluid leak). Go to Hoosick Falls for filtered water.

1500 - Back at Water St. S45 & S49 (Fox Hill Rd) are cleared for drilling - CASCADE must depart by 1600, will resume in AM. Decon/restock for AM. Pack samples for shipping. Collect Air/Water interface sample of filtered water from 2nd frac tank for VOC analysis. (SG3-FW2-170911)

Items to Verify:

List of Attachments: Boring Logs, Soil Profile sheet, PID Log.

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-11-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 3242100L.03

Purpose: _____ Field Report No: _____

Weather Conditions: 50 °F clear

Present at Site: DJZ KMJZ Frank Marshall

Observations: 0730 Prep / Safety @ Water St

0800 onsite @ D-07

0820 Start drilling @ 157 ft

0830 Calibrate PID SPAN = 100.0 ppm ZERO = 0.0 ppm

1015 Frank leaves to get water, @ 170 ft

1025 Walt w/ Hwy dept (Bennington) stopped by to let us know the bores are approved on Austin Hill Rd and just to watch for culverts - they were recently replaced and should be easy to see.

1125 Frank back w/ water

1355 Frank to get water, @ 190 ft

1440 Frank back w/ water

1515 @ 200 ft

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 09-12-17 Time On-Site: 0730 Time Off-Site:

Project Name: SG3 – St. Gobain Bennington Project No.: 16.6131

Purpose: Borings S45, S49 Field Report No:

Weather Conditions: clear, 45° – 80° F

Present at Site: RAK, JMS (CTM); Marty Bachman (ADT); 2 flaggers; Kristen (W&S)

Observations: 0815 - Set up on S45, calibrate PID

0845 - sampled for 0-0.5 feet bgs, @ SG3-S45-0-0.5'

0900 - sampled SG3-S45-0.5-1'

0905 - sampled SG3-S45-1-1.5'

0915 - sampled SG3-S45-3-4'

0925 - sampled SG3-S45-8-9'

0935 to 1020 - take site photos, PID readings, water level taken (water not encountered), decon equip, fill out COC, cleanup

1020 to 1030 - travel to S-49

1030 to 1040 - setup @ S-49, left flyer @ 730 Fox Hill Rd

1050 - sampled SG3-S49-0-0.5'

1105 - sampled SG3-S49-0.5-1'

1110 - sampled SG3-S49-1-1.5'

1115 - sampled SG3-S49-3-4'

1140 - sampled SG3-S49-8-9'

1150 - check groundwater lvl, water @ 6.3'. After pumping and calling Kevin, take addtl sample SG3-S49-5.3-6.3' @ 1220

1225 - Check Turbidity meter calibration – 57.9 bottle reads 58.1 NTU, water from hose measures over meter's range (HACH 2100Q 4042)

YSI meter calibration check (YSI Quatro 4M FA00747) pH for 7 reads 6.98, cond 7 for 7 reads 6.40 mS/cm, Zobell for 237.5 (@ 20° C) reads 234.1 mV

Items to Verify:

List of Attachments:

Field Log Prepared by: J. Scheetz

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 09-12-17 Time On-Site: 0730 Time Off-Site:

Project Name: SG3 - St Gobain Bennington Project No.: 16.6131

Purpose: Borings SU5, SU9 Field Report No:

Weather Conditions: Clear, 45°-80°F

Present at Site: RAK, JMS (GM); Marty Bachman (ADT); 2 flaggers; Kristen (W&S)

Observations: 1300 - NTU still overrange (>1000)

1325 - well @ 587 NTU, 1345 - well @ 194 NTU, 1400 - well @ 244 NTU

1400 - Begin filling sample bottles

1430 - 72.8 NTU, 21.80°C, 5.69 mg/L, 3.49 mS/cm, 7.02 pH, 126 mV

1440 to 1500 - Breakdown and demob from SU9

1500 to 1630 - Back @ water St, picked up ice, pack coolers, complete COC

* NO Trizma trip blanks available @ storage trailer To include in coolers *

Items to Verify:

List of Attachments:

Field Log Prepared by: J. Schleeh

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/12/17 Time On-Site: 8:15 Time Off-Site: 13:00
Project Name: SGPP BENNINGTON Project No.: 32421001.03
Purpose: Field Report No:

Weather Conditions: 50° PARTLY CLOUDY
Present at Site: KMJ2 (BARR), FRANK & MARQUIL (CASCADE)
Observations: 8:20 BEGIN PREPARING RIG TO GROUT D07
8:35 FLAGGING CREW ARRIVES ON SITE.
9:00 BEGIN PIPING & GROUTING D07
10:45 CHRISTINE (STATE VT) ON SITE. MOVING TO S45/S49 TO GET SAMPLES FROM GEOPROBE SINCE NO SAMPLING BEING CONDUCTED AT D07 TODAY.
10:55 CHRISTINE OFF-SITE. KMJ2 off SITE TO WATER STREET
11:20 KMJ2 ON SITE.
11:30 COMPLETE GROUTING & BEGIN PICK-UP.
11:45 FRANK OFF SITE. D07
13:00 ALL OFF SITE D07
13:23 BEGIN DECON OF DRILLING TOOLS

1530 Decon hand auger/shovel, @ S02 (OUT KMJ2)
1540 Calibrate PID SPAN = 100.0 ppm Zero = 0.0 ppm
1555 SG3-S02-0.5-1'
1610 SG3-S02-1-1.5'
1615 PID: 0.5-1' = 128 ppm 1-1.5' = 383 ppm
1630 offsite S02 to Water St

Items to Verify: NONE

List of Attachments: NONE
Field Log Prepared by: KMJ2
Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.13.17 Time On-Site: 0730 Time Off-Site: ____

Project Name: SG3 Saint Gobain Bennington Project No.: 16.6131

Purpose: Borings 518, 521 Field Report No: ____

Weather Conditions: Sunny, light west wind AM 60's PM 70-80°F

Present at Site: RAK, JMS, Marty Bachman, Christine Ganser

Observations: 0830 At Landfill - access / setup on 518.
0915: Sample 518: SG3-518-0-0.5' 0930: SG3-518-0.5-1'
Calibrate PID FA03246: Std=100ppm, Reading = 100 ppm.
0935: SG3-518-1-1.5', 1000 SG3-518-3-4', Probing 4-8'
refusal at 6.3 ft, move 5' South - refusal at 2.3 ft, move 10' West -
refusal at 7 ft, move 10 ft East - refusal at 6.3 ft. 1055!
Sample SG3-518-5.3-6.3' (above refusal). 1000 - John Schmelzer
State of Vermont on site. Contain all soil, grout all holes. 518 holes
not grouted, driller used cuttings to backfill. Extra cuttings
staged in 55 gal drum adjacent to D08 location
1230 Setup at 521 adjacent to former leach field.
1245! Sample SG3-521-0-0.5', 1255: SG3-521-0.5-1'
1305: Sample SG3-521-1-1.5', 1315: SG3-521-3-4', GW at 7.3 ft.
1330! Sample SG3-521-6.3-7.3 ft. Probe to 10' - Set temp. 1" screen 5-10'
- Collect GW Sample SG3-521-170913, 1405 Pump 521 at
low flow rate (initial water level at 6.3 ft). Cal Check Turbidity
Meter 4042 Std=58, Reading = 57. Calibrate YSI Meter - pH Std 7 Reading
= 6.95, Cond Std 7 - Reading = 6.4 mS/cm ORP Std 231 - Reading = 227 mV
1430 Turbidity = 27 - Collect Sample SG3-521-170913.
Sample YSI Readings: 16.2 °C, DO 3.03 mg/L, Conductance 1.09 mS/cm,
pH 6.53, ORP 19.2 mV
1600 - At Water St - Demob, Pack & Ship.

Items to Verify: ____

List of Attachments: Boring Log, Soil Profile Sheet, PID Headspace Sheet, COC

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-13-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: _____ Field Report No: _____

Weather Conditions: 50 °F, clear, sunny

Present at Site: DSZ KMJZ Frank Marshall

Observations: 0730 Rep/Safety @ water St

0820 @ D-01, set up

0845 Begin drilling D-01

0855 Calibrate PID: SPAN = 100.0 ppm ZERO = 0.0 ppm

1045 EOB @ 35 ft D01, no GW

1230 offsite D-01 - bore backfilled

1245 @ Landfill to look at bores w/ Frank

1400 offsite Landfill

1445 Photo D-01 + D07 final backfill

1500 @ Water St. Pack Coolers / Demob / papers

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/18/17 Time On-Site: 0800 Time Off-Site: 1700

Project Name: SGPP Bennington Project No.: 32421001.06

Purpose: Sonic deep borings Field Report No: ____

Weather Conditions: Sunny, humid, 80's

Present at Site: RQM, Travis, Frank, Marshall, Roger, William

Observations:

0800 - Meet @ water street, loading/prepping, safety talk. PID cal'd.
0900 - Moving to D-20
0930 - Setup on D-20. Travis from WbS here split sampling.
1115 - @ 20', waiting on water recharge.
1230 - Insufficient GW to sample, sealing @ 20'.
1240 - Rig broke down pulling casing, working on it now.
1300 - Rig repaired (fixed fuel line). Continuing.
1700 - Done for day, paused @ 50' on D-20.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.18.17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03 / 16.6131

Purpose: Shallow Soil Profiles Field Report No:
SS22, SS13

Weather Conditions: Sunny - mid → upper 70's, light west wind.

Present at Site: RAK, KAM, Marty Bachman, Rodger Buley - Travis (PM)

Observations: 1050 set up on SS22 - West Side of landfill.
Calibrate PID MiniRae 3000 #FA01710: 34 = 100 ppm, Reading = 100 ppm
1120 = SG3-SS22-0-0.5', 1130: SG3-SS22-0.5-1', 1140: SG3-SS22-1-1.5', 1155: SG3-SS22-3-4', 1220: SG3-SS22-9-10'. Backfill with grout. NoGW.

1430 - Set up on SS13 - Landfill Compost Area.
1430: Sample SG3-SS13-0-0.5', 1445: SG3-SS13-0.5-1
1450 - SG3-SS13-1-1.5', 1520 SG3-SS13-3-4'.
Split Samples with Travis - Weston/Sampson.
1550: Sample SG3-SS13-8-9'.
NoGW. Backfill with bentonite.

Items to Verify:

List of Attachments: Boring Log + Profile, PID Headspace Sheet, COC

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/19/17 Time On-Site: 0715 Time Off-Site: 1710

Project Name: SGPP Bennington Project No.: 32421001

Purpose: Sonic Deep Borings Field Report No:

Weather Conditions: Sunny, humid, upper 70s

Present at Site: RQM, Travis, Roger, William, Frank, Marshall

Observations:

0715 - Setting up to resume D-20. Safety talk + PID cal'd.

0800 - Resuming D-20, took a while to stabalize rig.

~~1200 - Attempting water sample, screened 15-20'.~~ RQm

~~1300 - No production/recharge, resuming advancement.~~ RQm

1500 - Done @ D-20 at 90'

1710 - Samples shipped, done for day.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-19-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 3242001.03

Purpose: _____ Field Report No: _____

Weather Conditions: 60°F clear, sunny

Present at Site: DJZ RAK Roger

Observations: 0730 @ Water St, Prep / Safety.

0830 @ Landfill

0840 @ S-24, prep / setup

0950 Geoprobe @ S-24

1000 Begin drilling S-24

1035 Complete S-24 to 8 ft, water @ 3.7 ft

- get water equip, 2hr delay waiting for screen

1240 - Start pumping water slowly

1310 - water still turbid

1315 - Start water sample - Turbidity is 236 NTUs, 2.5gal purged

1420 YSI sample reading Temp: 18.7°C
Pressure: 737.7 mmHg
pH: 7.33
DO: 6.96 mg/L
Cond: 0.69 ms/cm (SPC)
ORP: 134.2 mV

1450 Turbidity 429 NTU

1510 Complete water Sample

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

1245 Calibrate YSI

Conductivity: 1413 umho/cm
pH: 7.01, 9.99
DO: 5.08 mg/L

ORP: 241.7 mV

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/20/17 Time On-Site: 710 Time Off-Site: 1750

Project Name: SGPP Bennington Project No.: 32421001

Purpose: Sonic Drilling Field Report No:

Weather Conditions: Partly Cloudy, 70s

Present at Site: RAM, KAM, Frank Marshall, Travis, Christine, TJD

Observations:

710 - Prepping to mob. to D02, safety talk & PID cal'd.

1140 - Packing up @ D02, hit shallow bedrock so didn't install a well, moving to D16.

1230 - Starting D16, knocked on 210 & 190 Michaels Dr., nobody home.

1620 - Pausing @ 30', packing to ship.

1700 - Samples shipped

1720 - Door knocking w/ TJD, nobody home on ore bed rd.

1750 - Done for day.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-20-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 3242100.03

Purpose: Field Report No:

Weather Conditions: 70°F Cloudy/overcast

Present at Site: DSZ RAK Marty Roger

Observations: 0730 Prep/Safety @ Water St.

0825 @ S-27 Setup/Prep

0845 Calibrate PID, ZERO: 0.0 ppm SPAN = 100.0 ppm

0845 Start hole

0955 Complete hole to 10 ft, wait to see water accumulation

1050 Insufficient volume to get water sample @ S-27 per KAM

1100 Move to S-26

1105 Begin S-26

1150 Complete hole to 10 ft S-26 - no GW

1230 No water in S-26 after 40 min

1315 Leave S-26

1330 @ S-16, hand auger/pick to 1.9 ft
- slight pool of water at bottom

1520 - unload Geoprobe

1600 Complete S-16 to 6.9 ft, WL @ 1.9 ft
- go to D-16 to get samples

1645 - pack/ship samples

1710 - drop samples w/ courier

Items to Verify:

List of Attachments:

Field Log Prepared by: DSZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/21/17 Time On-Site: 0705 Time Off-Site: ____

Project Name: SGPP Bennington Project No.: 32421001

Purpose: Sonic Drilling Field Report No: ____

Weather Conditions: Cloudy, 60s + 70s

Present at Site: RQM, Christine, Frank, Marshall, William, Roger

Observations:

0705 - Onsite @ D16, waiting on flatbed.

0735 - Flatbed arrived, safety talk & PID cal.

0750 - Resuming D16 @ 30'.

0945 - Refused by bedrock @ 41', packing up.

1145 - At D22 waiting for crew to arrive (re-supplying @ water st.). Spoke w/ Penny Smith @ 58 Bard Rd and gave her a flyer.

1405 - Done for the day, had to revisit D16 to complete sealing and there isn't any sense moving to D-22 because crew would need to reload rig less than an hour after unloading.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-21-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Field Report No:

Weather Conditions: 60 °F, foggy / Cloudy

Present at Site: DJZ RAK KAM, Roger + Marty

Observations:

0730 @ Water St, prep + safety

0820 @ S-16 Set up water sample

0830 Stake sites + GPS sites w/ KAM

0930 Calibrate YSI

0950 YSI of S-16 Temp = 18.4 °C pH = 6.82

ORP = 131.7 mV DO = 34.0 %

Cond: 0.59 mS/cm DO = 3.10 mg/L

Press = 739.7 mmHg

Turbidity = 10 NTU

1015 Done w/ water sample S-16, backfill hole

1040 @ S-25 prep / set up

1055 Start S-25

1155 Complete S-25 to 10 ft, water

1310 after 1.5 hours only 0.4 ft of water in bottom of temp well

- Weston/Sampson duplicated Samples @ S-25

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

YSI Calibration 9-21-17

SPC = 1.391 mS/cm ORP = 242.5 mV

pH = 7.11, 9.89

DO = 85.7 %

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-22-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 3242001.03

Purpose: Field Report No:

Weather Conditions: 55 °F, cloudy

Present at Site: DJZ RAK

Observations: 0730 @ Water St. Prep, Ice

0810 @ Landfill D-08

0840 DJZ/RAK head/hike to S-20

0930 @ S-20 Hand Auger

- water @ 4" bgs w/little to trace biogenic sheen

OL/OH - 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1000 Leave S-20

1030 Back to truck, prep

1115 Leave to S-29

1130 @ S-29 Hand Auger

- water @ 4" bgs, trace biogenic sheen

- 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1150 Leave S-29

1200 Back @ DOC area, prep, decon, etc.

* left stake & pink flag @ S-20 & S-29

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/23/17 Time On-Site: 0650 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001

Purpose: Well install & Sonic borings Field Report No:

Weather Conditions: Hot, humid, mid 80s

Present at Site: RQM, KAM, DJZ, Frank Marshall

Observations:

0650 - Onsite, safety talk, PID cal'd

0715 - WL @ D25 = 8.2' bgs, sampling 6.5-7.5' as new above-GW sample. Samples were covered w/ poly overnight.

0800 - RQM offsite.

1000 - Done w/ D25 @ landfill, moving to water st. to prep for D24.

1200 - Moving to D24

1230 - RQM back onsite.

1530 - Halted @ 40' @ D24 for the day. Resuming tomorrow, packing up.

1620 - Done for the day

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-23-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: DJZ

Present at Site: 60°F clear, sunny

Observations: 0730 @ Water St, prep, organize
0800 @ Landfill, GPS locations
0930 @ Water St, Organize, Decon, prep, inv
1200 @ D-24, prep / setup
1220 Calibrate PID, SPAN = 100.0 ppm, ZERO = 0.0 ppm
1240 Begin drilling D-24

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-24-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021604.00

Purpose: _____ Field Report No: _____

Weather Conditions: 60 °F clear/sunny

Present at Site: DJZ KAM RQM Cascade

Observations: 0730 Ice & Prep, Water st, Coolers

0810 onsite @ D-24, Safety, Prep, Setup

0830 Start drilling @ 40 ft

0900 Calibrate PID, ZERO = 0.0 ppm SPAN = 100.0 ppm

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-25-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 70°F clear, sunny, humid / hot

Present at Site: DJZ KAM Cascade Frank/Marshall, Travis

Observations: 0730 @ water St, Prep/Safety/Supplies

0810 @ Landfill, prep, mob, setup

0915 Start drilling D-11

1015 Calibrate PID, SPAN = 100.0 ppm ZERO = 0.0 ppm

1110 Frank goes to get water

1210 Frank back w/ water

1355 Frank goes to get water @ 60 ft

1455 Frank back w/ water

1615 Cascade tbbsite. @ 70 ft End of day.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/25/17 Time On-Site: _____ Time Off-Site: _____

Project Name: SGFP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Rinsate over transducer trolls & cables

Weather Conditions: _____

Present at Site: KAM DJZ RAK

Observations: _____

Collect Rinse blanks of Tcells & Cables

SG3 - Tcell/cable RB1 = ~~150'~~ cable SN 541354, Tcell SN 540138 @ 15:40

SG3 - Tcell/cable RB2 = 150' cable SN 541344, Tcell SN 538467 @ 15:55

SG3 - Tcell/cable RB3 = 250' cable SN 541355, Tcell SN 534653 @ 16:00

SG3 - Tcell/cable RB4 = 150' cable #541343, Tcell SN 538353 @ 16:05

SG3 - Tcell/cable RB5 = 150' cable #541345, Tcell SN 512372 @ 16:10

SG3 - Tcell/cable - RB6 = 225' cable # 541346, tcell SN 540141 @ 1615

SG3 - Tcell/Cable - RB7 = 75' cable # 541342, tcell SN 538471 @ 1620

SG3 - Tcell/cable - RB8 = 75' cable # 541326, tcell SN 535830 @ 1625

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9.27.17 Time On-Site: 0700 Time Off-Site: 1700

Project Name: Saint Gobain Bennington Project No.: 16.6131

Purpose: 533/540 Field Report No:

Weather Conditions: Sunny, humid 70-90°F, light W. Wind.

Present at Site: [redacted], RAK, Marty Bachman, Rodger Buley

Observations: 0830: set up on 533, Rt 7A - Sr. Living Facility;
0915 - SG3-533-0-0.5', 0920 - SG3-533-0.5-1';
0925: SG3-533-1-1.5', 0955: SG3-533-3-4'
1015: SG3-533-8-9'.
1200 - set up on 540: VAIL Rd - left flyer at 883 Vail Rd.
1215: SG3-540-0-0.5', 1220: SG3-540-0.5-1',
1225 ~~1230~~: SG3-540-1-1.5'. 0-0.5 = MS/MSD, 0.5-1 =
Field ~~Blank~~ Duplicate SG-FD13-170927, collect field
blank (PFC free water - poured to 250ml Plastic bottle = SG3-
FB14-170927 (1230), 1305: SG3-540-3-4'
1330: SG3-540-8-9'.
1500: At Water St. - Demob/Reload. Pack to Ship to Landfill.
1700: Depart/Ship.

RAK
9.27.17

Items to Verify:

List of Attachments: Boring Logs, Profiles, PID sheet, COCs.

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/26/17 Time On-Site: 0705 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004

Purpose: Bedrock Well Install Field Report No:

Weather Conditions: Hot, humid, 90°F

Present at Site: RQM, KAM, Jay, Scott, Rob, Rob, Greg

Observations:

0705 - Meet @ water street, safety talk & plan for day.

0735 - Mob'ing to landfill.

0915 - Unloading @ landfill to move to D-25.

1120 - ~~Starting D-25.~~ RQM

1240 - Starting MW-BR1 (loc'd next to D-25, ~6' to West).

1700 - Stopping @ 25', drilled to 30' but will retrieve next 5' tomorrow.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-26-17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 70°F, Clear, Sunny, Humid

Present at Site: DJZ RAK Frank Marshall

Observations: 0700 Prep / Supplies @ Water St

0720 Ice + Gas

0750 @ Landfill, start drilling D-11 @ 70 ft

0830 Calibrate PID, ZERO = 0.0 ppm, SPAN = 100.0 ppm

0930 Frank to go get water, @ 100 ft bgs

1040 Frank back w/ water

1220 Frank leaves to get water, @ 110 ft

1330 Frank back w/ water

1515 Frank to get water

1605 Frank back w/ water, only 2/3 full, 1st tank empty

1610 Cascade offsite

1615 DJZ / RAK offsite D-11, @ 125 ft bgs

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/27/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Sunny, ~70s

Present at Site: RQM, Scott, Bob, Rob, Rob, Greg, KAM

Observations:

0700 - Onsite @ landfill.
0730 - Safety talk held, PID cal'd.
0735 - Resuming MW-BR1 @ 30'
1600 - Pausing @ 95', very hard drilling throughout day.
1705 - Done for day, samples shipped.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 09/27/2007 Time On-Site: 0715 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 75°F clear, sunny, humid

Present at Site: DJZ

Observations: 0715 @ Water St, Prep, Supplies, Safety

0800 DJZ Head to Hoosick for Coolers of containers, ice
- Frank @ D-11 start & get water

0915 DJZ @ D-11, no samples yet

1010 Calibrate PID, SPAN = 100.0 ppm, ZERO = 0.0 ppm

1115 Frank to get water, @ 145 ft

1245 Frank back w/ water

1340 @ 150 ft, Cheshire Quartz, WL 28 ft (drill fluid) going to pump out

Did not pump water
Going to build well monday

1515 All off D-11 for day
Pack Coolers / samples from ~~D-25~~ & Geoprobe MW BR1

1745 @ hotel

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/28/17 Time On-Site: 0700 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No: _____

Weather Conditions: Sunny, 70-80s

Present at Site: RQM, KAM, Scott, Rob, Rob, Greg, Bob, DJZ, Frank, Marshall

Observations:

0700 - Onsite @ landfill

0720 - Safety talk held, PID cal'd.

0735 - Resuming MW-BR1 @ 95'

1700 - Done for day, pausing @ 125', very difficult drilling w/ significant water usage today.

1740 - Done for day, samples shipped.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/28/17 Time On-Site: 0736 Time Off-Site:

Project Name: Saint Gobain Bennington Project No.: 166131

Purpose: Geoprobe Investigation Field Report No:

Soil Sampling and Characterization

Weather Conditions: partly cloudy; mid-60's °F; light wind

Present at Site: Larene and Bob, ADT-Marty, Barr-Kevin

Observations:

0730- Larene and Bob meet at Chemfab warehouse and meet with Marty and Kevin. Sample coolers and bottles loaded into truck. Drum water used on 9/27/17 is dumped into frack tank across the street.

0830 - Arrive at S-28 location on Andre Lane

Larene calibrates PID to 100.0 ppm.

Bob begins setting up location for sampling.

Bob leaves a flyer at 126 Andre Lane which describes Geoprobe activity to be conducted today.

0900 - 0 to 0.5' depth interval samples collected (PFAS, TOC, moisture, pH)

0910 - 0.5 to 1' depth interval samples collected

0920 - 1 to 1.5' depth interval samples collected

0955 - 2.7 to 3.7' depth interval samples collected.

Bob takes water level which reads 4.3'

Well is screened from 8' to 3' BGL.

1020 - started low flow purging at S28

1040 - Turbidity meter HACH 2100Q calibration check performed.

1045 - check S28 groundwater, records 595 NTU

1050 - YSI Quatro 4M calibration check performed (ORP, pH, specific cond.)

1230 - Turbidity in mid 200 NTU range. Bob calls Kevin and we will sample at this time.

Items to Verify:

List of Attachments:

Field Log Prepared by: LCAMERON

Copies to:

C.T. MALE ASSOCIATES

Date 9/28/17

Environmental Services Field Log

(continued)

Project Name: Saint Gobain Bennington Project No.: ~~166126~~ 16.6131

Observations:

The water has a yellow tint, there was no sheen present.

1255 - Bob takes groundwater parameters of S28 location:

Temp - 18.8°C

DO (mg/L) - 3.71

ORP (mV) - 126

Specific conductivity (mS/cm) - 1.29

PH - 7.30

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/28/17 Time On-Site: _____ Time Off-Site: _____

Project Name: SGPP - Bennington Project No.: 45021004.02

Purpose: _____ Field Report No: _____

Weather Conditions: Clear lt breeze 65-75° F

Present at Site: Kim, RAM, ~~Rick~~, Carlene

Observations: _____

10:40 Tray City water is delivered.

10:45 collect "City Water truck" sample for (19) PFC's 2x 250 ml pres. Trizma Bottles - off pump outlet

10:50 collect "City Water Hose" sample for (19) pfc's 2x 250 ml pres. Trizma Bottles - from Hose end into frac Tank

11:35 collect "City Water Frac TK" Sample for (19) PFC's. 2x 250 ml pres. Trizma Bottles - from Frac Tank valve

14:40 collect SG3-After post - 170928 for End of Hose & after the filters

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9/29/17 Time On-Site: 0705 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Sunny, 70s

Present at Site: RQM, KAM, Bob, Rob, Rob, Greg

Observations:

0705 - Onsite @ landfill

0735 - Safety talk held, 1a PID cal'd.

0740 - Resuming MW-BR1 @ 125'

1620 - Done drilling for day @ 155'

1645 - Done for day, samples shipped.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10/02/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Cloudy, 70s

Present at Site: RQM, DSZ, Bob, Rob, Rob, Greg

Observations:

0700 - Onsite @ landfill.

0725 - Safety talk held

0740 Resuming @ 155'

0940 - Stopping @ 160' because were out of filtered water.

1100 - Water delivery & associated equipment blanks recieved/collected @ water street. Treatment of water started into empty frac tank.

1245 - Prepping samples to ship & org'ing remaining containers.

1345 - Done for day

1600 - Back online to ship.

1645 - Samples shipped.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-2-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Weather Conditions: 50°F, Clear, Sunny

Present at Site: DJZ, Frank, Marshall

Observations: 0730 DJZ @ Water St, prep/supplies

0750 @ Landfill U/Cascade

Prep/Safety, Start installing MW

Water Truck

Start POET SYSTEM

1500 WL of D11 is 103.95 ft bgs

2330 Check generator, water levels, gas

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10/03/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 32421001.03

Purpose: Shallow Soil Profiles Field Report No:

Weather Conditions: Sunny, 70's

Present at Site: RQM, Rob, Rob, Greg

Observations:

0700 - Onsite @ water street

0705 - Safety talk.

0730 - Casing & drums unloaded, headed to SG-McAffrey in Hoosick Falls so drillers can have safety orientation. I'm making two trips to deliver solid waste IDW to CT Male personnel.

1000 - Back @ water street recieving more water & collecting blanks

1200 - @ landfill to develop wells.

1230 - Water @ water st. came back analytically clean, sending H_2O truck to fill 4 totes.

1445 - Resuming drilling @ MW-BR1 @ 155'

1645 - Pausing @ 165' for day.

1730 - Done for day samples shipped.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-3-17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 50°F clear, sunny

Present at Site: DJZ, RAK, Frank, Marshall, Travis B

Observations: 0700 @ Water St, prep, discussion
No traffic control for D-21

0750 Talk to Nate @ Fire Dept - OK to park in parking lot

0810 Frank not OK w/ D-21, look at D-12 per KAM

0830 Talk to Vermont Roofing (Ken Jim) - OK to park on driveway

0930 @ D-12 w/ Rig

1000 Start drilling D-12 w/ no water

1020 @ 12 ft, hit boulder - cant go farther w/out water
Calibrate PID, ZERO = 0.0, SPAN = 100.0 ppm

1210 Leave DA, left rig & Semi per VT Roofing OK.

→ 1310 Rinsate for Franks Submersible Pump → SG3-SPI-171003
- OK to use water from tank 1, fill tote

1400 Continue drilling at D-12

1530 Cascade done for day, @ 30 ft bgs

* Note: Neighbor to the South of VT Roofing mentioned there was an oil spill @ VT Roofing property previously. He mentioned that VT DEC said only soil was impacted - not groundwater. He mentioned soil was removed and replaced.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10/04/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: MW-BR1 drilling Field Report No:

Weather Conditions: Sunny, 70s

Present at Site: RQM, Greg, Rob, Rob

Observations:

0700 - Onsite

0745 - Safety talk held, PID calrd, resuming drilling @ 155' @ MW-BR1

1700 - Pausing for drilling @ 230'

1730 - Samples shipped

Note: Switched from 10" x 9" (casing/core) to 6" x 4" @ 170' to increase pace & decrease water consumption.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-4-17 Time On-Site: 0700 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Weather Conditions: 40 °F clear, sunny

Present at Site: DJZ, RAK, Frank, Marshall

Observations: 0700 @ Water St, prep, Safety, Supplies + equip, ice

0740 @ D-12, continue drilling

0810 Calibrate PID, ZERO = 0.0 ppm, SPAN = 100.0 ppm

1000 - Gas for generator & dropped off additional frac tank

1120 Complete D-12 to 45 ft, bedrock, no well (No GW)

1230 Talked to Neil at Vermont Roofing – Let him know we didnt set well @ D-12 and to contact me w/ any issues. I looked over the area and didnt see any issues prior to leaving

1330 Buy Supplies @ Home Depot to plumb new tank

1400 Prep / Plumb / Supplies

→ 1530 Water Sample after Poet SG3-AFTERPOET-171004

1630 @ Landfill to Pack Coolers, Ice

1710 Ship Coolers

1730 Gas for generator

1810 Fill generator, Supplies to Conex

2230 Top off gas in generator

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10/05/17 Time On-Site: 0700 Time Off-Site: ____

Project Name: SGPP Bennington Project No.: ____

Purpose: MW-BR1 drilling Field Report No: ____

Weather Conditions: Sunny, 70s

Present at Site: RQM, Greg, Rob, Rob

Observations:

0700 - onsite @ landfill

0735 - Safety talk held, PID calrd.

0745 - Resuming drilling @ MW-BR1 @ 230'

1700 - Halting drilling @ 300'

1730 - Samples shipped, done for day.

1900 - Call w/ KAM re: water tanks @ water st. Ippt hit @ tank B (middle tank), going to replumb to refilter back into tank A.

2120 - Done for day, tank B water filtering to tank A (E-most tk.). Still waiting on results for recently filtered water (through new GAC tanks) that pumped into tank C (W-most TK) yesterday.

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: ____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-5-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 60°F, clear, sunny

Present at Site: DJZ RAK Frank Marshall

Observations: 0730 @ Water St, prep, safety, supplies
- check filtered water - all finished this morning

0805 @ D-21 w/rig, prep/setup

0850 Calibrate PID, ZERO = 0.0 ppm, SPAN = 100.0 ppm

0915 Traffic control onsite

1020 Rig breaks hydraulic line, @ 20 ft depth, hard 17-20 ft
est 2 oz leak, mist

1120 DJZ RAK @ Hoosick pick up Coolers

1230 Back at Water St, collect 2 water samples from water truck

1250 @ D21 - drill new hole to bedrock 17 ft 10 ft away
SG3-CITYWATERTRUCK-171005 @ 1220
SG3-CITYWATERHOSE-171005 @ 1230
SG3-CITYWATERFRACTK-171005 @ 1410
SG3-FILTEREDWATERFRACTK-171005@1420

1400 @ Water St, hook up Pump, Sample

1430 Look at D-17 access

1445 Look at D-18 cement from yesterday

1510 Look at D-21 area for any damage

1530 @ Landfill

1600 WL @ D-11. WL = 105.85' from TOR
Total Depth = 149.5 ft from TOR

Items to Verify: 2050 Repipe Plumbing, get gas, fill generator
Home Depot Supplies

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10/06/17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington. Project No.:

Purpose: Drilling/well development. Field Report No:

Weather Conditions: Rainy, 50-60's

Present at Site: RQM, greg, rob, rob

Observations:

0700 - Onsite (water st.) to get containers.

0730 - @ landfill sampling & logging last run (290-300') @ MW-BR1. Safety talk held & PID cal'd on arrival.

0820 - Decon'ing whale pumps & collecting blanks. SonicZpump1 = blue pump, labeled "1" on electrical socket. Also labeled/decon'd/sampled SonicZpump2 which is green/white.

0915 - Developing D-25/SG3-MW17-03 with SonicZpump 1 (blue).

1255 - Done developing, pumped 45 gallons out @ rate of 0.1 to 0.5 gpm. Had difficulty keeping WL above top of screen, very obviously recharging below 10' bgs. WL = 6.9' bgs @ start of development. Water = 24 NTUs upon completion. Water was < 50 NTUs at times w/ only 20 gallons pumped but always re-clouded when surged. Final reading taken ~4 gallons after final surge, surged about 7x.

1040 - Access agreement obtained from Richard Morgan. Sent to team.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-6-17 Time On-Site: 0730 Time Off-Site:
Project Name: SCPP Bennington Project No.: 45021004.00
Purpose: Field Report No:

Weather Conditions: 50°F light rain, cloudy
Present at Site: DJZ, RAK, Frank, Marshall, Bernie, Jeff
Observations: 0730 @ Water St, prep, Safety, supplies
- gas can was stolen out of truck from hotel (DJZ - 5gal)

0820 @ D-22 prep, setup
0855 Begin drilling D-22
1020 Complete D-22 to 20 ft bgs, hole was not plugged & - plugged 10-7-17
0910 Calibrate PID, SPAN = 100.0 ppm ZERO = 0.0 ppm
1000 Raining
1100 On standby waiting for direction
1130 Good for D-17 - use water from other rig
1145 @ Water St, prep, decon, water
1200 Get gas can, fill gas, fill generator
1340 @ D-17, prep, setup
1410 Start drilling D-17
1445 Stopped @ 15 ft
1530 - to Water St, sample Tank A
- replumb setup back normal
- Pack ship coolers
1645 - start running city water to tank B

2300 - Gas for generator, check tanks

Items to Verify:

List of Attachments:
Field Log Prepared by: DJZ
Copies to:

* Frank stopped drilling at 15 ft at 1445 - said traffic control needed to leave. Traffic control left at 1500. DJZ & RAK were still sampling and analyzing soil in the roadway. There is a blind curve right ahead of us. Frank stood in front while we finished. Left at 1530. Probably only had 5 more ft to drill but not sure if Frank had enough water to finish.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-7-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 55°F cloudy/overcast

Present at Site: DJZ, Frank, Marshall

Observations: 0730 @ Water St, prep, safety, supplies

0800 @ D-17, setup + semi onsite

- Frank mentioned a guy from the house across the street (#1709) came out 10 min ago and was upset he wasn't informed what was going on. I thought it was the same person getting their well replaced who talked to Frank yesterday I didn't realize there were 2 different houses across the street. He would like us to talk to him on Monday. He works and is gone now. Frank said he wasn't happy.

0820 Continue drilling @ D-17

0830 Completed hole to 20 ft., hole was not plugged

1000 Offsite D-17

1030 @ Water St, fill generator, sample filtered tank Cascade decon, getting additional augers, dispose cuttings

1150 Leave Water St

1210 @ D10 - Rig + equipment setup / mob

1300 Start drilling D-10

1315 Calibrate PID, SPAN = 100.0 ppm ZERO = 0.0 ppm

1440 out of water, @ 30 ft, Cascade to Hoosick for water

1500 All offsite for day

Items to Verify: 4th Frac tank
Water truck Delivery

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

* Only needed traffic control today briefly since didn't finish yesterday. D-17

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-8-17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 4502/004.00

Purpose: Field Report No:

Weather Conditions: 70 °F, Rain

Present at Site: DJZ Frank Marshall

Observations: 0700 @ Landfill, prep, setup, safety

0730 @ DIO

0730 Begin drilling

0800 Starts Raining harder

0910 Calibrate PID; ZERO = 0.0 ppm SPAN = 100.0 ppm

1030 @ 70 ft, Ran out of rods

1100 Frank/ Cascade offsite

DJZ Sampling / logging, call KAM

1230 DJZ offsite Landfill

1300 Inventory / organize at Water St / Cores

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-9-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 60 °F, rain/heavy rain off and on

Present at Site: DJZ KAM Frank Marshall, Dan A

Observations: 0730 Prep/Safety/Supplies/Discussion @ Water St

0820 @ Landfil. Traffic Control arrived @0700. They are checking who sent them. We don't need them

- Need water from Hoosick.
- Sonic #2 going to give 60 ft rod to Sonic #1

0900 Frank continues drilling as able w/ rods/water.

1030 Stops raining.

1140 Raining again @ 90 ft

1400 Stop drilling, issues getting water in Hoosick w/ generator

1445 Frank offsite for day, @ 100 ft bgs.

1530 DJZ, Dan A offsite for day.

1545 Dan leaves for day.

DJZ to pack coolers & replumb new frac tank.

1700 Supplies home depot

1830 Finish replumbing tanks

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-16-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 95021004.60

Purpose: Field Report No:

Weather Conditions: 60°F, cloudy, overcast

Present at Site: DJZ Frank Marshall

Observations: 0730 @ Water St, prep, safety, supplies, ice

0800 @ D-10

1100 Complete D-10 to 115 ft bgs
- Casing got stuck at 105 ft - could not advance casing any more - drilled to 115 ft - Cheshire Quartzite rock @ 107 ft

0830 Calibrated PID, ZERO = 0.0 ppm SPAN = 100.1 ppm

1210 Offsite D-10
- Decon augers/rod/casing, prep, move to D-26

1420 Begin drilling D-26

1520 Out of water @ 25 ft but haven't removed 15-25 ft sample

1600 Frank offsite

1620 DJZ offsite

1730 Ship Samples w/ Sam

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10.10.17 Time On-Site: 0730 Time Off-Site:

Project Name: St. Gobain Bennington Project No.: 16.6131

Purpose: Borings / Well Development Field Report No:

Weather Conditions: AM 65°F, Cloudy, light W wind.

Present at Site: RJ, DL, RAK

Observations: Develop D11 at Landfill. DTW = 105 TD = 150 +/- 50ft water in 2" casing = 8 gal/well volume. 0800: Set submersible pump at 150ft, surge & purge. Q = Turbid / light brown. Cal check turbidity meter: Hach 2100Q #101165. Std = 100, Reading = 101 NTV. After 2X Vol pumped NTU = 680. After 2.5 Vol surging doesn't increase turbidity, NTU = 164. 0915 After 3 x Vol, NTU = 48. Remove another 10X Volume = 80gal. 0930 - 0950 Pump stops working. 0950 - Resume pumping additional 80gal. well yields continuously at 2gpm. 1030 Stop pumping, pull pump. Final NTU = 52. 1045 DTW below TOPVC = 106.72ft.

1315 - Develop D18 (at W.W. Treatment Plant) DTW (below TOPVC) = 25.63, TD = 36.95, water column = 11.32 ft: 1x Volume = 1.8 gal. 1400 - Pump D18 at 3gpm - pumps dry after 4 gal, let recharge 5min, pumps dry after 2gal. Repeat surging and pumping dry. Take +/- 2min to recover 1x Vol. Q = Turbid - gray. 1445 - After 22gal turbidity > 1000 NTU. After 30gal NTU = 540 NTU, 1515 - After 35gal NTU = 26 - Pump additional 10X Vol (18 gal.) well yields continuously at 0.7gpm. Final NTU = 10. 1535 - Stop pumping - FINAL DTW = 28.10 (1540).

1610 - D21 (Firehouse) DTW = 14.06 ft below TOPVC, TD = 17.12, Water Column = 3.06' 1x Vol = 0.5gal

RAK 10-10-17

Items to Verify:

List of Attachments:

Field Log Prepared by: RAK

Copies to:

36.95
25.63
11.32

4, 3, 5, 5, 5, 5, 5

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-11-17 Time On-Site: 0730 Time Off-Site: ____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: ____ Field Report No: ____

Weather Conditions: 55°F, overcast / cloudy

Present at Site: DJZ Frank Marshall

Observations: 0730 @ Water St, split supplies - 3 rigs, prep, safety

0820 @ D26, Frank @ 35 ft

0950 Complete D-26 to 50 ft

1030 Calibrate PID, ZERO = 0.0 ppm SPAN = 100.1 ppm

1130 Demob rig to ~~D-09~~ semi on landfill

1230 Frank / Marshall offsite

1330 Setup 3rd rig / w/ Bobat Dan

1430 Help @ rig 1 w/ cleanup of area / cores w/ KAM

1630 Leave Landfill

1730 Ship Samples / Loader

1830 Collect Post Sample, Demob / organize material @ water St.

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: DJZ

Copies to: ____

3/2/98

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

10-12-17

Date: 10.11.17 Time On-Site: 0730 Time Off-Site: 1800

Project Name: St Gobain Bennington Project No.: 16.6131

Purpose: Landfill Soil Borings Field Report No:

Weather Conditions: 60's - Cloudy, light west wind.

Present at Site: RAK, DA, Max Queen, Scott Parkes, Ralf Winn.

Observations: -0900 - Collect Rinsate Blanks from new drill rig equipment. - Unable to access - stacked against back of truck.
0900 - 1130: At MWBR-1 - Drilling 300-310ft.
1130 - Set up on MWBR-2 (W. side of Landfill).
Collected rinsate blanks from new drill rig: Plastic core sheet tubeing, core, casing, rod, rig tank water system.
1400 - Hydraulic hose leak, no discharge to ground - stop work to replace. No Soil Samples today -
- To Hos Water St - Re-filter Tank B to Tank D.
10.12.17 Collect Soil Samples: SG3-MWBR2-(0-0.5', 0.5-1, 1-1.5, 3-4, 8-9, 18-19, Collect Rinse Blanks from two filtered water IBC's. Collect Soil Samples SG-3-MWBR2-28-29' 38-39', 48-49', 58-59', 68-69', 78-79'.
- Calibrate PID SN 592-910612, 100ppm IB Cal gas, Reading = 100ppm.
- Collect Lithology Samples: SG3-MWBR2-4-5' (upper Silty-wet layer). SG3-MWBR2-45'-46' (Hard Brown Till), SG3-MWBR2-50-50' (Silty layer in till). Collect Soil Samples: SG3-MWBR2-88-89', (and field duplicate GG-89 (FPS12), Lithology sample 90-91ft (angular slate/quartzite gravel). Collect Sample SG3-MWB2-98-99'.
- To Water St - Pack & Ship.

Items to Verify:

List of Attachments:

Field Log Prepared by: RAK

Copies to:

1 FB
1 FD
2 MS/SD

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10-13-17 Time On-Site: 0730 Time Off-Site:

Project Name: Saint Gobain Bennington Project No.: 16.6131

Purpose: MWBR-2 at Landfill Field Report No:

Weather Conditions: AM 40's PM 60's, Clear, Southerly Wind.

Present at Site: RAK, DA, Scott Parkes

Observations: - Resume drilling MWBR-2 overburden from 137'.
Collect Soil Samples: SG3-MWBR2-108-109' (MS/SD), SG3-MWBR2-118-119 (FDS13) Field Duplicate, SG3-MWB2-128-129', SG3-MWBR2-133-134' (MS/SD - Top of Sand), SG3-MWBR2-134-135' (Lithology sample - lower Sand above Bedrock), SG3-MWBR2-137-138' (sand atop bedrock for PFC, TOC, %H2O, pH). Collect rinsate blank from ss bowl: SG3-FBS13-171013.
- Decon, drum cuttings, drillers demob/depart at ~1330.
- Back to Water St. Demob/Pack for shipping.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-23-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 45 °F

Present at Site: DJZ RAK

Observations: 0730 Meet w/ Adam J to discuss area / plans / logistics
Meet w/ CT Males for Sampling plans today
Coordinate supplies & locations
0930 Robs Rig mob to MW-BR3 - Setup
1130 Start drilling MW-BR3
1250 Calibrate PID, ZERO = 0.0 ppm, SPAN = 100.0 ppm
1345 Collected FILTERED TANK B sample
Supplies
1610 Samples @ MW-BR4
Pack & Ship Coolers
1640 Done drilling for day @ MW-BR3
@ 60 ft sampling, rig @ 70 ft
1700 DJZ & Rob run to D-24 to top off / plug hole - used 1 bag of bentonite, need to buy a bag of topsoil yet
1750 @ D-21 w/ Adam J
1800 WL @ D21 is 14.52 ft, total depth is 16.95 ft
Initial turbidity - OOR
Inital pH: 6.71 SPC: 0.77 ms/cm
1820 Turbi: 400 NTU, purged dry

WL D-21
WL 14.52
Total Depth
16.95

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-24-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Weather Conditions: 60 °F, mist/rain - cloudy + windy

Present at Site: DJZ PAL Cascade

Observations: 0730 Prep/Safety, drilling MW BR3

1000 DJZ pick up generator (rental)

1040 Calibrate PID, ZERO = 0.0 ppm SPAN = 100.0 ppm

Paining off and on

1215 Bedrock @ 106 ft MW BR3

Drilled to 115 ft

1400 Look at developing D-15 w/ Dipper

1545 WL @ D-21 is 14.55 ft.

CT Male will develop D-21 tomorrow

1615 @ Hotel to pack & ship coolers

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-25-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 450210041.00

Purpose: Field Report No:

Weather Conditions: 50 °F cloudy / overcast

Present at Site: DJZ RAK Cascade Room

Observations: 0730 Prep / Safety

Drill 10" Prep @ MW-BR3

- Supplies home Depot
- Water St - Clean & organize Supplies
- Slug test w/ AKJ
- Rinse & QA/QC

1300 Rig breaks down - Sonic Vibrator not working

1400 @ Water St to get water filtering from Tank C to Tank D

1530 Patch grass / topsoil @ D25

1600 @ D-15 w/ Adam

1730 Pack & Ship Coolers

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

E28
E29

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-26-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 450260400

Purpose: Field Report No:

Weather Conditions: 50°F rain / overcast / cloudy

Present at Site: DJZ RQM Cascade - Rob/Rob Dennis

Observations: 0730 Prep / check rig
- rig waiting for parts to arrive at hotel late morning
- check water st pumping
- get gas for generators
- running out

0930 - Pumps running to refilter C to D

1030 @ D-21 w/ Dan King - well pumped dry - surged with a bailer - very muddy / silty water

1145 Sort / upload photos to sever, change flight + reservations

1400 Check water pumping, gas, drums Supplies

1500 Check w/ MW-BR23 - @ 50 ft, rig running again

1530 Drop drum @ MW-BR4 for cuttings

1600 @ Water St, water tank there
Collect water samples
Replumb piping
- filter pod change out GAC

1800 Back at hotel

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-27-17 Time On-Site: 0730 Time Off-Site: ____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: ____ Field Report No: ____

Weather Conditions: 45°F, partly cloudy/sunny

Present at Site: DJZ RQM Cascade

Observations: 0730 Prep/Safety, supplies
gas generator
Slug testing D-11
0930 Meet CT Male @ Landfill for surveying
1230 Complete Landfill Surveying
Work w/ CT Male @ D-4-3 trying to retrieve pump
1310 @ Water St w/ Dippert - photograph dead animals in Building, Supplies
1400 @ D-21, purge/transducer
1430 @ Fractanks
water st org/prep
1600 Free tank C Samples
Pack & Ship Coolers
Cover generators/pumps for weekend
MW-BR3

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: ____

Copies to: ____

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-30-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Weather Conditions: 45°F, rain/storms

Present at Site: DJZ Cascade

Observations: 0730 prep/safety
MW-BR3 continue
GPS Sites
1030 B-4-3 remove blockage
MW-BR4
GPS Sites
Replumb pipes
Transducers
Pack & Ship coolers
Water St, supplies, move pump
Papers
Transfer RQM to DJZ

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: DJZ

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10307 Time On-Site: _____ Time Off-Site: _____

Project Name: _____ Project No.: _____

Purpose: _____ Field Report No: _____

Weather Conditions: _____

Present at Site: _____

Observations: _____

B-4-3

WL - AM - 199.6X ft

1135 New water level after blockage removal: 198.99 ft

Total Depth: Approx 224 ft

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-31-17 Time On-Site: 0730 Time Off-Site: _____

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: _____ Field Report No: _____

Weather Conditions: 45°F, Cloudy / Sunny

Present at Site: DJE / RAK / Cascade

Observations: 0730 prep / safety / coolers, ice

@ Water St, replumb tank C to refilter into Tank A

Supplies & equipment extra to Dippert

1030 Water Sample After PDET

Check w/ MWBR3 - grouting & removing casing.

Check w/ MW BR4 - @ 340 ft, soft

- Go get fishing wire for transducers

1300 @ Landfill for transducers (3)

1600 Complete Transducers

MWBR3 - complete grouting casing.

Move equipment to landfill / MW BR1

1615 MWBR4 @ 365 ft bgs, no bedrock

1630 To hotel to pack / ship coolers

1715 @ Water St

wait for totes to fill

Conf Call w/ KAM

Gas generator to run all night

1830 Offsite

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: DJE

Copies to: _____

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 10-31-17 Time On-Site: Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021400

Purpose: Field Report No:

Weather Conditions:

Present at Site: DJE

Observations:

B-4-3 1315 Initial WL: 199.34 ft
1335 Final WL: 199.33 ft

B-2-3 1410 Initial WL: 125.39 ft
1520 Final WL: 125.40 ft
- had a hard time w/ wire / bottom at this well. Per AKJ set transducer 20-30 ft below top of water 155

B-6-3 1535 Initial WL: 123.72 ft
1600 Final WL: 123.71 ft

Items to Verify:

List of Attachments:

Field Log Prepared by: DJE

Copies to:

C.T. MALE ASSOCIATES

11.3.17
11.2.17
11.1.17

Page 1 of

Environmental Services Field Log

Date: 10.31.17 Time On-Site: 0730 Time Off-Site: 1630

Project Name: St. Gobain Bennington Project No.: 16.6131

Purpose: MWBR-4 Field Report No:

Weather Conditions: 40's Pt ly cloudy - Light west Wind.

Present at Site: RAK, DJZ, Scott / Max / Dennis

Observations: - Continued 4X6 Sonic Coring and sampling at 10' intervals from 297ft, Cal PID#FA03246, Std = 100ppm, reading = 100ppm. 1630 - Drilled & Sampled to ~~355~~ 357 RAK 11.1.17 in hydrothermally altered unit. RAK 11.1.17

11.1.17: Resume drilling / sampling MWBR-4 at ~~355~~ 357', Cal PID #FA03246 Std=100, Reading = 100ppm. 1530 Rig drive head broken at 397'

11.2.17: AM Rig repair - log to 397. Collect sample from 396-397 (Sand atop possible bedrock) and lithologic sample of Sand. Cal PID # FA03246 Std=100ppm, Reading = 100ppm.

11.3.17: Resume drilling at 397 ft. Sonic cored (4X6 w/water) to 410ft - Driller reports cored rock whole way. Recovered 4' of rock = Gray quartzite, massive (ie complete ve-mineralization), concoidal fractured and layers with original sand grains. Evidence of SiO_2 - filled slightly dipping fractures (like observed at BR-1 11.2.17), lower foot of recoved core contains cherty layers (crypto-crystalline quartz with stress fractures. Begin overboring MWBR-4 with 10" Casing to bedrock.

Items to Verify:

List of Attachments:

Field Log Prepared by: RAK

Copies to:

- ~~Lith: Lower Sand~~
- ~~log: 367-397~~
- ~~Sample Unconsolidated atop BR.~~

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11-1-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 45021004.00

Purpose: Field Report No:

Weather Conditions: 30°F, cloudy / overcast

Present at Site: DJZ, PAK, Keagan, Cascade

Observations: 0730 prep, safety, ice / supplies

Water St

0830 Water Sample Filtered Tank A

MW BR4 coolers + ice

Set up on MW BR4 to rock core

Talk to Dippert about equipment

Inventory

Drum count @ land fill & off land fill

GPS S-3E, upload data files

1500 Still not going on MW BR1

Couldn't get water level, drillers pumped water in already

- est 15 ft of grout? on bottom of casing need to drill through

- 5 ft lifts, time 5 ft core

1600 Scotts rig breaks down (crank in head), waiting to hear on time frame, @ 397 ft through 10 ft of SAND & quartzite in drill head

1620 @ MW-BR1, 25 ft of grout in bottom of 6" casing to drill through, @ thru 20 ft at 1700

~~Items to Verify~~: 1720 Pack + Ship Coolers

1745 @ Water St, Tank B almost empty, Should be able to filter water tomorrow

~~List of Attachments~~:

Field Log Prepared by:

Copies to:

1900 Burr Equipment out of Conex bin to Ship.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11-2-17 Time On-Site: 0700 Time Off-Site:

Project Name: SGPP Bennington Project No.: 4502004.00

Purpose: Field Report No:

Weather Conditions: 50 °F, cloudy/overcast + rain off + on

Present at Site: DJZ RAK Cascade.

Observations: 0700 Prep, safety, supplies

0715 @ Landfill MW-BR1, continue coring thru grout at bottom of well

0745 Coring rock

0845 Wire snaps of recovering core, pack & ship

1245 Back up

1245 Water Sample SG3-AFTERPOETB-171102
Run/Filter water from CITY Tank 2 to Tank B

1300 Round of water levels

1410 @ MW BR1, @ 322 ft
- issue w/ rig drilling - hard

1700 Pack & ship samples

1730 Check water st

2100 Gas generator for all night running

Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

1305	SG3-MW17-WWTP	WL = 25.59'
1315	SG3-MW17-07	WL = 13.92'
1330	SG3-MW17-05	WL = 13.81'
1345	SG3-MW17-06	WL = 23.82'
1350	SG3-MW17-01	WL = 9.65'
1355	SG3-MW17-02	WL = 10.82'
1405	SG3-MW17-04	WL = 107.48'
1420	SG3-MW17-03	WL = 9.06'

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11-3-17 Time On-Site: 0730 Time Off-Site: ____

Project Name: SGPP Bennington Project No.: 45021604.00

Purpose: ____ Field Report No: ____

Weather Conditions: 50°F, rain / cloudy

Present at Site: DSZ, RAK, Cascade

Observations: 0730 Prep, Safety, Supplies

Water St, samples

Check w/ MW BR4

Check w/ MW BR1

↳ switch to air rotary?

wore off diamond studded drill bit

Pack & ship equipment

Water Truck / water samples

MW BR4 @ 60 ft w/ 9", 7" @ 210 ft

1740 Leave Bennington for Fedex in Menands NY

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: ____

Copies to: ____

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/7/17 Time On-Site: 1700 Time Off-Site: 1745

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Water supply filtering Field Report No: _____

Weather Conditions: Cloudy, mid 40's

Present at Site: _____

Observations:

1700 - Arrive on site, talk to drillers, waited for them to fill water

1715 - Once drillers filled their trucks w/ water, I moved the generator near tank 2 (city water, unfiltered). I then let the pump ~~exceed~~ (to Filtered tank A) drain.

1720 Plugged in city Tank 2 pump to generator and began running the water through 2 carbon filters (1st cycle) and into Filtered tank A. The water from tank A should be tested on 11/8/17.

1745 - Went to gas station to fill up gas tanks.

1755 - Filled up generator, locked gas tanks and generator to FRAC tanks, left side.

1800 off site

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: - Keegan Donovan

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11/7/17 Time On-Site: 07:30 Time Off-Site: 17:00

Project Name: SGPP - Bennington Project No.: #5021004.00

Purpose: SGPP - Bennington CSM inv. Field Report No: 1

Weather Conditions: 40° F, partly Cloudy to cloudy

Present at Site: KAM, RAK, Dan King, Cascade, Bill Redlon AGG - RAS

Observations:

07:30 KAM on site, Equip/Sampling Supplies at Corner

08:30 RAS on site.
Review Site Safety
prepare to Decon & collect Rinse Blanks of equipment.
Drillers on site for water prior to pressure washing with approved water.

13:15 Collect "SG3 - RAS Assem, Packer-171107" of the Joint on the packer assembly that had previous detection of PFC

13:25 collect "SG3 - RAS GRN Winch-171107" of the cable & Lead on the Green Winch.

13:35 collect SG3 - RAS BL Winch - 171107" of the cable & lead on the Blue Winch.

14:30 Travel to Landfill to Receive update from Rob on SG3 - MWBR1 & Scott on SG3 - MWBR4.

16:20 Call GAR, provide update.

17:00 off site.

Items to Verify: None

List of Attachments: None

Field Log Prepared by: None

Copies to: file

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11/8/17 Time On-Site: 07:10 Time Off-Site: 17:30

Project Name: SGPP - Bennington Project No.: 4502/0004.00

Purpose: SGPP - CSM Inv't Field Report No: 1

Weather Conditions: P.C ~ 29°F to 45°F

Present at Site: KAM, Cascade, Keegan D. (CTM)

Observations:

07:10 KAM on site at water Street
Some of the water treatment System has Power

Work w/ Keegan D - upgrade generator to Large 6500 watt w/ 14 hr 12 hr time.
Purchase insulation & Supplies to "winterize" System.

11:00 Go to Hoosick Falls to pick up Sample Coolers Team Communications.

14:45 Collect Filtered water From TK A Sample (water from City water From TK2).

15:05 Bring Sample to Hoosick falls for shipping.

14:30 Check in w/ Sonic #3 - 7-inch casing to 36 bags.

Winterize/Drain pumps at waterstreet

Items to Verify: —

List of Attachments: —

Field Log Prepared by: KAM

Copies to: File

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11/9/17 Time On-Site: 07:20 Time Off-Site: 15:00

Project Name: Sgpp - Bennington Project No.: 45021004.000

Purpose: Sgpp - Cons. Eng. Field Report No: 1

Weather Conditions: 23°F clear - Highs ~50°F

Present at Site: KAM, Cascade, CTM

Observations:

07:20 Start city water pumps to see if winterization methods yesterday evening were successful. Found a few frozen sections. Thaw lines

10:20 prep to collect Air Compressor test Samples

10:20 Cascade took all the water out of TK B - Run up to Scotts Rig.

10:20 Collect water out of Lab Sample Shipping bag filled w/ water supported by a Lab supplied cooler Collect Sample 1" SG3 - cooler/bag #20 - 171109 @ 10:20

bubble Air through the water for 10 min & collect Sample SG3 - Compressor Test H20 - 171109 @ 10:40

11:30 Met RAS at Landfill - show them SG3 - MW BR2 for set up and testing. Met CTM Surveyors Show Locations of missing wells - check water treatment after leaving Landfill at 11:30

Check in w/ RAK - go over new future tasks

16:00 Start new Batch of water treatment to run overnight

Items to Verify: call GTR To go over any last minute Items

List of Attachments:

Field Log Prepared by:

Copies to:

15:00 KAM off site after unloading equip to conex

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/09/17 Time On-Site: 10^20 Time Off-Site: 16^30

Project Name: SCAP - Bennington Project No.: 16.6131

Purpose: Sampling / Filtering Field Report No: _____

Weather Conditions: Frost, sunny, 22°F, no wind

Present at Site: Keegan Donovan

Observations:

(Tank D results - non-detect for PFAS, okay to use)

10^20 - Sampled filtered water from Tank D from a bag-lined cooler. Bag (poly) and cooler provided by Lancaster Lab.

10^30 Ran air compressor hose through the water for ~10 mins then sampled the water. Goal was to expediate the testing process by seeding an aqueous solution.

16^30 Put gas in the generator and began plumbing from Tank 1 (city water) through carbon filters, and into Tank B. Generators and pumps will run through the night.

16^30 off site.

Items to Verify:

List of Attachments:

Field Log Prepared by: [signature]

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/10/17 Time On-Site: 0730 Time Off-Site: 1400

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Water Delivery / Sampling Field Report No: ____

Weather Conditions: overcast, windy (WNW ~ 15 MPH) 28°F

Present at Site: Keegan Donovan

Observations:

(FRAC Tank A approved for use)

0730 Arrive on site - take status of water supply

CITY 1 : Empty

CITY 2 : Empty

FILTERED A: Full, approved for use

FILTERED B : Full, ready to sample

FILTERED C : Empty - N/A

FILTERED D: Half, approved for use

1300 - Dalmation water truck arrives.

1310 - sample was taken from water tanker pump • SG3-CITYWATERTRUCK-171110

1315 - sample was taken from the truck hose • SG3-CITYWATERHOSE-171110

1320 - sample was taken from water Tank B • SG3-FILTEREDFRACTKB-171110

1330 - Finished writing chain of custody and labels

1400 - Left for Hoosick Falls to meet courier (samples on ice, in cooler)

1400 - off site

Items to Verify:

List of Attachments:

Field Log Prepared by: KB

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/13/17 Time On-Site: 1440 Time Off-Site: 1730

Project Name: SGPP-Bennington Project No.: 16.6131

Purpose: Sampling / water filtration Field Report No:

Weather Conditions: 30s° F, cloudy but bright

Present at Site: Keegan Donovan

Observations:

1440 Arrive on site to sample city water Tk 1

1700 Drained piping before temperature drop and filled generator with gas

1715 Began filtering water from Tk 1 to Tk D through carbon filters (2nd cycle through these filters ~ 17,000 gallons)

off site @ 1730

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/14/17 Time On-Site: 10^00 Time Off-Site: 12^00

Project Name: SGPP- Bennington Project No.: 10.6131

Purpose: Water Delivery, sampling Field Report No:

WATER STREET

Weather Conditions: 34°F, snowing

Present at Site: Keegan Donovan

Observations:

10^00 Arrive on site.

10^05 Palmatton water truck arrives.

10^30 Sample water from truck pump - SG3-CITYWATERTRUCK-171114

10^35 sample water from truck hose - SG3-CITYWATERHOSE-171114

11^30 Sample water from bottom of Tank D - SG3-FILTEREDFRACTKD-171114, which had been pumped from City Tk 1 through carbon filters (second cycle of these filters ~17,000 gallons) overnight.

1135 SG3-CITYWATERTK1-171114 sample taken from city water Tank 1 (at bottom of tank)

1150 Packed samples in preparation for 15^00 courier @ McCaffrey St.

16^00 off site.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/15/17 Time On-Site: 0755 Time Off-Site: 1645

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Logging bedrock cores Field Report No:

Weather Conditions: Sunny, foggy, 32°F

Present at Site: Keegan Donovan

Observations:

0755 observed cores that were laid out yesterday. Drillers experiencing poor recovery and broken up material / chunks of "bedrock". Intermittent layers of soft material (drillers explained changes from constant resistance from quartzite to little/no resistance from softer layers). The soft material appears to be washing away ~~and is~~ KR hence the poor recovery. In addition, the water return changes from a gray (with resistance through quartzite) to a brown (with little resistance through soft material).

0830 Briefly described this anomaly ~~it was was~~ KR in what was thought to be bedrock (quartzite)- and noted other minor changes in rock appearance, recovery, RQD etc. in coring logs.

0930 Borehole appears to be caving in on itself causing the core barrel and rods to get stuck with almost every run (currently stuck right now). Once crew gets tools from the hole, they will move from the hole.

1630 Change of plans: drillers will continue with casing until target depth is reached.

1645 Water Street: Began filtering water from City Water Tk-1 to Filtered Water Tk A.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/16/17 Time On-Site: 0730 Time Off-Site: ____

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Core logging / Water sampling Field Report No: ____

Weather Conditions: Rainy, 34°F

Present at Site: Keegan Donovan

Observations:

0730 Arrived @ Water street and observed that water was still filling TKA from TK1 (continued from previous night).

0815 Arrived @ BR1 and discussed work plan for the day. Current cores are down to 350'. Attempted two 10 ft runs, with no return. Last night (11/15) open borehole was tagged to 370'. Today, attempted tag to reassure 370', but full obstruction @ 120'.

1000 Began to pull casing to examine / remove obstruction.

1030 Met Bill from RAS to rinse-blank his equipment. Rinsed bladder pump SG3-RB-BLADDERPUMP-RAS, standpipe SG3-STANDPIPE-RAS, bladder insert SG3-RB-BLADDERINSERT, and air/discharge tubing SG3-AIR-DISCHARGE-RAS. Then took water samples from pipe into TKA SG3-AFTERPOETA-171116 and sent with ~~SG3-EB~~ TK lab trip blanks.

1215 Filled up ~~gg~~ KR gas to generator and it broke down - went to EZ Way Rental to replace.

1430 Took sample from TKA SG3-FilteredPRACTKA-171116 once it was filled

* NO CORES PRODUCED TODAY * 5 7/8" casing and core barrel in place and ready to core tomorrow.

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: TK

Copies to: ____

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/17/17 Time On-Site: 0715 Time Off-Site: ____

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Logging cores, water delivery/sampling Field Report No: ____

Weather Conditions: Cloudy, 32°F Wind NW 12 MPH

Present at Site: Keegan Donovan

Observations:

0715 Arrive @ BR-1.

0730 Attempted 10 ft run by drillers - crushed up the rock with no return (tagged to 370 ft with no obstruction).

Before run: tagged to 357 ft (3 ft of rubble in 360 ft rod depth).

5 7/8" casing currently to 350 ft (PERMANENT 6" @ 310 ft.)

0800 Plan is to chase with 5 7/8" with 4" core barrel to target depth of 410 ft.

1000: Water Street: Sampled water from tanker pump SG3-CITYWATERTRUCK-171117 @ 1000, water from truck hose SG3-CITYWATERHOSE-171117 @ 1005. Filled City TK1 to ~6,000-7,000 gal and City TK2 to ~6,000-7,000, using the same supply.

1130 Tripped out rods and core barrel. Approx. 3 ft of return on 30 ft run. Described in greater detail on core log.

Currently at a standstill with water supply - lab equipment broke down.

1230 Drillers left. No concrete plan for this weekend.

130 off site.

Items to Verify:

List of Attachments:

Field Log Prepared by: KP

Copies to:

C.T. MALE ASSOCIATES

Date 11/20/17 Page 1 of 1

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations: MWBR-1

0730 - Arrive on site

0800 - Drillers welded steel casing together to remove top portion.

Plan: Install well to "380"ft (open to 373 ft) with 70 ft screen.

Total depth to top of screen = 303 ft.

Total depth of permanent casing (6 inch) : 310 ft

1400 - Well installed, drillers removing casing (5 7/8 inch)

~~Total depth~~ TR Total length of PVC = 370' 6" (including above grade ~ 1 ft)

Depth to water = 188.4 ft @ top of casing @ 15 45

↳ 189.4ft from ground level AND RISING

17 00 Replaced larger generator to run through the night

17 30 Hooked up piping and pumps and began plumbing City water TK 1 through carbon filters and into Filtered TK B.

17 15 Off site.

C.T. MALE ASSOCIATES

Date 11/21/17 Page 1 of 1

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

0715 Arrive @ water street - take water sample from TKB piping SG3-AFTERPOETB-171121.

0920 - Took rinse blank of PVC pipe (4") for MWBR-1 well

1345 - Took rinse blank of geophysic induction tool

1400 - Took sample of City water that was filtered to TKB (approx. 6,000 gal in FRAC tank) SG3-FILTEREDFRACTKB-171121

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11/27/17 Time On-Site: 0830 Time Off-Site: 16.45

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: MWBR-3 coring Field Report No:

Weather Conditions: cloudy, 32°F, WNW wind ~ 10 mph

Present at Site: Keegan Donovan, Cascade Drillers,

Observations:

Top of weathered bedrock @ 105 ft below ground surface. Cored successfully to 120 ft with enough recovery to log/analyze (logged in detail on core log). Drilled to 130 ft then hole collapsed - tagged to 116 ft (14 ft of rubble blocked in casing. Plan is to continue coring (to target depth of 215') by "chasing" with 5 7/8" casing to keep the borehole unblocked from fallen/collapsed rock fragments.

off site @ 1645

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

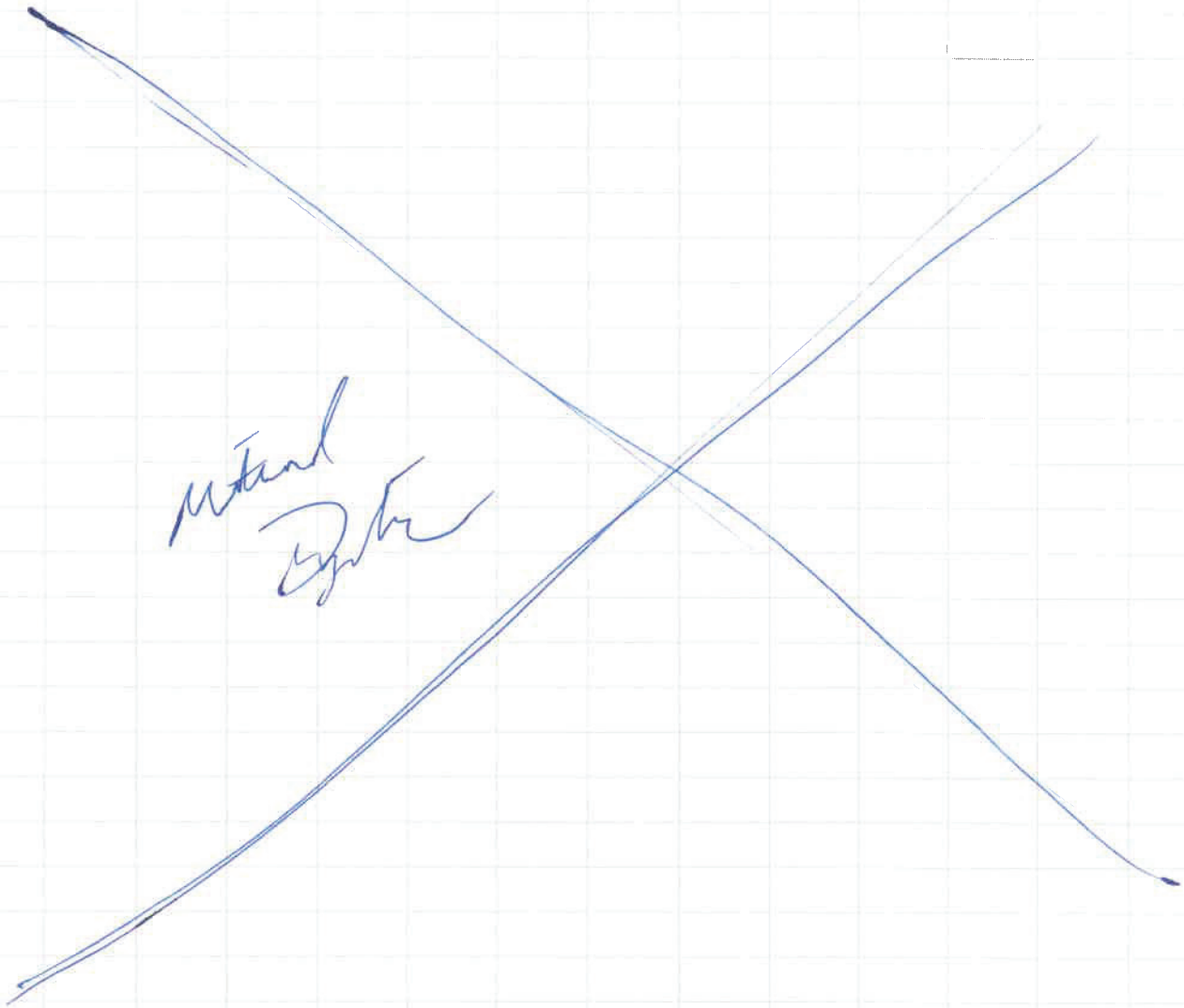
BARR ENGINEERING CO.

NAME MRD
DATE 11/27/17
SHEET _____ IN SET
PAGE 1 of 1 IN FILE

CHECKED BY _____
DATE _____

SGPP - Bennington VT

0840 - left hotel in Albany, NY for Hoosick Falls to meet w/ Brandi Smith for St. Gobain safety orientation
0930 - arrived at SG office for safety orientation
0950 - left Hoosick Falls office for Bennington Landfill
1010 - arrived on site to meet Bob (C.T. Male) for site overview
- traveled to MW-BR3 to log rock cores from rotosonic rig at well. Drilling began at 105' (10' into bedrock), Kamran (C.T. Male) also at well
1335 - driller (Cascade) broke rod 2' into new run
1536 - driller lost samples (≤1') down-hole in run 4
- driller (Rob) indicates that after drilling to 130', hole collapsed and filled to 115'
- will continue with chasing casing during further runs
- stopped for maintenance
1631 - drilling complete for the day, MRD off site



C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 11/28/17 Time On-Site: 10^00 Time Off-Site: 14^30

Project Name: SCRRA Bennington Project No.: 16.6131

Purpose: Water Sampling Field Report No: _____

Weather Conditions: Sunny, 38°F.

Present at Site: Keegan Donovan

Observations:

11^45 - Water truck was running late due to frozen valves etc.

12^00 - Took water sample from truck pump: SG3-CITYWATERTRUCK-171128

12^05 - Took water sample from truck hose: SG3-CITYWATERHOSE-171128

12^10 - Took water sample from TKD: SG3-FILTEREDFRACTKD-171128

12^45 - Took water sample from TK1: SG3-CITYWATERTK1-171128

14^30 - Left Bennington to meet courier in Hoosick Falls.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

MRD

BARR ENGINEERING CO.

NAME 11/28/2017
DATE
SHEET IN SET
PAGE 1 of 1 IN FILE

SGPP3 - Bennington VT

CHECKED BY
DATE

0801 - on site at BR-3
- Bob and Keagen (CT Male) on site with Cascade. Scott (Cascade) will oversee development of MWBR-1 so geophysics can begin.
- drillers at MWBR-3 deicing equipment

0930 - drillers still down to swap out water and performing maintence on rig. Keagen (CT Male) off to Water St. to meet with City rep regarding wastewater samples. Bob (CT Male) off to discuss plans for MWBR-1 with RAS

1120 - drilling resumes at MWBR-3, starting by driving casing

1150 - on site at MWBR-1 to chuck status of pumping. NTUs at 3 after ~~30~~ 20 minutes of pumping. Will sample after 3 well volumes pumped. Going into town to pick up ice.

1325 - after phone conversation with Gary (BARR), Cascade is surging well. ~~However, pump does not reach more than 30' into well casing so how effective surging will be is to be determined. Bob (CT Male) will sample after surging is complete~~ MRD ft

1406 - 400 gallons pumped and some water quality parameters (DO and ORP) still not stabalized. Will test again at 500 gallons. No gw samples until stable. RAS is on stand by.

1536 - three sets of stabalized parameters sent to Gary for confirmation before groundwater sampling. Unlikely that geophysical logging will begin before sunset.

1632 - still pumping BR-1, geophysical team off site for the day. Water quality parameters still being collected.

1654 - Cascade dropped generator at MWBR-1 to resume pumping tomorrow. Will begin re-drilling BR-2. Rig at BR-3 down (broken dog house in mast). Will be down indefinitely. More details to be acquired tomorrow. MRD off site.

Matthew Dirks

BARR ENGINEERING CO.

NAME MRD
DATE 11/29/2017
SHEET _____ IN SET
PAGE 1 of 1 IN FILE

SGPP - Bennington

CHECKED BY _____
DATE _____

0730 – Stopped by MWBR-3 to chat with drill crew about mechanical issue. New part overnighted to site. Potentially be up and running today.

0740 – on site at MWBR-1, well being purged. Bob and Kreyer (CT Male) on site as well.

0821 – initial water quality measurements taken. DO sensor still malfunctioning. pH recorded at a more reasonable level after calibration. Continuing to take measurements every 100 gallons pumped.

– Bob informed Cascade to move 10' off MWBR-2 to begin new hole.

0900 – DO still erroneous. Bob has requested a replacement meter. Headed to MWBR-2 to check on progress.

0913 – No crew on site at MWBR-2. Still moving equipment to well. Closed to sample MWBR-1. Will let RAS prepare and will return to static level.

1113 – water sampling completed at MWBR-1. Pump removed from well. Geophysics (RAS) on site prepping instruments. Will wait for well recovery.

1205 – RAS has begun logging. Initial pass with caliper. Caliper is a cheaper instrument and thus safer to send down with unknown well conditions. Also need for flow analysis.

1327 – at MWBR-2, no drilling. Rig moved ~10ft away from previous hole (west).

1402 – Spoke w/ Bob (CT Male) over the phone. He met with Rob D. (Cascade) who informed him that a new rig was coming over to drill MWBR-3. Driller has more experience.?

1430 – RAS running GAMMA down MWBR-1. Also running resistivity, but only useful where metal casing is not present. Bill (RAS) explained they would be able to do some data processing today as well. Flow analysis to be conducted tomorrow.

1605 – RAS off site. Hung in Solinst LevelTroll in well for flow analysis. Risers blanks taken on both troll and fishing line. Left out on counter.

1630 – Cascade crew at MWBR-2 drilled to ~80' into overburden. Will provide casing for geophysical calibration tomorrow.

– MRD off site

Mitchell Ryan

C.T. MALE ASSOCIATES

Date 11/30/17 Page 1 of 1

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

14⁰⁰ onsite at waterstreet. Began COC and labels for sampling.

15⁰⁰ Dalmation water truck showed up, running late.

1515 Took water sample from truck SGS-CITYWATERTRUCK-171130

1530 Took water sample from truck hose SGS-CITYWATERHOSE-171130

16⁰⁰ Took water sample from TKZ (after it was completely filled) SGS-CITYWATERTKZ.

17⁰⁰ Took sample from PEX tubing into TKA (from TKD - refilter). Tank D results came back with PFC detection, so refilter was necessary (first round of filtering w/ new carbon filters). Instructions from Gary Kemple.

1800 Change of plans by Gary. Returned to water street to disconnect piping and rearranged to filter (another re-filter) TKB to tank A. TKB came back with greater ppT than TKD. Plan now is to use TKD water (as is) for drilling on 12/1, and re-filter/ reanalyze TKB water (which will be refiltered to TKA).

Off site @ 1930

B → A

BARR ENGINEERING CO.

SGPP3 - Bennington VT

CHECKED BY _____
DATE _____

NAME MRD
DATE 11/30/17
SHEET _____ IN SET
PAGE 1 of 1 IN FILE

0800 - on site at MWBR-2. Driller (Scott) confirms that they reached TD' yesterday. Bedrock at 147', should reach today. RAS has been given a 5' length of 6" casing for instrument calibration. Bob K. (CT Male) preparing rinsate blank for new rig coming on site today. Keagan D. (CT Male) meeting truck at Water St. for clean water delivery at 1300.

0931 - New drill crew (Mike) to core rock at MWBR-4 once on site. Bob K. will prep groundwater sample kits for wells. Recommends winterizing Water St.

- RAS did not need casing, just a section of PVC screen.

1033 - at Water St. box to prep gw sample kits with Bob K.

1310 - at MWBR-1, RAS preparing for static flow logging

1318 - at Water St. with Keagan D. for water treatment sampling.

- lab reported tank D as clutched for PFCs, began pumping tank D to A through GAC system ~1730 after trouble-shooting generator and pumping issues
- City water delivered and deposited 9,000 gallons in large tank

1816 - call from Gary R. (BARR), wants B pumped to A through filters instead due to hot samples from B. Multiply Keagan D. to switch over pumping set up.

1937 - B → A pumping started. Will visit Keagan tmr in the morning. MRO off site.

- Could not check on RAS progress at MWBR-1, will follow-up on it tomorrow.
- Bob K. and Scott (Cascade) reported that rig at MWBR-2 reached bedrock before water problems. Will begin grouting casing with available water.

Michael Dyson

C.T. MALE ASSOCIATES

Date 12/1/17 Page 1 of 1

Environmental Services Field Log
(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

0830 Arrive @ Water street
Generator shut off sometime last night leaving Filtered Tank B essentially full (contaminated water) and Tank A essentially empty. Estimated that the generator ran < 1 hr.
0910 Generator started back up and is now filtering TK B to TK A. Will monitor today.
1100 Explained sampling / plumbing procedures to Mitch Dziekan who will be responsible on Saturday for water supply. He will pass on the information to Cliff Bondi, who is responsible on Sunday.

BARR ENGINEERING CO.

SGPP3 - Bennington VT

CHECKED BY _____
DATE _____

NAME MRD
DATE 12/01/2017
SHEET _____ IN SET
PAGE 1 of _____ IN FILE

0830 - on site at Water St. with Keagan D. and Bob K. (C.T. Male). ~~Pump~~ Generator shut off shortly after pumping began last night. Tank B still full. Restarted pumping, monitoring generator.
- RAS getting started on active pump flow logging. Coordinating with Cascade to provide pump and controller.

1100 - generator still functioning. Keagan D. inquiring about second generator from rental shop. Will verify rental with Gary.

1145 - at MWBR-2, no drilling yet today. Support truck lost brakes. Only needs a few more feet before starting to grout casing.

1235 - call from Bob K., new crew wants to drill at MWBR-3 instead of -4. Already on ~~hole total~~ to pull casing. Gary (BARR) approved, crew proceeding to drill MWBR-3.

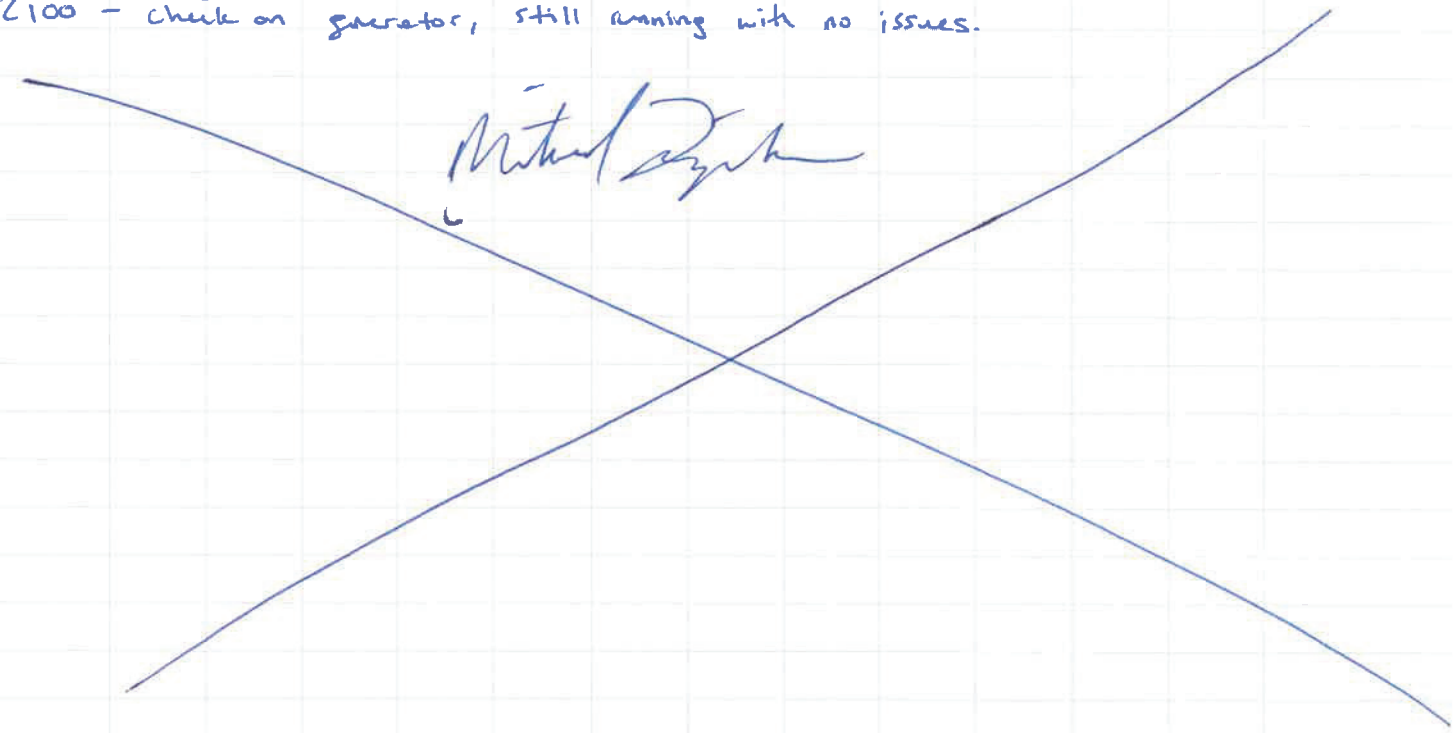
1305 - at Water Street, generator still running. Tank A appears about 3/5 full. Tank B under half full

1446 - no new generator, still running at Water Street.
- at MWBR-3, rig passed collapsed material to 130'.

1653 - Tank C now new IDW. A will be good to use tomorrow.

1911 - MRD off site after running Tank E to Tank B. Tomorrow meeting with C.T. Male folks to debrief for weekend shifts. Will collect samples of influent and tanks for analysis on Monday.
- Rob (Cascade) could not provide estimate of PVC footage. Remarks that they plenty if extra drilling is required. Also easy to get more.

2100 - check on generator, still running with no issues.



BARR ENGINEERING CO.

NAME MRD
DATE 12/02/17
SHEET _____ IN SET
PAGE 1 of 1 IN FILE

CHECKED BY _____
DATE _____

SGPP3 - Bennington

0715 – at Water Street. Still some pumping to drain E and fill B. Will collect samples from Influent to B, Frac B, and Frac A while on site. Met with Brittany and Justin (C.T. Male). Will send Justin to continue logging MWBR-3 and ~~to~~ provide updates of progress. Brittany will assist with WWT.

– spoke with Scott (Cascade), will began grouting MW-BR2. Progress slowed with loss of flat bed truck.

1100 – Pumping completed from E → B. B sampled. Pumping started from City → D. Will contact currior. Headed to MWBR-3 to check progress before grabbing more ice.

1130 – at MWBR-3, Matt (Cascade) notes that after a 3ft run to 1600', rig broke air spring. Time to fix 3-4 hours.

1200 – refilling gas tanks and generator at water Street. Took PDET sample for Tank D. Will pump until night fall to avoid overfilling tank.

1430 – MW-BR2, checks in with Scott (Cascade). Finished grouting at 1200, ~~grounding~~ & MWBR-2A. ~~site~~ ~~complete~~ Trying to locate pumps to get back off of.

1451 – at flat bed with pumps for decon and rinsate blanks. Pumps will be identified by first 5 digits of S/N.

SG3-PUMP#####-171202

Pump 1: 14E14 Pump 2: 06J18

– will decon with crew tomorrow (Steve). C.T. Male to sample rinsate and add to COC to be shipped Monday.

1703 – Still room in Tank D. Will continue pumping until later tonight. Will return to shut off pump overnight so Tank does not overfill. Should be able to fill Sunday morning. Could then ~~fit~~ to Tank E.

1930 – finished sending emails to C.T. Male and other site members. Wrote up COCs for Monday.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/4/17 Time On-Site: 07:45 Time Off-Site: 17:00

Project Name: SGPP Project No.: 4502.004

Purpose: BR well install Field Report No:

Weather Conditions: clear ; ~ 45° F, Calm

Present at Site: KAM, RAK, KD, - Cascade crew Scott F., Matt A., Greg H Ralph W.; Rob M.

Observations:

- Check in on Frac Tk Status
- Check in w/ Cascade - current situation update
- Check in w/ RAK - current status - Boreholes, cores.
- Check in w/ Geophysical contractor.

- BR2 - Casing grouted in - cure period of 48 hrs will be up ~ 12:00 - but due to tooling issues, drilling will be delayed until new 5" bits are on site

- BR3 - Crew finished changing out Sonic heads and service on Rig - prep to start overdrilling stuck equipment. Advance 5" casing ~ 4-5' w/ worn out bit at end of day. This Rig also needs a new 5" bit. Bits Due to be delivered Morning 12/5

- Geophysical contractor - gamma Log wells at the landfill, B-2-3, B-6-3

- Filtered water Samples shipped by KD.
- Geophysical contractor - locked in Land Fill; called Castille for assistance.

Items to Verify:

List of Attachments:

Field Log Prepared by: KAM

Copies to:

C.T. MALE ASSOCIATES

Date 12/4

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP- Bennington Project No.: 16.6131

Observations:

0800 Status of FRAC tanks @ Water Street:

Tank 2 - approx. 1/2 full (~10 gal)
Tank E - empty (previously City Water TK 1)
TAnk A - 1/2 full (in use?)
Tank B - full, sampled
Tank C - IDW tank, 1/4 full
Tank D - full, sampled

Tank D was "topped off" with Filtered City Water 2 water over the weekend. It appears Tank E was filtered to TK B (Cross reference with Mitch Dziekan notes - 12/2/17 - Barr Engineering)

11^{00} Dalmation water truck arrived.
11^{15} Took water sample from truck pump SGS - CITYWATERTRUCK - 171204
11^{20} Took water sample from truck hose SGS - CITYWATERHOSE - 171204
13^{30} Took water sample from city water TK2 SGS - CITYWATERTK2 - 171204

IDW tank (A4721 - 24,000 gal) is approx. 19,000 gal full and is scheduled to be pumped out this week. Filtered TKB, TKD samples will be shipped today @ ~1530 from Bennington and results rushed (24 hr turnaround).

14^{00} Reconfigured PEX tubing/pumps/filters so Tank 2 will be filtered to Tank E overnight. 3rd and final cycle of filter lifetime.

17^{30} Met courier at the Hampton to send samples.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/5/17 Time On-Site: 07:00 Time Off-Site: 17:30

Project Name: Sgpp - Bennington Project No.: 45021004

Purpose: Sgpp - Bedrock well install Field Report No:

Weather Conditions: overcast windy 50°F, Rain expected in afternoon

Present at Site: KAM, RAK, KD, Cascade crews, RAS crew

Observations: at water Street - generator Ran out of gas - Tank E has about 18" of freeboard - gas up generator & Resume filtering. KD will collect after post samples & filtered frac tk E.

RAS to Log B-4-3 at the Landfill.

Cascade prepping to drill once 5" shoes come in.

11:00 & 11:05 - collect Rinse blanks from 2 new water totes being placed into Circulation per Cascade Request

12:00 - collect Rinse blank of Rig 4 Clean water pump.

RAS - Done Logging - will Ambient Log BR1 & Make Sure things are Ready

14:00 Shoes are in transit but will not be delivered today.

Cascade planning path forward

15:00 Planning call w/ CTM

16:30 Call w/ ctm & Cascade - path forward = pull Rig 4 off BR2 Set up on BR4 & PQ core it. Rig 3 will Stay at BR2 But will Switch over to Air Hammer. RAS off site!

17:00 - Touch Base w/ RAK & KD

17:30 - off site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 12/5/17 Page 1 of 1

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

0820 Sampled water flowing into TKE out of PEX tube. SG3-AFTERPOETE-171205.

0900 Sampled water out of TKE (bottom valve) SG3-FILTERED FRACTKE-171205

Swapped out carbon filters, but did not activate carbon. No plan to pump tonight, but next cycle will be 1st of 3.

Drillers pulled off of MWBR-3 and are going to move rig to MWBR-4.

Depth of recovered cores at MWBR-3 = 160' (below grade)

→ Waited at MWBR-3 for 2+ hours for parts to rig, but they never arrived in the mail.

● 1730 Met courier behind Hampton Inn with samples

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/6/17 Time On-Site: 07:00 Time Off-Site: 18:00

Project Name: SGPP - Bennington Project No.: 4502/004.00

Purpose: Bedrock wells/Geophysics Field Report No:

Weather Conditions: P.C. ~35° Lt breeze

Present at Site: KAM, RAK, KD, Cascade Crew, RAS

Observations: 07:30 Safety Mtg. - Today, Matt's crew will work at BR4 & plan to PQ core it. Scott's crew will work to Fab up equip. to pull in Air Compressor to BR2 since Access across the landfill cap is not an option. Geophysical contractor will complete dynamic flow logging.

Cascade Rig 4 getting set up & Ready at BR4; Rig 3 getting setup for air Hammer. - will Likely take all Day to get Rig 3 Ready Rig 4 should be Ready to core by noon or so.

09:00 Pump Crew & RAS at BR1 - prep for dynamic flow Logging.

15:30 Start Dynamic Flow Logging. pump at 20 gpm.

17:05 Start collecting GW Sample from BR1 after Dynamic Flow Logging

17:40 shut down pump; pick up area & prepare site for Tonight.

18:00 KAM, Cascade, CTMale; RAS off site

Items to Verify: 2 man pump crew 9am-3pm; 1 man 3-6; pump truck

List of Attachments: Well Development log; Groundwater Services Field Log.

Field Log Prepared by:

Copies to: file

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/06/17 Time On-Site: 0745 Time Off-Site:

Project Name: SGPP-Bennington Project No.: 16.6131

Purpose: Core logging a MWBR-4 Field Report No:

Weather Conditions: Partly cloudy, 38°F

Present at Site: Keegan Donovan, Cascade

Observations:

Casing is set at 410 fbg and current plan is to core to 460 Fbg.
Casing is set 10 ft into bedrock (top of bedrock is at [redacted] ft. 397fbg)
* Rotosonic drill rig with wireline coring methods - (PQ coring)
• 14[00] still setting up rig (missing parts - so they had to make them on their own (tools etc.)).
17[00] tagged @ ~391' (below grade) - clogged up ~ 10 feet (including core-barrel)
No core produced today
18[00] 5 7/8" casing is set to depth and cable is set and ready to produce core tomorrow.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/7/17 Time On-Site: 07:00 Time Off-Site: 19:30
Project Name: SGPP Project No.: 45021004.00
Purpose: Bedrock well Installation Field Report No:

Weather Conditions: Overcast, 35° F, Lt. W. Breeze
Present at Site: KAM, RAK, KD, Cascade, RAS
Observations: 07:30 conduct Safety Mtg at BR1 - Cascade crew Robb., Rob M. begin Removing pump.
08:40 RA's on site to pull Flow Logging tool
10:00 Done at BR1; clean up area; check coc's & complete team communications; check in on drill crews.

~ 14:00 Dozer onsite to get Air Compressor to BR2 Lo'in prep samples & coolers for shipping.

- Prep For water treatment - change new Carbon TKS plan is to pump to City water to Tk A.
- 17:00 check in at BR4 - Rig has cored to 413' but has tangled the wire line. will address in the morning.
- 17:30 Receive call from GMR - Directed to Refilter Tk E into Tk A. Go to water Street to set up
- 19:30 Start filtering. off site

Items to Verify:

List of Attachments:
Field Log Prepared by: KAM
Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/07 Time On-Site: 0800 Time Off-Site: _____

Project Name: _____ Project No.: 16.6131

Purpose: Corelogging @ MWBR-4 Field Report No: _____

Weather Conditions: Overcast, light snow on and off, 35°, WSW 9 mph wind

Present at Site: Keegan Donovan, Cascade (Matt, Greg, Barry)

Observations:

0800 Attempting to retrieve/unblock 10' of clogged material - clayey-silt, red/brown, appears to be same material as "ocher".

0900 Having difficulties recovering material in core barrel because it washes away with water.

0945 - Left for Hoosick Falls to pick up coolers and peristaltic pump battery charger.

1035 Returned to MWBR-4, still no core produced - no update from drillers.

~1100 (approximate time) drillers reported wireline had snapped. Had to trip out casing to retrieve core barrel.

WATER STREET:

1130 Water truck from Dalmation arrived

1155 collected sample from truck pump SGS-CITYWATERTRUCK-171207

1200 collected sample from truck hose SGS CITYWATERHOSE-171207

1300 Collected sample from TK2 SGS CITYWATERTK2-171207

↳ TK2 has ~20,000 gal and is a mixture of 3 separate city water deliveries.

1600 Activated carbon filters and reconfigured PEX tubing to pump into empty TKA. still waiting on results from TKE, TKB, and TKD.

1800 Results for TKE came back w/ PFC detection, so TKE will be filtered through the night to TKA.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/8/17 Time On-Site: 07:00 Time Off-Site: 17:40
Project Name: SGPP - Bennington Project No.: 450210004.00
Purpose: Bed Rock Monit. wells Field Report No: —

Weather Conditions: Clear, calm, 22° F warming to ~ 35° F today
Present at Site: ~~KAM~~, ~~RAK~~, KD, Cascade
Observations: 07:00 check of filtering process, generator & pump still Running
08:00 Direct Cascade to use the Re-filtered water in TK4, as Directed by KLG.
10:05 - collect SG3-IDWD09-171208 from 1 drum by boring D09 (SG3-MW17-01)
11:30 collect SG3-IDW D06/D08-171208 from 1 drum by D08
11:00 - collect SG3-IDWD25/BR1-171208 from 22 drums by BR1 and D25.
13:20 collect SG3-IDWD26-171208 from 1 drum by the D26 Boring Loc'n
13:45 collect SG3-IDWD10-171208 from 2 drums by the D10 Loc'n prep Samples for shipping.
15:30 meet Courier for Sample shipments, Realign filtering System to treat tank B into tank E.
16:30 Check in with drill crews - BR2 to 203' bgs BR4 to 429' bgs.

17:30 Start Filtering of TK B to TK E.
17:40 off site

Items to Verify:

List of Attachments:
Field Log Prepared by:
Copies to:

429 5:25
203

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/8/17 Time On-Site: 0745 Time Off-Site: ____

Project Name: SGPP-Bennington Project No.: 16.6131

Purpose: Water Sampling / Core Logging BR-4 Field Report No: ____

Weather Conditions: Sunny, 23°F

Present at Site: Keegan Donovan, Bob Koslowsky, Kevin McGlipp, Cascade Drill Crew

Observations:

0800 Frac TK A approx. 3/4 full after running all night. Appears to have frozen somewhere in filters or PEX - flow is ~ 4-5 gpm and last night was 8 gpm.

0830 Took water sample from PEX tubing SG3-AFTER POETA-171208 * refilter from TKE *

1000 TK B came back with test results exceeding PFC limit. Need to refilter TK B to TKE when E fully plumbs to A.

1200 Core produced at BR4 (logged on core sheets)

1500 Depth cored @ BR4 = 424fbg (estimated by drillers) Plan to drill through weekend (12/9 + 12/10)

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/9/17 Time On-Site: 07:15 Time Off-Site: 20:00
Project Name: SGPP - Preming Farm Project No.: 450210004
Purpose: Bedrock wells Field Report No:

Weather Conditions: overcast 29° F, calm
Present at Site:
Observations: 07:25 Meet Brittany W. at the Landfill after checking pump at water street, we go over work for the day. Go to Water Street & collect "afterpost E" sample - pump is still Running & TK E' still has about 2' of freeboard. Pick up Rec's & Head to Landfill.

- Check in w/ Roy at BR4. They have tripped everything out & Have Run back in to 424'. will be Ready to Core after they grab an early lunch.

Rem to water St. to check on frac tks & get gas.

Receive call from Brittnaey - Scott has Reached 253' - open hole producing a little water - Have Scott go and the Rim and See if production increases. 263' Hole a Little Rougher bit started Sticking. Scott Recommends Stopping here to avoid getting Stuck or Loosing the Hammer. Estimate making around 5 gpm.

14:10 Rig at BR2 is down - part of the wireline device came loose of the cable & fell on the Deck bending part of the device. Crew off site to see if the Machine shop is open Scott will let the Rig sit on the hole overnight. incase the hole collapses

Items to Verify:

List of Attachments:
Field Log Prepared by:
Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/9/12 Time On-Site: 0715 Time Off-Site: 2010

Project Name: SGPP - Bennington Project No.: 4502004

Purpose: B.R. wells Field Report No: —

Weather Conditions:

Present at Site:

Observations:

Mob to water st. to plump up for ~~treat~~ filtering the next frac tk (D) back into TK-B. The way the manifolds are plumbed now, It has frozen due to stagnant H2O filling the pex. Obtain more pex & fittings at Home Depot, will by enough to have just 1 pipe that can Reach all tanks & will just have to loop around & bend to get to closer tanks.

15:30 BAW off site

16:00 Dain Crew from BR4 off loads IDW water. then are off site

Finish pcaping plumbing so once frac tk A is full I can switch filtering TKs.

19:00 Tank A is full. Change system over to ~~treat~~ filter TK D into TK B.

20:00 System up and running. off site.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/10/17 Time On-Site: 07:00 Time Off-Site:

Project Name: Sapp-Bennington Project No.: 4502.1004.00

Purpose: Bedrock wells Field Report No:

Weather Conditions: 25° F, overcast, flurries

Present at Site: KAM, Cascade Crews (Scott, Roy), RAS (Bill, AS)

Observations: 07:00 KAM at water street. Check pump of Filter System TK B only 1/2-3/4 full - Flow Rate is less than 8 gpm for undetermined Reasons. Sample after pre-TK B.

08:30 Meet RAS at landfill entrance and get our water level indicator back. RAS wants to see the BR2 site for access and, since they are here, install a transducer on the drill string for WL Data while we over pump.

12:30 RAS offsite

13:29 Start over pumping

17:00 Well Stabilized collect GW Sample.

17:30 Leave Landfill. Check air filter system, Prep for Tank Switches

18:45 Collect Filtered Final TK B sample

Start Filtering water from City Water TK2 to Final TK1

Check and fix Leaks

19:45 offsite

Items to Verify:

List of Attachments: well Development, well sampling

Field Log Prepared by: KAM

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: MONDAY 12/11/17 Time On-Site: 0830 Time Off-Site: 17°°

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Water Sampling / Filter changes / Logging @ BR-4. Field Report No:

Weather Conditions: Snow on ground, 28° F, partly cloudy

Present at Site: Keegan Donovan, Bob Koslowsky, Kevin McGlipp

Observations:

Frac Tank status:

Tank Z: 12,000 + gal of city water

Tank E: full, refiltered water from TK B (sampled 12/9, pending analysis)

Tank A: ½ tank, in use

Tank B: full, refiltered from TK D (sampled on 12/10)

Tank D: full (sampled on 12/11 - today)

Tank (empty ~ 21,000 gal) was delivered for filtration of IDW water at Water Street.

No drilling activity @ MW BR-4. Total depth of core produced from weekend = 439 fbg

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/11/17 Time On-Site: 07:00 Time Off-Site: 17:00

Project Name: SGPP - Bennington Project No.: 4502.1004.00

Purpose: Bedrock Monitoring Installation Field Report No:

Weather Conditions: overcast, Light Breeze, ~30°F

Present at Site: KAM, Cascade Crews

Observations:

07:00 KAM at water street - check on filtration system. - Still have a couple of items before D is filled up.

08:00 check in w/ Drill crews - Scott will start moving equipment off BR2 & set up pump hoist. Machine shop will not be able to make or straighten the bent wireline part. BR4 crew will be off for the day. measure static in BR2 109.2' bgs - TD checked and is open to 263' bgs - No collapse!

10:00 at water street to monitor filtering of city water so tk doesn't overflow. meet up w/ RAK & KMD & provide update.

12:00 shut down filter system & Drain all water lines; collect filtered final TKD water sample @ 12:30 min to landfill, Conduct w/ RAS

13:30 Rig off BR2.

14:00 RAS preparing to log BR2. KAM, RAK collect last IDW sample SG3-IDWDII/BR1-171211 @ 15:00 Sample of 20 drums staged near BR1

14:00 KAM / RAK to water street to prep samples for shipping

15:00 meet courier at Hampton Inn - ship samples

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/12/17 Time On-Site: 07:00 Time Off-Site: 17:00

Project Name: SGPP - Bennington Project No.: 45021004.0000

Purpose: Bedrock Monitoring wells Field Report No:

Weather Conditions: 30°, overcast, Light wind, Snow flurries

Present at Site:

Observations: Check in w/ cascade crew, Today they will empty drums from BR4 into the Roll off at waterstreet ~~Complete Surface~~ Surface Completion at BR1, Site housekeeping Moving Rig onto BR3, Resume BR4 once wireline parts on site.

0900 Reinstall level Trolls

10:45 Place Troll into B-4-3 Pickup W.L. meter at waterst.

11:30 Check Static at B-4-3 124.84' BTOC. Pull up trail, Troll is missing the plastic Tip Reinstall above dedicated pump.

12:15 measure static in B-4-3 at 208.37' BTOC & adjust level trail - (measured TD @ 220')

Check in w/ RAS - Logging going good. Meet Bob at BR3 Scottie had no luck pulling Tooling up. They are going to have to overdrill w 5 7/8" casing, RAS & Kam prep water Sampling Containers for the packer test Sampling.

15:30 Receive text from RAS - They are off site for the day.

16:30 check in at BR4 - part just arrived They will assemble the wire Line and be ready to go in the morning.

Items to Verify:

List of Attachments:

Field Log Prepared by: Kam

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: TUESDAY 12/12/17 Time On-Site: 0800 Time Off-Site: 1430

Project Name: SCPP - Bennington Project No.: 16.6131

Purpose: Logging of MWBR-4 Field Report No: ____

Weather Conditions: Cloudy, snowing.

Present at Site: Keegan Donovan, Cascade

Observations:

0800 Drillers working on repairing rig.

0900 Crew fixed the water leakage, still waiting on parts to resume coring.

1430 Received part necessary to resume coring. Set up and prepared for drilling to continue 12/13 AM.

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: ____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/13/17 Time On-Site: 07:00 Time Off-Site: 17:00

Project Name: SGPP - Bennington Project No.: 45021004.00

Purpose: Bedrock Monit. wells Field Report No: —

Weather Conditions: 15° F, windy, overcast

Present at Site: Kam, Cascade, KMD, RAK, RAS

Observations: 07:00 check in w/ drill crew at BR4. They are assembling pant for wire line. Will send crew to Linden Street for water, measure static water level through PQ rods 104.2' bgs.

08:00 at water. Attempt to manage poor filters that have been used - move 6 filters to staging location and lay on their sides per guidance from Everette (Culligan). Culligan will notified & will pick up.

10:45 - Give RAS the water level indicator - they will be Ready to start Logging around 12:00 (they had to pick up a generator they were having Replaced). RAS to Run Optical televiewer & Ambient flow logging

observe optical televiewer logging. Check in w/ RAK KMD on BR4 progress. They have Reached 459' bgs. 14:30 Conf Call w/ Bart CTM, Cascade - go over progress & path forward planning.

15:30 BR4 - The 459' core fell out of the wireline Retriever, crew working to retrieve it. - pushed back to Bottom & may have fallen out of the core barrel. - need to pull PQ casing. Casing out - about 2' of core Recovered. Hole open to 458' (only 1' in bottom) - likely will build well.

Items to Verify: Will Discuss w/ GAR & let Cascade know in the morning 17:00 off site

List of Attachments:

Field Log Prepared by: Kam

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

WEDNESDAY

Date: 12/13/17 Time On-Site: 0820 Time Off-Site:

Project Name: SGAP- Bennington Project No.: 16.6131

Purpose: Core Logging MWBR4 Field Report No:

Weather Conditions: Some snow on ground, 14° F, cloudy, w 9mph wind

Present at Site:

Observations:

0755 Spoke with Greg (Cascade driller) about todays plan (@ Best Western) - hope is to complete hole today. TD is 460 fbg. 5 7/8" casing from MWBR4 is needed for MWBR3 before drilling starts (air hammer).

1100 Core from 429 fbg - 439 fbg produced.

End of day: drilled to 449 fbg, but rubble fell from core barrel on last run. Will either retrieve tomorrow, or install well with rubble in hole.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/14/17 Time On-Site: 07:00 Time Off-Site: 18:00
Project Name: Seppo - Bennington Project No.: 450210004.00
Purpose: Bedrock Monitoring well Field Report No:

Weather Conditions: 15° F partly cloudy lt. NW wind
Present at Site: KAM, CTM, RAS, Cascade
Observations:

07:00 check in w/ Cascade at MWBR4 - Hole still open to 458' b gs. instruct crew to build well - 4" - No End cap on bottom and make sure screen is up inside of the casing.

08:15 drop off YSI & Turbidimeter with CT Male (Dan) at Water St, for the IDW treatment.

09:00 at BR2 for geophysical contractor oversight.
10:00 everything warmed up on pump hoist - Ready to install pump.
10:20 RAS on Site - Setting up.
12:00 Start Flow Logging.
15:00 Active Flow Logging complete - Shut down pump - let well Recover for ½ hour
15:30 Start pulling pump.

16:00 meet KMD at water St. to start Filtering City Water into frac TK #. - Valves Frozen. Thaw using IDW contractor Salamander. Once valve is thawed, discover all pumps are frozen. Even though they were drained there is enough Residual
18:00 Kam off site

~~Items to Verify:~~

List of Attachments:
Field Log Prepared by: KAM
Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

THURSDAY

Date: 12/14 Time On-Site: 0800 Time Off-Site: ____

Project Name: SCPP - Bennington MWBR-4 Project No.: 16.6131

Purpose: Well installation Field Report No: ____

Weather Conditions: 2" snow on ground, flurries, partly cloudy, 16°F

Present at Site: Keegan Donovan, Bob Koslowsky, Kevin McGlipp, Cascade Drilling

Observations:

- Coring complete to 459 fbg. Hole tagged this morning and is open to ~~35~~ TK 458 fbg.
- No cap on bottom of screen will be used
- Screen should overlap with permanent casing 10'-15' (total ~ 70' of ~~casing~~ screen). TK

0930 70 ft of screen installed successfully (no bottom cap)

1015 Well installed; tagged @ 1020: open hole to 458.

1030 Removal of 5 7/8" casing.

* Drillers uncertain if PVC extends all the way down to 458 fbg (as it should per meeting). "Extra" PVC next to rig - 25 ft of riser, 10 ft of screen.

1200 Rig folded up and off hole

PVC riser sticks above ground 2.5 feet.

1630 - attempt to reconfigure plumbing @ water street to pump City Water to ~~MW~~ TK TK E. Pumps are freezing upon water touching stainless steel. Valve at bottom of Frac TK 2 is also frozen shut - needed to heat it with torch.

Items to Verify: ____

List of Attachments: ____

Field Log Prepared by: TK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 12/15/17 Time On-Site: 07:00 Time Off-Site: 18:30
Project Name: SGDF - Bennington Project No.: 45021004.07
Purpose: BR well install Field Report No: —

Weather Conditions: overcast ~ 15°F. Lt. breeze
Present at Site: Bare, cascade, CTM,
Observations: 07:00 check in with cascade crews.
BR4 - Set up for well development.
BR3 - Retrieve stuck Tooling.

BR4 - instruct Cascade to set pump @ ~ 440' bgs. - Crew needs to bring everything from the Landfill including getting the Hoist truck up the hill from BR2. Set up will take a while.
KAM & KMD haul core boxes to 1030 waterst.

BR3 crew Recovers part of the core barrel but not all of it. ~10' is still stuck in Borehole. After multiple calls & team discussions. It was decided to abandon this Hole & Start new. This crew will work to pull tooling left in hole & move Rig for new well loc'n

16:00 KAM, KMD at waterst. to Start filtering City water - everything is frozen - Start thawing things out & Replumbing. - Change new post filters
18:10 City 1170 is filtering. clean up & put away tools
18:30 KAM, KMD off site

Items to Verify:

List of Attachments:
Field Log Prepared by: KAM
Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/15/17 Time On-Site: 1330 Time Off-Site:

Project Name: Project No.: 16.6131

Purpose: BR4 Well development Field Report No:

Weather Conditions: 11°, cloudy

Present at Site: Keegan Donovan, Cascade (Rob and Rob)

Observations:

1500 Pullstar is set up with pipe laid down and in place. Pump is attached to first pipe going down hole.

1530 Drillers are having trouble fitting the pump in the 4" PVC because of the chords.

1540 Drillers were able to get pump into PVC casing.

1615 Transducer set 2 top of 5th - 20' pipe.

WATER STREET:

"Thawed" out pump in Kevin McGlipp's hotel room last night.

Plan is to pump water from TK 2 (CITY WATER) to TK A overnight.

1800 New carbon filters activated (1st of 3 cycles) and water is pumping from TK 2 to TK A.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/16/17 Time On-Site: 0700 Time Off-Site: _____

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: MWBR-4 Development Field Report No: _____

Weather Conditions: 10° F, partly cloudy

Present at Site: Keegan Donovan, Rob (Cascade)

Observations:

0700 Spoke with Rob about plan for the day. Pump and drop pipe set ~~for~~ KR. Bobcat is warming up (for BR-3 drilling).

0800 WATER STREET:

TK A almost full. Collected after POET sample @ 0800

SG3-AFTERPOETA-171216.

0845 Collected TKA sample. SG3-FILTEREDFRACTKA-171216. Samples will be shipped on Monday.

Development MWBR4 -

Water level 0945 - 105.7' bgs

pump started @ 1020

pump stopped @ 1050 ~ ~~860 gal pumped~~ 1,000 gal pumped

restart pump @ 1415 after attempting to thaw out IDW valves. Eventually drillers found more hose and pumped out through top of FRAC tank.

pump stopped @ 1450 to pump water to IDW at water st. ~ ~~1600 g at pumped~~ 2,000 gal pumped

pump restarted @ 1635

pump stopped @ 1620 to pump water to IDW - 3,000 gal pumped

Stopped pump at 1742 - totes filled and noise ordinance approaching.

MWBR-3 - drilled to 102 ft bgs @ 1730.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Date 12/18/17

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP - Bennington Project No.: 16.6131

Observations: 12/18/17

Water Street FRAC TANK status:

TKZ: ~6,000 gal

TK E: ~ almost empty

TKB: full, approved

TK D: full, approved

IDW (21,000 gal): ~12,000

TKA: full, waiting on results

- 17°° Met courier behind Hampton Inn - "AFTERPOET" sample and "FILTEREDFRACTKA" sample both samples were from 12/16

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NAME MRD
DATE 12/18/2017
SHEET _____ IN SET
PAGE 1 of 2 IN FILE

SGPP - Bennington

CHECKED BY _____
DATE _____

0730	On site at BR-3. Cascade plans to grout abandoned hole previously drilled. (BR-3A). BR-3B has casing set and grouted to 115'. Cascade will also perform housekeeping today.
	Rob (Cascade) has a trailer of 4 totes available for RAS to fill while running geophysics at BR-4.
0830	At BR-4. Staging area clear for RAS to begin geophysics.
0900	At Water St., Tank E good to use. Two tanks pending analysis. For grouting today, Cascade will be pully from Tank B.
1015	RAS setting up at BR-4. Need LevelTroll and water level tape. Contacting C. T. Male to locate.
1030	C.T. Male brought LevelTroll to Hoosick Falls, NY with groundwater samples, will head there to return it to RAS. Water Level Tape in conex box at Water Street.
1120	Returned to BR-4 with transducer and tape for RAS. Bill (RAS) will begin with caliper. Plan to run all non-pumping logging today and tomorrow. Will need totes for water on Wednesday if everything goes smoothly.
1230	At BR-3, Cascade out to purchase more portland cement for grouting. Rob performing housekeeping in the meantime.
1250	Rob (Cascade) will be operating hoist truck Wednesday and can assist with water hauling. 4-5 totes available at the moment. More ideal would be 6.
1330	Keagan D. (C.T. Male) back on site. Will be preparing samples from frak tanks for shipment this afternoon.
1415	Cascade completed grouting at BR-3. Will head to Water Street to go over WWT with Keagan and update signage.
1500	At Water Street tanks. Large IDW tank has ~9,000 gallons available. Tanks B and D available for use. A pending analysis. Tank E empty. Will inquir about pumping during warmer temps. this week.
1543	At BR-4. RAS successfully ran caliper. Did not detect end of casing (4" PVC) nor end of borehole. Beginning induction logging.
1630	Induction logging records so highly conductive units relative to Quartzite. Logging also reveals potential offset in casing and boring logs.

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NAME MRD
DATE 12/18/2017
SHEET ____ IN SET
PAGE 2 of 2 IN FILE

CHECKED BY ____
DATE ____

SGPP – Bennington

1746	Completed induction log. Began running acoustic televiewer.
1820	RAS nearly completed acoustic televiewer, should be up in ~10 min. No indication of open borehole below end of PVC casing. Will run OBI first thing tomorrow to investigate. Will look into pumping situation. RAS has concerns with cables on submersible pump. Have been spliced numerous times. Concerned with breaking power cable. Plan to begin OBI at 0800.

Mitchell Tinder

C.T. MALE ASSOCIATES

Date 12/19/17 Page 1 of 1

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP - Benning Project No.: 16.6131

Observations: Geophysical logging @ MWBR4 12/19/17

Changes based on Bill's (RAS) observations.

Log A

~~At~~ original log: depth of casing estimated @ 407' bgs
depth of top of screen estimated @ 377.5' bgs
depth of bottom of screen @ ~~458~~ KR 447.5' bgs

Log B

OBI (borehole imager) indicated precise measurements:
depth of casing 406.7' bgs
depth of top of screen 389.2' bgs
depth of bottom of screen 457.5' bgs

As previously noted - rubble (from 'core barrel') fell to bottom of open hole (originally drilled to 459' bgs) causing a block to 458' bgs.
Geophysical imaging indicated mud/sediment build-up to 457.5' bgs

Original depths on digram (Log A) were estimates by drillers based on total number of PVC sections they had.

KR

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DATE 12/19/2017
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PAGE 1 of 1 IN FILE

SGPP- Bennington

CHECKED BY _____
DATE _____

0820	At BR-4 with RAS to continue geophysical logging. Running optic telcoiewer to determine extent of PVC casing.
1020	Reached bottom of borehole with optic televiewer. PVC screen casing extends to bottom of boring. No open-hole portion of well. Headed to landfill to find alternate well pump to trouble shoot cable problems with other pump.
1050	Alternative pump has wires within unit and exiting the top of the pump. Wires will need to be spliced to cable for use in well if no better option is available.
1120	RAS deploying flow logging instrument for ambient flow logging.
1236	First pass of ambient flow logging complete. Bill (RAS) requests access to well development notes. Will have Keegan (C.T. Male) provide. Second pass in preperation.
1328	Instrument telemetry issues encountered during second pass. RAS attempting to correct while instrument remains down hole.
1545	RAS completed three passes for ambient flow logging. Will continue logging tomorrow with dynamic flow. Pump to be set up by Rob (Cascade) first thing in the morning.
1615	MRD off site.

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/20/17 Time On-Site: 0800 Time Off-Site: 1720

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Drilling @ MW8R4 Field Report No:

Weather Conditions: cloudy, 32°F

Present at Site: Keegan Donovan, Bob Koslowsky, Mitch (Barr), Cascade

Observations:

0800 - Drillers setting up / prepping to drill new hole using air-hammer. Previous hole (same general location) was grouted and abandoned. New hole has been drilled to bedrock and permanent casing was grouted. TD is 100't into bedrock, ~ 205' bgs.

~ 1000 Ray (Golder) came to water Street to assess rock cores.

~ 1300 Drillers finishing up rig setup and water

1430 Begin drilling.

* GW encountered @ ~ 152' bgs
* permanent casing @ 115' bgs

• 1630 Flushing out / cleaning borehole - AIR LIFTING - GW discharge approx. 30 gpm.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

BARR ENGINEERING CO.

NAME MRD
DATE 12/20/2017
CHECKED BY _____
DATE _____
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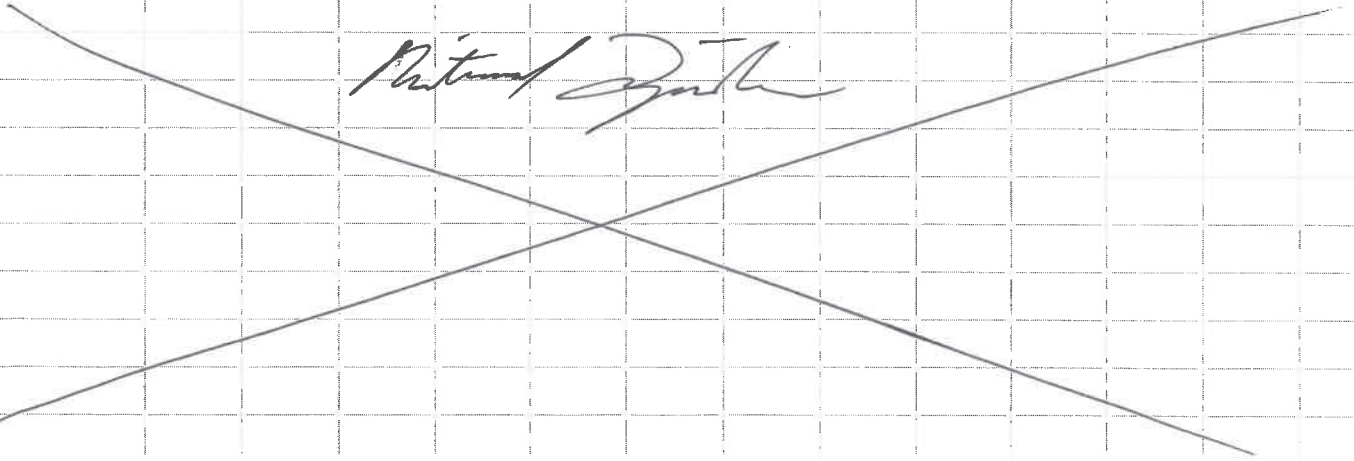
SGPP3 - Bennington

0715	At BR-3. Driller (Matt) on site. Waiting for rest of crew to arrive to direct setup of pump at BR-4.
0800	Rob (Cascade) arrived. Has 4 totes for pumping with. Y tube to prevent spilling of water during continuous pumping. Will splice new pump to cable and install.
0830	2 extra totes available. Will be stationary at BR-4 for pump while mobile totes are being drained.
0942	At Water St. to meet pick-up of rock cores. Gathering materials for ~~both~~ MRD post geophysical sample.
1120	At BR-3. Cascade crew still setting up rig for drilling into bedrock. No estimated start time.
1130	At BR-4. Cascade lowering submersible pump into well.
1330	Pumping at BR-4 began around 1300. Will begin logging after water quality stabelizes. At 5 gpm, ~1.5' of drawdown. Rob (Cascade) confirms pump will be available for tomorrow's groundwater sampling in the AM.
1406	Air compressor on site at BR-3. Drilling to begin shortly.
1420	Air hammer drilling began.
1536	BR-7 to ~155'. Heading to BR-4 to chat on dynamic flow logging.
1548	RAS 15-30 minutes away from completing dynamic flow logging. Currently taking stationary measurements. Bill (RAS) notes "smearing" of flow due to PVC screening.
1600	RAS completed logging. Removing pump and instruments from well.
1700	Cascade drilled to 213.5' at BR-3, giving 98.5' of uncased rock in well. Also completed ~30 minutes of air lifting to clear borehole. Water is clear and flowing with pump at 30 gpm. Will record static tomorrow morning. Matt (Cascade) recommends leaving as open rock hole (no PVC).
1715	MRD off site.



C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 12/21/17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: sampling GW @ MW BR-4 Field Report No:

Weather Conditions: 20° sunny

Present at Site: Keegan Donovan, Mitch (Burr), Cascade

Observations:

0800 Drillers arrived, ~~develop~~ KD, developed plan for the day.

8[15] Calibrated equipment (YSI, turbidimeter)

0900 Pump started to calculate ~~Flow~~ rate: ~ 1 gpm

↳ lowest possible rate with pump (pull star / drop pipe)

1000 CORRECTION: 30 gpm to purge 3 well volumes

(one well ≈ 500 gal, three wells ≈ 1,500 gal)

11[20] Purge complete ~ 1,500 gal. Lowered flow rate to ~ 1 gpm

(to IDW tanks). Sampling from sample port (opposite end

of T) ~~2 — 250 mL~~ KD

11[30] Began stabalization

12[40] Stabalization complete

1345 Samples collected, pump / generator off. Return to static water level ✓

1730 Courier drop off (including Jon Dippert's samples)

Items to Verify:

List of Attachments:

Field Log Prepared by: KD

Copies to:

BARR ENGINEERING CO.

NAME MRD
DATE 12/21/2017
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DATE _____

SGPP3 - Bennington

0730	At BR-3. Drillers to drill to ~270' then report on drilling status before continuing to drill or begin development.
0745	At BR-4. Cascade to install pump for gw sampling. Prep for sampling.
0815	DTW: 108.32' Stick Up: 3.33'
1000	Begin purging well.
1120	Well purged of ~1,750 gallons. KD (CT Male) will record water parameters for stabalization.
1328	Well sampling complete. Cascade to remove pump and decon for use at BR-3.
1500	Rig still demobilizing from BR-3. If time allows, will collect a water level measurement. Hustled to corner box to package MWBR-4 gw samples. Spoke with Bob K. (CT Male) to document final progress at MWBR-3. Began drilling at 0808. Reached 273.5' at around 0900. Lower 20' was slate. Airlifted for ~30min. Good clear water at 30gpm, good production.
1700	Samples packed for shipment. Spoke with John D (CT Male), Cascade will be pumping into available ~~frac~~ tanks for development as no clean water is needed moving forward. Waiting for water to arrive.
1730	Samples picked up, MRD off site.

C.T. MALE ASSOCIATES

Date 12/22/2017

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP- Bennington Project No.: 16.6131

Observations:

Drillers emptied the roll offs- into totes - and pumped the water into the IDW tanks @ water street. The water was produced during drilling of MW BR-5 and is a combination of drilling water used for ~~Air~~ Hammer drilling and groundwater produced during air lifting.

C.T. MALE ASSOCIATES

Date 12/2/18

Environmental Services Field Log

~~(continued)~~

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

TANK STATUS @ WATER STREET

CITY 2 : ~ 6,500 gal

IDW (21K tank) : ~ 17,500 gal

TKE : "empty"

TKA : "full"

TKB : ~ half full

TKC / IDW (8.5K tank) : empty

TKD : "full"

* No progress in sampling / development

Drillers reported struggle to start trucks / warm up equipment due to cold weather.

Plan to resume attempt @ 0700 tomorrow (12/3/18)

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/3/18 Time On-Site: 0715 Time Off-Site: 1715

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Development / Sampling MWBR-3 Field Report No:

Weather Conditions: 6°F, partly cloudy

Present at Site: Keegan Donovan, Cascade Drilling

Observations:

0715 Drillers warming up trucks / equipment (everything is running) - @ Landfill laydown

0825 On site @ MWBR-3, drillers moving drums (55 gal - filled with unconsolidated material / "overburden") to make space for hoist truck - hoist truck (PULL STAR) is having trouble starting (battery issue).

1135 Batteries installed and hoist truck is alligned over the hole.

1400 Drop pipe installed and pump set to 222' bgs.

1430 Pump started for development; 30 gpm

1520 Pump stopped (to pump out totes to water st.)

1618 Pump restarted

1715 offsite.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/04/18 Time On-Site: 0710 Time Off-Site: 1730

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: MWBR-3 GW sampling Field Report No:

Weather Conditions: 16°F, overcast, snow flurries

Present at Site: Keegan Donovan, Cascade, Julien (CT Male intern) to arrive @ 0730

Observations:

0715 Drillers warming up equipment, fueling, setting up generator, etc.
- GW level (static) at ~~130.6' bgs~~ KH 128.6' bgs

0830 Pump started. Pump rate ~ 1 gpm

0900 Parameters are stable, began sampling.

0940 Drillers working to trip out drop pipe to clear hole for geophysical equipment

1120 Sent samples in cooler with Jon Dippert to be shipped today.

1220 Arrived back on site. Geophysical crew will be conducting caliper test today. Equipment is set up and they have

KH ~~1530~~

1530 moved probes down hole.

E-log: natural gamma, spontaneous potential, single point resistance, 16-64 resistivity, fluid temp fluid resistivity Induction completed

1730 off site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/5/18 Time On-Site: 11^00 Time Off-Site: 17^30

Project Name: Project No.: 16.6131

Purpose: Facility (Water Street Inspection) Field Report No:
MWBR-3 Geophysics

Weather Conditions: 0° Sunny, fresh snow on ground

Present at Site: Keagan Donovan, RAS

Observations:

11^00 No leaking inside facility. Residual water/ice mix from prior leaking.

11^45 Calibrating Acoustic Televiewer (ATV) - late start due to cold weather (trucks not starting)

13^45 Finished ATV logging.

14^00 Begin Optical borehole Imaging (OBI) calibration/ "color check".

14^40 Begin OBI logging.

17^00 Finished OBI logging.

17^30 Off site.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/16/18 Time On-Site: 10^30 Time Off-Site: 16^30

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: cont'd geophysics MWBR-3 (EM flow - static conditions) Field Report No:

Weather Conditions: -8° F, sunny

Present at Site: Keagan Donovan, RAS geophysical team

Observations:

10^30 - Setting up equipment, aligning truck/trailer etc.
11^30 - GW level (static) = 129.11' bgs.
11^55 - ~~Begin descent of probe.~~ Probe suspended over hole.
12^20 - Begin descent down hole.
12^45 - Tripped out probe - too many variations in hole diameter - necessary to switch to a "fixed" vs. previous "floating" method. Currently re-rigging tool.
13^30 Assembled seven additional sample kits (15 total) for GW sampling (plus packer tests for geophysical).
15^45 No leaking in Water St. Facilities
16^00 Finished EM flow.
16^30 Off site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/8/18 Time On-Site: 0830 Time Off-Site: 1530

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Dynamic flow - Geophys. logging MWBR-3 Field Report No:

Weather Conditions: 20° F, Cloudy/overcast

Present at Site: Keegan Donovan, KAS

Observations:

0840 Drillers arrived with Pulstar hoist and began warming the truck up / aligning with borehole for pumping.

0900 Water Street IDW tank status:

Large tank - full

small tank - empty

Plan is to set pump at 135' bgs.

GW level (static) 128.95' bgs.

1145 Pump is set.

Top of geophysical probe set to 145' bgs.

1300 Pump is not working properly - not pumping any water.

1530 Offsite - will attempt alternative solutions in AM.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/9/18 Time On-Site: 0720 Time Off-Site: 1400

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Landfill - plow to MWBR-2 Field Report No:

MWBR-3 : EM flowmeter dynamic flow

Weather Conditions: 32°F, overcast

Present at Site: Keegan Donovan

Observations:

0730 Waiting for Walt Sweet to arrive at landfill - purpose of meeting is to show him what needs to be plowed for MWBR-2 access.

0815 Road plowed to MWBR-2

0845 GW level reading: 129.06' bgs

1000 No water leaking at Water St. facilities.

1045 Pump/drop pipe is installed @ MWBR-3

1150 Pump started. ~~(10 gpm)~~ - pumping into roll offs (on site) 7 gpm KR

Drawdown was stable - starter box blew causing pump to stop. Pump stopped @ 1235

1300 Drillers tripping out drop pipe.

1400 offsite.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/10/17 Time On-Site: _____ Time Off-Site: 1745

Project Name: SGPP - Bennington Project No.: 16-031

Purpose: MWBR-3 - GEOPHYSICS Field Report No: _____
(dynamic - EM flow meter)

Weather Conditions: 8° F, sunny

Present at Site: Keegan Donovan

Observations:

0715 Currently waiting for new pump.

0855 Pump arrived.

0920 Rinse - blank taken SG3 - PUMP - 180110

~~1210~~ 1030 GW level 129.42' bgs

1145 Dropped rinse blank sample off to cliff in Hoosick Falls

1155 Pump started @ 10 GPM - 12 GPM, stopped at 1640

* Roll offs have been moved off site - to Waterst. (next to Conex box)

1600 Dynamic water level: 130.33' bgs

1635 Samples completed SG3-MWBR3-180110

1640 Pump turned off

1700 Tool (geophys.), drop pipe, pump being tripped out

1745 offsite

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

1-13-18
to
Date: 1-16-18 Time On-Site: Time Off-Site:

Project Name: SGPP Bennington Project No.: 16.6131

Purpose: Bedrock discrete sampling Field Report No:

Weather Conditions:

Present at Site: RAS: Bill/AJ, Cascade-Rob/Helper

Observations: 1-13-18: 0700 Set up at MWBR-2. 15-20°/ice-snow/W. wind. DTW MWBR-2 = 112.99ft below top of steel casing. Assemble/test packer assembly-unable to inflate. Operator departs at 1300, No Samples today. 1400 RAS fixed packer lines-ordered fittings - will resume Mon,

0800: 1-15-18: Set packer at 144-154 MWBR-2, 1x Vol = 13gal. 1300 - bladder pump yields 2 gal/hr, insufficient for purging 3x Vol (40gal). At low flow, pump discharge line freezing - Sunny, 20°F). Decision made to switch to 2" submersible pump. Pull tool string for re-assembly.

0800: 1-16-18: Assemble packer array, set at interval 2 (165-175), delay - had to lower Mast - pully stuck. 1130: Inflate packers/check seal, pump interval 2 at 7.5 gal/hr & monitor field parameters. 1420 Collect rinsate blank from interior/Exterior/Cable of Redi-Flow pump. SG3-Redi-Flow-180116.(LTB = #126) for PFCs, #127 for non-PFCs. SG3-LTB126/127-180116. Cal Check Hach 2100Q Turbidity Meter # 4042 Std 57.9 NTU/Reading 57.4 YSI Meter 4464: pH Std 10/Reading 10.09 Std 7/Reading 7.02, Std 4/Reading 3.96, Cond Std 7ms/cm/Reading 7.22, ORP Std 240 mV/Reading 242. 1730 Collect Sample SG3-MWBR2-165-175-180116 for Landfill list parameter. Depart 1800. Gate Locked - called Casella - Exit at 1900.

Items to Verify:

List of Attachments:

Field Log Prepared by: RAK

Copies to:

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 1-17-18 Time On-Site: _____ Time Off-Site: _____

Project Name: St. Gobain Bennington Project No.: 16,6131

Purpose: Discrete interval GW Sampling Field Report No: _____

Weather Conditions: _____

Present at Site: _____

Observations: 1.17.18: 0700- Drillers (Rob/Brent) to Hoosick & Water St for steam cleaner/filtered water - decon 2" standpipe at MW BR2. Return steamcleaner to Hoosick, ship yesterday's samples via CTM Hoosick. Remove 1" pipe and packer assembly from BR2. 1 Packer fitting has slow leak so will do interval 4 next - req. vires only 1 packer. Put together new packer assembly using 2" drop pipe and 2" Ready-Flow pump. Collect Vinsate blank from 2" pipe: SG3-Pipe-180117 at 1500. Snow, 20°s, light West wind.

1.18.18; 0800 Set single packer array at 243ft, set 2" Redi-Flow pump at intake below packer to purge sample interval from 243-264 (bottom of hole). Calibrate Turbidity meter Hach #40412 - Std. 57.9/Reading 57.1, Calibrate YSI Meter 4464: pH Std 10/Reading 10.01, pH Std 7/Reading 7.00, pH 4/Reading 4.02, Cond Std 7000 µS/cm/Reading 7086, ORP Std. 237/Reading 252 mV. 1130: Attempt Pumping - Pump fails to operate 1300 - Attempts to run pump fail, pull pump, order replacement for arrival tomorrow.

Items to Verify: _____

List of Attachments: _____

Field Log Prepared by: _____

Copies to: _____

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 01-19-2018 Time On-Site: 08:55 Time Off-Site: 17:00

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions:

Present at Site: Justin Campbell

Observations:

08:20 picked up sample equipment from McCaffrey St.
08:40 Picked up sample containers from Conex box
08:55 at Landfill, No one here, Bill let me know sample may not be able to be collected until 12:00 HRS. Spoke with Bob (CT Male) who instructed me on sample procedure.
10:30 Returned to conex box to pick up extra 250 ml plastic bottles for Field Blank and equipment blank to be collected from the redi-pump and calibrate parameter equipment.
10:55 collected ~~Rinse~~ equipment rinse blank from redi pump.
10:25 Returned to conex box to get the filter apparatus
12:55 Returned to Landfill. Pumping of BR2 had commenced. Set up parameter equipment to record parameters for 4 volumes (30 gal/per volume). Pump Rate @ 2 gallons/min stabilized after 4 volumes. Bill slows pump to lowest setting @ 1 gallon per minute. Collected samples plus Metals batch QC. and Field Blank Samples collected at 13:20 HRS.
Dropped off Samples to Nobsidic falls team right away. and returned to Conex box to unload truck.

Items to Verify:

List of Attachments: COC

Field Log Prepared by: Justin Campbell

Copies to: Jon Dippert

EnvFieldLog.doc	Calibration	Standard	Actual
	Turbidity Meter Hach 4042	STD = 57.9	Reading = 57.3
	XSI 4464	pH = 10/7/4	10.02/7.09/4.01
		Cond = 7000 µS	7046 µS
		ORP = 237 mV	249 mV

3/2/98

C.T. MALE ASSOCIATES

Date 01-30-2018

Environmental Services Field Log
(continued)

Project Name: SGPP- Bennington Project No.: 16.6131

Observations:

SG3-MWBR2-199-219-180120

Time	13:10	16:00	18:25	2015		
well Volume	0	1	2	3	4	5
Temp	8.9	8.8	8.8	8.7		
pH	7.12	7.97	7.98	7.76		
cond. ms	325.1	324.9	318.9	322.6		
Turb.	50.4	10.6	2.51	0.19		
DO mg/l	3.64	1.49	2.01	1.56		
ORP	106.9	-37.6	-59.7	-63.4		

MW#: BR2

Total Depth: 264 ft.

one well volume: 30 gal

* Digital data on Water level depth to be made available by RAS subcontractor at later date

Depth of packer = 199 ft.

Depth of pump = ~~198~~ 197 ft.

Start pumping: 13:10 HRS

One well volume = 30 gallons

Sample Time 20:25 HRS

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 01-20-2018 Time On-Site: 12:55 Time Off-Site:

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: 10% cloud cover, 43°F (high temp), no precip.

Present at Site: Justin Campbell

Observations:

12:55 - Parked at location of MW BR2. Prepared to Record parameters. Prior to arrival stopped at McCaffrey St. location to pick up parameter equipment and calibrated equipment (see table below)

1310 - Began pumping. Recorded first parameter set. Then water flow became irregular and stopped/restarted. TRS staff attempted to surge the 199-219 interval depth.

16:00 - Recorded 1st volume. Then Batteries in YSI died.

16:15 - left to Buy C batteries. Placing extra set in the YSI case.

18:25 - Recorded well volume #2 parameters

20:15 - Recorded well volume #3 parameters

20:25 Collected Sample

21:08 - Leave Landfill to drop off supplies at Conex Box and McCaffrey St. Buy ice and place samples at Latham office for shipping Monday via FedEx.

Items to Verify:

List of Attachments: COC's

Field Log Prepared by: Justin Campbell

Copies to:

Parameter Equipment Calibration

	STANDARD	ACTUAL 1300	Bump 21:40
Turbidity Meter	57.9	57.1	58.2
YSI Meter	pH 10/7/4	10.04, 7.05, 4.01	11.02, 7.08, 4.40
	Cond 7000 µs	7051 µS	7250 µS
	ORP 237 mV	243 mV	249 mV

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 11/22 Time On-Site: 1130 Time Off-Site: 1745

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Packer sampling MWBR-3 Field Report No:
131.27' – 161'

Weather Conditions: Overcast, 37°

Present at Site: Keegan Donovan, PAS, Cascade

Observations:

1130 Pump / packers being set.

1345 YSI / turbidimeter calibrated.

1400 129.52' (top of casing) = 131.27' bgs (1.75' stick up casing).
[WATER LEVEL to 161' bgs in the interval]
↳ 131.27' - 161'

1400 Pump started ; pump rate = 1.5 gpm.

1405 0.26' drawdown in first 5 minutes of pumping

1420 129.78' (top of casing) = 131.53' bgs : GWL stable

1440 131.56' bgs (ground water level)

1535 ~~Pump~~ K22 Pump stopped to adjust flow rate. 155.3 gal pumped.

1600 Pump restarted for sampling. Pump rate = 250mL / 9 seconds

1615 Begin to trip out pipe after last GW sample was taken.

1700 Packer is getting stuck on collapsed rock. Unable to remove tools from borehole.

1745 Offsite.

Samples labeled as : SG3-MWBR3-131.27-161-180122
SG3-LTB132-180122
SG3-LTB133-180122

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/23/18 Time On-Site: 0900 Time Off-Site: 1600

Project Name: SGPP - Bennington Project No.: 16.C131

Purpose: Field Report No:

Weather Conditions: Rainy, 30s °F

Present at Site: Keegan Donovan, Cascade, RAS

Observations:

0915 - Packer has been successfully removed with all drop pipe.

0945 - Borehole was tagged to 160' bgs - completely obstructed.

1000 - Bill / AJ (RAS) field testing packers for leaks etc.

1010 - Borehole is open to 272 ft bgs (obstruction has opened when re-tagged with weighted measuring tape).

1030 Standby. Waiting on instructions from Barr Engineering.

1430 Dropped of samples with courier.

1600 off site

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/24/18 Time On-Site: 0830 Time Off-Site: 1630
Project Name: SGPP - Bennington Project No.: 16.6131
Purpose: well installation, sampling BR-3 Field Report No:

Weather Conditions: 25°F, partly sunny
Present at Site: Keegan Moran, Cascade crew (Rob and Bryant)
Observations:

0900 PVC screen (160 ft) and riser (120 ft) arrived
Instructed by Gary Kemple to leave the bottom cap off of PVC
1015 Rinsate blank collected from PVC.
1030 Begin PVC installation
1230 PVC pipe installed. - installed to ~~273' bgs~~ ~272' bgs
1415 Drillers working on splicing wires on pump before installing drop pipe.
1515 Drillers begin installing 2" drop pipe downhole.
1630 Pump, drop pipe set (pump set to ~256 ft bgs)
1630 off site.

Items to Verify:

List of Attachments:
Field Log Prepared by:
Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/25/18 Time On-Site: 0845 Time Off-Site: 1700

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: MWBR-3 sampling: FINAL SAMPLE FOR CSM Field Report No:

Weather Conditions: 10° F, sunny, clear skies

Present at Site: Keegan Donovan, Cascade

Observations:

0915 Attempted to measure SWL - but rock collapse did not allow pump to pass 160' bgs.

0935 Pump started.

1030 Begin sampling.

1045 Sampling completed.

1215 Drop pipe, pump tripped out. Need to decon. before mobilizing to MWBR-2 on landfill.

1630 GWL - 129.23' (measured from top of steel casing)

1645 Decontamination completed at wellsite (MWBR-3) using steamer. Loading pipe for mobilization to MWBR-2.

1700 Off site.

1715 Dropped off samples to courier.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 1/26/18 Time On-Site: 0830 Time Off-Site: 1330

Project Name: SGPP- Bamington Project No.: 16.6131

Purpose: MWBR-2 sampling : FINAL SAMPLE FOR CSM1 Field Report No:

Weather Conditions: Sunny, 7°F, clear skies

Present at Site: Keegan Donovan, Cascade Drilling

Observations:

0915 Setting up pipe, pump, generator, starter box.

1010 Pump, drop pipe installed.

1020 GWL (static) 113.6' (from top of casing)

Total depth of hole = 260'.

1045 pump turned down to 1 gpm. Attempted to fix malfunctioning water level meter. Unsuccessful. Would not indicate water in borehole, but would detect water in 5 gal bucket above ground.

1110 Turned pump back to 30 gpm

1145 Begin sampling.

1235 Sampling complete (includes MS/MSD)

* Pumped turned down to 1 gpm between 1040 and 1110.

offsite 1330.

Dropped samples off to Cliff Bandi.

Items to Verify:

List of Attachments:

Field Log Prepared by:

Copies to:

Appendix A.3

Field Boring Logs

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.:	SØ1		
ELEV.:		DATUM:	
START DATE:	9.5.17	FINISH DATE:	
SHEET	1 of 1		

PROJECT: SG3
LOCATION: SØ1 - Rollin Rd / Horton Hill Rd
CTM PROJECT NO.: 16.6131
CTM OBSERVER: RAR

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	6"	0-1.7 Light Brown coarse to fine (+) Sand, some coarse to fine Gravel, little Clayey Silt. Loose, dry, no stain, no odor.	0-1.5 Collected by hand auger
	0.5-1	2	6"		
	1-1.5	3	6"		
2					Probe 1.5-4'
	1.5 to 4	4	3.2	1.7-3.2: L+Brown Clayey (-) Silt, trace fine Sand. Soft, dry no stain, no sheen, no odor.	
4					Probe 4-8'
	4 to 6	5	3.3	3.2-10' Light Brown coarse to fine Sand, some coarse to fine Gravel, little Clayey (-) Silt. Loose. Dry. No stain, no sheen, no odor. Clayey Silt layer 7.6-7.8	
6					
8					Probe 8-10'
	9 to 10	6	0.3	* Saturated below 7.5 ft	Collect GW Sample
10				Set temp screen 4-9 ft.	No sheen on GW.
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: 7822DT
METHOD OF SAMPLING: Hand Auger 0-1.5, Probe > 1.5 ft.

GROUNDWATER LEVEL READINGS

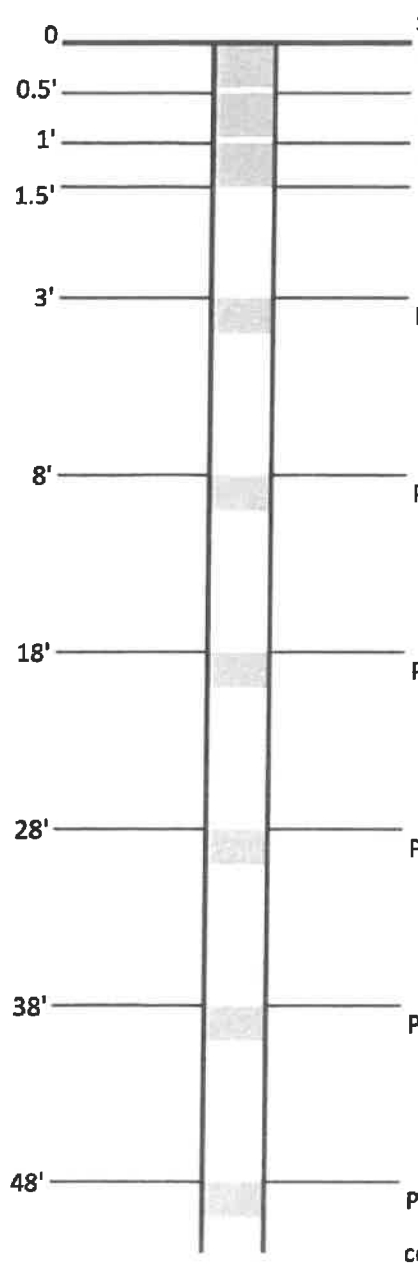
DATE	LEVEL	REFERENCE MEASURING POINT
9.5.17	5.8	Ground surface

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SG3 - SØ1

Shallow
~~DEEP~~ SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content SG3 - SØ1 - 0 - 0.5' (1300) (1315/1510)

PFCs, pH, TOC, moisture content SG3 - SØ1 - 0.5 - 1' (1330)
SG3 - FD11 - 170905 = Duplicate

PFCs, pH, TOC, moisture content SG3 - SØ1 - 1 - 1.5 (1340)

PFCs, pH, TOC, moisture content SG3 - SØ1 - 3 - 4' (1400)

PFCs, pH, TOC, moisture content SG3 - SØ1 - 6.5 - 7.5 (1425)
Saturated at 7.5
1515 Groundwater Sample
SG3 - SØ1 - 170905

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: St Gobain- Bennington	PROJECT #: 16.613	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9.5.17	
LOCATION: S-05			
INSTRUMENT USED: FA0718 MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9.5.17	
DATE INSTRUMENT CALIBRATED: 9.5.17	BY: JMS	ANALYST: JMS.	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S05	1	0-0.5	Soil/G	0.9	0.1	No stain, no odor.
S05	2	0.5-1	Grab	1.0	0.1	No Stain, no odor
S05	3	1-1.5	Grab	0.9	0.1	No Stain, no odor.
S05	4	1.5-3	Grab	1.0	0.1	No Stain, no odor.
S05	4	3-4	Grab	1.1	0.0	No Stain, no odor.
S05	5	4-8	Grab	0.9	0.0	No Stain, no odor.
S05	6	9-10	Grab	1.1	0.0	No Stain, no odor.
SΦ1	1	0-0.5	Grab	0.7	0.1	No Stain, no odor
SΦ1	2	0.5-1	Grab	0.9	0.1	No Stain, no odor
SΦ1	3	1-1.5	Grab	0.9	0.1	No Stain, no odor
SΦ1 BAK	~~4~~ 4	1.5-3	Grab	0.9	0.1	No Stain, no odor
SΦ1 BAK	~~5~~ 5	4-8	Grab	1.0	0.1	No Stain, no odor
S01 9.5.17	~~6~~ 6	9-10	Grab	1.2	0.1	No Stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SO2
ELEV.:
START DATE: 9.7.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.7.17

PROJECT: SGPP Bennington
LOCATION: Bennington, VT
~~CTM~~ PROJECT NO.: 32421001.03 (16131)
~~CTM~~ OBSERVER: ~~RQM~~ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5 0.5-1 1-1.5	1 2 3	.5 .5 .5	0 to 1.5 ft: Medium Brown coarse to fine Sand, little Clayey Silt, little(+) medium to fine Gravel. Loose, moist, no stain, no odor (0-0.5) Slight Petroleum odor (0.5-1 Sample) Petroleum stain/odor 1-1.5 Sample)	Hand Auger 0-0.5, 0.5-1, 1-1.5 ft. 0.5-1: Slight Petroleum odor (boring in roadside ditch). 1-1.5- Petroleum odor and staining.
4	1.5 to 4	4	1.6		
6	4 to 8	5	1.9	1.5-9.6: Light Brown coarse to fine(+) Sand, some coarse(+) to fine Gravel. Dry, Loose, no stain, no odor.	Probe 1.5-4 ft. Probe 4-8 ft
8					
10	8 to 10	6	1.5	9.6-10: Light Brown Clayey(-) Silt, some coarse to fine(+) Sand, some fine Gravel. Dry to moist, no stain, no sheen; no odor, soft.	Probe 8-10'
12					Probe hole with water level indicator - No Groundwater
14				End of boring at 10 ft. Backfill with cuttings.	
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE 7822 DT
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

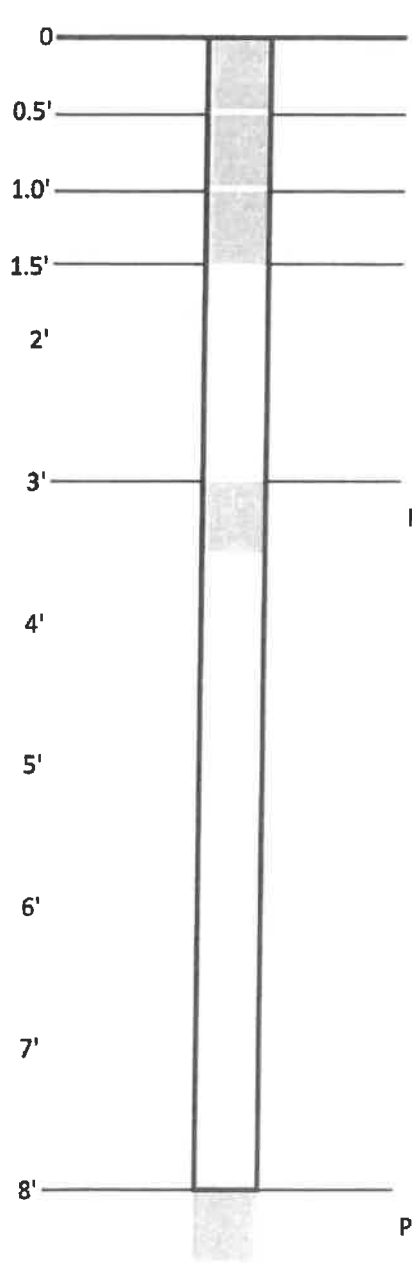
DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

SØ2

SHALLOW SOIL PROFILES



PFCs, pH, TOC, moisture content 0900 SG3-SO2-0-0.5

PFCs, pH, TOC, moisture content 0910 SG3-SO2-~~0-0~~ 0.5-1' AH 9.7.17

PFCs, pH, TOC, moisture content 0920 SG3-SO2-1-1.5'

PFCs, pH, TOC, moisture content 0945 SG3-SO2-3-4'
Sample required 3 coves for Volume.

PFCs, pH, TOC, moisture content 1010 :SG3-SO2-8-9'
No volume left for PID.

GROUNDWATER (if encountered) No GW

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SG3-St Gobain Bennington	PROJECT #: 16-6131	PAGE 1 OF 1	
CLIENT:		DATE COLLECTED: 9.7.17	
LOCATION: SO2, S11			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9.7.17	
DATE INSTRUMENT CALIBRATED:	BY: DAK		
TEMPERATURE OF SOIL: ambient		ANALYST: DAK	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SO2	1	0-0.5	S	1.4	0.2	No Stain, no odor
SO2	2	0.5-1	S	4.3	0.2	No Stain, ~~no odor~~ slight Petrol odor.
SO2	3	1-1.5	S	33	0.2	Petrol stain & odor
SO2	4	1.5-3	S	17	0.3	No stain, no odor
SO2	4	3-4	S	1.1	0.3	No stain, no odor
SO2	5	4-6	S	1.0	0.2	No stain, no odor
SO2 S11	1	0-0.5	S	2.1	0.1	No stain, no odor
SO2 S11	2	0.5-1	S	35	0.2	No Stain, no odor
SO2 S11	3	1-1.5	S	18	0.2	No stain, no odor
SO2 S11	4	1.5-3	S	5.2	0.1	No Stain, no odor
SO2 S11	4	3-4	S	11	0.1	No Stain, no odor
S11	5	4-8	S	1.0	0.1	No Stain, no odor.
S-11	6	8-10	S	2.4	0.1	No Stain, no odor
SO3	1	0-0.5	S	1.1	0.0	No Stain, no odor
SO3	2	0.5-1	S	1.0	0.1	No Stain, no odor
SO3	3	1-1.5	S	1.0	0.1	No Stain, no odor
SO3	4	1.5-3	S	0.8	0.1	No Stain, no odor
SO3	4	3-4	S	1.1	0.1	No Stain, no odor.
SO3	5	4-6	NO SAMPLE FOR PID			

DAK 9.7.17

DAK 9.7.17

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SO3
ELEV.: DATUM:
START DATE: 9-7-17 FINISH DATE: 9.7.17
SHEET 1 of 1

PROJECT: SG3-St Gobain Bennington CTM PROJECT NO.: 16.613
LOCATION: SO3 - Cleaveland St - Shaftsbury CTM OBSERVER: DAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.7: Medium Brown coarse to fine Sand, and coarse(+) to fine Gravel (crushed stone). Dry, no stain, no odor, loose	Hand Auger 0-0.5, 0.5-1, 1-1.5.
	0.5-1	2	0.5		
2	1-1.5	3	0.5		
	1.5 to 4	4	0.6	0.7-2.8: Medium Brown coarse to fine (+) Sand, some Clayey (-) Silt, some coarse to fine Gravel. Moist, Loose no stain, no odor.	Probe 1.5-4
4					
	4 to 8	5	1.8	2.8 to 7.3 - Medium Brown organic Clay. Moist, soft, no stain, no odor.	Probe 4-8
6					
				7.3-10: Medium Brown coarse to fine Sand and coarse to fine Gravel, some Clayey Silt. Wet to saturated.	Probe 8-10
8					Saturated below 7.6ft.
	8 to 10	6	0.3		- Set temp screen 5-10ft.
10				Bottom at 10ft	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: 7822DT Geoprobe
METHOD OF SAMPLING: Hand Auger 0-1.5 Probe >1.5

GROUNDWATER LEVEL READINGS

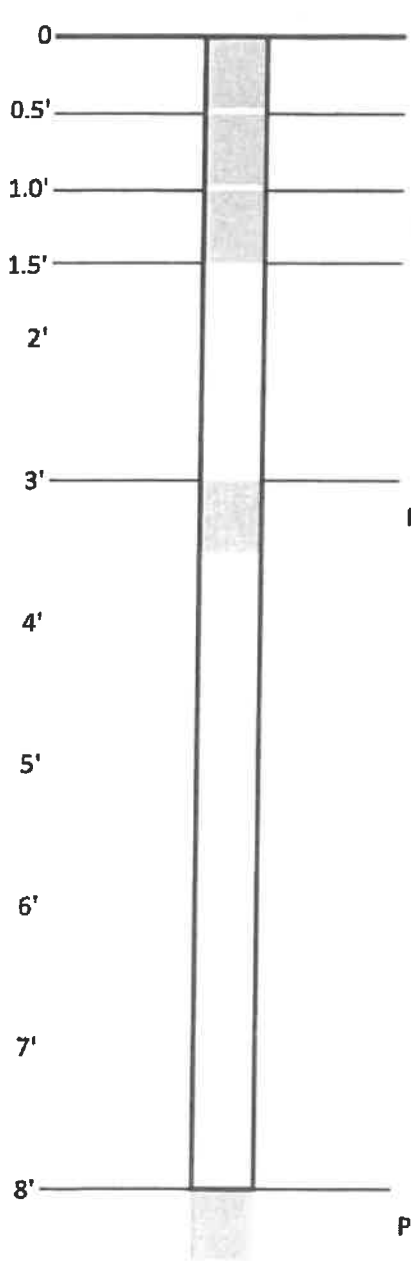
DATE	LEVEL	REFERENCE MEASURING POINT
9.7.17	7.3'	Ground Surface

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY:

SØ3

SHALLOW SOIL PROFILES



PFCs, pH, TOC, moisture content 1605 SG3-SØ3-0-0.5'

PFCs, pH, TOC, moisture content 1615 SG3-SØ3-0.5-1'

PFCs, pH, TOC, moisture content 1625 SG3-SØ3-1-1.5'

PFCs, pH, TOC, moisture content 1645 SG3-SØ3-3-4'
required 3 loves for volume.
(Organic Peat).

1705 SG3-SØ3-6.6-7.6'

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered) 9.7.17 1700: 7.3' below grade.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SG3-St.Gobain Bennington	PROJECT #: 16.6131		PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9.7.17
LOCATION: SO2, S11			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9.7.17
DATE INSTRUMENT CALIBRATED:	BY: DAK		ANALYST: DAK
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SO2	1	0-0.5	S	1.4	0.2	No Stain, no odor
SO2	2	0.5-1	S	4.3	0.2	No Stain, ~~no odor~~ slight Petrol odor.
SO2	3	1-1.5	S	33	0.2	Petrol stain & odor
SO2	4	1.5-3	S	17	0.3	No Stain, no odor
SO2	4	3-4	S	1.1	0.3	No Stain, no odor
SO2	5	4-6	S	1.0	0.2	No Stain, no odor
SO2 S11	1	0-0.5	S	2.1	0.1	No stain, no odor
SO2 S11	2	0.5-1	S	35	0.2	No Stain, no odor
SO2 S11	3	1-1.5	S	18	0.2	No Stain, no odor
SO2 S11	4	1.5-3	S	5.2	0.1	No Stain, no odor
SO2 S11	4	3-4	S	11	0.1	No Stain, no odor
S11	5	4-8	S	1.0	0.1	No Stain, no odor.
S-11	6	8-10	S	2.4	0.1	No Stain, no odor
SO3	1	0-0.5	S	1.1	0.0	No Stain, no odor
SO3	2	0.5-1	S	1.0	0.1	No Stain, no odor
SO3	3	1-1.5	S	1.0	0.1	No Stain, no odor
SO3	4	1.5-3	S	0.8	0.1	No Stain, no odor
SO3	4	3-4	S	1.1	0.1	No Stain, no odor.
SO3	5	4-8	NO SAMPLE FOR PID			

DAK 9.7.17

DAK 9.7.17

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SG4
ELEV.:
START DATE: 9.6.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.6.17

PROJECT: SG3 St. Gobain Bennington
LOCATION: 504 Lower East Rd.
CTM PROJECT NO.: 16.6131
CTM OBSERVER: DAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5 0.5-1 1-1.5	1 2 3	1.5 .5 .5	0 - 0.8: Medium Brown coarse to fine Gravel, some coarse to fine Sand, little Clayey Silt.	Loose, dry, no stain no odor.
4	1.5 to 4	4	1.9	0.8 - 2.6: Medium Brown Clayey Silt, little medium to fine Gravel, trace medium to fine Sand.	Loose, moist, no stain, no odor. Probe 1.5 - 4
6	4 to 8	5	2.4	2.6 to 10: Light Brown fine Sand, and coarse to fine Gravel. Dry, no stain, no odor. Loose. Penetrating Cobbles. Saturated at 8 ft - No sheen no odor.	Probe 4-8.
8					
10	8 to 10	6	1.4		Probe 8-10.
12				Bottom of boring at 10 ft	Collect GW Sample SG3-504-170906
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GP 7822 DT
METHOD OF SAMPLING: Hand Auger 0-1.5, Probe > 1.5

GROUNDWATER LEVEL READINGS

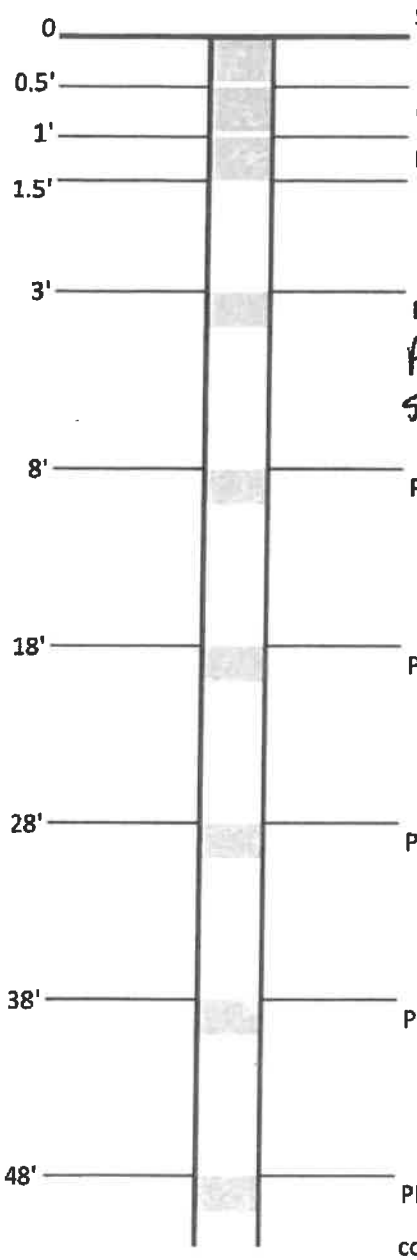
DATE	LEVEL	REFERENCE MEASURING POINT
9.6.17	6.1	Ground Surface

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY:

Shallow SΦ4

~~DEEP~~ SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content 0955: SG3-SO4-0-0.5'

PFCs, pH, TOC, moisture content 1005: SG3-SO4-0.5-1'

PFCs, pH, TOC, moisture content 1015 SG3-SO4-1-1.5

PFCs, pH, TOC, moisture content 1050: SG3-SO4-3-4'

Probe 3 holes for sufficient Volume.

PFCs, pH, TOC, moisture content 1140: SG3-SO4-7-8' (2 cores volume)

Saturated at 8ft- water rises in hole to 6.1ft set 1" screen temporary well 5-10'

PFCs, pH, TOC, moisture content

Bottom at 10ft.

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered) Saturated soil at 8ft. Comes up to 6.1ft in hole.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 563 - St. Gobain Bennington	PROJECT #: 16.6131	PAGE 1 OF	
CLIENT: Saint Gobain		DATE COLLECTED: 9.6.17	
LOCATION: SO4,			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9.6.17	
DATE INSTRUMENT CALIBRATED:	BY:	ANALYST: RAK	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SO4	1	0	0,5	0,8	0	No staining odor
SO4	2	0,5	1	0,6	0	No staining odor
SO4	3	1	1,5	0,7	0	No staining odor.
SO4	4	1,5	3	0,7	0	No staining odor
SO4	4	3	4	0,9	0	No staining odor.
SO4	5	4	7	0,9	0	No staining odor
SO4	5	7	8	0,9	0	No staining odor.

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-05
ELEV.: DATUM:
START DATE: 9.5.17 FINISH DATE: 9.5.17
SHEET 1 of 1 RAK 9.5.17

PROJECT: SG3 CTM PROJECT NO.: ~~16.3~~ 16131
LOCATION: NE Corner R+67 / Old Depot Rd CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5 0.5-1 1-1.5	1 2 3		0-6.2: Medium Brown Clayey Silt, little coarse to fine Sand, little coarse to fine Gravel. Dry to Slightly moist. Soft. No staining, no sheen, no odor.	Hand auger 0-0.5, 0.5-1, 1-1.5.
2					Probe 1.5-4 ft.
	1.5 to 4	#4	2.1		
4				6.2-8.4: Medium-light Brown Clayey (-) Silt, trace fine Sand. Dry medium stiff. No stain, no sheen, no odor.	Probe 4-8 ft.
6	4 to 8	5	3.6		
8				8.4-10: Light Brown Clayey Silt, some coarse to fine Sand, little coarse to fine (+) Gravel. Dry. Medium Stiff. No stain, no sheen, no odor.	Probe 8-10ft.
	8 to 10	6	2.0		
10					
12					
14					Groundwater not encountered, checked with water level probe.
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: 7822 DT
METHOD OF SAMPLING: Hand auger 0-1.5, Probe > 1.5

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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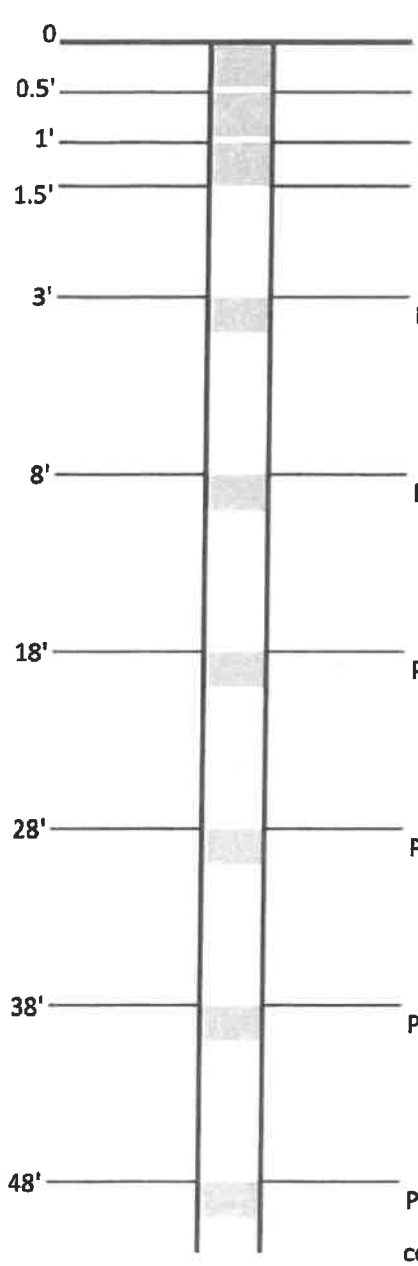
Shallow - S05 9/5/17 RAK

~~DEEP~~ SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content 0915 : SG3 - S05 - 0 - 0.5'

PFCs, pH, TOC, moisture content 0925 : SG3 - S05 - ~~0 - 0.5~~ 0.5 - 1

PFCs, pH, TOC, moisture content 0930 : SG3 - S05 - ~~1~~ 1 - 1.5

PFCs, pH, TOC, moisture content 0945 : SG3 - S05 - 3 - 4'

PFCs, pH, TOC, moisture content 1030 : SG3 - S05 - 8 - 9'

Bottom of Boring at 10'
No Groundwater.

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: St Gobain- Bennington	PROJECT #: 16.6131	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9.5.17	
LOCATION: S-05			
INSTRUMENT USED: FA0715 MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9.5.17	
DATE INSTRUMENT CALIBRATED: 9.5.17	BY: JMS	ANALYST: JMS.	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S05	1	0-0.5	Soil/Grab	0.9	0.1	No stain, no odor.
S05	2	0.5-1	Grab	1.0	0.1	No stain, no odor
S05	3	1-1.5	Grab	0.9	0.1	No stain, no odor.
S05	4	1.5-3	Grab	1.0	0.1	No stain, no odor.
S05	4	3-4	Grab	1.1	0.0	No stain, no odor.
S05	5	4-8	Grab	0.9	0.0	No stain, no odor.
S05	6	9-10	Grab	1.1	0.0	No stain, no odor.
SØ1	1	0-0.5	Grab	0.7	0.1	No stain, no odor
SØ1	2	0.5-1	Grab	0.9	0.1	No stain, no odor
SØ1	3	1-1.5	Grab	0.9	0.1	No stain, no odor
SØ1 BAK	~~4~~ 5	1.5-3	Grab	0.9	0.1	No stain, no odor
SØ1 BAK	~~5~~ 5	4-8	Grab	1.0	0.1	No stain, no odor
S01 9.5.17	~~6~~ 6	9-10	Grab	1.2	0.1	No stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: ~~BP6~~ S-06
ELEV.: DATUM:
START DATE: 8/14/17 FINISH DATE: 8/14/17
SHEET 1 of 1

PROJECT: SGPP - Bennington
LOCATION: Bennington VT.
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
					M/OD/SH
2	0-1	1	0.8'	(SM) Silty Sand w/ gravel; Fg-Cg sand; ~15% Fine gravel decreased w/ depth, ~15% fines gy-bn. no Disc/sheen/odor	2 pushes to 1' all soil used in Samples M/NO/NA
4	1-4	2	2.5	CL lean clay w/ sand, ~15% Fg-Mg Sand low plast, low tough; dk gy bn (2.5Y 4/2) soft.	2 pushes to 4' M/NO/NA
6	4.5' 4-8	3	2.3'	SC Clayey Sand w/ gravel; Fg-Cg Sand; ~20% clayey fines; ~15% F. gravel Mostly Slate & Qtzite; DK gy-bn 2.5Y 4/2	2 pushes 4-8' M/NO/NO
8	8-9'	4	0.5'	as above - poor Recovery - Driller Hit cobble at 8.5' bgs - use soil in ~~temp~~ KAM sample. Qtzite & Slate predominant	2 pushes 8-9' M/NO/NA
10				EOB 9' - No H2O observed	
12					Most soil consumed over sample intervals - Headspace measurements collected
14					
16					

DRILLING CONTRACTOR: Cascade Drilling
DIRECT-PUSH TYPE: Track Rig
METHOD OF SAMPLING: Macro-Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY: KAM

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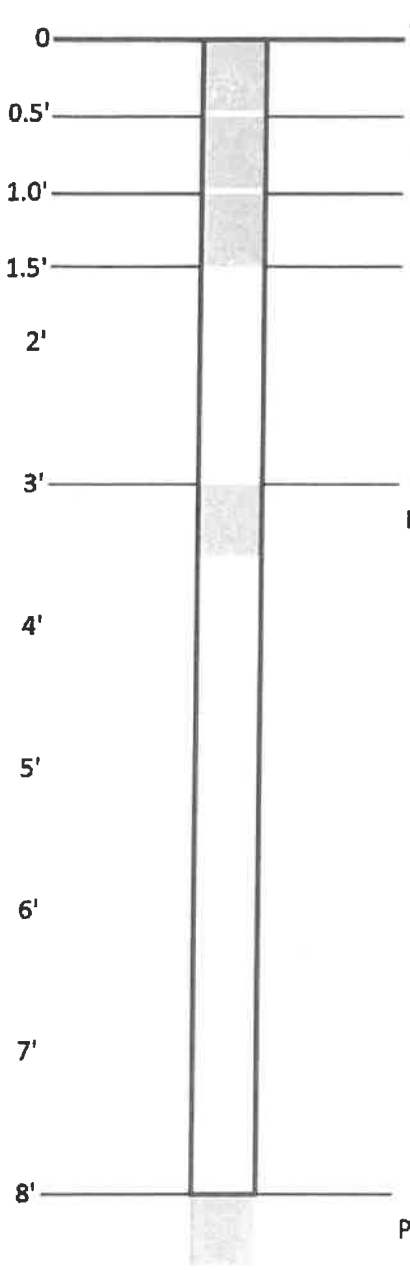
~~B06~~ 8/14/17 KAM
S-06

SHALLOW SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content 15:35 SG3-B06-0-0.5'

PFCs, pH, TOC, moisture content 15:40 SG3-B06-0.5-1'

PFCs, pH, TOC, moisture content 16:30 SG3-B06-1-1.5

PFCs, pH, TOC, moisture content 16:35 SG3-B06-3-4'

Push 0-1' 2 times
Push 1-4' 2 times

Push 4-8' 2 times to clear for 8-9' push

SG3-B06-8-9'
PFCs, pH, TOC, moisture content 17:10

push 8-9' 2 times
Low Recovery for both (0.1')

GROUNDWATER (if encountered) None encountered

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Deming fac VT	PROJECT #: 324260001.03	PAGE 1 OF 1	
CLIENT: Shaw Global performance plastics		DATE COLLECTED: 8/14/17	
LOCATION: Reception VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 8/14/17	
DATE INSTRUMENT CALIBRATED:	BY:	ANALYST: KMM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SB06	2	1.5-3'	Soil	0.0	0.0	No odor/sheen/Dry
SB06	3	4-6'	Soil	0.0	0.0	no odor/sheen/moist
SB06	3	6-8'	Soil	0.0	0.0	no odor/sheen/moist
KMM						

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S07
ELEV.: DATUM:
START DATE: 8/18/17 FINISH DATE: 8/18/17
SHEET 1 of 1

PROJECT: SGPP CTM PROJECT NO.: 3242002.03
LOCATION: Bennington VT ~~CTM~~ OBSERVER: Kam

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5	1	0.5	grass at surface, (0-0.2') OL/OH sandy Topsoil, clayey, ~~fines~~, V. dk brn; abundant Rootlets; trace F. gravel	3" Hand Auger 0-0.5' 0.5-1 1-1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5		
4	1.5-4'	4	2.5'	(0.2-0.7) SM silty Sand; fg-cg Sand w/ ~10% F gravel; ~20% fines & w/ depth Brn, tr. Rootlets 0.7-7.3' (CL) silty clay; soft; tr. Sand & Fine gravel; freq to trace Rootlets in upper portion	Macro core 1.5-4' x2 4-8' x2 8-10' x2
6					
8	4-8'	5	3.8'	7.3-8.5' (ML/CL) ~~SIL~~ (KFM) Clayey Silt tr. fg Sand, tr-Sl. F. gravel, Ang to Sub-Rnd.	Need extra volume for split sampling
10	8-10'	6	2.0'	8.5-10' (CL) Sandy lean clay firm; ~~ufg~~ ~~fm~~ ~ 40% fg-cg Sand Low-med plast & tough; ~ 5% F. gravel; Ang to Sub-Rnd grains & clasts, Large pulverized Rock in the cutting Shoe, moist	
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Macro Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Boring Dry.

SAMPLE CLASSIFICATION BY:

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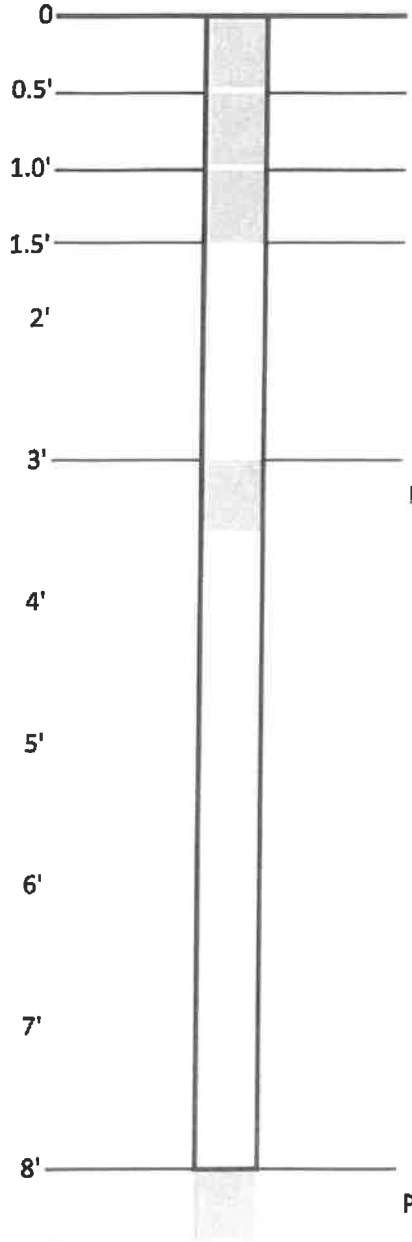
SØ7 KAM 8/18/12

SHALLOW SOIL PROFILES



Set up trip blanks
SG3-LTB05-170818 & SG3-LTB05-170818 @ 08:00

SOIL

PFCs, pH, TOC, moisture content SG3-SØ7-0-0.5' @ 08:20

PFCs, pH, TOC, moisture content SG3-SØ7-0.5-1' @ 08:30

PFCs, pH, TOC, moisture content SG3-SØ7-1-1.5' @ 08:40

PFCs, pH, TOC, moisture content SG3-SØ7-3-4' @ 09:00

SG3-SØ7-8-9' @ 09:25

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered) No GW encountered.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32420001.03	**PROJECT #:**		**PAGE** 1 **OF** 1
CLIENT: SAPP			**DATE COLLECTED:** 8/18/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 8/18/17
DATE INSTRUMENT CALIBRATED: 8/18/17	**BY:** KAM		**ANALYST:** KAM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SΦ7	1	0-0.5'	Soil	0.3	0.1	No odor/sheen/Disco
SΦ7	2	0.5-1'	Soil	0.4	0.1	No odor/sheen/Disco
SΦ7	3	1-1.5'	Soil	0.2	0.1	No odor/sheen/Disco
SΦ7	4	1.5-3'	Soil	0.2	0.1	No odor/sheen/Disco
SΦ7	5	3-4'	Soil	0.3	0.1	No odor/sheen/Disco
SΦ7	6	4-8'	Soil	0.3	0.1	No odor/sheen/Disco
SΦ7	7	8-9'	Soil	0.4	0.1	No odor/sheen/Disco
SΦ7	8	9-10'	Soil	0.3	0.1	No odor/sheen/Disco
S30	1	0.5-1	Soil	1.8	0.2	No odor/sheen/Disco
S30	2	1-1.5	Soil	1.9	0.2	No odor/sheen/Disco
S30	3	1.5-3	Soil	0.4	0.2	No odor/sheen/Disco
S30	4	3-4	Soil	0.4	0.2	No odor/sheen/Disco
S30	5	4-8	Soil	0.4	0.2	No odor/sheen/Disco
S30	6	8-9	Soil	0.5	0.2	No odor/sheen/disco
S30	7	9-10	Soil	0.4	0.2	No odor/sheen/disco
		0-0.5	Soil	17.1	0.2	
		0.5 1		1.5	0.4	
		1-1.5		0.5	0.4	
		1.5-3		2.3	0.4	
		3-4'		14.8	0.4	
		4-8'		0.6	0.4	
		8-10		0.5	0.4	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SG8
ELEV.: DATUM:
START DATE: 9.8.17 FINISH DATE: 9.8.17
SHEET 1 of 1

PROJECT: SG3-St. Gobain Bennington CTM PROJECT NO.: 16-6131
LOCATION: SG8-Townline Road CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5 0.5-1 1-1.5	1 2 3	0.5 0.5 0.5	0-3.9: Light Brown organic Silt, trace fine Sand. Soft, moist. No stain, no odor. Same material/color change to dark brown below 1.2 ft.	Hand Auger Samples 0-0.5, 0.5-1, 1-1.5 Probe 1.5-4' GW at 2.2 ft. Temp screen 3-8 ft.
4	1.5 to 4	4	1.8		
6	4 to 8	5	3.4	3.9-4.3: Medium Brown medium to fine Gravel, some Clayey(-) Silt. Saturated, no sheen, no odor. Soft. 4.3-8': Medium Brown and gray clayey Silt, trace fine Sand. Moist, Stiff. No stain, no odor.	
8					
10					
12				Bottom at 8' Backfilled with cuttings.	Collected GW Sample SG3-SG8-170908
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger 0-1.5, Probe >1.5

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9.8.17	2.1	Grnd Surface

SAMPLE CLASSIFICATION BY:

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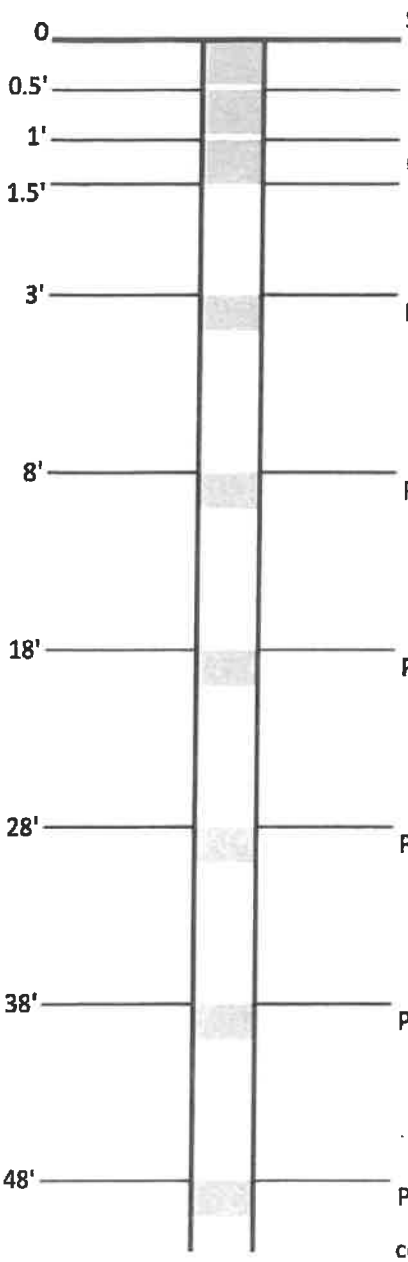
SØ8

Shallow
~~DEEP~~ SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content 1220: SG3-SØ8-0-0.5

PFCs, pH, TOC, moisture content 1240: SG3-SØ8-0.5-1

PFCs, pH, TOC, moisture content 1245: SG3-SØ8-1-1.5

GW at 2.2 ft below grade.

PFCs, pH, TOC, moisture content 1250: SG3-SØ8-1.5-2.2'

Set Screen (temp) 1"
3 ~~5~~ ft. -
Bottom at 8'

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered) 2.2 ft below grade - No sheen, no odor

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

~~SG~~ KAM 9/12/17 SG3-SØ8-170908

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 563- St. GoBAIN Bennington		PROJECT #: 16-6131	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-8-17
LOCATION: SØ8			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-8-17
DATE INSTRUMENT CALIBRATED: 9-8-17	BY: JMS		ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SØ8	1	0-0.5	S	3.0	0.0	No stain, no odor
SØ8	2	0.5-1	S	1.1	0.1	No stain, no odor.
SØ8	3	1-1.5	S	1.1	0.1	No Stain, no odor
SØ8	4	1.5-2.2	S	0.6	0.0	No Stain, no odor
SØ8	4	2.2-4	S	1.1	0.1	No Stain, no odor
SØ8	5	4-8	S	0.8	0.1	No Stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-09
ELEV.: DATUM:
START DATE: 8/22/2017 FINISH DATE: 8/22/2017
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	grass @ surface, pine needles + acorns interspersed	3" H.A. to 1.5'
	0.5-1'	2	0.5	0-1.2' OL/OH: V dk. brn., moist, some fg sand, very silty.	M.C. 1.5' to EOB
	1-1.5'	3	0.5	1.2-3.0' SM: Fg, light tan to light pale brown, fg, some silt fines, moist, few rounded gravel	
2					
	1.5-4'	4	2.0'	3.0-4.8' MLs: Yellowish brown to dk yellowish brown, moist, rapid dilat., possibly SM, nonplastic, fg sand ~45%.	low rec from 1.5-4'(~1') offset ~12" south and re-drove. (S-09b on GPS)
				[gradational contact over ~2"]	
4				4.8-10.0' SM: Fg, moist, dk ylw brn to ylw brn, some silt fines, trc fg gravel	
6	4-8'	5	2.6'		
8					
	8-10'	6	2.0'	-At 8.5', becomes ylw brn	
10				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

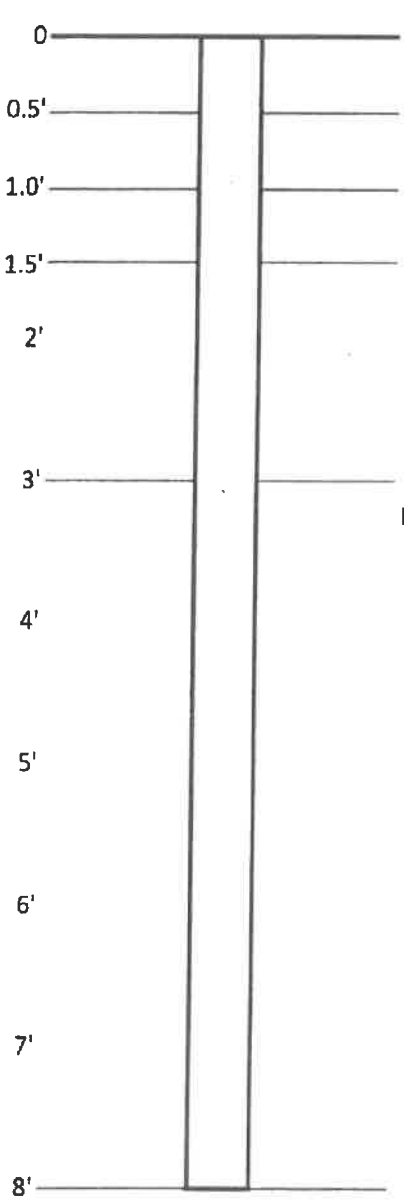
DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S-09 8/22/2017

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

PFCs, pH, TOC, moisture content SG3-S09-0-0.5' @ 15:25

PFCs, pH, TOC, moisture content SG3-S09-0.5-1' @ 15:35

PFCs, pH, TOC, moisture content SG3-S09-1-1.5' @ 15:40

PFCs, pH, TOC, moisture content SG3-S09-3-4' @ 15:45

PFCs, pH, TOC, moisture content SG3-S09-8-9' @ 16:00

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03		PROJECT #:	PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/21/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 08/22/2017		BY: RQM	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-35	5	4-8'	SOIL	0.3	0.0	No D/O/S
S-35	6	8-9'	SOIL	0.2	0.0	No D/O/S
S-35	6	9-10'	SOIL	0.1	0.0	No D/O/S
S-09	1	0-0.5'	SOIL	0.3	0.2	No D/O/S
S-09	2	0.5-1'	SOIL	0.3	0.2	No D/O/S
S-09	3	1-1.5'	SOIL	0.4	0.2	No D/O/S
S-09	4	1.5-3'	SOIL	0.3	0.2	No D/O/S
S-09	4	3-4'	SOIL	0.4	0.2	No D/O/S
S-09	5	4-8'	SOIL	0.6	0.2	No D/O/S
S-09	6	8-9'	SOIL	0.3	0.2	No D/O/S
S-09	6	9-10'	SOIL	0.3	0.2	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-10
ELEV.: DATUM:
START DATE: 8/23/17 FINISH DATE: 8/23/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~GTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~GTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.7' OL/OHg: V. dk. brn., moist, abundant roots, little fg gravel	3" HA to 1.5'
	0.5-1'	2	0.5		M.C. 1.5' to EOB
	1-1.5'	3	0.5	0.7-1.4' CLsg: Dk brn, moist, low-med plast., silty, some fg-cg sand + fg gravel, trc roots in upper 0.5'	
2					
	1.5-4'	4	2.4'	1.4-4.2' OL/OHg: Organic clayey soil, abundant roots, brown to lt. brn, low-med plast, slow dilat., firm, little qtzite gvl.	low recov 1.5-4' (1.1'), offset 12" N (S-10b on GPS) + re-drove, contng in that loc. drove gvl.
				4.2-5.2' CLg: Brown, moist, med. plast, little to some qtzite gvl.	
4					
				5.2-8' GC: Brown, fg-cg ang. gvl., wet, ~~mat~~ clast-supp., clayey matrix is med plast. soft. Soil is wet @ 5.1', sampling 4.1-5.1', WL came up to 3.9' after ~20 minutes.	low recov. again @ N offset, offsetting ~12" further N (S-10c) + re-driving. Drove gvl again. Hit a lot of grv. @ S-10c so moving back to S-10b to cont. 4-8'.
6	4-8'	5	3.2'		
8					
				EOB @ 8'	Hit gvl @ 5.5 + recov'd nothing 5.5-8' (@ S-10b), driving 4-8' @ S-10 (orig) for more sample vol. WL initially @ 5.1' @ S-10b, will check @ S-10 (orig) after 4-8' drive.
10				Screened 3-8' @ first offset (S-10b)	
12				Collected water sample: SG3-S10-170823	
				Collected DUP water sample: SG3-FD06-170823	WL @ 3.9' @ S-10b, installing screen 3-8' there, hole caved @ 6' before screen install.
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
8/23	5.1	gst, 5min after adv.
8/23	4.6	gst, 10 min after adv.
8/23	3.9	gst, 20 min after adv.

SAMPLE CLASSIFICATION BY: RQM

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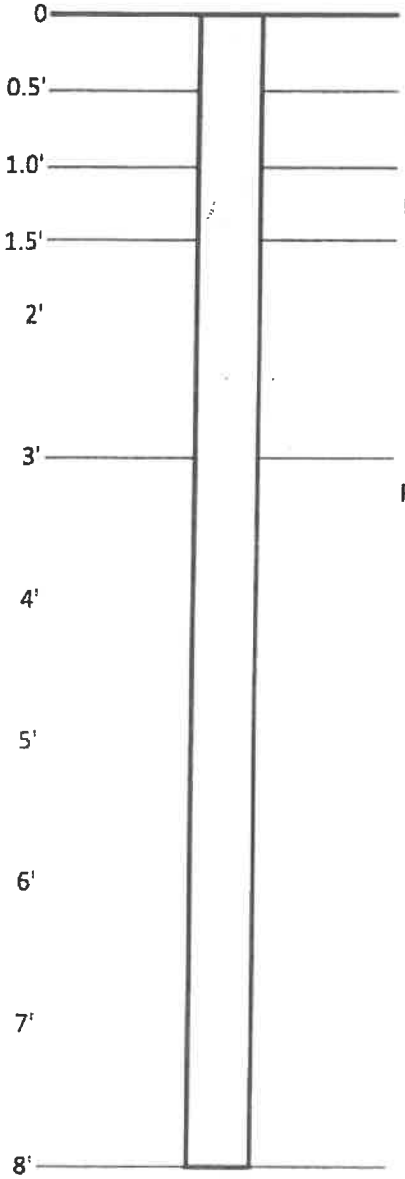
S-10 8/23/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL Collected DUP (of wat. sample): SG3-FD06-170823

PFCs, pH, TOC, moisture content SG3-S10-0-0.5' @ 14:30

PFCs, pH, TOC, moisture content SG3-S10-0.5-1' @ 14:35

PFCs, pH, TOC, moisture content SG3-S10-1-1.5' @ 14:40

PFCs, pH, TOC, moisture content SG3-S10-3-4' @ 15:15

SG3-S10-4.1-5.1' @ 15:30

Wet soil @ 5.1', initial WL @ 5.1', WL rose to 3.9' after ~20 minutes.

Water sample:
SG3-S10-170823
(screened 3-8')

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 3242\001.03				PROJECT #:			PAGE OF
CLIENT: SGPP							DATE COLLECTED: 8/23/2017
LOCATION: Bennington, VT							
INSTRUMENT USED: MiniRae 3000				LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:				BY:			ANALYST:
TEMPERATURE OF SOIL: ambient							
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS	
BG-02	1	0-0.5'	SOIL	0.4	0.0	No D/O/S	
BG-02	2	0.5-1'	SOIL	0.4	0.0	No D/O/S	
BG-02	3	1-1.5'	SOIL	0.3	0.0	No D/O/S	
BG-02	4	1.5-3'	SOIL	0.3	0.0	No D/O/S	
BG-02	4	3-4'	SOIL	0.3	0.0	No D/O/S	
BG-02	5	4-8'	SOIL	0.1	0.0	No D/O/S	
BG-02	6	8-9'	SOIL	0.2	0.0	No D/O/S	
BG-02	6	9-10'	SOIL	0.1	0.0	No D/O/S	
S-10	1	0-0.5'	SOIL	1.3	0.2	No D/O/S	
S-10	2	0.5-1'	SOIL	0.8	0.2	No D/O/S	
S-10	3	1-1.5'	SOIL	1.0	0.2	No D/O/S	
S-10	4	1.5-3'	SOIL	0.8	0.2	No D/O/S	
S-10	4	3-4'	SOIL	0.6	0.1	No D/O/S	
S-10	5	4.1-5.1'	SOIL	0.2	0.1	No D/O/S	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-11
ELEV.: DATUM:
START DATE: 8/28/17 FINISH DATE: 8/26/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.3 OL/OH: V. dk. brn, moist, mostly root mat, silty	3" HA to 1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.3-4.3' SM: Brown to lt. brown, moist, fg-cg, mostly mg-cg, trc roots to 0.6', little to some gravel, ~30% fines.	M.C. to EOB
2					
	1.5-4	4	1.8		Low rec. (~0.2') from 1.5-4'; offset & redrove (S-11b). S-11b ~12" W of orig. loc., 4-10' drilled @ S-11b.
				4.3-8' CL: Lt brown to tan, moist, med. plast, no dilat, silty, lyrs (<0.1"), trc angular gravel.	
4					
				8-10' CH: Lt greyish brown to brownish grey, laminated with thin lams of silt, silt is grey, CH produces very wk. rxn w/ HCl, high plast./tough, no dilat.	
6	4-8'	5	2.2'		
8					
	8-10'	6	2.2'		
10					
				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY: RQM

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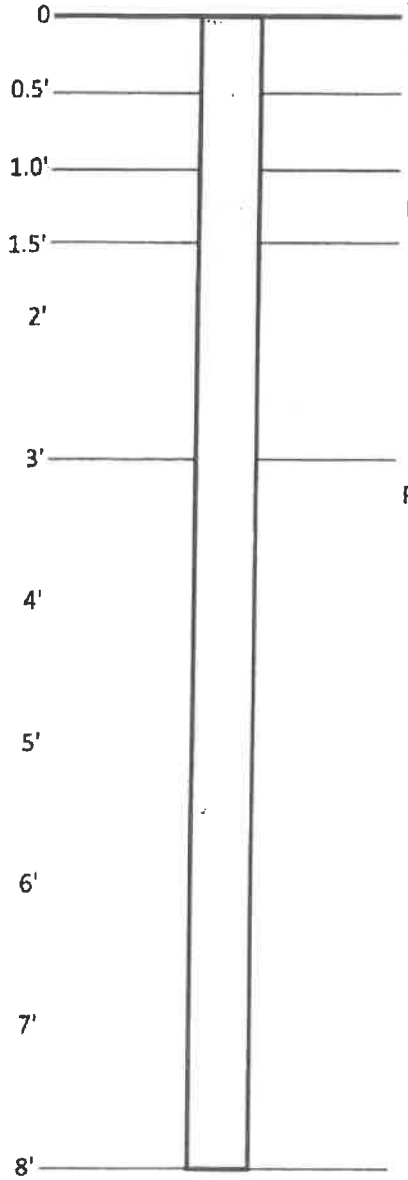
S-11 8/28/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

Collected SG3-FD09-170828 from 1-1.5' @ ~09:10
Collected SG3-FD10-170828 from 8-9' @ ~09:40
Collected SG3-FB09-170828 after decon @ 1015 - ~~PURGE~~ RINSATE

PFCs, pH, TOC, moisture content SG3-S11-0-0.5' @ 0850

PFCs, pH, TOC, moisture content SG3-S11-0.5-1' @ 0855

PFCs, pH, TOC, moisture content SG3-S11-1-1.5' @ 0905
(collected SG3-FD09-170828 here)

PFCs, pH, TOC, moisture content SG3-S11-3-4' @ 0915

PFCs, pH, TOC, moisture content SG3-S11-8-9' @ 0930
(collected SG3-FD10-170828 here)

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03		PROJECT #:	PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/28/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/28/17		BY: RQM	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-11	1	0-0.5	SOIL	7.8	0.1	No D/O/S
S-11	2	0.5-1	SOIL	9.0	0.1	No D/O/S
S-11	3	1-1.5	SOIL	9.1	0.1	No D/O/S
S-11	4	1.5-3	SOIL	6.3	0.1	No D/O/S
S-11	5	4-8	SOIL	5.1	0.1	No D/O/S
S-11	6	9-10	SOIL	4.3	0.1	No D/O/S
S-14	1	0-0.5	SOIL	5.8	0.1	No D/O/S
S-14	2	0.5-1	SOIL	5.7	0.1	No D/O/S
S-14	3	1-1.5	SOIL	5.8	0.1	No D/O/S
S-14	4	1.5-3	SOIL	4.6	0.1	No D/O/S
S-14	4	3-4	SOIL	3.2	0.1	No D/O/S
S-14	5	4-8	SOIL	3.1	0.1	No D/O/S
S-14	6	9-10	SOIL	3.0	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

*Using zip-lock bags, empty bag reading = 5.5ppm

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S11
ELEV.:
DATUM:
START DATE: 9-7-17
FINISH DATE: 9-7-17
SHEET 1 of 1

PROJECT: SG3- St. Gobain Bennington
CTM PROJECT NO.: 16.613
LOCATION: S11 - Mechanic St, North Bennington
CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION (RHK 9-7-16)	NOTES
	0-0.5	1	0.5	0-1.4': Light Brown ~~clayey~~ Silty Clay, some coarse to fine Sand, some medium to fine Gravel. Moist, loose (soft), no stain, no odor.	Hand Auger Samples 0-0.5, 0.5-1, 1-1.5
	0.5-1	2	0.5		
2	1-1.5	3	0.5		
	1.5 to 4	4	2.1	1.4-4.4: Medium Brown coarse to fine Sand, some coarse to fine Gravel, trace clayey Silt. Moist, no stain, no odor. Loose.	Probe 1.5-4 ft.
4					
	4 to 8	5	4'	4.4-8.4: Light Brown and Gray clayey (-) Silt, trace (-) fine Sand, Medium stiff, dry, no stain, no odor.	Probe 4-8 ft.
6					
8					
	8 to 10	6	3.7'	8.4-8.9: Light Brown coarse (+) to fine Sand, trace Clayey Silt. Saturated, No stain, no odor, no sheen. Loose	GW at 8.4 ft to bottom of sand layer at 8.9'
10				8.9-10: Light Brown and Gray Clayey (-) Silt, trace (-) fine Sand. Moist to dry, medium stiff. No stain, No odor.	Unsaturated Silt below 8.9 ft.
12					
14				Bottom of boring at 10 ft. Backfilled with cuttings.	
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe 7822DT
METHOD OF SAMPLING: Hand auger 0-1.5, Geoprobe > 1.5 ft.

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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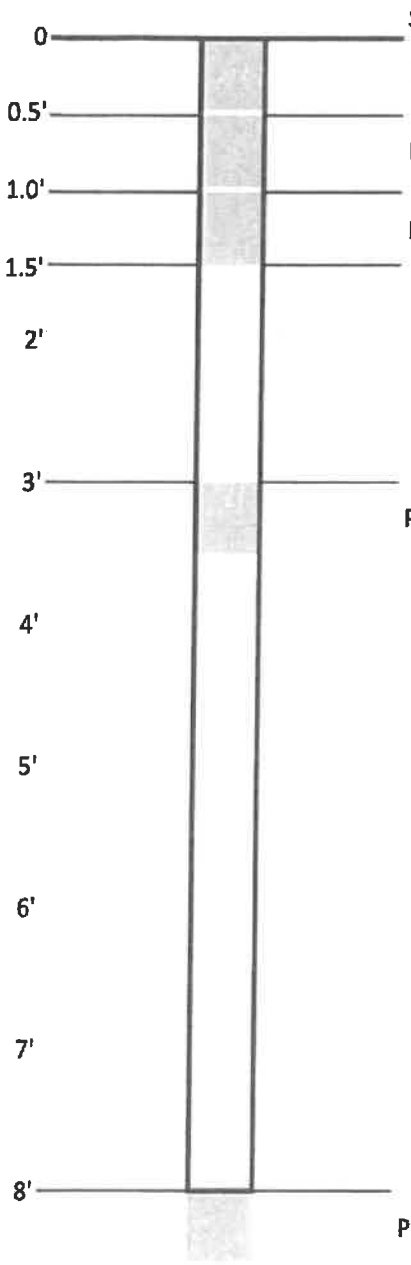
SHALLOW SOIL PROFILES

S11



SOIL

PFCs, pH, TOC, moisture content 1200: SG3-S11-0-0.5'

PFCs, pH, TOC, moisture content 1210: SG3-S11-0.5-1'

PFCs, pH, TOC, moisture content 1220: SG3-S11-1-1.5'

1240: SG3-S11-3-4'

PFCs, pH, TOC, moisture content

Combined 3 cores for sufficient volume.

1310: SG3-S11-7.4-8.4'

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered) Saturated Sand at 8.4-8.9 ft.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SG3-St Gobain Bennington	PROJECT #: 16.6131	PAGE 1 OF 1	
CLIENT:		DATE COLLECTED: 9.7.17	
LOCATION: SO2, S11		DATE ANALYZED: 9.7.17	
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	ANALYST: DAK	
DATE INSTRUMENT CALIBRATED:	BY: DAK		
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SO2	1	0-0.5	S	1.4	0.2	No Stain, no odor
SO2	2	0.5-1	S	4.3	0.2	No Stain, ~~no odor~~ slight Petrol odor.
SO2	3	1-1.5	S	33	0.2	Petrol stain & odor
SO2	4	1.5-3	S	17	0.3	No stain, no odor
SO2	4	3-4	S	1.1	0.3	No stain, no odor
SO2	5	4-6	S	1.0	0.2	No stain, no odor.
SO2 S11	1	0-0.5	S	2.1	0.1	No stain, no odor
~~SO2~~ S11	2	0.5-1	S	35	0.2	No Stain, no odor
~~SO2~~ S11	3	1-1.5	S	18	0.2	No stain, no odor
~~SO2~~ S11	4	1.5-3	S	5.2	0.1	No Stain, no odor
~~SO2~~ S11	~~4~~	3-4	S	11	0.1	No Stain, no odor
S11	5	4-8	S	1.0	0.1	No Stain, no odor.
S-11	6	8-10	S	2.4	0.1	No Stain, no odor
SO3	1	0-0.5	S	1.1	0.0	No Stain, no odor
SO3	2	0.5-1	S	1.0	0.1	No Stain, no odor
SO3	3	1-1.5	S	1.0	0.1	No Stain, no odor
SO3	4	1.5-3	S	0.8	0.1	No Stain, no odor
SO3	4	3-4	S	1.1	0.1	No Stain, no odor.
SO3	5	4-8	NO SAMPLE	FOR PID		

DAK 9.7.17

DAK 9.7.17

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-12
ELEV.:
DATUM:
START DATE: 8/25/17
FINISH DATE: 8/25/17
SHEET 1 of 1

PROJECT: SGPP Bennington
~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT
~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.4' OL/OH: Mostly fg-mg sand, moist, brown, abundant roots, trc-few fg gravel.	3" HA to 1.5'
	0.5-1'	2	0.5		
	1-1.5	3	0.5		
2				0.4-1.0' SM: Brown, fg-cg, mostly fg-mg, moist, trc organics, few fg gravel., ~25% fines.	M.C. to EOB
	1.5-4'	4	2.2	1.0-2.9' SMg: Brown, fg-cg, mostly fg-mg, moist, little to some fg gravel, ~30% fines.	
4				2.9-3.5' CLs: Till, brown, moist, little to some fg-cg Sand & gvl, medium plasticity.	
				3.5-4.0' CHg: Till, med-hi plast., blocky, moist, little fg gvl, trc-few Sand, dk brownish grey.	
6	4-8'	5	3.6'	4.0-7.7' CL: Brown, moist, few fg gvl, few fg-cg sand, med. plast., very hard.	
				From 4.5-4.9'; PEAT, v. dk brn. to blk., abundant roots & wood.	
8			3.		
	8-10'	6	3.7'	7.7-10' DECOMP'D SCHIST: V. dk. gry. to black, platy/foliated, chlorite present, trc reddish brown on fracture planes.	
10					
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

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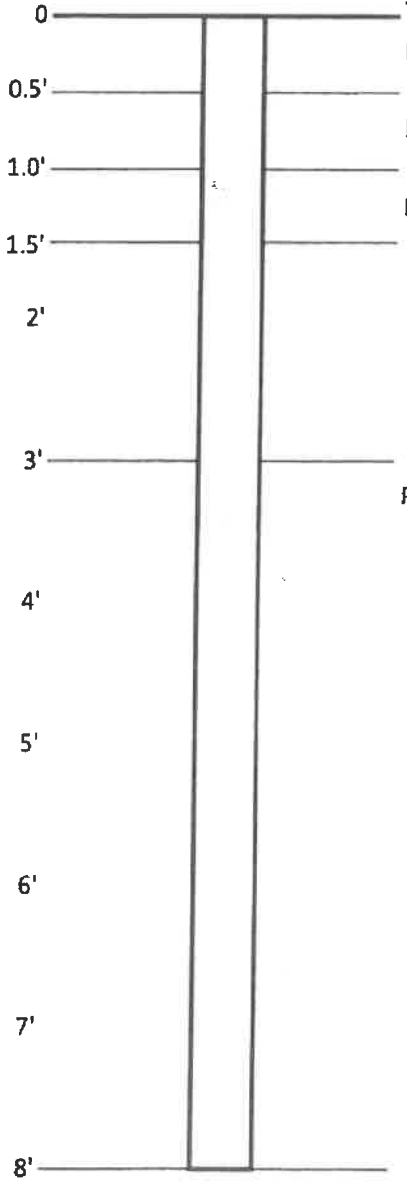
SAMPLE CLASSIFICATION BY: RQM

S-12 8/25/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

Collected SG3-FB08-170825 (pour) @ 10:35
Collected SG3-FD08-170825 from 0-0.5' @ 10:40

PFCs, pH, TOC, moisture content SG3-S12-0-0.5' @ 10:40 (+ DUP)

PFCs, pH, TOC, moisture content SG3-S12-0.5-1' @ 10:50

PFCs, pH, TOC, moisture content SG3-S12-1-1.5' @ 11:00

PFCs, pH, TOC, moisture content SG3-S12-3-4' @ 11:10

Sampled 4.5-4.9' for PFC only, not enough volume, only filled about 2/3 full. Sampled due to presence of peat. Sample: SG3-S12-4.5-4.9' @ 11:15

PFCs, pH, TOC, moisture content SG3-S12-8-9' @ 11:25

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/25/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/25/17			BY: RQM			
TEMPERATURE OF SOIL: ambient						ANALYST:
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-31	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S-31	2	0.5-1'	SOIL	1.1	0.0	No D/O/S
S-31	3	1-1.5'	SOIL	Consumed	—	No D/O/S
S-31	4	1.5-3'	SOIL	0.2	0.0	No D/O/S
S-31	4	3-4'	SOIL	0.2	0.0	No D/O/S
S-31	5	4-8'	SOIL	0.3	0.0	No D/O/S
S-31	6	9-10'	SOIL	0.3	0.0	No D/O/S
S-12	1	0.0.5'	SOIL	0.7	0.0	No D/O/S
S-12	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-12	3	1-1.5'	SOIL	0.4	0.0	No D/O/S
S-12	4	1.5-3	SOIL	0.6	0.0	No D/O/S
S-12	5	4-8'	SOIL	2.2	0.0	No D/O/S
S-12	6	8-9'	SOIL	0.3	0.0	No D/O/S
S-12	6	9-10'	SOIL	0.2	0.0	No D/O/S
D-18	1	0-0.5'	SOIL	0.6	0.0	No D/O/S
D-18	1	0.5-1'	SOIL	0.3	0.0	No D/O/S
D-18	1	1-1.5'	SOIL	0.2	0.0	No D/O/S
D-18	1	1.5-4'	SOIL	0.2	0.0	No D/O/S
D-18	1/2	4-8'	SOIL	0.1	0.0	No D/O/S
D-18	2	8-9'	SOIL	0.1	0.0	No D/O/S
D-18	2	9-10'	SOIL	0.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: 513
ELEV.:
START DATE: 9.18.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.18.17

PROJECT: 563: SeGobain Bennington
LOCATION: 513 - Landfill Compost Area.
CTM PROJECT NO.: 16.6131
CTM OBSERVER: DAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-0.5	1	0.5	0-0.4: Black organic SILT, little coarse to fine(+) Sand, little medium to fine Gravel. Soft, slightly moist, no stain, compost odor.	Auger 0-0.5, 0.5-1, 1-1.5.
	0.5-1	2	0.5		
	1-1.5	3	0.5		
2	1.5				
	DAK 9.18.17 1.5 to 4	4	2.6	0.4-6.5: Light tan coarse to fine(+) SAND, little coarse to fine Gravel, little Cobbles (25%). Loose, dry, no stain, no odor.	Probe 1.5-4'
4					Probe 4-8'
	4 to 8	5	3.3		
6					
8					Probe 8-10'
	8 to 10	6	2.1	6.5-10: Light Brown Clayey (-) SILT, some coarse to fine(+) Sand, some medium to fine(+) Gravel. Dry to moist, medium stiff, no stain, no odor.	
10					
12				Bottom at 10'	GW not encountered.
				Backfill with bentonite chips.	
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe 7822DT
METHOD OF SAMPLING: < 1.5 Auger, > 1.5 Probe.

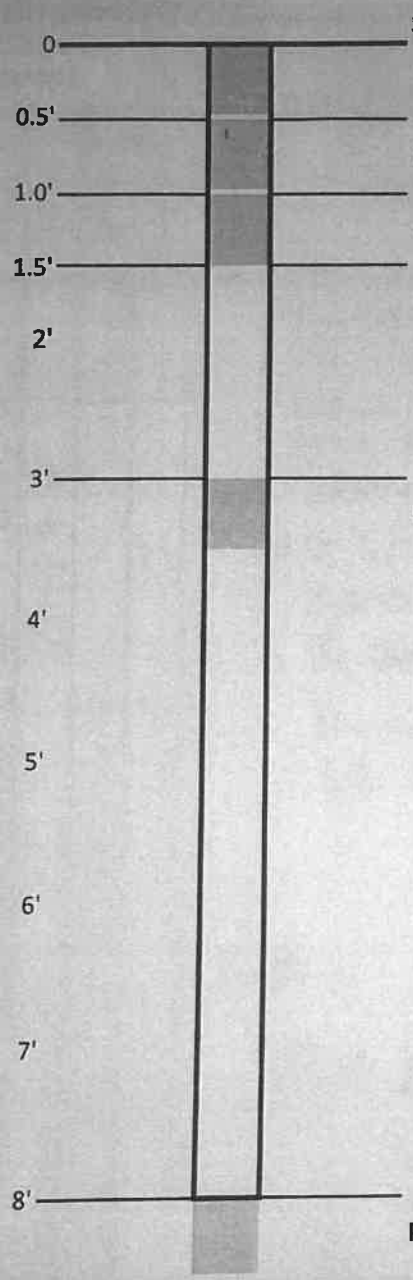
GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SHALLOW SOIL PROFILES - LANDFILL ~~S##~~ S13 PAK 9.18.17



PFCs, pH, TOC, moisture content 1430: SG3-S13-0-0.5'

PFCs, pH, TOC, moisture content 1445: SG3-S13-0.5-1'

PFCs, pH, TOC, moisture content 1450: SG3-S13-1-1.5'

PFCs, pH, TOC, moisture content 1520: SG3-S13-3-4'
3 Cores needed for volume

PFCs, pH, TOC, moisture content 1550: SG3-S13-8-9'
Two cores needed for volume.

GROUNDWATER (if encountered) Not Encountered.
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: St. Gobain Bennington | PROJECT #: 16,6131 | PAGE 1 OF
CLIENT:
LOCATION: 522-Landfill | DATE COLLECTED: 9.18.17
INSTRUMENT USED: MiniRae 3000 LAMP 10.6 eV | DATE ANALYZED: 9.18.17
DATE INSTRUMENT CALIBRATED: 9.18.17 BY: | ANALYST: BK/KAM
TEMPERATURE OF SOIL: ambient

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
522	1	0	0.5	1.4	0,2	No Stain, no odor
↓	2	0.5	1	1.3	0.2	No Stain, no odor.
	3	1	1.5	1.1	0.2	No stain, no odor
	4	1.5	3	1.0	0,3	No stain, no odor
	4	3	4	0.9	0,3	No stain, no odor
	5	4	8	1.1	0,3	No stain, no odor
	6	8	9	1.4	0,3	No stain, no odor
↓	6	9	10	No Volume		No stain, no odor
513	1	0	0.5	No Volume		No stain, compost odor.
	2	0.5	1	2.1	0.7	No stain, no odor.
	3	1	1.5	2.1	0,8	No stain, no odor.
	4	1.5	3	1.2	0,9	No stain, no odor.
	4	3	4	No Volume		No stain, no odor.
	5	4	8	1.1	0.7	No stain, no odor.
	6	8	9	1.2	0,9	No stain, no odor
	6	9	10	0.9	0.7	No stain, no odor.

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM: represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S14
ELEV.: DATUM:
START DATE: 8/28/17 FINISH DATE: 8/28/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	OL/OH 0-0.6' V. dk. brown, moist, abund. rootlets, tr. asphalt debris, silty.	3" HA to 1.5'
	0.5-1	2	0.5		M.C. to EOB
	1-1.5	3	0.5		Low recovery (w1.7') 1.5-4', offset ~12" W (S-14b) & re-drove 1.5-4
2	1.5-4'	4	2.3	0.6-4.2' SM/SC: Fg-cg, moist, brown, mostly mg-cg sand & fg gvl., ~40% Fines.	
				At 2.5', becomes moist to wet, increased moisture above clast of schist.	
4				At 3.5', 3" lyr of schist (intercepted in two boreholes), is weathered & shattered in liner, some fracture planes have orangish oxidation stains.	No rec 4-8' @ S-14b, re-driving @ orig. loc.
	4-8'	5	2.9	4.2-10' CLs: Till: Brownish grey to brown, moist, low to med plast, ~50% gravel and decomp'd schist	
6				From 5-8', 50-60% clasts of weathered schists & ang. gvl.	Moisture @ ~2.5' assumed to be perched on schist clast.
8					
	8-10'	6	1.8'	From 8.6-10', ~50% clasts of weathered schists.	Lots of weathered rock from 3.5-10', but predom. soil is till clay.
10				*[till clay in shoe @ 10']*	
				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

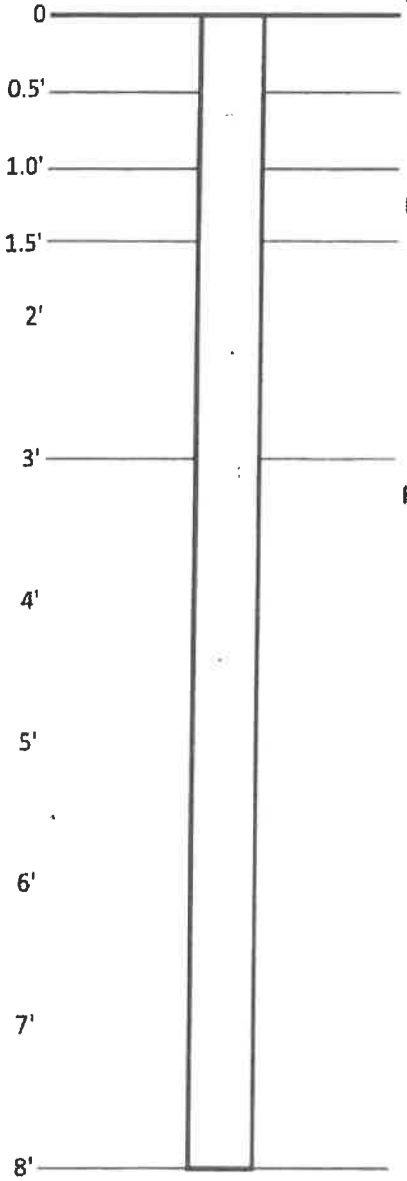
DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S-14 8/28/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

Collected SG3-FB10-082817 @ 10:40 (direct pour)
Collected MS/MSD from 0-0.5'

PFCs, pH, TOC, moisture content SG3-S14-0-0.5' @ 10:45

PFCs, pH, TOC, moisture content SG3-S14-0.5-1' @ 10:55

PFCs, pH, TOC, moisture content SG3-S14-1-1.5 @ 11:05

PFCs, pH, TOC, moisture content SG3-S14-3-4' @ 11:15

PFCs, pH, TOC, moisture content SG3-S14-8-9' @ 11:50

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/28/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/28/17			BY: RQM			ANALYST:
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-11	1	0-0.5	SOIL	7.8	0.1	No D/O/S
S-11	2	0.5-1	SOIL	9.0	0.1	No D/O/S
S-11	3	1-1.5	SOIL	9.1	0.1	No D/O/S
S-11	4	1.5-3	SOIL	6.3	0.1	No D/O/S
S-11	5	4-8	SOIL	5.1	0.1	No D/O/S
S-11	6	9-10	SOIL	4.3	0.1	No D/O/S
S-14	1	0-0.5	SOIL	5.8	0.1	No D/O/S
S-14	2	0.5-1	SOIL	5.7	0.1	No D/O/S
S-14	3	1-1.5	SOIL	5.8	0.1	No D/O/S
S-14	4	1.5-3	SOIL	4.6	0.1	No D/O/S
S-14	4	3-4	SOIL	3.2	0.1	No D/O/S
S-14	5	4-8	SOIL	3.1	0.1	No D/O/S
S-14	6	9-10	SOIL	3.0	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

*Using zip-lock bags, empty bag reading = 5.5ppm

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-16
ELEV.: DATUM:
START DATE: 9-20-17 FINISH DATE: 9-21-17
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: S-16 Landfill
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface - Wetland Vegetation	
2				Cobbles infilled w/ SAND + GRAVEL w/ Few Boulders brown - moist to wet trace fines Subround gravels, cobbles, boulders	50% Cobbles & Boulders (mostly cobbles) 20% Gravel 30% SAND
4	1.9-6.9 ft		2.0	2.0-6.9 ft SAND w/ Gravel, brown, Saturated fg SAND w/some mg/cg mix fine to coarse gravels - subround little fines w/in	
6					
8					
10				▽ @ 1.9 ft bgs	
12				EOB @ 6.9 ft	
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe Direct Push
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9-20	1.9	bgs
9-21	1.9	bgs

SAMPLE CLASSIFICATION BY:

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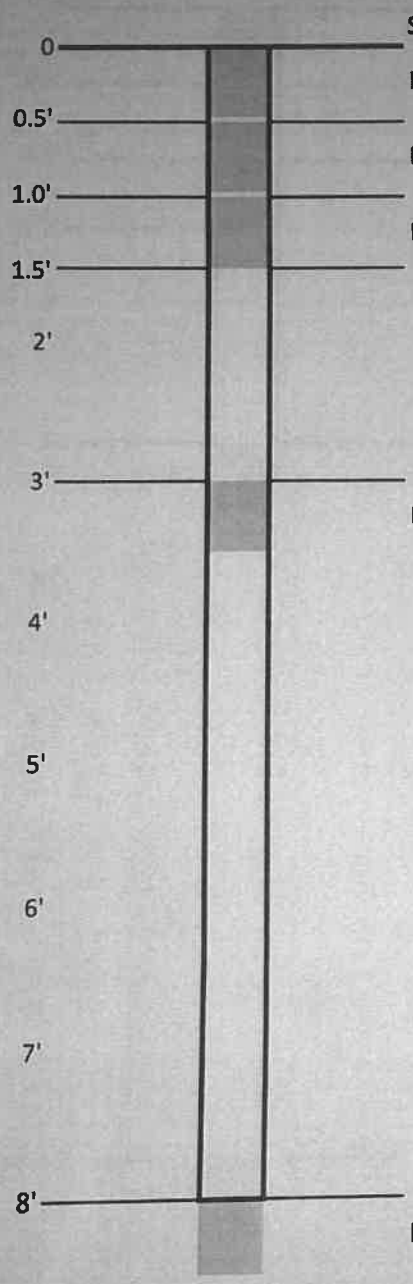
SHALLOW SOIL PROFILES S-16 9-20-17



PFCs, pH, TOC, moisture content SG3-S16-0-0.5' @ 1425

PFCs, pH, TOC, moisture content SG3-S16-0.5-1' @ 1430

PFCs, pH, TOC, moisture content SG3-S16-1-1.5' @ 1435

PFCs, pH, TOC, moisture content

Water Sample 9-21-17

SG3-S16-170921 @ 0930

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 3242001.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-20-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-20-17
DATE INSTRUMENT CALIBRATED: 9-20-17		BY: DJZ	ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-27	1	0-0.5	Soil	5.3	0.0	
S-27	2	0.5-1	Soil	4.7	0.1	
S-27	3	1-1.5	Soil	1.1	0.0	
S-27	4	1.5-3	Soil	0.6	0.0	
S-27	5	3-4	Soil	0.7	0.0	
S-27	6	4-8	Soil	1.2	0.0	
S-27	7	8-10	Soil	0.3	0.0	wet
S-26	8	0-0.5	Soil	1.0	0.0	
S-26	9	0.5-1	Soil	3.1	0.0	
S-26	10	1-1.5	Soil	0.4	0.0	
S-26	11	1.5-3	Soil	0.5	0.0	
S-26	12	3-4	Soil	0.5	0.0	
S-26	13	4-8	Soil	0.5	0.0	
S-26	14	8-9	Soil	0.5	0.0	
S-26	15	9-10	Soil	0.3	0.0	wetter
S-16	16	0-0.5	Soil	0.6	0.0	
S-16	17	0.5-1	Soil	0.7	0.0	
S-16	18	1-1.5	Soil	0.4	0.0	
S-16	19	1.9-6.9	Soil	0.3	0.0	wet

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB18
ELEV.:
START DATE: 9.13.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.13.17

PROJECT: SG3: StGobain Bennington
LOCATION: Bennington Landfill SB18
CTM PROJECT NO.: 16,6131
CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-2.1 : Medium Brown Clayey(-) SILT, little coarse to fine Gravel, little coarse to fine(+) Sand. Loose, moist, no stain, no odor.	Hand Auger 0-0.5, 0.5-1, 1-1.5.
	0.5-1	2	0.5		
	1-1.5	3	0.5		
2	1.5 to 4	4	1.7		Probe 1.5-4'
4				2.1-6.3 : Light Brown coarse to fine(+) SAND, and coarse to fine Gravel, trace Clayey Silt. Loose, moist, no stain, no odor. Dry	Probe 4-8'
6	4 to 8	5	1.5		
8				Refusal at 6.3 ft. on rock - probable boulders.	Groundwater not encountered.
10				- Bottom of boring at 6.3 ft	
12				~~- Grout boreholes on completion~~ RAK 9-13.17 - Backfilled with cuttings	
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger < 1.5ft, Probe > 1.5ft

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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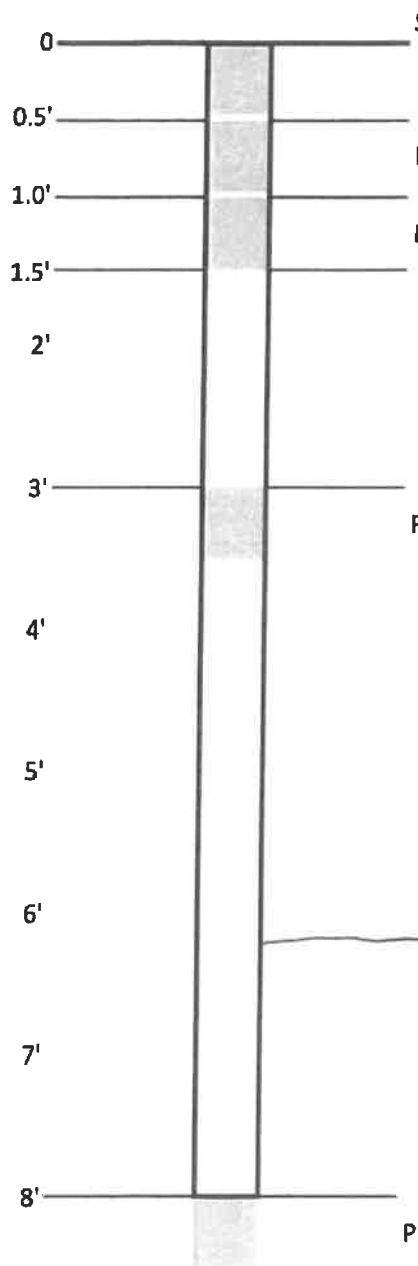
SHALLOW SOIL PROFILES

518



0915: SG3-518-0-0.5'

0930: SG3-518-0.5-1'

0935: SG3-518-1-1.5'

1000: SG3-518-3-4'

1055: SG3-518- 5.3-6.3'

Refusal at 6.3 ft

GROUNDWATER (if encountered) No GW encountered.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Saint Gobain Bennington		PROJECT #: 16.6131	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9.13.17
LOCATION: S18 (Landfill)			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9.13.17		BY: JMS	ANALYST: RAK / JMS
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S18	1	0-0.5	S	1.8	0.0	No Stain/no odor
	2	0.5-1	S	0.8	0.0	No Stain/no odor
	3	1-1.5	S	1.4	0.0	No Stain/no odor
	4	1.5-3	S	1.0	0.0	No stain/no odor
	4	3-4	S	0.7	0.0	No stain/no odor
	5	4-5.3	S	1.2	0.0	No stain/no odor
	5	5.3-6.3	S	0.6	0.0	No stain/no odor
S21	1	0-0.5	S	21	0	No stain/no odor
	2	0.5-1	S	4.8	0	No stain/no odor
	3	1-1.5	S	3.1	0	No stain/no odor
	4	1.5-3	S	1.0		No stain/no odor
	4	3-4	S	Insufficient Volume		No stain/no odor
	5	4-6.3	S	0.7	0	No stain/no odor
	5	6.3-7.3	S	Insufficient Volume		No stain/no odor
	5	7.3-8	S	0.5	0	No stain/no odor
	6	8-10	S	0.4	0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-22-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 3242001.03

Purpose: Field Report No:

Weather Conditions: 55 °F, cloudy

Present at Site: DJZ RAK

Observations: 0730 @ Water St. Prep, Ice

0810 @ Landfill D-08

0840 DJZ/RAK head/hike to S-20

0930 @ S-20 Hand Auger

- water @ 4" bgs w/little to trace biogenic sheen

OL/OH - 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1000 Leave S-20

1030 Back to truck, prep

1115 Leave to S-29

1130 @ S-29 Hand Auger

- water @ 4" bgs, trace biogenic sheen

- 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1150 Leave S-29

1200 Back @ DOC area, prep, decon, etc.

* left stake & pink flag @ S-20 & S-29

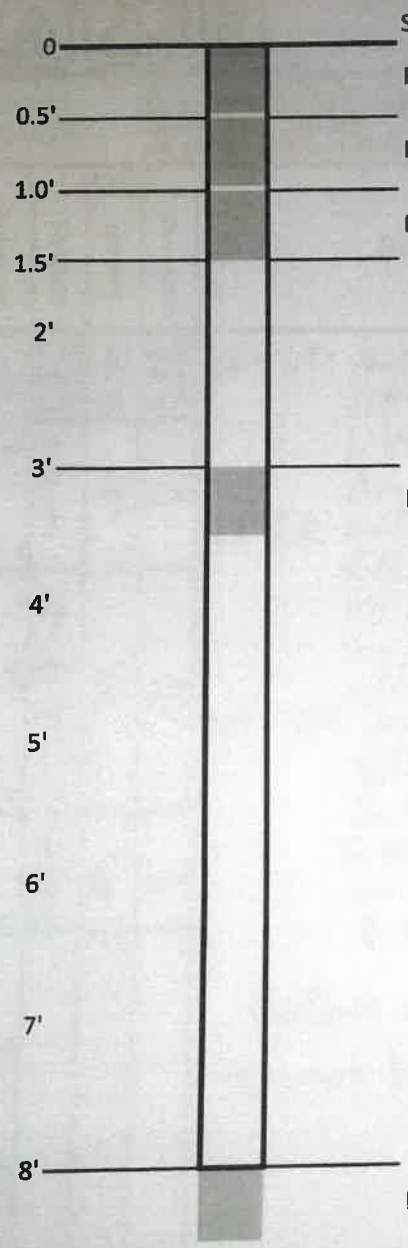
Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

SHALLOW SOIL PROFILES S-20 9-22-17



PFCs, pH, TOC, moisture content SG3-S20-0-0.5' @ 0930

PFCs, pH, TOC, moisture content SG3-S20-0.5-1' @ 0935

PFCs, pH, TOC, moisture content SG3-S20-1-1.5' @ 0940

EOB @ 1.5 ft

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

→ water @ 4" bgs

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: 521
ELEV.:
DATUM:
START DATE: 9.13.17
FINISH DATE: 9.13.17
SHEET 1 of 1

PROJECT: SG3: Saint Gobain Bennington
CTM PROJECT NO.: 16.6131
LOCATION: 521 - Former LEACH FIELD
CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5	1	0.5	0-2.9 : Medium Brown Clayey (-) SILT, little coarse to fine (+) Sand, little coarse to fine Gravel. Soft, moist, no stain, no odor.	Hand Auger 0-0.5, 0.5-1, 1-1.5 ft.
	0.5-1	2	0.5		
	1-1.5	3	0.5		
4	1.5 to 4	4	1.6	2.9-10 : Tan coarse to fine (+) SAND, trace fine Gravel. Loose, dry, no stain, no odor. Saturated below 7.3 ft - no sheen, no odor. Increased to some medium to fine Gravel below 5.4 ft.	Probe 1.5 - 4 ft.
6	4 to 8	5	3.2		Probe 4-8 ft
8					Probe 8-10 ft. Set temp 1" screen - collect GW Sample SG3-521-170913.
10	8 to 10	6			
12				Bottom of boring at 10 ft. Drum cuttings, grout borehole.	
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: <1.5 Hand Auger, >1.5 Probe

GROUNDWATER LEVEL READINGS

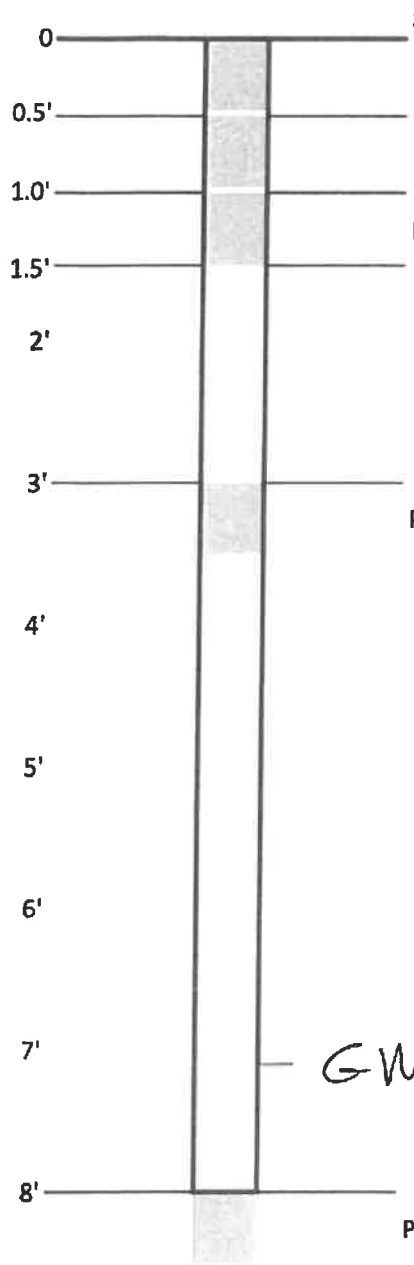
DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

521

SHALLOW SOIL PROFILES



1245 : SG3-521-0-0.5'

1255 : SG3-521-0.5-1'

1305 : SG3-521-1-1.5'

1315 : SG3-521-3-4'

GWat 7.3 ft : Sample SG3-521-170913 for landfill parameters.

GROUNDWATER (if encountered) 7.3 ft

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Saint Gobain Bennington				PROJECT #: 16.6131		PAGE 1 OF 1
CLIENT:						DATE COLLECTED: 9.13.17
LOCATION: SLF (Landfill)						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9.13.17				BY: JMS		ANALYST: RAK / JMS
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND* READING (PPM)**	REMARKS
SB	1	0-0.5	S	1.8	0.0	No Stain/no odor
	2	0.5-1	S	0.8	0.0	No Stain/no odor
	3	1-1.5	S	1.4	0.0	No Stain/no odor
	4	1.5-3	S	1.0	0.0	No stain/no odor
	4	3-4	S	0.7	0.0	No stain/no odor
	5	4-5.3	S	1.2	0.0	No stain/no odor
	5	5.3-6.3	S	0.6	0.0	No stain/no odor
SB1	1	0-0.5	S	21	0	No stain/no odor
	2	0.5-1	S	4.8	0	No stain/no odor
	3	1-1.5	S	3.1	0	No stain/no odor
	4	1.5-3	S	1.0		No stain/no odor
	4	3-4	S	Insufficient Volume		No stain/no odor
	5	4-6.3	S	0.7	0	No stain/no odor
	5	6.3-7.3	S	Insufficient Volume		No stain/no odor
	5	7.3-8	S	0.5	0	No stain/no odor
	6	8-10	S	0.4	0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S22
ELEV.:
START DATE: 9.18.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.18.17

PROJECT: Saint Gobain Bennington
LOCATION: S22 - West Side of Landfill
CTM PROJECT NO.: 16.6131
CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0 - 1.1: Medium Brown Clayey (-) SILT, little coarse to fine Sand, little coarse to fine Gravel. Dry, soft, no stain, no odor.	Hand auger 0-0.5', 0.5-1', 1-1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5		
2	0 to 4	4	2.0		Probe 0-4'
4				1.1 - 1.6: Medium Brown coarse to fine (+) SAND, trace Clayey (-) Silt, little coarse to fine Gravel. Dry / Moist, Loose, no stain, no odor.	
6	4 to 8	5	1.9		Probe 4-8'
8				1.6 - 10: Medium Brown Clayey (-) SILT, little coarse to fine (+) Sand, little coarse to fine Gravel. soft, dry to moist, no stain, no odor. Cobbles at 7.1 - 7.4 ft. and 8.2 - 9 ft.	Probe 8-10'
10	8 to 10	6	2.0		
12				Bottom at 10'. Grout borholes on completion.	GW not Encountered.
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe 7822DT
METHOD OF SAMPLING: <1.5 ft Hand Auger, >1.5 ft Probe

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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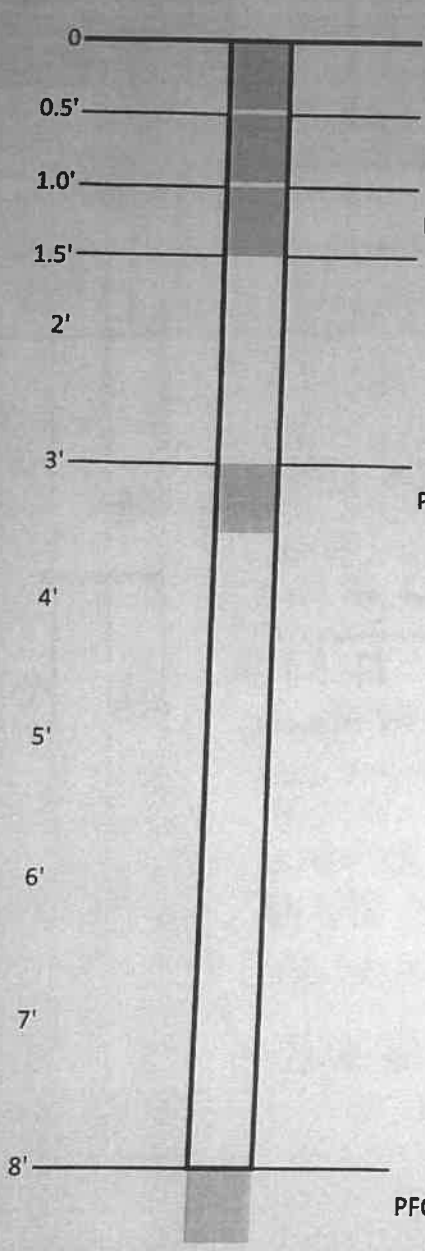
SHALLOW SOIL PROFILES - LANDFILL S22



SOIL

PFCs, pH, TOC, moisture content 1120: SG3-S22-0-0.5'

PFCs, pH, TOC, moisture content 1130: SG3-S22-0.5-1'

PFCs, pH, TOC, moisture content 1140: SG3-S22-1-1.5'

PFCs, pH, TOC, moisture content 1155: SG3-S22-3-4'
3 Cores for volume

PFCs, pH, TOC, moisture content 1220: SG3-S22-~~8-9'~~ 9-10'
Cobble at 8.2-9ft - Sampled below cobble.

GROUNDWATER (if encountered) Not Encountered.

PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

BAK
9.18.17

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: St. Gobain Bennington	PROJECT #: 16,613	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9.18.17	
LOCATION: 522-Landfill		DATE ANALYZED: 9.18.17	
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	ANALYST: RAK/KAM	
DATE INSTRUMENT CALIBRATED: 9.18.17	BY:		
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
522	1	0	0.5	1.4	0.2	No Stain, no odor
	2	0.5	1	1.3	0.2	No Stain, no odor.
	3	1	1.5	1.1	0.2	No stain, no odor
	4	1.5	3	1.0	0.3	No stain, no odor
	4	3	4	0.9	0.3	No stain, no odor
	5	4	8	1.1	0.3	No stain, no odor
	6	8	9	1.4	0.3	No stain, no odor
	6	9	10	No Volume		No stain, no odor
513	1	0	0.5	No Volume		No stain, compost odor
	2	0.5	1	2.1	0.7	No stain, no odor.
	3	1	1.5	2.1	0.8	No stain, no odor.
	4	1.5	3	1.2	0.9	No stain, no odor.
	4	3	4	No Volume		No stain, no odor.
	5	4	8	1.1	0.7	No stain, no odor.
	6	8 RAK 9.18.17 9		1.2	0.9	No stain, no odor.
	6	9	10	0.9	0.7	No stain, no odor.

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-24
ELEV.:
DATUM:
START DATE: 9-19-17
FINISH DATE: 9-19-17
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: Landfill S-24
CTM PROJECT NO.: 32421001.03
CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Grass/vegetated surface hill side	
2	1.5-4		3.0	SANDY SILT (ML), brown, moist w/ fg SAND w/ trace mg/cg trace fine to coarse gravel, subround organics/roots w/in	0-1.5 Hand Auger 1.5-8 Direct Push
4				@ 1 ft CLAYEY SILT (ML), brown, moist, w/ fg SAND w/ trace mg/cg trace fg to cg gravels, subround roots	
6	4-8		2.5	@ 1.8 ft SILTY SAND (SM), fg/very fg grayish brown, moist to high moist trace mg/cg SAND, w/ SILT trace fine gravels, trace roots DJZ 11-6-17 DJZ 11-6-17	
8				Water @ 3.7 ft @ 3 ft is 1" black organic lens, thin black fg SAND lenses EOB @ 8 ft	Bore backfilled w/ bentonite chips
10					
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Direct Push

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9-19	3.7	Soil
9-19	5.0	BGS

SAMPLE CLASSIFICATION BY:

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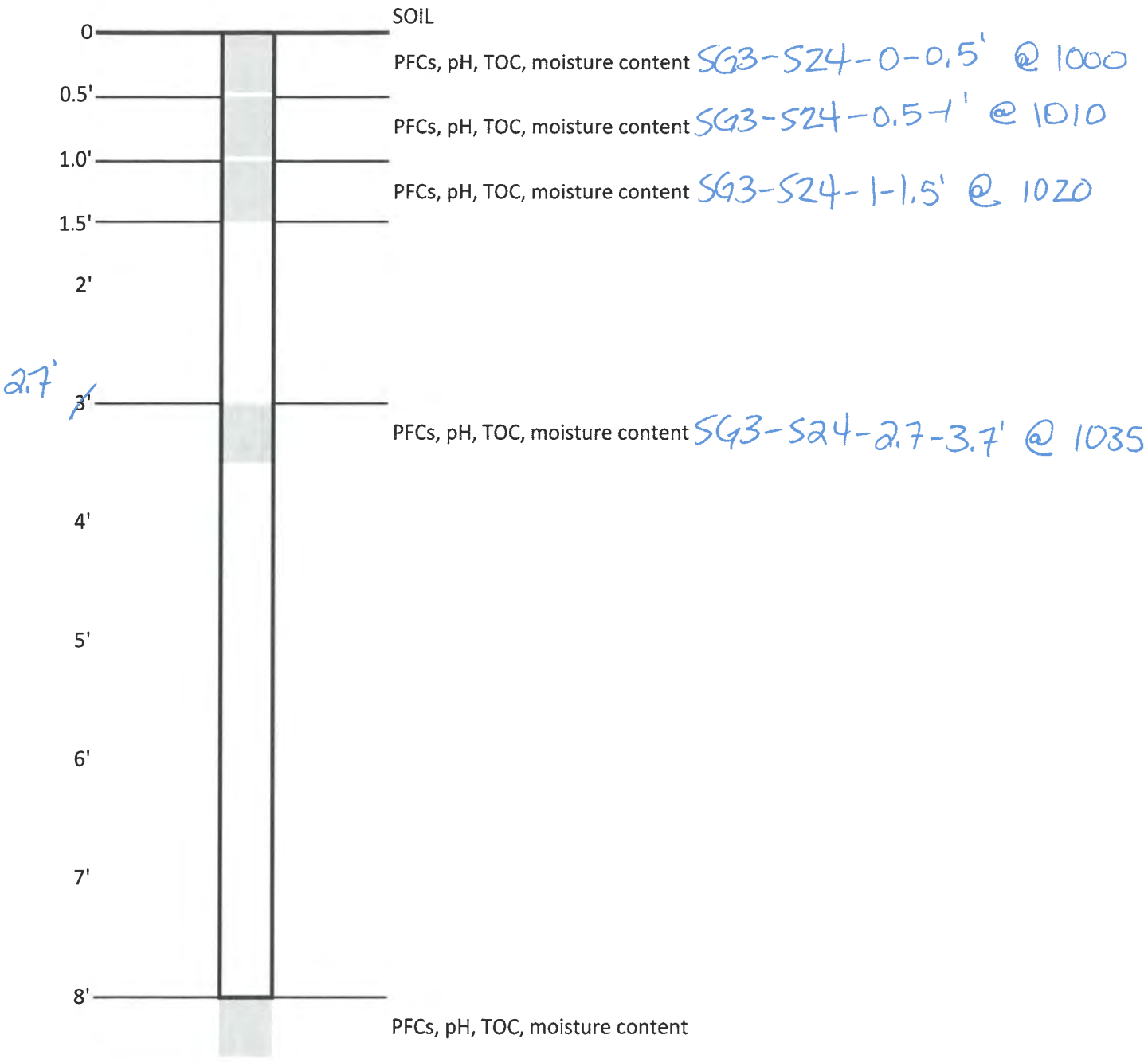
Bore backfilled w/ bentonite chips

S-24 9-19-17

SHALLOW SOIL PROFILES



GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Water Sample

SG3-S24-170919 @ 1415

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-19-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-19-17
DATE INSTRUMENT CALIBRATED: 9-19-17		BY: 0900 DJE	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S24	1	0-0.5	Soil	0.6	0.0	No odor/sheen/
S-24	2	0.5-1	Soil	0.6	0.0	or discoloration
S-24	3	1-1.5	Soil	0.5	0.0	
S-24	4	1.5-2.7	Soil	2.2	0.0	
S-24	5	2.7-3.7	Soil	1.1	0.1	
S-24	6	3.7-8	Soil	0.7	0.1	
	7		Soil			
	8					

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-25
ELEV.: DATUM:
START DATE: 9-21-17 FINISH DATE: 9-21-17
SHEET 1 of 1

PROJECT: SGPP Bennington CTM PROJECT NO.: 3242/001.03
LOCATION: S-25 Landfill CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Grass @ Surface	
2	1.5-4		3.1	1" SILTY & very FINE SAND Topsoil, drk brown SILTY SAND (SM) COC 11-6-17, brown, moist very fine / fine SAND w/few mg w/ less than 20% SILT w/few roots @ 0.5 ft Few SILT w/ very fine SAND tan, moist, few roots/ organics	Hand Auger 0-1.5 ft Direct Push 1.5-
4					
6	4-8		2.0	@ 2.3 ft SILT (ML) brown/tan, moist to more moist w/few lenses of SAND w/in - fg to very fg. trace gravel @ 3.5 ft w/little clay w/in and areas more conc.	
8					
10	8-10		2.8	w/color laminations w/in, reddish brown, brown w/ few black organics / manganese oxidation spots wet @ ~~5.5 ft~~ 5.8 ft, sandy lenses @ water @ 4 ft SANDY SILT (ML), brown, wetter, Same as above SILT w/very fine SAND w/in	
12				EOB @ 10 ft ~ very hard rock ~8.5-9.2 ft, pushed through, very soft below	
14				@ 9 ft Saturated ~ "soupy" manganese oxidation stains w/in mottles + laminations	
16				@ 9 ft TILL - SANDY CLAY w/ SILT (CL), brown, moist w/fg SAND w/little mg/cg, trace gravel, subround	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: ~~Se~~ Geoprobe Direct Push
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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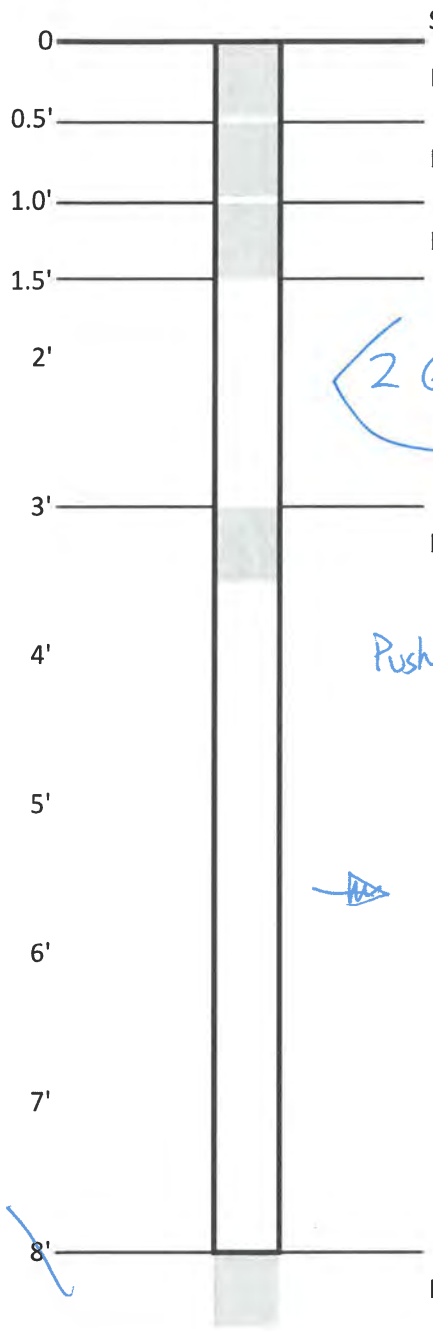
SHALLOW SOIL PROFILES S-25 9-21-17



SG3-S25-0-0.5' @ 1100

SG3-S25-0.5-1' @ 1105

SG3-S25-1-1.5' @ 1110

2 Geoprobe Cores taken for 3-4 ft sample
1.5-4' + 0-4' samples

SG3-S25-3-4' @ 1130

Pushed 2 additional 4-8 cores in addition to original to get sample content for

SG3-S25-4.6-5.6' @ 1210

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

took a rinsate of stainless steel bowl

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF
CLIENT:			DATE COLLECTED: 9-21-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-21-17
DATE INSTRUMENT CALIBRATED: 9-21-17		BY: DJZ	
TEMPERATURE OF SOIL: ambient			ANALYST: DJZ

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-25	1	0-0.5	Soil	0.7	0.0	
S25	2	0.5-1	Soil	0.5	0.0	
S-25	3	1-1.5	Soil	0.3	0.0	
S-25	4	1.5-3	Soil	0.4	0.0	
S-25	5	3-4	Soil	0.3	0.0	
S-25	6	4-8	Soil	0.6	0.0	wetter / more moist
S-25	7	8-10	Soil	0.9	0.0	wet

No odor, sheen, or discoloration

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-26
ELEV.:
DATUM:
START DATE: 9-20-17
FINISH DATE: 9-20-17
SHEET 1 of 1

PROJECT: SGPP Bennington
CTM PROJECT NO.: 32421001.03
LOCATION: S-26 Landfill
CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface is vegetated grass / plants	
2	1.5-4		2.6	SILTY TOPSOIL (ML) 0-0.5 ft, dk brown, moist, mod/low plasticity w/ fg SAND w/ mg/cg (little) w/ little fine to coarse gravels, subround & elongated FILL	Hand Auger 0-1.5' Direct Push 1.5-
4				@ 0.5 ft SILTY SAND (SM), brown, moist, DOE 11-6-17 fg/very fg SAND w/ some mg/cg - subround w/ SILT (est 20%) DOE 11-6-17 w/ little gravels - subround less SILT w/ depth (est 10% @ 1.5 ft)	
6	4-8		2.3	Geotextile Liner @ 1.75 ft thick	
8				SILT (ML) w/ little fg SAND (4" below liner), moist, brown	
10	8-10		2.5	@ 2 ft SILTY SAND (SM) DOE 11-6-17 fg/very fg w/ little mg/cg brown, moist, w/ SILT (est 15-20%) w/ few to little gravels, fine to coarse - subround	
12				@ 6.5 ft SANDY SILT (ML), dk brown, moist w/ fg to very fg SAND w/ few mg/cg SAND w/ black organic fragments + roots w/ few subround gravels, low plasticity EOB	
14				@ 8.5 ft SILTY SAND (~~SP~~ SM) DOE 11-9-17, brown moist to wet (not producing). low plasticity fg/very fg SAND, Trace subround Gravels	35% SILT 65% SAND est.
16					EOB @ 10 ft

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Direct Push Geoprobe
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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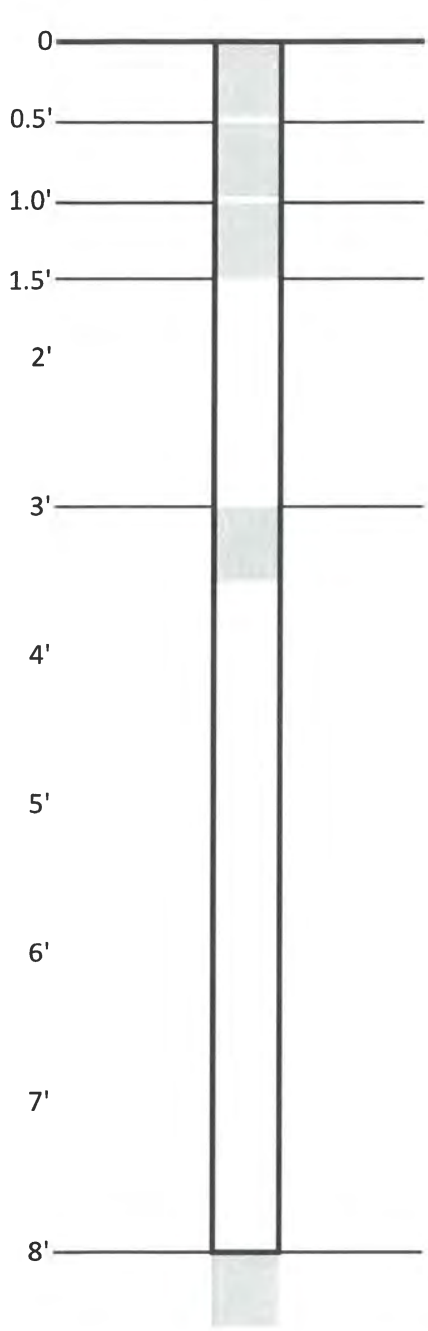
No Groundwater

Borehole backfilled w/ bentonite chips

SHALLOW SOIL PROFILES S-26 9-20-17



SOIL

PFCs, pH, TOC, moisture content SG3-S26-0-0.5' @ 1110

PFCs, pH, TOC, moisture content SG3-S26-0.5-1' @ 1115

PFCs, pH, TOC, moisture content SG3-S26-1-1.5' @ 1120

PFCs, pH, TOC, moisture content SG3-S26-3-4' @ 1130

PFCs, pH, TOC, moisture content SG3-S26-8-9' @ 1155

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

No Water Sample

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-20-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-20-17
DATE INSTRUMENT CALIBRATED: 9-20-17		BY: DJZ	
TEMPERATURE OF SOIL: ambient			ANALYST: DJZ

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-27	1	0-0.5	Soil	5.3	0.0	No odor, sheen, or discoloration
S-27	2	0.5-1	Soil	4.7	0.1	
S-27	3	1-1.5	Soil	1.1	0.0	
S-27	4	1.5-3	Soil	0.6	0.0	
S-27	5	3-4	Soil	0.7	0.0	
S-27	6	4-8	Soil	1.2	0.0	
S-27	7	8-10	Soil	0.3	0.0	wet
S-26	8	0-0.5	Soil	1.0	0.0	No odor, sheen, or discoloration
S-26	9	0.5-1	Soil	3.1	0.0	
S-26	10	1-1.5	Soil	0.4	0.0	
S-26	11	1.5-3	Soil	0.5	0.0	
S-26	12	3-4	Soil	0.5	0.0	
S-26	13	4-8	Soil	0.5	0.0	
S-26	14	8-9	Soil	0.5	0.0	
S-26	15	9-10	Soil	0.3	0.0	wetter
S-16	16	0-0.5	Soil	0.6	0.0	No odor, sheen, or discoloration
S-16	17	0.5-1	Soil	0.7	0.0	
S-16	18	1-1.5	Soil	0.4	0.0	
S-16	19	1.9-6.9	Soil	0.3	0.0	wet

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-27
ELEV.: DATUM:
START DATE: 9-20-17 FINISH DATE: 9-20-17
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: S-27 Landfill
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Vegetated / Grass	
2	1.5-4		2.0	FILL ~~SILTY~~ SAND (SP), very fine grained brown, moist, roots w/in, w/ SILT (15%) w/ little mg/cg SAND - subround to subangular w/ ~~few~~ little fine to coarse gravels, subrounded	Hand Auger 0-1.5 ft Direct Push 1.5-10 ft
4				Geotextile Liner @ 1.75 ft	Slight wetter area just below liner. (2")
6	4-8		3.8'	SAND (SP), very fine grained w/ SILT (~20%), few black organics/lenses brown, grayish brown, golden, orange mix of colors / laminations Some gray mottles, few rusty orange oxidation spots @ 3 ft only grayish color @ 5 ft area - wetter but not yielding trace gravel @ 6 ft	
8					
10	8-10		3.4'	@ 6 ft SILT (ML) w/ very fg SAND w/in (~25%) tan, moist, low plasticity w/ pockets of more very fine SAND areas @ 8 ft Saturated SANDY SILT @ 9.5 ft trace gravel EOB @ 10 ft	
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Direct Push
METHOD OF SAMPLING: Geoprobe
→ Bore backfilled w/ bentonite chips

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

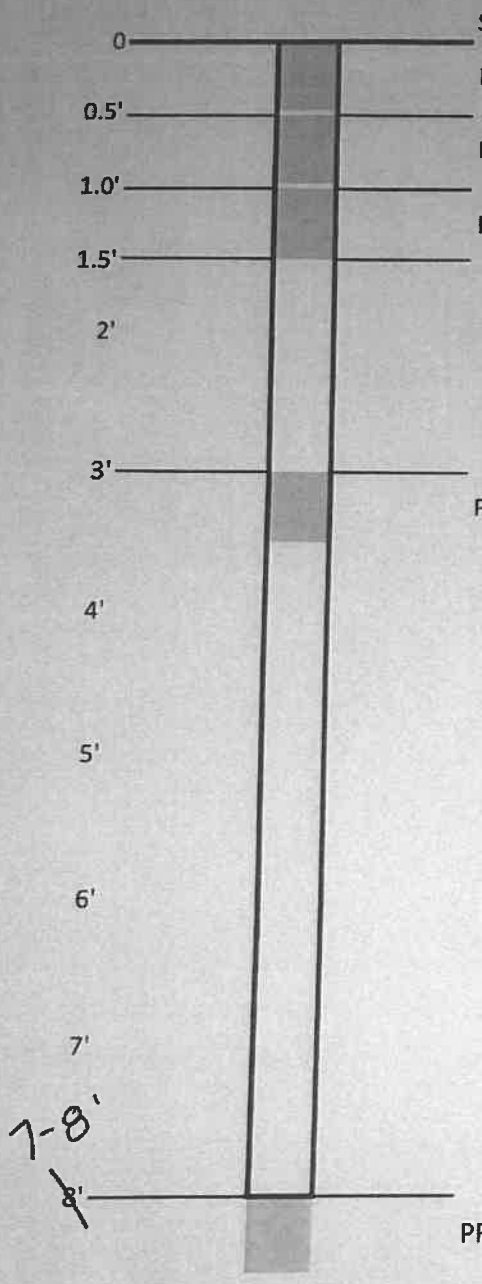
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

After 30 min ~ 0.6 ft of water in hole, pumped dry in 30 sec

Took 5 min to get 2 oz water, est 3.2 hrs to get sample after clears up

SHALLOW SOIL PROFILES

S-27 9-20-17



PFCs, pH, TOC, moisture content SG3-S27-0-0.5' @ 0845
- Collected field duplicate 0-0.5'

PFCs, pH, TOC, moisture content SG3-S27-0.5-1' @ 0850
- Collected MS/MSD of 0.5-1'

PFCs, pH, TOC, moisture content SG3-S27-1-1.5' @ 0900
~~- Collected MS/MSD of 1-1.5'~~ DUP

PFCs, pH, TOC, moisture content SG3-S27-3-4' @ 0930

PFCs, pH, TOC, moisture content SG3-S27-7-8' @ 1005

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

No water sample - insufficient volume

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SoPP Bennington		PROJECT #: 32421.00.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-20-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-20-17
DATE INSTRUMENT CALIBRATED: 9-20-17		BY: DJZ	ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-27	1	0-0.5	Soil	5.3	0.0	
S-27	2	0.5-1	Soil	4.7	0.1	
S-27	3	1-1.5	Soil	1.1	0.0	
S-27	4	1.5-3	Soil	0.6	0.0	
S-27	5	3-4	Soil	0.7	0.0	
S-27	6	4-8	Soil	1.2	0.0	
S-27	7	8-10	Soil	0.3	0.0	wet
S-26	8	0-0.5	Soil	1.0	0.0	
S-26	9	0.5-1	Soil	3.1	0.0	
S-26	10	1-1.5	Soil	0.4	0.0	
S-26	11	1.5-3	Soil	0.5	0.0	
S-26	12	3-4	Soil	0.5	0.0	
S-26	13	4-8	Soil	0.5	0.0	
S-26	14	8-9	Soil	0.5	0.0	
S-26	15	9-10	Soil	0.3	0.0	water
S-16	16	0-0.5	Soil	0.6	0.0	
S-16	17	0.5-1	Soil	0.7	0.0	
S-16	18	1-1.5	Soil	0.4	0.0	
S-16	19	1.9-6.9	Soil	0.3	0.0	wet

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-28
ELEV.: DATUM:
START DATE: 9/28/2017 FINISH DATE:
SHEET 1 of 1

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.6131
LOCATION: Andre Lane, Bennington, VT CTM OBSERVER: L. CAMERON

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				0 to 3.1'	
	0-0.5	1	0.5	Medium Brown coarse to fine (+) SAND, little silt, little coarse to fine gravel. Loose, dry, no stain, no odor.	
	0.5-1	2	0.5		
	1-1.5	3	0.5		
2	1.5-4	4	1.4		Probe 1.5 to 4' difficult penetration.
				3.1 to 3.7' Quartzite COBBLE	
				3.7 to 3.8' Dark Brown ORGANIC CLAY, saturated, soft, no sheen, no stain	Drive 2 cores to gain sufficient volume for the 3.7 to 3.7' sample.
4				3.8 to 4' Medium Brown C to F SAND (+), little silt, saturated, loose, no stain, no odor	
	4-5	5	0.2		
				4 to 8' Medium Brown c to f SAND, little cobble, loose, no stain, no odor	Groundwater @ 3.8'
6					
8				Bottom of Boring at 8' BGL	
10					
12					
14					
16					

DRILLING CONTRACTOR: ADT
DIRECT-PUSH TYPE:
METHOD OF SAMPLING: Auger 0 to 1.5' Primed by

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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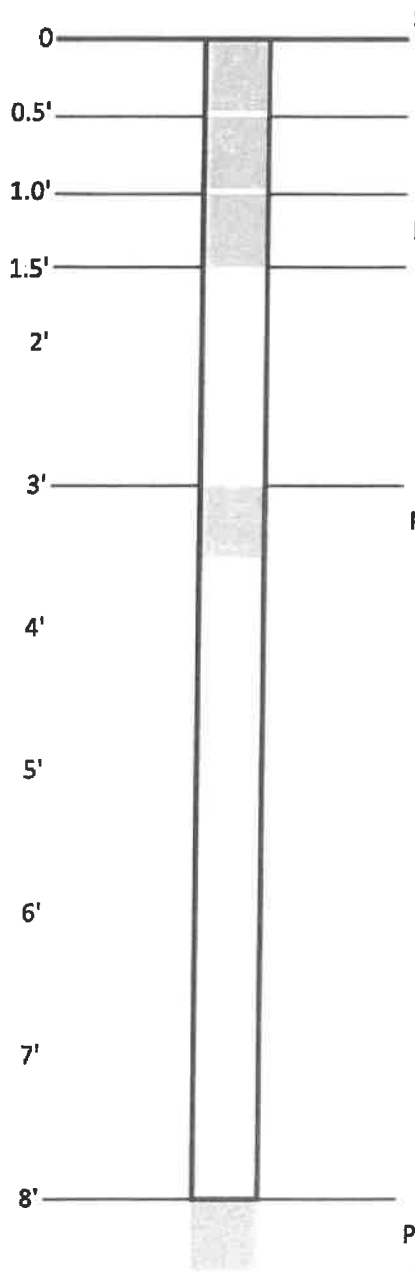
S-28

SHALLOW SOIL PROFILES ~~- LANDFILL~~



SOIL

PFCs, pH, TOC, moisture content 0900 SG3 S28-0-0.5'

PFCs, pH, TOC, moisture content 0910 SG3-S28-0.5-1'

PFCs, pH, TOC, moisture content 0920 SG3-S28-1-1.5'

PFCs, pH, TOC, moisture content @ 2.7-3.7' 0955
SG3-S28-2.7-3.7'

Groundwater Sample:
SG3-S28-170928 (1230)

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered) @ 3.7'
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Saint Gobain Bennington	**PROJECT #:** 116.6131		**PAGE** 1 **OF** 1
CLIENT: Saint Gobain Performance Plastics			**DATE COLLECTED:** 9-28-2017
LOCATION: Andre Lane, Bennington, VT			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 9-28-2017
DATE INSTRUMENT CALIBRATED: 9/28/2017 @ 0830	**BY:** CAMERON		**ANALYST:**
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S28	1	0-0.5	S	0.5	0.1	NONS
	2	0.5-1'	S	0.4	0.1	NONS
	3	1-1.5	S	0.6	0.1	NONS
	5	4-8	S	0.5	0.1	NONS
↓	~~4~~	2-7-3.7	S	0.5	0.1	NONS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 9-22-17 Time On-Site: 0730 Time Off-Site:

Project Name: SGPP Bennington Project No.: 3242001.03

Purpose: Field Report No:

Weather Conditions: 55 °F, cloudy

Present at Site: DJZ RAK

Observations: 0730 @ Water St. Prep, Ice

0810 @ Landfill D-08

0840 DJZ/RAK head/hike to S-20

0930 @ S-20 Hand Auger

- water @ 4" bgs w/little to trace biogenic sheen

OL/OH - 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1000 Leave S-20

1030 Back to truck, prep

1115 Leave to S-29

1130 @ S-29 Hand Auger

- water @ 4" bgs, trace biogenic sheen

- 0-1' is organic soil/roots/wood fragments/plant material

- 1-1.5' is peat, brown/dark brown/black

1150 Leave S-29

1200 Back @ DOC area, prep, decon, etc.

* left stake & pink flag @ S-20 & S-29

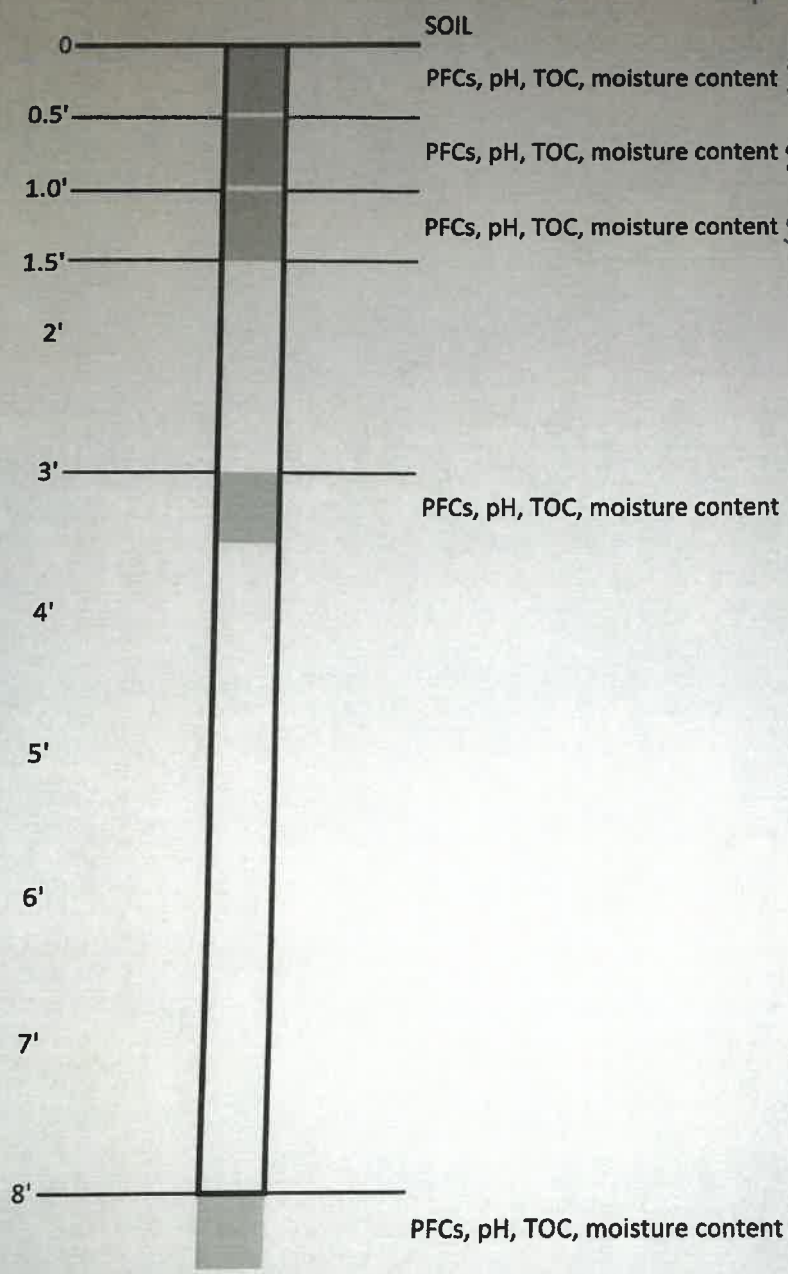
Items to Verify:

List of Attachments:

Field Log Prepared by: DJZ

Copies to:

SHALLOW SOIL PROFILES S-29- 9-22-17



GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

→ water @ 4" bgs

No water sample collected

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S30
ELEV.:
DATUM:
START DATE: 8/18/17
FINISH DATE: 8/18/17
SHEET 1 of 1

PROJECT: SGPP
LOCATION: Bennington VT
~~CTM~~ PROJECT NO.: 3242100 1.03
~~CTM~~ OBSERVER: Kom

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-.5	1	0.5	~~0~~-0.1 grass at surface	3" Hand auger
	5-1	2	0.5	0.1-3' (SM) Silty Sand; fg-mg w/~10% cg Sand; ~5% F. gravel; Sub-Ang to Sub-Rnd; V. dk bn; abundant Rootlets	0-0.5' 2x - all material used for MS/MSD & split w/ WSC.
	1-1.5	3	0.5		
2					
	1.5-4'	4	2.2'	Cg Sand & F. gravel ↑ w/ depth.	0.5-1'
				3-10' SM silty Sand; fg-mg w/ 10% cg; tr-5% F. gravel; ~10-15% Silty Fines, grades to yw-bn,	1-1.5'
4					
6	4-8'	5	2.2	V. Moist below ~9' bgs -	Macro core
					0-4'
8					1.5-4'
					4-6 x2
	8-10'	6	1.8'		8-10 x2
10				measure boring collapse at 6.5' bgs	
				Set temp PVC well 0.010 slot. from 5-10 - @ 12:25	
12				Measure at 12:28 & Dry	
				Measure at 12:45 & 0.3' H2O	
14				Measurment 12:55 ' 0.35'	
				Not sufficient volume to sample	
16				Pull temp well & abandon boring	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger 1.1

GROUNDWATER LEVEL READINGS

DATE	TIME	REFERENCE MEASURING POINT
8/18/17	9.7'	bgs

SAMPLE CLASSIFICATION BY:

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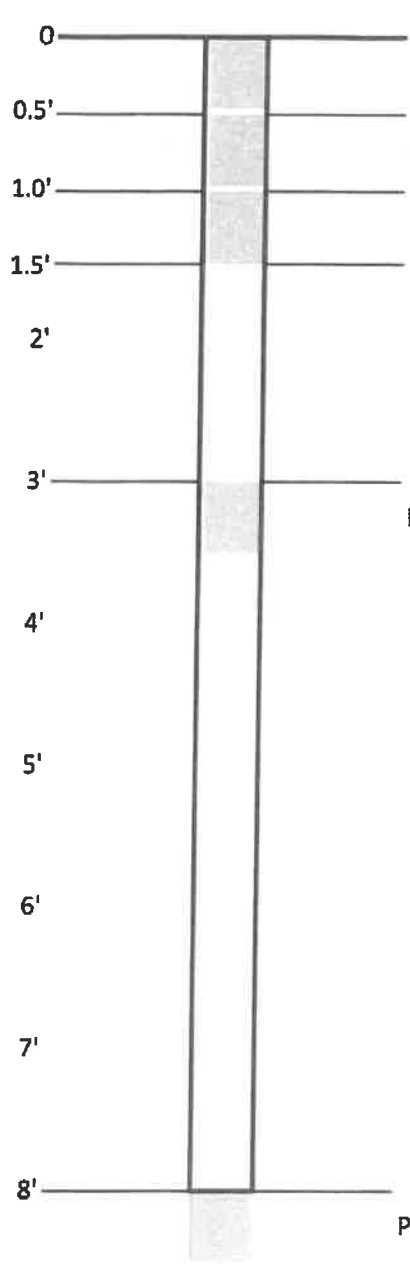
S30 KAM/RAK 8/18/17

SHALLOW SOIL PROFILES



SOIL

collect MS/MSD at 0-0.5'

PFCs, pH, TOC, moisture content SG3-S30-0-0.5' @ 11:00

PFCs, pH, TOC, moisture content SG3-S30-0.5-1' @ 11:15

PFCs, pH, TOC, moisture content SG3-S30-1-1.5 @ 11:25

PFCs, pH, TOC, moisture content SG3-S30-3-4' @ 11:40

PFCs, pH, TOC, moisture content SG3-S30-8-9' @ 12:05

Bottom V. moist.

Set temp well screen 5-10' w 1" pvc 0.010 slot screen

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32420001.03			PROJECT #:			PAGE 1 OF 1
CLIENT: SAPP						DATE COLLECTED: 8/18/17
LOCATION: Bennington VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED: 8/18/17
DATE INSTRUMENT CALIBRATED: 8/18/17			BY: KAM			ANALYST: KAM
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SΦ7	1	0-0.5'	SOIL	0.3	0.1	NO ODOR/SHEEN/DISCO
SΦ7	2	0.5-1'	SOIL	0.4	0.1	NO ODOR/SHEEN/DISCO
SΦ7	3	1-1.5'	SOIL	0.2	0.1	NO ODOR/SHEEN/DISCO
SΦ7	4	1.5-3'	SOIL	0.2	0.1	NO ODOR/SHEEN/DISCO
SΦ7	5	3-4'	SOIL	0.3	0.1	NO ODOR/SHEEN/DISCO
SΦ7	6	4-8'	SOIL	0.3	0.1	NO ODOR/SHEEN/DISCO
SΦ7	7	8-9'	SOIL	0.4	0.1	NO ODOR/SHEEN/DISCO
SΦ7	8	9-10'	SOIL	0.3	0.1	NO ODOR/SHEEN/DISCO
S30	1	0.5-1	SOIL	1.8	0.2	NO ODOR/SHEEN/DISCO
S30	2	1-1.5	SOIL	1.9	0.2	NO ODOR/SHEEN/DISCO
S30	3	1.5-3	SOIL	0.4	0.2	NO ODOR/SHEEN/DISCO
S30	4	3-4	SOIL	0.4	0.2	NO ODOR/SHEEN/DISCO
S30	5	4-8	SOIL	0.4	0.2	NO ODOR/SHEEN/DISCO
S30	6	8-9	SOIL	0.5	0.2	NO ODOR/SHEEN/DISCO
S30	7	9-10	SOIL	0.4	0.2	NO ODOR/SHEEN/DISCO
		0-0.5	SOIL	17.1	0.2	
		0.5-1		1.5	0.4	
		1-1.5		0.5	0.4	
		1.5-3		2.3	0.4	
		3-4'		14.8	0.4	
		4-8'		0.6	0.4	
		8-10'		0.5	0.4	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-31
ELEV.: DATUM:
START DATE: 8/25/17 FINISH DATE: 8/25/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.6OL/OH: V. dk. brn., moist, little fg sand, abundant roots, silty.	3" HA to ~~bottom~~ 1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.6-1.2 CLg/GC: Brown, moist, low-med plast, few fg sand, little to some fg-cg gravel	M.C. to EOB
2				At 1.0', removed 7" cobble w/ rock bar.	
	1.5-4'	4	2.3'	1.2-10' CLs/CLg: Till, dk. brown, moist, medium plast, silty, some cg sand & fg gvl., sub ang to sb-rnd snd & gvl.	Low recovery 1.5-4' (=0.2'), intercepted a cobble. offset 12" west & re-drove for 2.3' recov. (@ S-31b)
4					
					Moving back to orig loc. to attempt 4-8'.
6	4-8'	5	1.2'	At 6', boulder or cobble encountered	Refused @ 6' (@ orig loc.), attempting 4-8' @ S-31b.
8					Hit something very hard @ 6', but got through to 8' @ S-31b, only recov'd 1.2'
	8-10'	6	2.3'	At 9', 0.2" lyr of mg SC	Drove 8-10' @ S-31b & got good recov. (full).
10				From 9.5-10', tr. iron oxidation	
				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY: RQM

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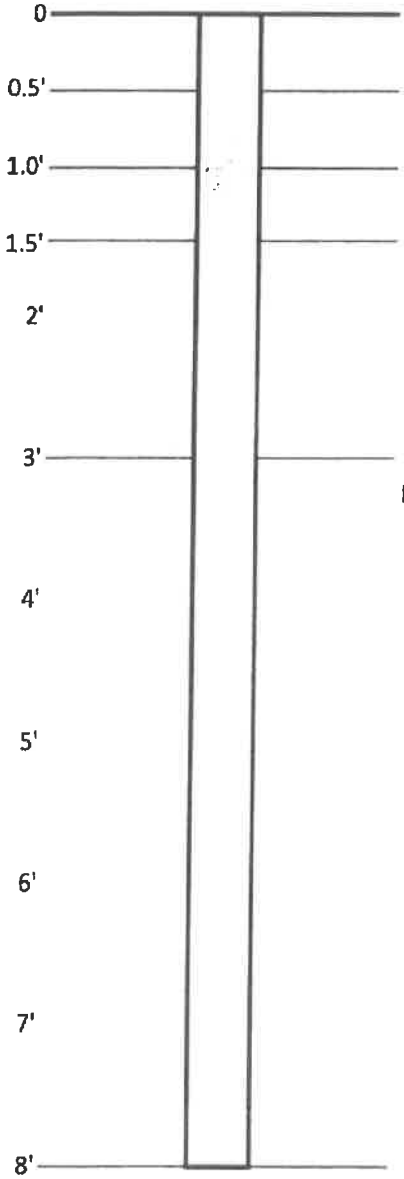
S-31 8/25/17

SHALLOW SOIL PROFILES
32421001.03 SGPP

Collected SG3-FB07-170825 (rinsate) @ 08:30
Collected MS/MSD (SG3-S31-0-0.5') 0-0.5' @ 08:40



SOIL

PFCs, pH, TOC, moisture content SG3-S31-0-0.5' @ 08:40

PFCs, pH, TOC, moisture content SG3-S31-0.5-1' @ 09:00

PFCs, pH, TOC, moisture content SG3-S31-1-1.5' @ 09:05

PFCs, pH, TOC, moisture content SG3-S31-3-4' @ 09:20

PFCs, pH, TOC, moisture content SG3-S31-8-9' @ 09:45

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/25/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/25/17			BY: RQM			ANALYST:
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-31	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S-31	2	0.5-1'	SOIL	1.1	0.0	No D/O/S
S-31	3	1-1.5'	SOIL	Consumed	—	No D/O/S
S-31	4	1.5-3'	SOIL	0.2	0.0	No D/O/S
S-31	4	3-4'	SOIL	0.2	0.0	No D/O/S
S-31	5	4-8'	SOIL	0.3	0.0	No D/O/S
S-31	6	9-10'	SOIL	0.3	0.0	No D/O/S
S-12	1	0.0.5'	SOIL	0.7	0.0	No D/O/S
S-12	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-12	3	1-1.5'	SOIL	0.4	0.0	No D/O/S
S-12	4	1.5-3	SOIL	0.6	0.0	No D/O/S
S-12	5	4-8'	SOIL	2.2	0.0	No D/O/S
S-12	6	8-9'	SOIL	0.3	0.0	No D/O/S
S-12	6	9-10'	SOIL	0.2	0.0	No D/O/S
D-18	1	0-0.5'	SOIL	0.6	0.0	No D/O/S
D-18	1	0.5-1'	SOIL	0.3	0.0	No D/O/S
D-18	1	1-1.5'	SOIL	0.2	0.0	No D/O/S
D-18	1	1.5-4'	SOIL	0.2	0.0	No D/O/S
D-18	1/2	4-8'	SOIL	0.1	0.0	No D/O/S
D-18	2	8-9'	SOIL	0.1	0.0	No D/O/S
D-18	2	9-10'	SOIL	0.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-32
ELEV.: DATUM:
START DATE: 8/24/17 FINISH DATE: 8/24/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5'	0-0.2' OL/OH: V. dk. brn., moist, low plast., silty, some fg-cg sand + g.	3" HA to 1.5'
	0.5-1'	2	0.5'		M.C. to EOB
	1-1.5'	3	0.5'	0.2-0.6' SC: Brown, fg-cg, moist, few fg gravel, ~45% fines, fines exhibit no dilatancy. trc organics (roots).	
2				*[gradational contact]*	
	1.5-4'	4	1.6'	0.6-1.0' SM: Brown, fg-cg, mostly fg-mg, trc fg gvl., moist	Low recov. 1.5-4', offset ~12" south (S-32b) + re-drove, intercepted gvl @ orig loc + S-32b. Continuing past 4' @ S-32b.
				1.0-5.0' SMg: Brown, fg-cg, mostly fg-mg, some sb-rnded fg gvl., moist, ~40% fines.	
4				At 2.7', 3.5" lyr of v. dk. brown peat.	
				At 3.5', becomes siltier (~50%) *[poss. ML]*	
6	4-8'	5	2.9'	5.0-8.0' SM/ML: Brown, fg-mg, mostly fg. Few fg gvl, till, moist, ~50% fines.	Refusal + 5.5' @ S-32b, offset 3.5' N of orig. loc. (4.5' N of S-32b) + drove 0-4' (same stratigraphy) + then 4-8' for acc. rec. (S-32c).
				8.0-10.0' CL-s: Till, brown, moist, low plast-med plast, little fg sand, trc-fw angular fg gravel	
8					
	8-10'	6	2.6'		Low rec. @ 8-10' @ S-32c, (<1'), offset 1.5' N of S-32c + blind drilled to 8', got good rec 8-10' (S-32d).
10				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

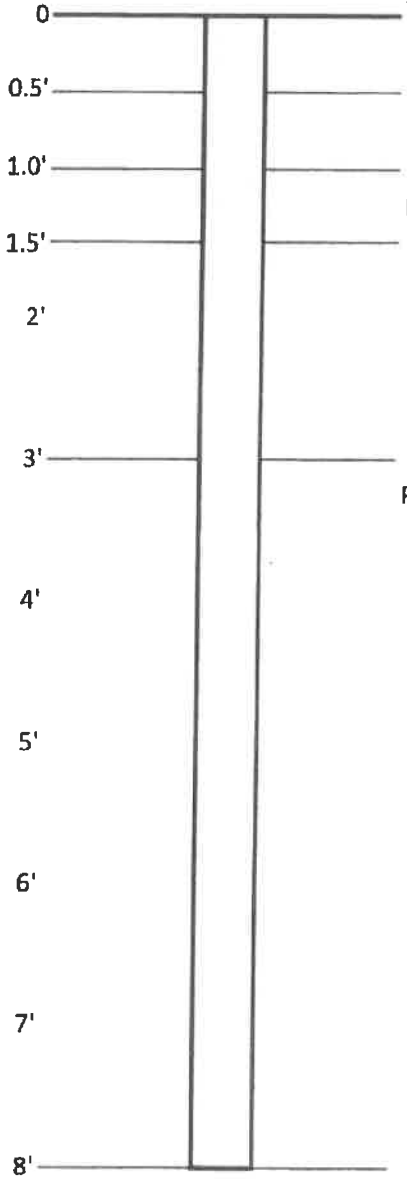
SAMPLE CLASSIFICATION BY: RQM

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

S-32 8/24/17

Collected SG3-FB06-170824 (pour) @ 08:50
Collected SG3-FD07-170824 from 0-0.5'

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

PFCs, pH, TOC, moisture content SG3-S32-0-0.5' @ 0900

PFCs, pH, TOC, moisture content SG3-S32-0.5-1' @ 0910

PFCs, pH, TOC, moisture content SG3-S32-1-1.5' @ 0915

PFCs, pH, TOC, moisture content SG3-S32-3-4' @ 0930

PFCs, pH, TOC, moisture content SG3-S32-8-9' @ 10:25

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03				PROJECT #:		PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/24/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP	10.6	eV	DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/24/17				BY: DJE		ANALYST:
TEMPERATURE OF SOIL: ambient						

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-32	1	0-0.5'	SOIL	0.5	0.1	No D/O/S
S-32	2	0.5-1'	SOIL	0.4	0.1	No D/O/S
S-32	3	1-1.5'	SOIL	0.3	0.1	No D/O/S
S-32	4	1.5-3'	SOIL	0.3	0.1	No D/O/S, 3-4' consumed
S-32	5	4-8'	SOIL	0.4	0.1	No D/O/S
S-32	6	8-9'	SOIL	Consumed	0.2	No D/O/S
S-32	6	9-10'	SOIL	0.2	0.2	No D/O/S
S-37	1	0-0.5'	SOIL	1.0	0.0	No D/O/S
S-37	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-37	3	1-1.5'	SOIL	0.2	0.0	No D/O/S
S-37	4	1.5-4'	SOIL	0.1	0.0	No D/O/S
S-39	1	0-0.5'	SOIL	0.1	0.0	No D/O/S
S-39	2	0.5-1'	SOIL	0.0	0.0	No D/O/S
S-39	3	1-1.5'	SOIL	0.0	0.0	No D/O/S
S-39	4	1.5-3'	SOIL	0.0	0.0	No D/O/S
S-39	4	3-4'	SOIL	0.0	0.0	No D/O/S
S-39	5	4-8'	SOIL	0.0	0.0	No D/O/S, 8-9' consumed
S-39	6	9-10'	SOIL	0.0	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S33
ELEV.: DATUM:
START DATE: 9.27.17 FINISH DATE: 9.27.17
SHEET 1 of 1

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.6131
LOCATION: S33 - Sr. Living Facility - Rt 7A CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-0.5	1	0.5	0-10': Medium Brown clayey (-) SILT, little fine(+) to medium Sand. Soft, dry, no stain, no odor. Medium stiff, moist below 5.5ft.	Auger 0-0.5, 0.5-1, 1-1.5'.
	0.5-1	2	0.5		Trace m-f Gravel below 0.5ft.
	1-1.5	3	0.5		Little cf Gravel Below 2.0ft.
2	1.5 to 4	4	3.1		Probe 1.5-4'
4					Probe 4-8'
6	4 to 8	5	3.6		Probe 8-10'
8					
10	8 to 10	6	2.7	Bottom of borehole at 10' Backfill with cuttings and bentonite chips.	GW not encounted.
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger <1.5 ft, Probe >1.5'

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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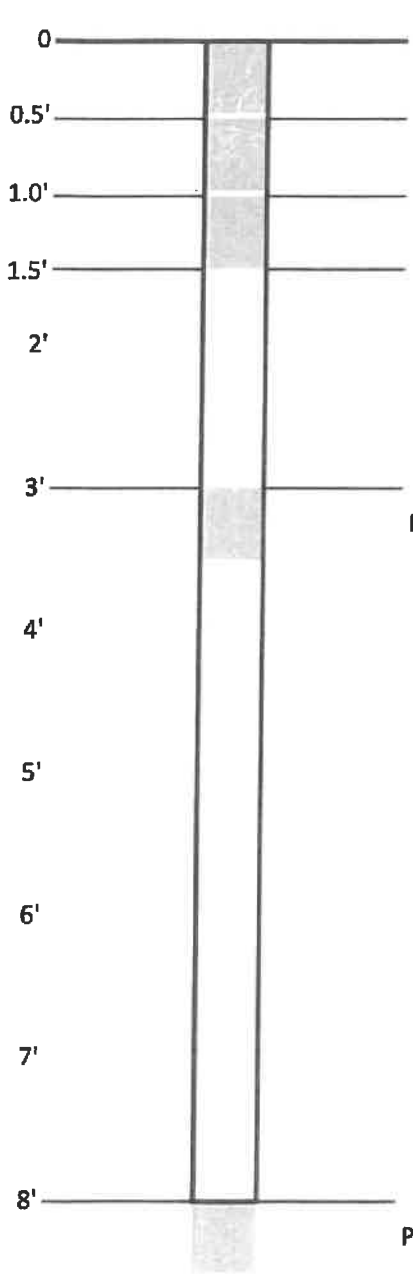
SHALLOW SOIL PROFILES ~~- LANDFILL~~ 533



SOIL

PFCs, pH, TOC, moisture content 0915:SG3-533-0-0.5'

PFCs, pH, TOC, moisture content 0920:SG3-533-0.5-1'

PFCs, pH, TOC, moisture content 0925:SG3-533-1-1.5'

PFCs, pH, TOC, moisture content 0955:SG3-533-3-4'

PFCs, pH, TOC, moisture content 1015:SG3-533-8-9'

GROUNDWATER (if encountered) Not Encountered.

PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #: 01631	PAGE 1 OF 1	
CLIENT: SGPP		DATE COLLECTED: 9-27-17	
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-27-17	
DATE INSTRUMENT CALIBRATED: 9-27-17	BY: LC	ANALYST: AHK	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S33	1	0-0.5	Soil	1.0	0	No stain, no odor.
	2	0.5-1		1.0	0	No stain, no odor.
	3	1-1.5		1.0	0	No stain, no odor.
	4	1.5-3		1.6	0	No stain, no odor
	4	3-4		1.8	0	No stain, no odor
	5	4-8		1.0	0	No stain, no odor.
	6	8-9		1.5	0	No stain, no odor.
	6	9-10		0.9	0	No stain, no odor
S40	1	0-0.5	Soil	0.2	0	No stain, no odor
	2	0.5-1		0.4	0	No stain, no odor
	3	1-1.5		0.5	0	No stain, no odor.
	4	1.5-3		1.8	0	No stain, no odor.
	4	3-4		0.8	0	No stain, no odor
	5	4-8		0.2	0	No stain, no odor.
	6	8-9		0.8	0	No stain, no odor.
	6	9-10		0.7	0	No stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S34
ELEV.: DATUM:
START DATE: 9.11.17 FINISH DATE:
SHEET 1 of 1

PROJECT: SG3-St Gobain Bennington CTM PROJECT NO.: 16,613
LOCATION: S34 - Silk Rd. CTM OBSERVER: BAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5 0.5-1 1-1.5	1 2 3	0.5 0.5 0.5	0-2.8': Dark Brown Silty CLAY, trace coarse to fine (+/-) Sand, trace coarse to fine Gravel. Organic, moist, soft. No stain, no odor.	Hand Auger: 0-0.5, 0.5-1, 1-1.5. Probe 1.5-4'
4	1.5 to 4	4	1.7	2.8-5.9: Medium Brown coarse(+) to fine SAND and Gravel (medium to fine), trace Clayey Silt. Loose, saturated below 3.2ft. No stain, no odor.	Ground water at 3.2ft, No sheen, no odor.
6	4 to 8	5	3.1	5.9-6.3: Light Brown Clayey Silt. Lo BAK 9.11.17 Soft, wet. No stain, no odor.	
8				6.3-8: Dark Gray Clayey Silt, some medium to fine Gravel, trace fine Sand. Medium Stiff, wet. No stain, no odor.	
10					
12				Bottom at 8' Backfill with cuttings	Collect GW Sample SG3-S34-170911
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe 06-7924
METHOD OF SAMPLING: Hand Auger 0-1.5, Probe >1.5

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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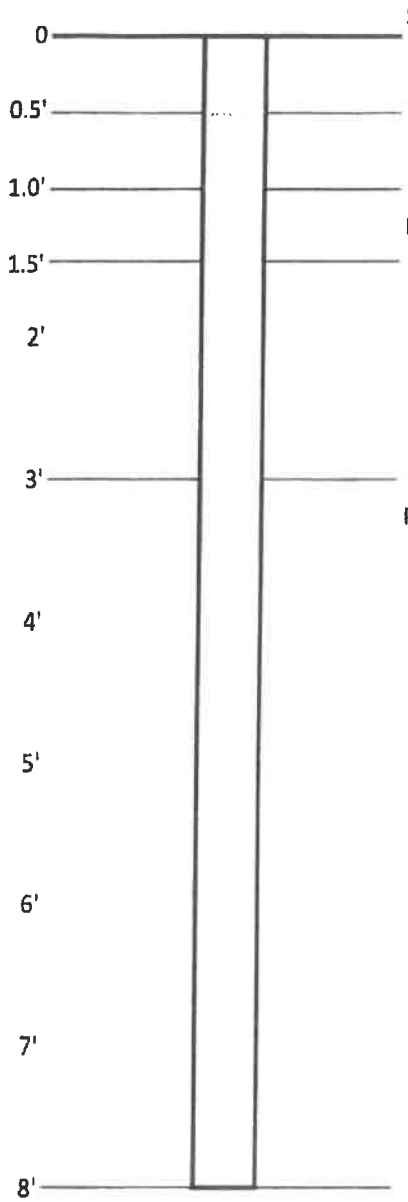
S34

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

PFCs, pH, TOC, moisture content 1000 : SG3-S34-0-0.5' (MS/MSD)

PFCs, pH, TOC, moisture content 1020: SG3-S34-0.5-1'

PFCs, pH, TOC, moisture content 1025 : SG3-S34-1-1.5'

1045 : SG3-S34-2.2-3.2'

PFCs, pH, TOC, moisture content GWat 3.2 ft

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered) 3.2 ft.

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #: 16.6131	PAGE 1 OF	
CLIENT: SGPP		DATE COLLECTED: 9.11.17	
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9/11/17	
DATE INSTRUMENT CALIBRATED:	BY:	ANALYST: RAK/JMS	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S34	1	0-0.5	S	0.6	0.1	No stain, no odor.
S34	2	0.5-1	S	0.4	0.0	No stain, no odor.
S34	3	1-1.5	S	0.9	0	No Stain, no odor.
S34	4	1.5-2.2	S	0.9	0	No Stain, no odor.
S34	4	3.2-4	S	0.9	0	No Stain, no odor.
S34	5	4-8	S		0	No Stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-35
ELEV.: DATUM:
START DATE: 8/22/17 FINISH DATE: 8/22/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 3242.001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.2' OL/OH: V. dk. brn, moist, abundant roots, silty	3" HA to 1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.2-0.7' CLS: Dk. brown, moist, low-med. plast., few-little fg-cg sand & trc gravel	MC 1.5' to EOB
2					
	1.5-4'	4	2.1'	0.7-1.0 SM/SC: Fg-cg, mostly mg, brown, moist, trc fg gvl. *[likely SM but has clay fines, ~45% fines]*	low recovery (~1') fr 1.5-4', offset about ~12" south (loc S-35b on GPS) & re-dr.
4				1.0-2.5' SMg: Fg-cg, mostly mg, brown, moist, little fg gvl, ~35% fines.	
				2.5-6.0' MLs: Lt brown, moist to wet, rapid dilat., few to little fg sand, trc-few clay fines	
6	4-8'	5	2.8'	6.0-~~7.2~~ CLs: Tannish brown, moist, low-med plast., silty, little fg sand, trc gravel	low recovery 8-10' (~0.8'), offset about ~12" further South (loc S-35c on GPS) & re-drove.
				At 7.2', becomes oxidized brownish red mottled w/ brn-gy.	
8				At 8.0', becomes laminated w/ brownish red oxidized silty lyrs, tannish brown becomes brownish grey, greyish brn lyrs produce strong rxn w/ HCl, occ. loams are v. dk grey to black.	
	8-10'	6	2.5'		
10				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY: RQM

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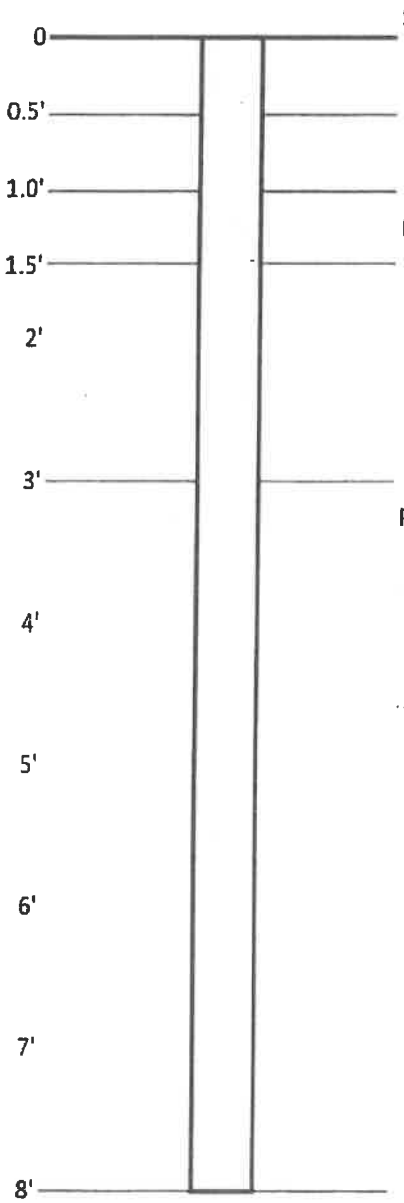
S-35 8/22/17

SHALLOW SOIL PROFILES
32421001.03 SGPP

Collected SG3-FD04-082217 From 0-0.5'



SOIL

PFCs, pH, TOC, moisture content SG3-S35-0-0.5' @ 13:20 (+SG3-FD04-082217)

PFCs, pH, TOC, moisture content SG3-S35-0.5-1' @ 13:30

PFCs, pH, TOC, moisture content SG3-S35-1-1.5' @ 13:35

PFCs, pH, TOC, moisture content SG3-S35-3-4' @ 13:45

PFCs, pH, TOC, moisture content SG3-S35-8-9' @ 14:05

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/21/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 08/22/2017			BY: RDM			ANALYST:
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-35	5	4-8'	SOIL	0.3	0.0	No D/O/S
S-35	6	8-9'	SOIL	0.2	0.0	No D/O/S
S-35	6	9-10'	SOIL	0.1	0.0	No D/O/S
S-09	1	0-0.5'	SOIL	0.3	0.2	No D/O/S
S-09	2	0.5-1'	SOIL	0.3	0.2	No D/O/S
S-09	3	1-1.5'	SOIL	0.4	0.2	No D/O/S
S-09	4	1.5-3'	SOIL	0.3	0.2	No D/O/S
S-09	4	3-4'	SOIL	0.4	0.2	No D/O/S
S-09	5	4-8'	SOIL	0.6	0.2	No D/O/S
S-09	6	8-9'	SOIL	0.3	0.2	No D/O/S
S-09	6	9-10'	SOIL	0.3	0.2	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03				PROJECT #:		PAGE OF	
CLIENT: SGPP						DATE COLLECTED: 08/22/2017	
LOCATION: Bennington, VT							
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:	
DATE INSTRUMENT CALIBRATED: 08/22/2017 RAM			BY:			ANALYST:	
TEMPERATURE OF SOIL: ambient							
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS	
S-38	1	0-0.5'	Soil	3.9	0.0	No D/O/S	Sheen D/O/S
S-38	2	0.5-1'	Soil	7.9	0.1	No D/O/S	
S-38	3	1-1.5'	Soil	4.0	0.1	No D/O/S	
S-38	4	1.5-3'	Soil	0.2	0.1	No D/O/S	
S-38	4	3-4'	Soil	0.2	0.1	No D/O/S	
S-38	5	4-8'	Soil	0.2	0.1	No D/O/S	
S-38	6	8-9'	Soil	0.2	0.1	No D/O/S	
S-38	6	9-10'	Soil	0.2	0.1	No D/O/S	
S-36	1	0-0.5'	Soil	0.7	0.1	No D/O/S	
S-36	2	0.5-1'	Soil	0.6	0.1	No D/O/S	
S-36	3	1-1.5'	Soil	0.6	0.1	No D/O/S	
S-36	4	1.5-3'	Soil	0.3	0.1	No D/O/S	
S-36	4	3-4'	Soil	0.1	0.1	No D/O/S	
S-36	5	4-8'	Soil	0.1	0.1	No D/O/S	
S-36	6	8-9'	Soil	0.4	0.1	No D/O/S	
S-36	6	9-10'	Soil	0.1	0.1	No D/O/S	
S-35	1	0-0.5'	Soil	0.6	0.2	No D/O/S	
S-35	2	0.5-1'	Soil	0.6	0.6	No D/O/S	
S-35	3	1-1.5'	Soil	0.2	0.0	No D/O/S	
S-35	4	1.5-3'	Soil	0.2	0.0	No D/O/S	
S-35	4	3-4'	Soil	0.2	0.0	No D/O/S	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-36
ELEV.: DATUM:
START DATE: 8/22/2017 FINISH DATE: 8/22/2017
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.3' OL/OH: V. dk. brn., moist, abundant roots	3" HA to 1.5'
	0.5-1	2	0.5	0.3-3.0' CLS: Dk. brn, moist, low-med. plast, few to little fg to mg sand, trc roots.	ML to EOB
	1-1.5	3	0.5		
2				3.0-5.5' SM: Mg wl trc fg, brown, moist, trc clay fines	
	1.5-4'	4	1.3'		low recovery from 1.5-4', offset 12" to west and re-drove.
4					
				5.5-10' CLS: Brown, med plast., moist, few to some fg-cg sand & fg ang. grvl.	Apparently drove rock in first drive - which then broke & let sand in from 3-4. In re-drive @ offset we didn't drive a rock but sand fell out bottom. Sampling original drive 3-4' and continuing boring from 4' @ offset loc (S-36b on GPS).
6	4-8'	5	1.0'		
8					
	8-10'	6	1.6'	- At 9', 1.25" lyr of lt. brown sandy silt w/ rapid dilat.	
10					
				EOB @ 10'	recovered 1' from 8-10' @ west offset (S-36b), re-driving 8-10' @ another offset 12" further west (S-36c on GPS).
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

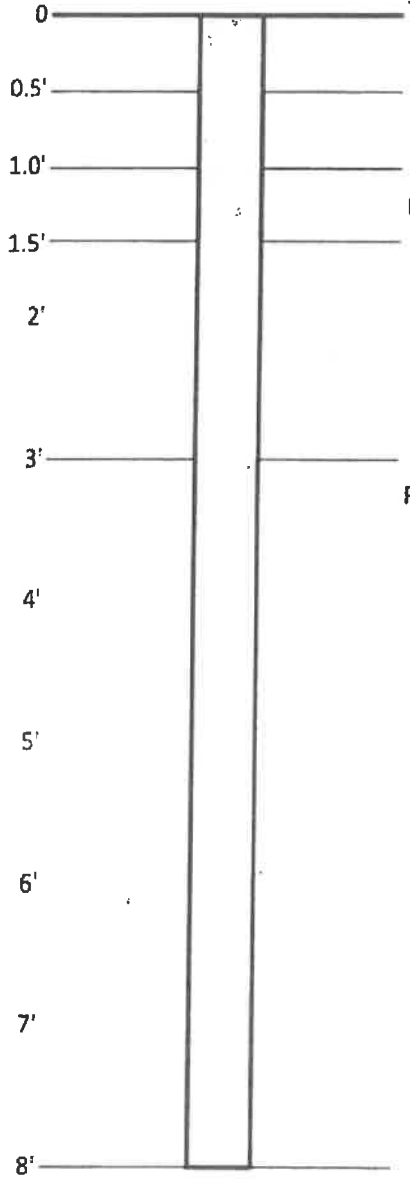
DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S-36 8/22/2017

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL Collected [redacted] SG3-FB04-170822 (pour) @ 11:05

PFCs, pH, TOC, moisture content SG3-S36-0-0.5' 10:45

PFCs, pH, TOC, moisture content SG3-S36-0.5-1' 11:00

PFCs, pH, TOC, moisture content SG3-S36-1-1.5' 11:10

PFCs, pH, TOC, moisture content SG3-S36-3-4' 11:20

PFCs, pH, TOC, moisture content SG3-S36-8-9' 11:50

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #:		PAGE OF
CLIENT: SGPP			DATE COLLECTED: 08/22/2017
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 08/22/2017 RDM	BY:		ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-38	1	0-0.5'	Soil	3.9	0.0	No Disc/Odor/Sheen (D/O/S)
S-38	2	0.5-1'	Soil	7.9	0.1	No D/O/S
S-38	3	1-1.5'	Soil	4.0	0.1	No D/O/S
S-38	4	1.5-3'	Soil	0.2	0.1	No D/O/S
S-38	4	3-4'	Soil	0.2	0.1	No D/O/S
S-38	5	4-8'	Soil	0.2	0.1	No D/O/S
S-38	6	8-9'	Soil	0.2	0.1	No D/O/S
S-38	6	9-10'	Soil	0.2	0.1	No D/O/S
S-36	1	0-0.5'	Soil	0.7	0.1	No D/O/S
S-36	2	0.5-1'	Soil	0.6	0.1	No D/O/S
S-36	3	1-1.5'	Soil	0.6	0.1	No D/O/S
S-36	4	1.5-3'	Soil	0.3	0.1	No D/O/S
S-36	4	3-4'	Soil	0.1	0.1	No D/O/S
S-36	5	4-8'	Soil	0.1	0.1	No D/O/S
S-36	6	8-9'	Soil	0.4	0.1	No D/O/S
S-36	6	9-10'	Soil	0.1	0.1	No D/O/S
S-35	1	0-0.5'	Soil	0.6	0.2	No D/O/S
S-35	2	0.5-1'	Soil	0.6	0.6	No D/O/S
S-35	3	1-1.5'	Soil	0.2	0.0	No D/O/S
S-35	4	1.5-3'	Soil	0.2	0.0	No D/O/S
S-35	4	3-4'	Soil	0.2	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer
**PPM represents concentration of detectable volatile and vaporous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-37
ELEV.:
DATUM:
START DATE: 8/24/17
FINISH DATE: 8/24/17
SHEET 1 of 1

PROJECT: SGPP Bennington
~~CTM~~ PROJECT NO.: 3242.1001.03
LOCATION: Bennington, VT
~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	0-0.4' OL/OH: Dk brn, moist, abundant roots, silty	3" HA to 1.5'
	0.5-1	2	0.5		M.C. 1.5' to EOB
	1-1.5	3	0.5	0.4-3.7' SM/SC: Fg-cg, mostly mg, tan to lt. brn, moist, few to little fg rounded to sub rounded gravel, wet @ 1.5'	
2					
	1.5-4'	4	1.5'	3.7-4.0' OL/OH: Peat, root fibers, v. dk. brn., low plast, no dilat., moist to wet	low recovery 1.5-4', offset 12" South & redrove. (S-37b)
4					
				EOB @ 4.0'	WL = 1.9' @ offset loc, caved @ 2.6', is 2.0 @ orig, caved @ 2.1', placing temp well.
6					
					Screened 0-4.2' @ orig. location
8					
10					
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

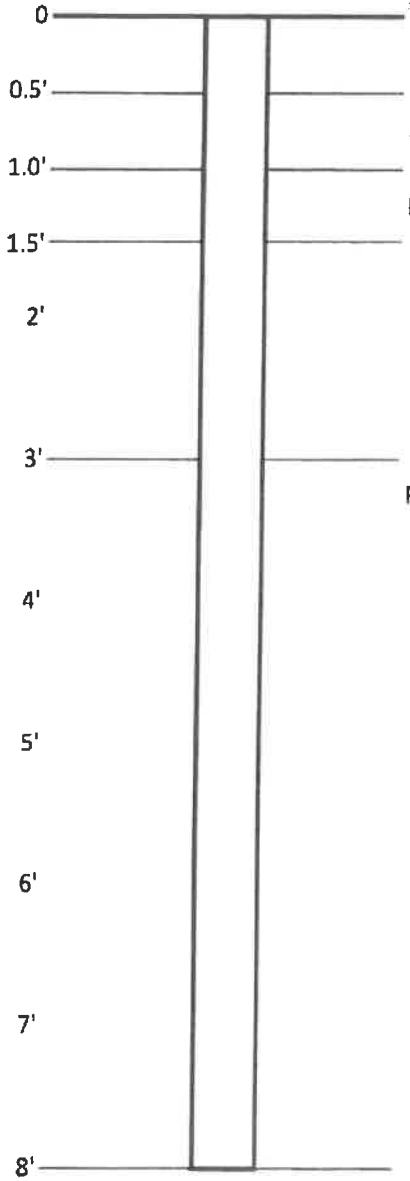
DATE	LEVEL	REFERENCE MEASURING POINT
8/24	1.8	95' (~15min AD)

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S-37 8/24/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL — Collected MS/MSD (SG3-S37-0-0.5') @ 11:45

PFCs, pH, TOC, moisture content — SG3-S37-0-0.5' @ 11:45

PFCs, pH, TOC, moisture content — SG3-S37-0.5-1' @ 12:00

PFCs, pH, TOC, moisture content — SG3-S37-1-1.5' @ 12:05

PFCs, pH, TOC, moisture content

Collecting water sample, (SG3-S37-170824)
Screened 0-4.2'

PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #:		PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/24/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/24/17	BY: DJE		ANALYST:

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-32	1	0-0.5'	SOIL	0.5	0.1	No D/O/S
S-32	2	0.5-1'	SOIL	0.4	0.1	No D/O/S
S-32	3	1-1.5'	SOIL	0.3	0.1	No D/O/S
S-32	4	1.5-3'	SOIL	0.3	0.1	No D/O/S, 3-4' consomed
S-32	5	4-8'	SOIL	0.4	0.1	No D/O/S
S-32	6	8-9'	SOIL	Consumed	0.2	No D/O/S
S-32	6	9-10'	SOIL	0.2	0.2	No D/O/S
S-37	1	0-0.5'	SOIL	1.0	0.0	No D/O/S
S-37	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-37	3	1-1.5'	SOIL	0.2	0.0	No D/O/S
S-37	4	1.5-4'	SOIL	0.1	0.0	No D/O/S
S-39	1	0-0.5'	SOIL	0.1	0.0	No D/O/S
S-39	2	0.5-1'	SOIL	0.0	0.0	No D/O/S
S-39	3	1-1.5'	SOIL	0.0	0.0	No D/O/S
S-39	4	1.5-3'	SOIL	0.0	0.0	No D/O/S
S-39	4	3-4'	SOIL	0.0	0.0	No D/O/S
S-39	5	4-8'	SOIL	0.0	0.0	No D/O/S, 8-9' consumed
S-39	6	9-10'	SOIL	0.0	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-38
ELEV.: **DATUM:**
START DATE: 8/22/2017 **FINISH DATE:** 8/22/2017
SHEET 1 of 1

PROJECT: SGPP Bennington **~~GTM~~ PROJECT NO.:** 3242.001.03
LOCATION: Bennington, VT **~~GTM~~ OBSERVER:** RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	ORGANIC SOIL (OL/OH) to 0.1', abundant roots, dk brown to blk.	3" hand auger to 1.5"
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.1-0.6 SC: V dk bra to blk, cg, some clay fines, tr. roots, low to med. plast., silty.	
2				0.6-1.8' CL+: V dk. bra to blk., fg-cg sand (little), low to med plast., silty.	
	1.5-4	4	3.0'		Macrocore 1.5 to 10' ft.
				1.8-8.0' CLs: TILL: greyish brown, little fg-cg sand & fg ang. gvl, low to med plast., very silty	
4					
				From 4-8.0', very silty, slow dilatancy, occ intervals of tr-fw sand.	
6	4-8'	5	4.3'		
8				8-8.3' OL: Dk bra, tr-fw roots, few fg-cg sand	
	8-10'	6	2.6'	8.3-8.8' MLs: Lt bra, nonplastic, few fg sand, rapid dilat.	
10				8.8-10' CLs: As @ 1.8'	
				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

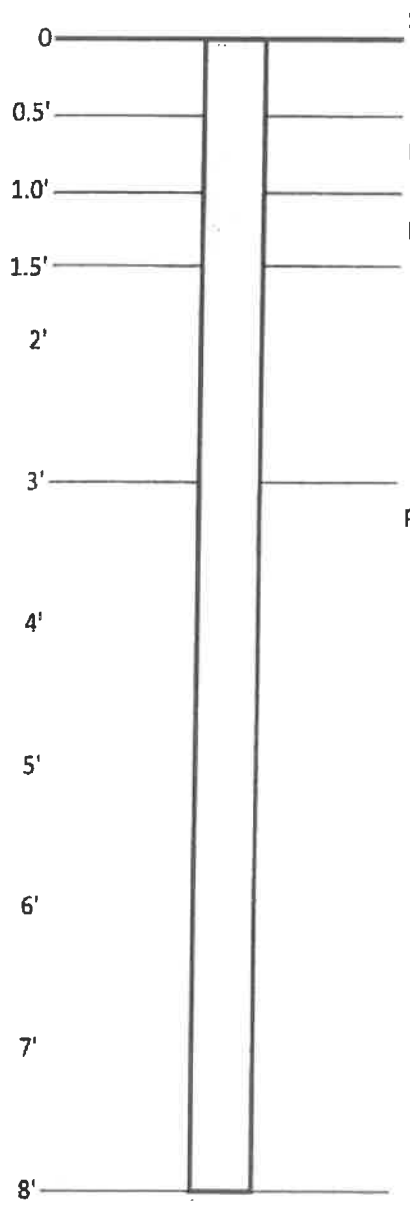
THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S38 8/22/17

SHALLOW SOIL PROFILES
32421001.03 SGPP

Collected MS/MSD (SG3-S38-0-0.5')



SOIL

PFCs, pH, TOC, moisture content SG3-S38-0-0.5' 0850

PFCs, pH, TOC, moisture content SG3-S38-0.5-1' 0905

PFCs, pH, TOC, moisture content SG3-S38-1-1.5' 0915

PFCs, pH, TOC, moisture content SG3-S38-3-4' 0930

PFCs, pH, TOC, moisture content SG3-S38-8-9' @ 0940

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 08/22/2017
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 08/22/2017 RDM			BY:			ANALYST:
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-38	1	0-0.5'	SOIL	3.9	0.0	No Disc/Odor/Sheen (D/O/S)
S-38	2	0.5-1'	SOIL	7.9	0.1	No D/O/S
S-38	3	1-1.5'	SOIL	4.0	0.1	No D/O/S
S-38	4	1.5-3'	SOIL	0.2	0.1	No D/O/S
S-38	4	3-4'	SOIL	0.2	0.1	No D/O/S
S-38	5	4-8'	SOIL	0.2	0.1	No D/O/S
S-38	6	8-9'	SOIL	0.2	0.1	No D/O/S
S-38	6	9-10'	SOIL	0.2	0.1	No D/O/S
S-36	1	0-0.5'	SOIL	0.7	0.1	No D/O/S
S-36	2	0.5-1'	SOIL	0.6	0.1	No D/O/S
S-36	3	1-1.5'	SOIL	0.6	0.1	No D/O/S
S-36	4	1.5-3'	SOIL	0.3	0.1	No D/O/S
S-36	4	3-4'	SOIL	0.1	0.1	No D/O/S
S-36	5	4-8'	SOIL	0.1	0.1	No D/O/S
S-36	6	8-9'	SOIL	0.4	0.1	No D/O/S
S-36	6	9-10'	SOIL	0.1	0.1	No D/O/S
S-35	1	0-0.5'	SOIL	0.6	0.2	No D/O/S
S-35	2	0.5-1'	SOIL	0.6	0.6	No D/O/S
S-35	3	1-1.5'	SOIL	0.2	0.0	No D/O/S
S-35	4	1.5-3'	SOIL	0.2	0.0	No D/O/S
S-35	4	3-4'	SOIL	0.2	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-39
ELEV.: DATUM:
START DATE: 8/24/17 FINISH DATE: 8/24/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	OL/OH 0-0.5': V dk. brn. to black, moist, abundant roots, silty.	3" HA to 1.5'
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.5-3.5' SM: Brown, moist, fg-cg, mostly fg, few fg gvl, few clay fines, ~40% total fines.	M.C. 1.5' to EOB
2					
	1.5-4'	4	1.0	3.5-4.1' OL/OH: Peat, v. dk. brn. to blk., organics, roots & fibrous material, low-med plast, no dilat, soft.	Poor recovery @ 1.5-4', offset ~12" S and re-dr. (S-39b).
4					
				4.1-9.0': SM: Fg, moist, lt. yellow brn to ylw brn, trc fg gvl, ~40% fines.	Poor recovery @ S-39b, (<1'), pushing gravel, consuming as 3-4' sample & resuming in original location.
6	4-8'	5	2.0'		
8				- From 8.0-8.5', dk brn, decreased fines (~25%), some fg gravel.	
	8-10'	6	2.2'	9-10' ML$_g$: Till, lt yellow brn to ylw brn, nonplastic, little fg gravel, slow dilat., few fg sand	
10				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

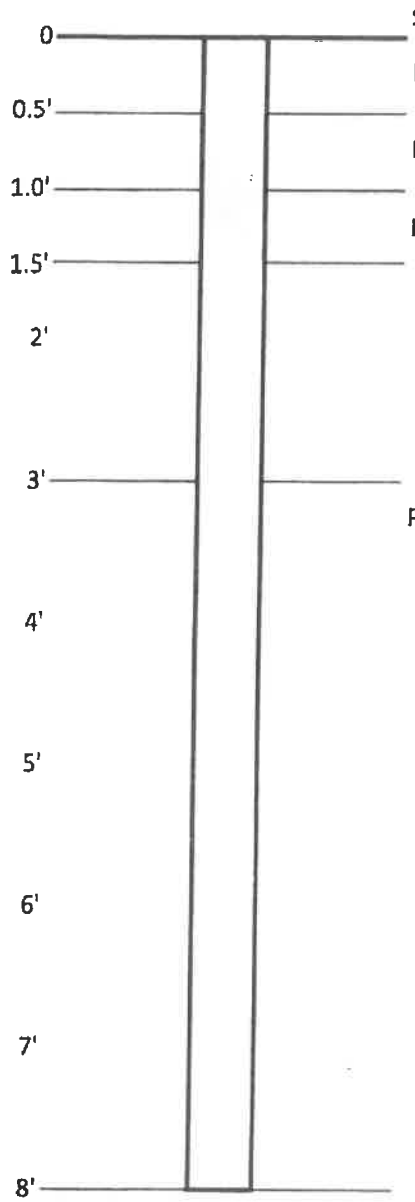
DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY: RQM

S-39 8/24/17

SHALLOW SOIL PROFILES
32421001.03 SGPP



SOIL

PFCs, pH, TOC, moisture content SG3-S39-0-0.5' @ 15:00

PFCs, pH, TOC, moisture content SG3-S39-0.5-1' @ 15:05

PFCs, pH, TOC, moisture content SG3-S39-1-1.5' @ 15:10

PFCs, pH, TOC, moisture content SG3-S39-3-4' @ 15:20

PFCs, pH, TOC, moisture content SG3-S39-8-9' @ 15:30

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/24/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000			LAMP 10.6 eV			DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/24/17			BY: DJE			ANALYST:
TEMPERATURE OF SOIL: ambient						
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-32	1	0-0.5'	SOIL	0.5	0.1	No D/O/S
S-32	2	0.5-1'	SOIL	0.4	0.1	No D/O/S
S-32	3	1-1.5'	SOIL	0.3	0.1	No D/O/S
S-32	4	1.5-3'	SOIL	0.3	0.1	No D/O/S, 3-4' consumed
S-32	5	4-8'	SOIL	0.4	0.1	No D/O/S
S-32	6	8-9'	SOIL	Consumed	0.2	No D/O/S
S-32	6	9-10'	SOIL	0.2	0.2	No D/O/S
S-37	1	0-0.5'	SOIL	1.0	0.0	No D/O/S
S-37	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-37	3	1-1.5'	SOIL	0.2	0.0	No D/O/S
S-37	4	1.5-4'	SOIL	0.1	0.0	No D/O/S
S-39	1	0-0.5'	SOIL	0.1	0.0	No D/O/S
S-39	2	0.5-1'	SOIL	0.0	0.0	No D/O/S
S-39	3	1-1.5'	SOIL	0.0	0.0	No D/O/S
S-39	4	1.5-3'	SOIL	0.0	0.0	No D/O/S
S-39	4	3-4'	SOIL	0.0	0.0	No D/O/S
S-39	5	4-8'	SOIL	0.0	0.0	No D/O/S, 8-9' consumed
S-39	6	9-10'	SOIL	0.0	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S40
ELEV.:
START DATE: 9.27.17
SHEET 1 of 1
DATUM:
FINISH DATE: 9.27.17

PROJECT: Saint Gobain Bennington
LOCATION: 340-383 Vail Road.
CTM PROJECT NO.: 16,6131
CTM OBSERVER: RtR

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5 0.5-1 1-1.5	1 2 3	0.5 0.5 0.5	0-10': Medium Brown Clayey(-) SILT, trace coarse to fine(+) Sand, trace(+) coarse to fine(+) Gravel. Soft, dry, no stain, no odor.	Hand auger 0-0.5, 0.5-1, 1-1.5 ft.
4	1.5 to 4	4	2.5		Probe 1.5-4 ft. Medium st. ff below 2 ft. Little cfG below 2 ft.
6	4 to 8	5	1.4		Probe 4-8 ft. More clayey and moist below 7 ft.
8					Probe 8-10 ft.
10	8 to 10	6	3.2		
12				Bottom at 10 ft. Backfill with cuttings and bentonite chips.	
14					GW not encountered.
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: <1.5 ft - Hand Auger, >1.5 ft. Probe

GROUNDWATER LEVEL READINGS

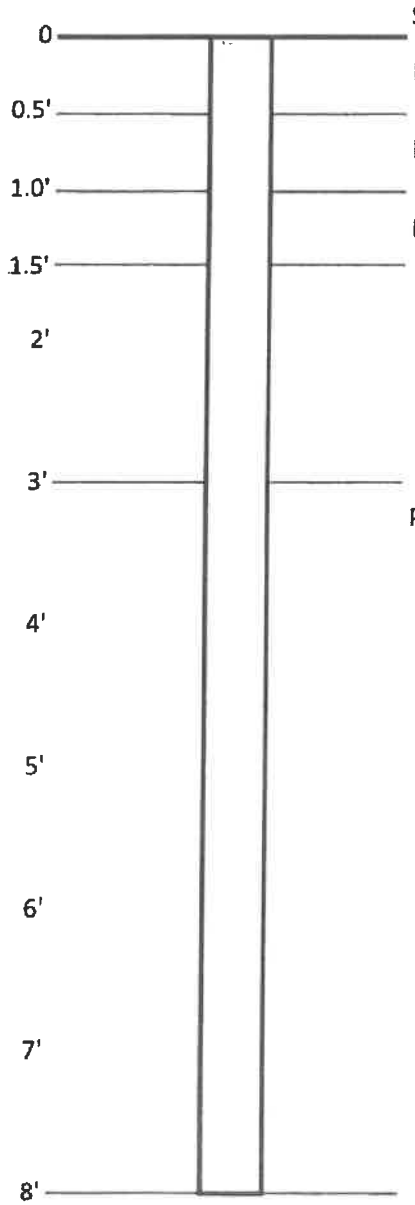
DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SHALLOW SOIL PROFILES
32421001.03 SGPP

S40



SOIL

PFCs, pH, TOC, moisture content 1215:SG3-S40-0-0.5'

PFCs, pH, TOC, moisture content 1220:SG3-S40-0.5-1'

PFCs, pH, TOC, moisture content 1225:SG3-S40-1-1.5'

PFCs, pH, TOC, moisture content 1305:SG3-S40-3-4'

PFCs, pH, TOC, moisture content 1330:SG3-S40-8-9'

GROUNDWATER (if encountered) Not Encountered.
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #: 0161 31	PAGE 1 OF 1
CLIENT: SGPP		DATE COLLECTED: 9-27-17
LOCATION: Bennington, VT		
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-27-17
DATE INSTRUMENT CALIBRATED: 9-27-17	BY: LC	
TEMPERATURE OF SOIL: ambient		ANALYST: RAR

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S33	1	0-0.5	Soil	1.0	0	No stain, no odor.
	2	0.5-1		1.0	0	No stain, no odor.
	3	1-1.5		1.0	0	No stain, no odor.
	4	1.5-3		1.6	0	No stain, no odor
	4	3-4		1.8	0	No stain, no odor
	5	4-8		1.0	0	No stain, no odor.
	6	8-9		1.5	0	No stain, no odor.
	6	9-10		0.9	0	No stain, no odor
S40	1	0-0.5	Soil	0.2	0	No stain, no odor
	2	0.5-1		0.4	0	No stain, no odor
	3	1-1.5		0.5	0	No stain, no odor.
	4	1.5-3		1.8	0	No stain, no odor
	4	3-4		0.8	0	No stain, no odor
	5	4-8		0.2	0	No stain, no odor.
	6	8-9		0.8	0	No stain, no odor.
	6	9-10		0.7	0	No stain, no odor

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB1
ELEV.: DATUM:
START DATE: 8/15/17 FINISH DATE: 8/15/17
SHEET 1 of 1

PROJECT: ~~3580~~ 32421001.03 CTM PROJECT NO.: 32421001
LOCATION: Bennington VT CTM OBSERVER: KMM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-1'	1	1.0	0-0.2' OL/OH grass at surface, V. dk brn, clayey Roots at surface	3 pushes to 1' Hand Auger 1 Loc'n to 0.5' for BMS/MSD Volume.
2				0.2-1' SM silty sand w/ tr. gravel; fg-cg Sand; F. gravel; ~15% fines	
	1-4	2	1.5	1-1.3' as above	
4					
6	4-8	3	1.3'	Crushed Cobbles & gravel; tr. sand generally lt. gray	- crushed cobbles Not enough Soil to Sample
				No odor or Sheen observed No Discoloration	
8					
10					Step off to west & try another Loc'n
12					Collect Field Blank
14				attempt 2nd Hole ~15' East Same materials & Recoveries Set temp well 5-10' screen bgs.	
16					

DRILLING CONTRACTOR: Cascade drilling
DIRECT-PUSH TYPE: 7822 DT
METHOD OF SAMPLING: Direct push Macro/Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
	5.9'	ground
	5.9'	after Sampling (ground)

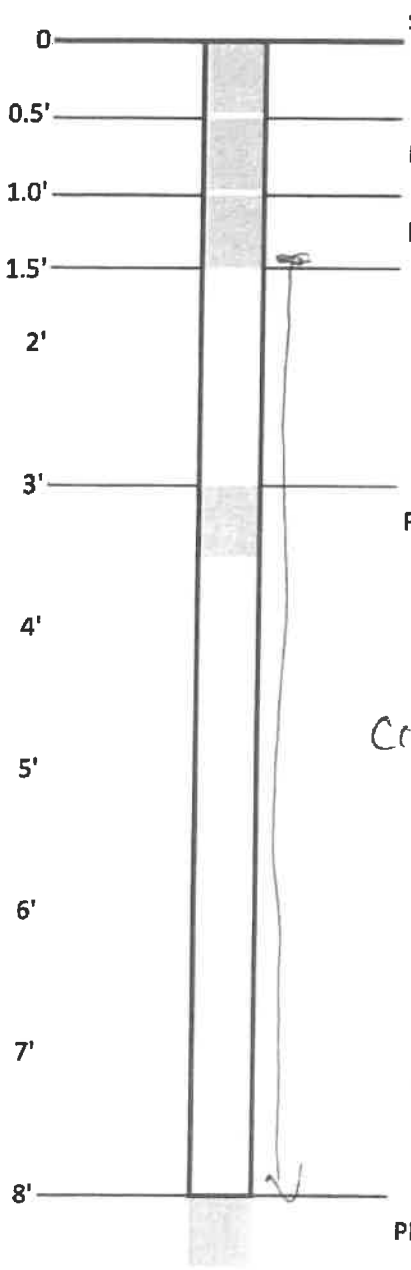
SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SHALLOW SOIL PROFILES

S41 8/15/17 KMM

MS/MSD 0-0.5'



SOIL

PFCs, pH, TOC, moisture content 11:20 — Hand Auger 0-0.5'

PFCs, pH, TOC, moisture content 11:30 — 3 pushes 0-2'

PFCs, ~~pH, TOC~~, moisture content 12:20 — pushed 4 times to 4' only 1.5' Recovery each time - Mostly Crushed/pulverized Rocks - only enough Soil to obtain for PFC Sample

PFCs, pH, TOC, moisture content

Crushed Rocks/cobbles

PH = 6.79
Temp = 19.6° C
DO = 1.64 mg/l
Cond = 0.467 mS/cm
ORP = 46.9 - not calibrated for

Collect PFC Field Blank
SG-FB01-170815

Calibrate YSI
Cond - 7000 Reading 6995
PP 4.00 Reading 3.99
7.00 Reading 6.99
10.00 Reading 9.98

PFCs, pH, TOC, moisture content

Collect H2O @ 14:35

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

DO 100% —

Purge 2 qts

NTU = 32.5

Prep to collect Sample

2 Tritium

250

1 4oz amber glass vial

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.05	**PROJECT #:**		**PAGE** 1 **OF** 1
CLIENT: SGDP			**DATE COLLECTED:** 8/15/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 8/15/17
DATE INSTRUMENT CALIBRATED: 8/15/17	**BY:** KMM		**ANALYST:** KMM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SH1	1	0-0.5'	Soil	0.2	0.1	No odor/sheen/Disco
SH1	1	0.5-1'	Soil	0.2	0.1	No odor/sheen/disco
SH1A	1	2-4'	Soil/gravel	0.3	0.1	No odor/sheen/disco
SH1A	1	4-8'	" "	0.7	0.1	wet

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB2
ELEV.: DATUM:
START DATE: 8/16/17 FINISH DATE: 8/16/17
SHEET 1 of 1

PROJECT: SGPP - Bennington
LOCATION: Bennington VT.
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: KAM / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5'	1	0.5	0-0.1' grass at surface, organic soil (OL/OH) dk bn; silty, abundant Roots	Hand Auger 0-0.5' 0.5'-1' 1-1.5'
	0.5-1'	2	0.5		
	1-1.5'	3	0.5		
2					
	1.5-4'	4	2.5	0.1-3 (SP) pgs; fg-mg w/ ~20% cg; 5% F. gravel; ~5% fines; subAng to Sub-Rnd grains/clasts; moist; bn, dk bn from 1-1.5' w/ some small Roots - Same to 2'	Macrocore 1.5-4' 4-8' 8-10'
4					
6	4-8'	5	1.7'	(SM/ML) Silty Sand grades to Sandy Silt; fg; ~20% fines Increases w/ depth to ~60% silt trace F. gravel becomes v. moist below 8' bgs; grades from Bn to Lt yellow Bn,	
8					
10	8-10'	6	2'		
12				Set temp well to see if water will come in. Screen 5-10' w 1" 0.010 Slot pvc.	
14				Temp well yeilded ~ 1/2 Liter before going dry - will submit turbid 1/4 full PFC bottle to Lab.	
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger / Macro core

GROUNDWATER LEVEL READINGS

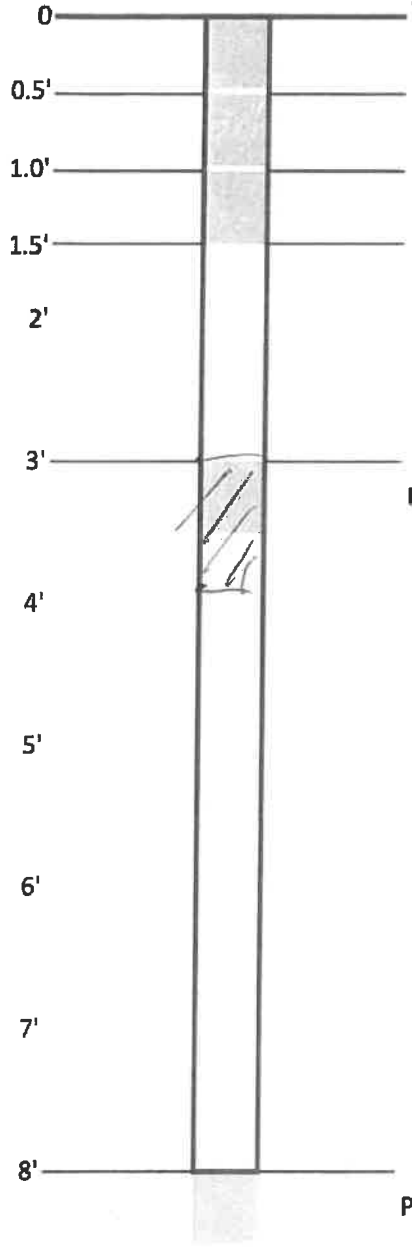
DATE	LEVEL	REFERENCE MEASURING POINT
	9' bgs	

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

S42 8/16/17 KAM

SHALLOW SOIL PROFILES



PFCs, pH, TOC, moisture content SG3-S42-0-0.5' @15:30

PFCs, pH, TOC, moisture content SG3-S42-05-1' @15:35

PFCs, pH, TOC, moisture content SG3-S42-1-1.5' @15:45

3" Handauger used to collect
0-0.5' bgs.
0.5-1' bgs.
1-1.5' bgs.

PFCs, pH, TOC, moisture content
SG3-S42-3-4' @15:55'

Calibrate YSI prot
Cond: 7000 Reading 6970
pH 4.00 Reading 4.05
7.00 Reading 7.00
10.00 Reading 10.01
Do 100%

17:30 purged ~ 1/2 liter of water 3 went dry
17:35 - Sampled ~ 40 ml H2O before going dry
18:00 - Sampled ~ 100 ml " " " "

PFCs, pH, TOC, moisture content SG3-S42-8-9' @ 16:10

GROUNDWATER (if encountered) 16:14-Set temp well - Screen 5-10' w/ 0.010 Slot PVC Screen,
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Bennington VT	**PROJECT #:** 32429001.05	**PAGE** 1 **OF** 1	
CLIENT: SiPP		**DATE COLLECTED:** 8/16/17	
LOCATION: Bennington VT.			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**	**DATE ANALYZED:** 8/16/17	
DATE INSTRUMENT CALIBRATED: 8/16/17	**BY:**	**ANALYST:** Kim	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SB46	1	0-0.5	Soil	0.3	0.1	No ~~odor~~/odor/sheen
SB46	2	0.5-1	Soil	0.2	0.1	No odor/sheen/Disco
SB46	3	1-1.5'	Soil	0.1	0.1	No odor/sheen/Disco
SB46	4	1.5-3'	Soil	0.2	0.1	No odor/sheen/Disco
SB46	5	4-8'	Soil	0.1	0.1	No odor/sheen/Disco
SB46	6	8-10'	Soil	0.2	0.1	No odor/sheen/Disco
SB47	1	0-0.5'	Soil	0.5	0.2	No odor/sheen/Disco
SB47	2	0.5-1'	Soil	0.3	0.2	No odor/sheen/Disco
SB47	3	1-1.5'	Soil	0.4	0.2	No odor/sheen/disco
SB47	4	1.5-4'	Soil	0.3	0.2	No odor/sheen/disco
SB42	1	0-0.5'	Soil	0.2	0.2	No odor/sheen/disco
SB42	2	0.5-1'	Soil	0.2	0.2	No odor/sheen/disco
SB42	3	1-1.5	Soil	0.2	0.2	No odor/sheen/disco
SB42	4	1.5-3'	Soil	0.1	0.2	No odor/sheen/disco
SB42	5	4-8'	Soil	0.2	0.2	No odor/sheen/disco
SB42	6	9-10'	Soil	0.1	0.2	No odor/sheen/disco

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S43
ELEV.: DATUM:
START DATE: 8/21/17 FINISH DATE: 8/21/17
SHEET 1 of 1

PROJECT: SGPP CTM PROJECT NO.: 3242400.03
LOCATION: Benning Tank CTM OBSERVER: KAM/BAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-.5	1	0.5	grass at surface, (0-0.1') ol/oH organic soil; v. dk bn to Bk; silty, moist abundant Roots,	3" Hand Augers 0-0.5' x2 0.5-1' 1-1.5'
2	.5-1	2	0.5		
	1-1.5'	3	0.5		
	1.5-4	4	3.5'	0.1-1.7' (SM) silty Sand, fg-mg w/ ~5% cg Sand; tr, Fine gravel; ~15-20% fines; bn; moist; few Rootlets ↓ w/Depth,	2" macore 1.5-4' 4-8' 8-10'
4					
6	4-8'	5	3.5'	1.7'-2.8' (ML) clayey Silt, trace fg-cg Sand; tr. F. gravel; moist; yw-bn, to gy-bn	
8				2.8- (CL) Lean clay w/ Sand; tr F. Ang gravel; moist, Soft; gy-bn; med plast tough.	
10	8-10	6	2'	Pulverize Qtzite cobble at 8'	
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger / Macro Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		DRY

SAMPLE CLASSIFICATION BY:

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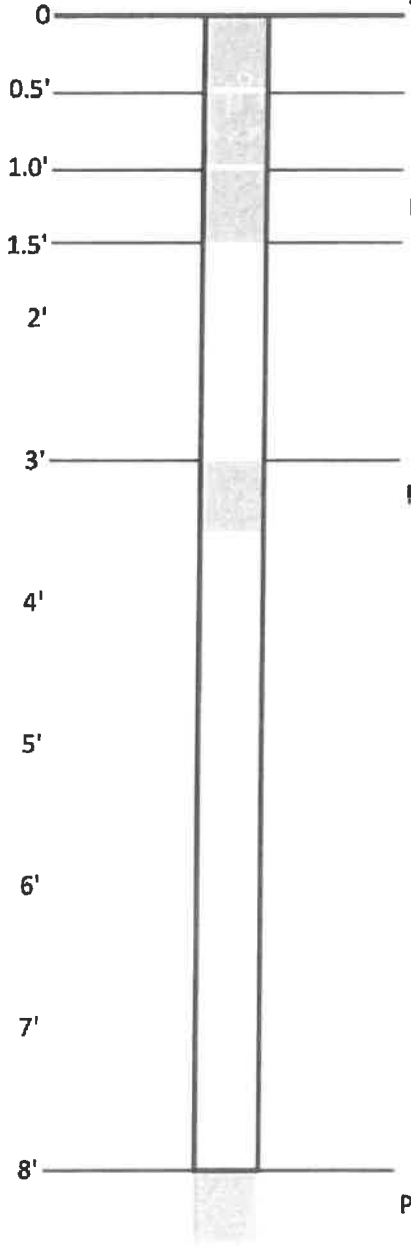
S43 8/21/17 KAM/RAK

SHALLOW SOIL PROFILES



Collect MS/MSD Volume Here → 0-0.5'

PFCs, pH, TOC, moisture content SG3-S43-0-0.5 @ 09:35

PFCs, pH, TOC, moisture content SG3-S43-05-1 @ 09:56

PFCs, pH, TOC, moisture content SG3-S43-1-1.5' @ 09:55

PFCs, pH, TOC, moisture content SG3-S43-3-4' @ 10:00

PFCs, pH, TOC, moisture content SG3-S43-8-9' @ 10:15

No H2O present

GROUNDWATER (if encountered)

~~PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia~~, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:		PROJECT #: 32421001.02	PAGE 1 OF 1
CLIENT: SoPP			DATE COLLECTED: 8/20/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: KAM 8/21/17	BY: KAM		ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
~~B43~~ S43	1	0-0.5	Soil	3.2	0.0	No odor/sheen/Disco
~~B43~~ S43	2	0.5-1	Soil	0.3	0.0	No odor/sheen/Disco
~~B43~~ S43	3	1-1.5	Soil	0.2	0.0	No odor/sheen/Disco
~~B43~~ S43	4	~~3-4~~ 1.5-3	Soil	0.0	0.0	No odor/sheen/Disco
~~B43~~ S43	5	~~5-9~~ 4-8	Soil	0.0	0.0	No odor/sheen/Disc.
~~B43~~ S43	6	9-10'	Soil	0.0	0.0	No odor/sheen/Disc.
(BMW)						

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SB4
ELEV.: DATUM:
START DATE: 8/21/17 FINISH DATE: 8/21/17
SHEET 1 of 1

PROJECT: SGPP CTM PROJECT NO.: 32421001.03
LOCATION: Bennington CTM OBSERVER: RQM/RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				+ poison ivy	SGB-FD03-170821 coll. 0-0.5'
	0-0.5	1	0.5	Grass @ Surface. (0-0.1') OL/OH: Dk brn to brn, moist, abundant roots.	3" hand auger to 1.5 ft.
	0.5-1	2	0.5		
	1-1.5	3	0.5	0.1-10' CL: Dk brn to brn, moist, medium plasticity, silty, tre-few fg-cg sand, tre roots	Macrocore 1.5 to 10 ft.
2					
	1.5-4'	4	3.1	From 2.5-10', med-hi plast., few to little fg-cg sand & fg gravel (angular particles), tre inclusions of oxidized silt (brownish red) [CLS]	
4					
6	4-8'	5	4.5'		
8					
	8-10'	6	3.3'	From 8-10', little fg-cg sand & fg gravel, clasts of metamorphic rock.	
10					
				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: HA/MC

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY: RQM

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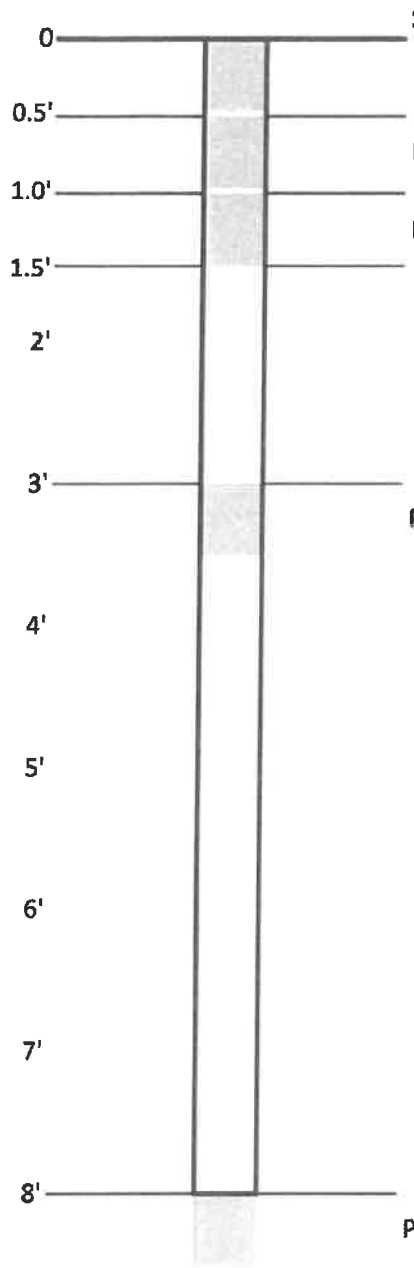
S44 8/21/17 RQM/RAK

SHALLOW SOIL PROFILES

Collect SG3-FD03-170821 0-0.5'



SOIL

PFCs, pH, TOC, moisture content SG3 - S44 0-0.5' 11:35

PFCs, pH, TOC, moisture content SG3 - S44 0.5-1.0' 11:45

PFCs, pH, TOC, moisture content SG3 - S44 1.0-1.5' 11:55

PFCs, pH, TOC, moisture content SG3 - S44 3.0-4.0 12:10

PFCs, pH, TOC, moisture content SG3 - S44 8.0-9.0' 12:20

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF 1
CLIENT: SGPP			DATE COLLECTED: 8/20/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: KAM 8/21/17		BY: KAM	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S44	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S44	2	0.5-1.0'	SOIL	0.2	0.0	No D/O/S
S44	3	1.0-1.5'	SOIL	0.1	0.0	No D/O/S
S44	4	1.5-3.0'	SOIL	0.0	0.0	No D/O/S
S44	5	4.0-8.0	SOIL	0.0	0.0	No D/O/S
S44	6	9.0-10.0	SOIL	0.0	0.0	No D/O/S
S44	4	3.0-4.0	SOIL	0.0	0.0	No D/O/S
S48	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S48	2	0.5-1'	SOIL	0.3	0.0	No D/O/S
S48	3	1-1.5'	SOIL	0.4	0.0	No D/O/S
S48	4	1.5-3'	SOIL	0.5	0.0	No D/O/S
S48	4	3-4'	SOIL	0.6	0.0	No D/O/S
S48	5	4-6.4'	SOIL	0.5	0.0	No D/O/S
S48	5	6.4-7.4'	SOIL	—	—	~~No D/O/S~~ Consumed

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Disc./odor/sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S45
ELEV.: **DATUM:**
START DATE: 9/12/17 **FINISH DATE:** 9/12/17
SHEET 1 of 1

PROJECT: Scipp - Saint Gobain Bennington **CTM PROJECT NO.:** 16.6131
LOCATION: Fox Hill Rd, Bennington, VT **CTM OBSERVER:** J. Scheetz

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-0.5	#1	–	Brown, f-m(f)SAND, little silt, tr. f-c gravel (dry, loose, no stains/odor) - grades lit f-c gravel @ ±1.5'	Hand auger to 1.5'
	0.5-1	2	–		
	1-1.5	3	–		
4	1.5-4	4	1.8'	Light brown, clayey SILT, little ~~f-Sand~~, lit f-c gravel, tr. fine sand (moist, stiff, no stains, no odor)	white cobble fragments @ 2.5'
6	4-8	5	3.3'		gray cobble fragments @ 7.7'
8					
10	8-10	6	3.6'	±10.0'	Top 1.5' of S-6 soft
12				Exploration terminated @ ±10.5' bgs Abandoned by collapsing hole and backfilling w/ cuttings	
14					
16					

DRILLING CONTRACTOR: ADT | Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Direct-push 2" core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9-12	NA	ground surf.

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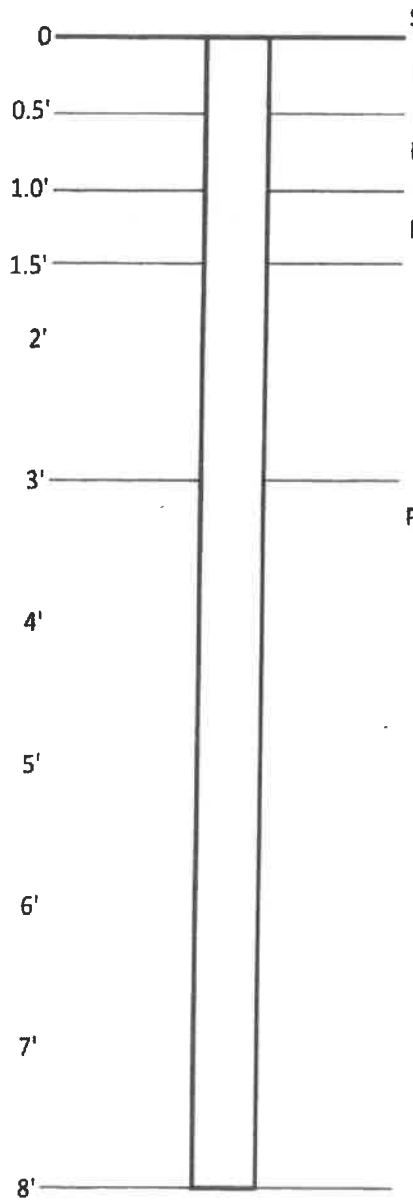
SAMPLE CLASSIFICATION BY: J. Scheetz

SHALLOW SOIL PROFILES
32421001.03 SGPP

S45



PFCs, pH, TOC, moisture content 0845 : SG3-S45-0-0.5'

PFCs, pH, TOC, moisture content 0900 : SG3-S45-0.5-1'

PFCs, pH, TOC, moisture content 0905 : SG3-S45-1-1.5'

PFCs, pH, TOC, moisture content 0915 : SG3-S45-3-4'

PFCs, pH, TOC, moisture content 0925 : SG3-S45-8-9'

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP - St Gobain Bennington	PROJECT #: 16.6131	PAGE 1 OF 1
CLIENT: SGPP		DATE COLLECTED: 09-12-17
LOCATION: Fox Hill Rd, Bennington, VT		
INSTRUMENT USED: Minirae 3000 - PA 03246 LAMP	eV	DATE ANALYZED: 09-12-17
DATE INSTRUMENT CALIBRATED: 09-12-17	BY: J. Schuetz	ANALYST: J. Schuetz
TEMPERATURE OF SOIL:		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SB5	1	0-0.5	S	0.8	0.0	no stains, no odor
"	2	05-1	"	0.9	0.0	"
"	3	1-1.5	"	0.9	0.0	"
"	4	1.5-3	"	0.7	0.0	"
"	4	3-4	"	0.6	0.0	"
"	5	4-8	"	0.4	0.0	"
"	6	8-9	"	0.4	0.0	"
"	6	9-10	"	0.3	0.0	"
SB9	1	0-0.5	S	0.5	0	no stains, no odor
"	2	0.5-1	"	1.5	0	"
"	3	1-1.5	"	1.5	0	"
"	4	1.5-3	"	1.4	0	"
"	4	3-4	"	1.7	0	"
"	5	4-8	"	1.6	0	"
"	6	8-9	"	1.7	0	"
"	6	9-10	"	1.1	0	"

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SG6
ELEV.: DATUM:
START DATE: 8/16/17 FINISH DATE: 8/16/17
SHEET 1 of 1

PROJECT: 3242 1001.03 SG Prog CTM PROJECT NO.:
LOCATION: Bennington VT CTM OBSERVER: KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-0.5	1	0.5	grass at surface, (SM) silty sand, fg-mg; trace Cg Sand & F. gravel; ~20% Silty fines, bn. Small Roots	Hand Auger (3") 0-0.5
	0.5-1	2	0.5		0.5-1'
	1-1.5	3	0.5		1-1.5'
2					
	1.5-4'	4	3.0	Fines & Roots ↓ w/depth gravel ↑ to ~15%	HC 1.5-4'
4					4-8
				ML - clayey Silt, Mottled Lt-gy & Bn, Few Small Rootlets, Rapid dilatancy; V. fg Sand Lens from ~4.2-4.5' bgs. (paleosol) appears wet below ~7.8' bgs.	
6	4-8'	5	2.0		8-10'
8					
	8-10'	6		Laminated below ~9' bgs	
10					
				Set temp well & Attempt to get H2O	
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING: Hand Auger

GROUNDWATER LEVEL READINGS

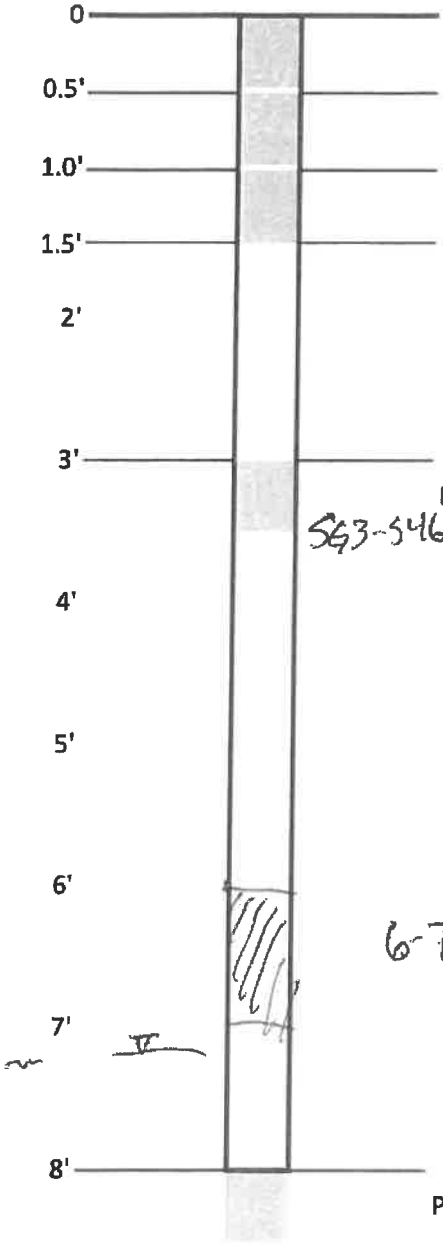
DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SHALLOW SOIL PROFILES

S46 · 8/16/17 KAM



SOIL SG3-S46-0-0.5'
PFCs, pH, TOC, moisture content 09:10
SG3-S46-0.5-1'
PFCs, pH, TOC, moisture content 09:25
SG3-S46-1-1.5'
PFCs, pH, TOC, moisture content 09:40
PFCs, pH, TOC, moisture content 10:15
SG3-S46-3-4'
PFCs, pH, TOC, moisture content

Setup SG3-LTB03-170816 @ 09:00
SG3-LTP04-170816 @ 09:02
0-0.5' 3" Hand Auger
0.5-1' 3" Hand Auger
1-1.5' 3" Hand Auger
out of MC sleeve

6-7' 11:00 SG3-S46-6-7'

Set temp well screen 0.010" slot from 5-10' bgs at 11:00
at 11:38 there was 0.03' of water in the bottom. ~ Not enough to sample - pull temp well & grout hole

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Bennington VT	**PROJECT #:** 32429001.07	**PAGE** 1 **OF** 1	
CLIENT: SAPP		**DATE COLLECTED:** 8/16/17	
LOCATION: Bennington VT.			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**	**DATE ANALYZED:** 8/16/17	
DATE INSTRUMENT CALIBRATED: 8/16/17	**BY:**	**ANALYST:** KJM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SB46	1	0-0.5	Soil	0.3	0.1	No odor/sheen
SB46	2	0.5-1	Soil	0.2	0.1	No odor/sheen/disco
SB46	3	1-1.5'	Soil	0.1	0.1	No odor/sheen/disco
SB46	4	1.5-3'	Soil	0.2	0.1	No odor/sheen/disco
SB46	5	4-8'	Soil	0.1	0.1	No odor/sheen/disco
SB46	6	8-10'	Soil	0.2	0.1	No odor/sheen/disco
SB47	1	0-0.5'	Soil	0.5	0.2	No odor/sheen/disco
SB47	2	0.5-1'	Soil	0.3	0.2	No odor/sheen/disco
SB47	3	1-1.5'	Soil	0.4	0.2	No odor/sheen/disco
SB47	4	1.5-4'	Soil	0.3	0.2	No odor/sheen/disco
SB42	1	0-0.5'	Soil	0.2	0.2	No odor/sheen/disco
SB42	2	0.5-1'	Soil	0.2	0.2	No odor/sheen/disco
SB42	3	1-1.5'	Soil	0.2	0.2	No odor/sheen/disco
SB42	4	1.5-3'	Soil	0.1	0.2	No odor/sheen/disco
SB42	5	4-8'	Soil	0.2	0.2	No odor/sheen/disco
SB42	6	9-10'	Soil	0.1	0.2	No odor/sheen/disco

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S47
ELEV.:
DATUM:
START DATE: 8/16/17
FINISH DATE: 8/16/17
SHEET 1 of 1

PROJECT: 32421001.03 SWPP
LOCATION: Bennington VT
~~CTM~~ PROJECT NO.:
~~CTM~~ OBSERVER: KAtkins

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Grass at Surface	
2	0-0.5	1	0.5	0-0.4' OL/OH organic soil, silty dk bn, abundant small Roots	Hand Auger used to collect: 0-0.5, 0.5-1', 1'-1.5
	0.5-1	2	0.5		
	1-1.5	3	0.5		
	1.5-3	4	1.1'	0.4-2.0 SP-SM pgs w/silt & gravel; fg-cg Sand; ~15% F. gravel; Sub-Ang to Sub-Rnd; ~10% fines; bn to gy bn; Moist.	
4	3-4	5	0.6'		M.C. @ 1.5-4 (more over) 1.5-3, 3-4, 4-5.3'
	4-5.3	6	0.6'		
6				2.0-5.3' Cobbles - Crushed/pulverized Rock in core - trace interstitial Soil, Homogenize 3-5.3' bgs.	
8				(Drill adjacent, for additional volume & obstruct at 4.0'	
10				Obstruct 5.3' bgs move 15' south & try again.	
12				Obstruct at 6.1' bgs. will stick w/ original samples.	
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Macro core / Hand auger

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY:

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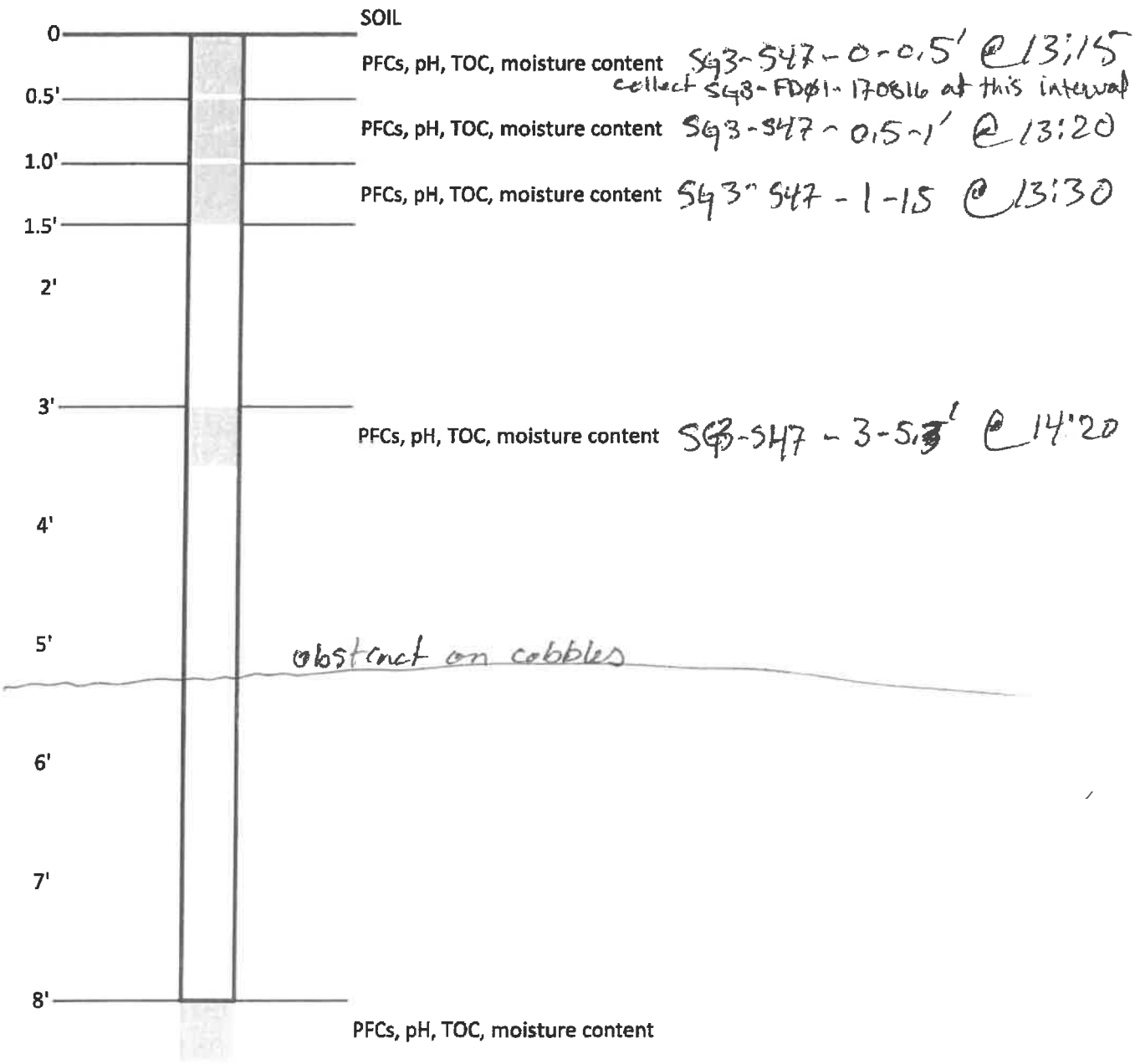
SHALLOW SOIL PROFILES S47 8/16/17 Kathy



GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Bennington VT		PROJECT #: 32429001.02	PAGE 1 OF 1
CLIENT: SAPP			DATE COLLECTED: 8/16/17
LOCATION: Bennington VT.			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 8/16/17
DATE INSTRUMENT CALIBRATED: 8/16/17	BY:		ANALYST: KM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SB46	1	0-0.5	Soil	0.3	0.1	No odor/sheen
SB46	2	0.5-1	Soil	0.2	0.1	No odor/sheen/Disco
SB46	3	1-1.5'	Soil	0.1	0.1	No odor/Sheen/DISCO
SB46	4	1.5-3'	Soil	0.2	0.1	No odor/Sheen/Disco
SB46	5	4-8'	Soil	0.1	0.1	No odor/Sheen/Disco,
SB46	6	8-10'	Soil	0.2	0.1	No odor/sheen/Disco
SB47	1	0-0.5'	Soil	0.5	0.2	No odor/sheen/Disco
SB47	2	0.5-1'	Soil	0.3	0.2	No odor/sheen/Disco
SB47	3	1-1.5'	Soil	0.4	0.2	No odor/sheen/disco
SB47	4	1.5-4'	Soil	0.3	0.2	No odor/sheen/disco
SB42	1	0-0.5'	Soil	0.2	0.2	No odor/Sheen/disco
SB42	2	0.5-1'	Soil	0.2	0.2	No odor/sheen/disco
SB42	3	1-1.5'	Soil	0.2	0.2	No odor/sheen/disco
SB42	4	1.5-3'	Soil	0.1	0.2	No odor/sheen/disco
SB42	5	4-8'	Soil	0.2	0.2	No odor/sheen/disco
SB42	6	9-10'	Soil	0.1	0.2	No odor/sheen/disco

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: S-48
ELEV.: DATUM:
START DATE: 8/21/17 FINISH DATE: 8/21/17
SHEET 1 of 1

PROJECT: SGPP CTM PROJECT NO.: 32421001.03
LOCATION: Bennington CTM OBSERVER: RQM/RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5	Grass @ surface	3" hand auger to 1.5'
	0.5-1	2	0.5	0-2.5' CL: Dk. brown, moist, trc roots in upper 3", low to medium plasticity, few to little fg-cg sand, silty.	
	1-1.5	3	0.5		
2				From 0.5-2.5', medium plasticity.	
	1.5-4'	4	2.0	2.5-3.5' CH: Greyish brown to dk greyish brown, moist, high plasticity, trc sand.	M.C. 1.5 to 7.4 ft.
4				3.5-7.4' CL: Greyish brown to dk. greyish brown, moist, medium plasticity, few fg-cg sand.	
6	4-7.4'	5	2.0'	From ~~5.5-6'~~ 6.4-7.4', moist to wet, medium to high plasticity	Refused @ 6', offset ~~N~~ 8' to the east.
8				EOB @ 7.4' due to refusal	Refused @ 5.5' @ eastern offset, attempting western offset, recovered 1.2' from 4-5.5' @ eastern offset, soil is same as @ orig. loc.
10					Reached 7.4' and refused @ western offset -16' west of original location
12					Logged 0-4' @ orig loc., 4-7.4' @ west offset (best rec.).
14					On GPS Orig: S-48 E off: S-48a W off: S-48b
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: HA/MC

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		dry

SAMPLE CLASSIFICATION BY: RQM

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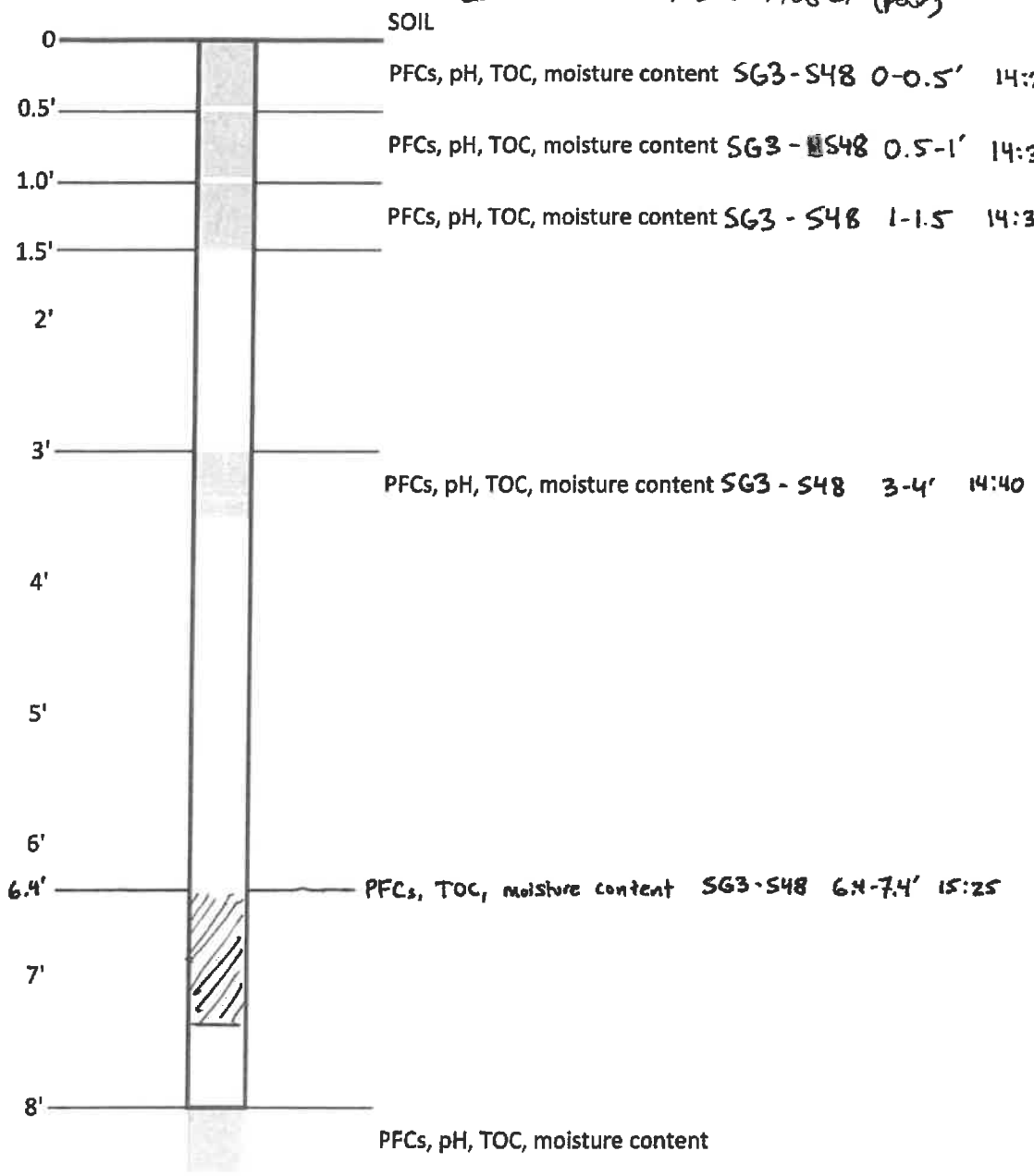
S-48 8/21/17 RQM/RAK

Collected SG3-SB03-170821 (pair)

SHALLOW SOIL PROFILES



GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001.03	PAGE 1 OF 1
CLIENT: SGPP		DATE COLLECTED: 8/20/17
LOCATION: Bennington, VT		
INSTRUMENT USED: MiniRae 3000 LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: KAM 8/21/17	BY: KAM	ANALYST:
TEMPERATURE OF SOIL: ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)***	BACKGROUND READING (PPM)**	REMARKS
S44	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S44	2	0.5-1.0'	SOIL	0.2	0.0	No D/O/S
S44	3	1.0-1.5'	SOIL	0.1	0.0	No D/O/S
S44	4	1.5-3.0'	SOIL	0.0	0.0	No D/O/S
S44	5	4.0-8.0	SOIL	0.0	0.0	No D/O/S
S44	6	9.0-10.0	SOIL	0.0	0.0	No D/O/S
S44	4	3.0-4.0	SOIL	0.0	0.0	No D/O/S
S48	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S48	2	0.5-1'	SOIL	0.3	0.0	No D/O/S
S48	3	1-1.5'	SOIL	0.4	0.0	No D/O/S
S48	4	1.5-3'	SOIL	0.5	0.0	No D/O/S
S48	4	3-4'	SOIL	0.6	0.0	No D/O/S
S48	5	4-6.4'	SOIL	0.5	0.0	No D/O/S
S48	5	6.4-7.4'	SOIL	———	———	~~No D/O/S~~ Consumed

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Disc./odor/sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: SG9
ELEV.: DATUM:
START DATE: 9-12-17 FINISH DATE: 9-12-17
SHEET 1 of 1

PROJECT: SG3 - St. Gobain Bennington CTM PROJECT NO.: 16-613I
LOCATION: @ Fox Hill Rd, Bennington, VT CTM OBSERVER: J. Scheetz

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-0.5	1	—	Med. brown, f-c SAND, lit clayey silt, lit fine to coarse gravel	Hand auger to 1.5'
	0.5-1	2	—	(Dry, loose, no stains, no odors) ±0.7'	
	1-1.5	3	—	Light brown, CLAY and SILT, tr. f. sand ±1.0'	
2				(moist, soft, no stains, no odors)	
	1.5-4	4	1.9'	Light brown, Clayey SILT, Some f-c Gravel, lit f-c sand	
4				(moist, stiff, no stains, no odors)	
				~~grades to tan @ 4.5'~~ ±5.0'	
6	4-8	5	3.9'	Light brown, CLAY and SILT, tr. f. sand (moist, hard, no stains, no odors)	
8				±8.5'	
	8-10	6	3.6'	Light brown, Silty CLAY, some f-c gravel, lit f-c sand (moist, stiff, no stains, no odors)	
10				±10.0'	
				Exploration terminated @ ±10.0' bgs, abandoned by collapsing hole and backfilling w/ soil cuttings	
12					
14					
16					

DRILLING CONTRACTOR: ADT / Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Direct push 2" core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9-12	6.3'	ground surface

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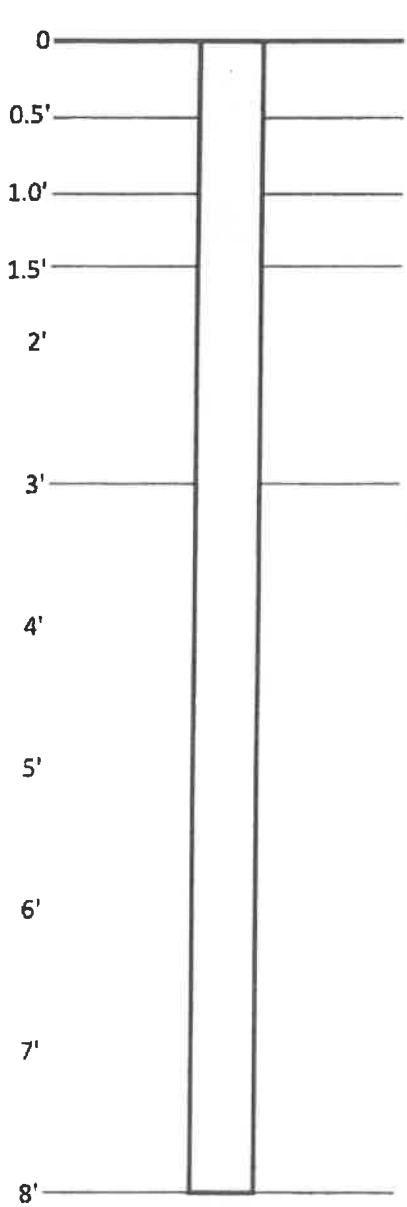
SAMPLE CLASSIFICATION BY: J. Scheetz

S49

SHALLOW SOIL PROFILES
32421001.03 SGPP



PFCs, pH, TOC, moisture content 1050 : SG3 - S49 - 0 - 0.5'

PFCs, pH, TOC, moisture content 1105 : SG3 - S49 - 0.5 - 1'

PFCs, pH, TOC, moisture content 1110 : SG3 - S49 - 1 - 1.5'

PFCs, pH, TOC, moisture content 1115 : SG3 - S49 - 3 - 4'

1220 : SG3 - S49 - 5.3 - 6.3'

PFCs, pH, TOC, moisture content 1140 : SG3 - S49 - 8 - 9'

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP - St Gobain Bennington	PROJECT #: 16-6131	PAGE 1 OF 1
CLIENT: SGPP		DATE COLLECTED: 09-12-17
LOCATION: Fox Hill Rd, Bennington, VT		
INSTRUMENT USED: MiniRae 3000-PA-03246 LAMP	eV	DATE ANALYZED: 09-12-17
DATE INSTRUMENT CALIBRATED: 09-12-17	BY: J. Schuetz	ANALYST: J. Schuetz
TEMPERATURE OF SOIL:		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S45	1	0-0.5	S	0.8	0.0	no stains, no odor
	2	05-1		0.9	0.0	
	3	1-1.5		0.9	0.0	
	4	1.5-3		0.7	0.0	
	4	3-4		0.6	0.0	
	5	~~4~~ 4-8		0.4	0.0	
	6	8-9		0.4	0.0	
↓	6	9-10	↓	0.3	0.0	↓
S49	1	0-0.5	S	0.5	0	no stains, no odor
	2	0.5-1		1.5	0	
	3	1-1.5		1.5	0	
	4	1.5-3		1.4	0	
	4	3-4		1.7	0	
	5	4-8		1.6	0	
	6	8-9		1.7	0	
↓	6	9-10	↓	1.1	0	↓

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-01
ELEV.:
START DATE: 9-13-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-13-17

PROJECT: SGPP Bennington
LOCATION: D-01
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Grass road side	
2	0-2.5	1	1.5	14" OL/OH Topsoil, black, organic/roots, wet Gravelly SAND ~~(SP)~~ (SP-SM) DJZ 11-6-17 ROAD FILL fg SAND w/some mg/cg brown moist Subround Gravels	30% Gravel 60% SAND 10% FINES
4	2.5-5	2	1		
6				LEAN CLAY (CL) TILL 2.5Y 4/3 w/SAND + GRAVEL DJZ 11-6-17 Olive brown high plasticity, high cohesiveness moist	DJZ 11-6-17
8	5-10	3	4.0	Areas w/thin SILT laminations Few areas of gray mottling w/depth - increasing SAND/gravel content fg SAND w/few mg/cg subround gravels (little)	15% SAND 15% Gravel (5% Cobble (by volume)) 70% CLAY FINES
10				trace cobbles 9'11 ft - subround	
12	10-15	4	4.0 DJZ 11-6-17	Clayey SAND ~~Gravelly SAND~~ (SC) w/ SILTY CLAY, low moist gray, w/fg to cg SAND mix of black slate frags w/some elongated & subangular gravels - mostly slate trace cobbles - subround	DJZ 11-6-17 30% Gravel 45% SAND (5% Cobble (by volume)) 25% CLAY FINES
14					
16				TILL (ML/CL), SILTY w/some clay Olive brown, moist/high moist, low plasticity	start using water to drill @ 15 ft

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-01
ELEV.:
START DATE: 9-13-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-13-17

PROJECT: SGPP Bennington
LOCATION: D-01
~~CTM~~ PROJECT NO.: 3242001.03
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	5	6.0	TILL continued w/ fg SAND w/some mg/cg - black slate frags w/ elongated / Subangular gravels - black slate frags trace subround cobbles trace rusty orange oxidation spots	20 % SAND 35% Gravel (5 % Cobble (by volume)) 45 % SILT FINES DJZ 11-6-17
20					
22	20-25	6	5.0		30 % SAND 25 % Gravel (5% Cobble (by volume)) 45 % SILT FINES DJZ 11-6-17
24					
26	25-30	7	3.0	10YR 5/6 Yellowish brown color mix w/ olive brown Still SILTY TILL ~~SILT w/SAND & GRAVEL~~ 11-6-17 DJZ SANDY to Gravelly SILT	25 % SAND 25 % Gravel 50 % SILT FINES DJZ 11-6-17
28					
30				@ 29.5 SLATE, black 29.5-35 ft EOB @ 35 ft	↑ 29.5 - 35 ft ↓
35					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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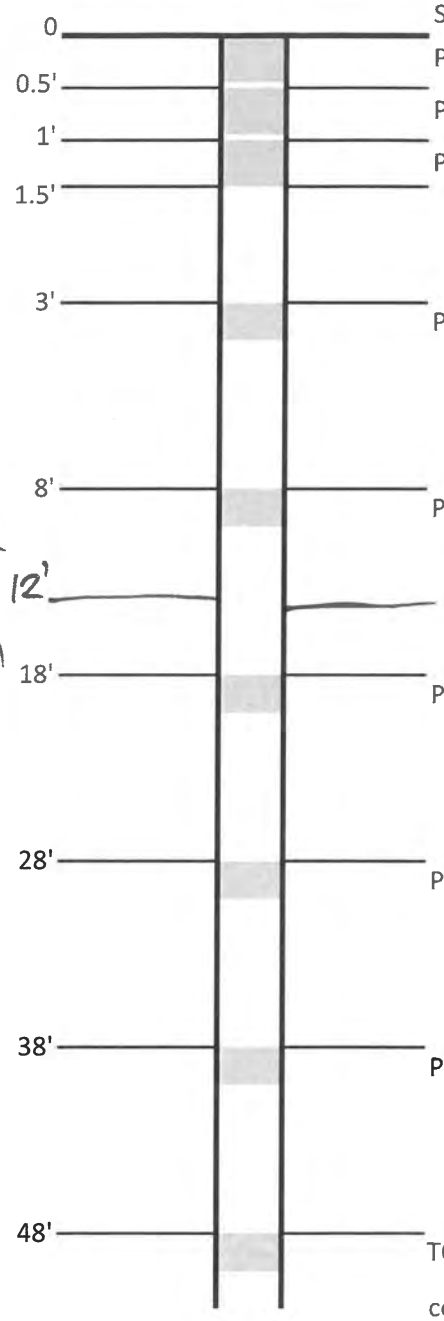
D-01 9-13-17

DEEP SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-0-0.5' @ 0900

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-0.5-1' @ 0905

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-1-1.5' @ 0910

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-3-4' @ 0920

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-8-9' @ 0925

Additional Sample (lithology) SG3-D01-12-13' @ 0950

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-18-19' @ 1000

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D01-28-29 @ 1030

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

DBS 11-9-17 Collect one soil sample from below the water table, if encountered

~~Sediment~~ PSA Samples

SG3-D01-0-5'
SG3-D01-5-11'
SG3-D01-11-14'
SG3-D01-14-20'
SG3-D01-20-29'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421.00403	PAGE 1 OF 1
CLIENT:		DATE COLLECTED: 9-13-17
LOCATION: D-01		
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9-13-17 @ 0855	BY: DJZ	
TEMPERATURE OF SOIL: ambient		ANALYST:

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-01	1	0-0.5	Soil	0.8	0.0	No odor, sheen,
D-01	2	0.5-1	Soil	0.6	0.0	or discoloration
D-01	3	1-1.5	Soil	0.8	0.1	
D-01	4	1.5-3	Soil	1.1	0.1	
D-01	5	3-4	Soil	1.2	0.1	
D-01	6	4-8	Soil	0.9	0.1	
D-01	7	8-9	Soil	0.9	0.1	
D-01	8	9-11	Soil	1.4	0.1	
D-01	9	11-14	Soil	0.7	0.0	
D-01	10	14-18	Soil	1.3	0.1	
D-01	11	18-19	Soil	1.0	0.1	
D-01	12	19-25	Soil	2.2	0.1	
D-01	13	25-28	Soil	2.1	0.1	
D-01	14	28-29	Soil	2.3	0.1	
~~D-01~~	~~15~~					

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-02
ELEV.: DATUM:
START DATE: 9/20/17 FINISH DATE:
SHEET 1 of 2

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001
LOCATION: Bennington/Shaftsbury, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-4.5'	1	~4'	0-0.5' OL/OH: Brown to dk. brown, moist, abundant roots, grass @ surface, silty, few to little sand.	Hit rock @ 4.5', offset and hit rock @ 2'. Adding water to core through rock.
4				0.5-2.0' SMg: Brown, moist, fg-cg, some fg-cg gvl (~30%)	Began coring @ ~5'
6				2.0-20' Bedrock: Quartzite, very hard, medium grained, severely fractured/broken to ~5'., grey with rusty oxidation.	
8	4.5-10	2	~4'	EOB @ 20'	
10					
12	10-15	3	~3'		
14					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D02
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 2

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
16					
18	15-20'	4	~2'		
20					
22					
24					
26					
28					
30					
32					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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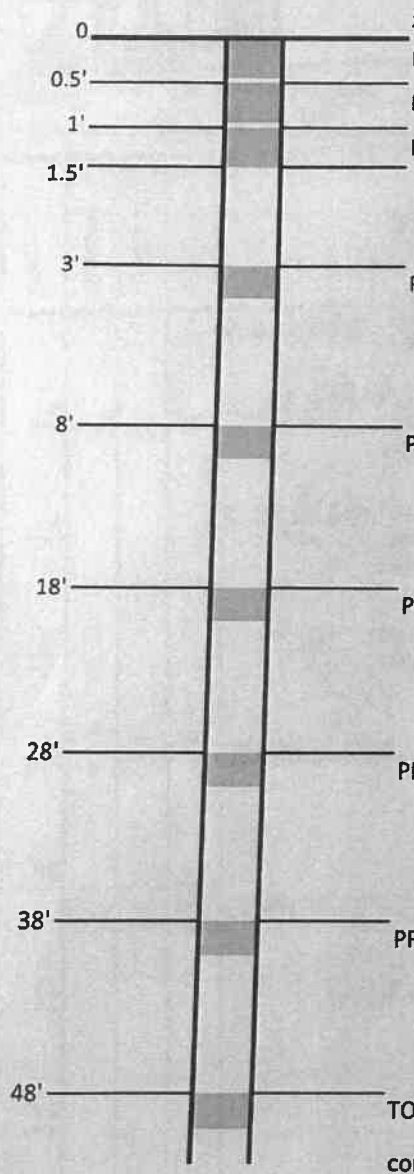
SAMPLE CLASSIFICATION BY:

DO2 9/20/17

Collected MS/MSD Vol. From 0.5-1'

DEEP SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-DO2-0-0.5' @ 09:30

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-DO2-0.5-1' @ 09:45

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-DO2-1-1.5' @ 09:55

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-DO2-3-4' @ 09:50

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001	PAGE OF
CLIENT: SGPP			DATE COLLECTED: 9/20/17
LOCATION: Bennington, VT			DATE ANALYZED:
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		ANALYST:
DATE INSTRUMENT CALIBRATED: 9/20/17		BY: RQM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D02	1	0-2	SOIL	0.1	0.0	No D/O/S
D02	1/2	2-5	SOIL	0.3	0.0	No D/O/S
D02	2	5-10	ROCK FRAGS	0.1	0.0	No D/O/S
D02	3	10-15	ROCK FRAGS	0.0	0.0	No D/O/S
D02	4	15-20	ROCK FRAGS	0.0	0.0	No D/O/S
D16	1	0-0.5	SOIL	0.8	0.0	No D/O/S
D16	1	0.5-1'	SOIL	0.9	0.0	No D/O/S
D16	1	1-1.5	SOIL	1.0	0.0	No D/O/S
D16	1	3-4'	SOIL	1.1	0.0	No D/O/S
D16	1	2-5'	SOIL	0.5	0.0	No D/O/S
D16	2	5-8'	SOIL	2.8	0.0	No D/O/S
D16	2	8-9'	SOIL	1.5	0.1	No D/O/S
D16	2/3	9-13'	SOIL	1.7	0.0	No D/O/S
D16	3/4	13-18'	SOIL	1.7	0.0	No D/O/S
D16	4	18-19'	SOIL	1.3	0.0	No D/O/S
D16	4	19-20'	SOIL	1.6	0.0	No D/O/S
D16	5	20-25'	SOIL	0.9	0.0	No D/O/S
D16	6	25-28'	SOIL	1.3	0.0	No D/O/S
D16	6	28-29	SOIL	1.0	0.0	No D/O/S
D16	6	29-30	SOIL	1.0	0.0	No D/O/S
D16	7	30-37	SOIL	0.9	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-03
ELEV.: DATUM:
START DATE: 8-28-17 FINISH DATE: 8-28-17
SHEET 1 of 2

PROJECT: SGPP Bennington CTM PROJECT NO.: 32421001.03
LOCATION: D-03 North Bennington CTM OBSERVER: DJZ - RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface Graveled Shoulder / Parking Area	
2	0-5	1	3.5	0-20 ft ~~Gravelly SAND (SP-g)~~ DJZ 11-6-17 poorly SILTY SAND w/gravel sorted (SM) Subround gravels fg SAND w/some mg & cg subround cobbles	0-5' interval 30 % gravel (15 % cobbles (by vol)) 55 % SAND 15 % Silty CLAY FINES DJZ 11-6-17
4				brown clay, dry to low moisture	
6				~~Broken~~ Cobble @ 5 ft → black slate fg-mg SAND w/some cg w/in moist	5-10' interval 30 % Gravel (10 % Cobbles (by volume)) 55 % SAND 15 % Silty Clay FINES DJZ 11-6-17
8	5-10	2	4.0		
10				moist to wet	10-15' interval 20 % Gravel (10 % Cobbles (by vol)) 65 ~~60~~ % SAND 15 % Silty Clay FINES DJZ 11-6-17
12	10-15	3	4.0		
14				▽ @ 13.2 ft saturated	
16				(SP-SM / SP-SC)	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
8.28	13.2	BGS

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-03
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 2

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	2.0	fg - cg SAND mix, Subrounded Subround gravels brown silty clay Poorly graded Poorly graded SAND w/ SILT & Gravel to Poorly Graded SAND w/ Clay & gravel	@ 15-20' interval 15% Gravel 75% SAND 10% Silty Clay FINES
20				EOB @ 20 ft	DOB 11-6-17
6					
8					
10					
12					
14					
16					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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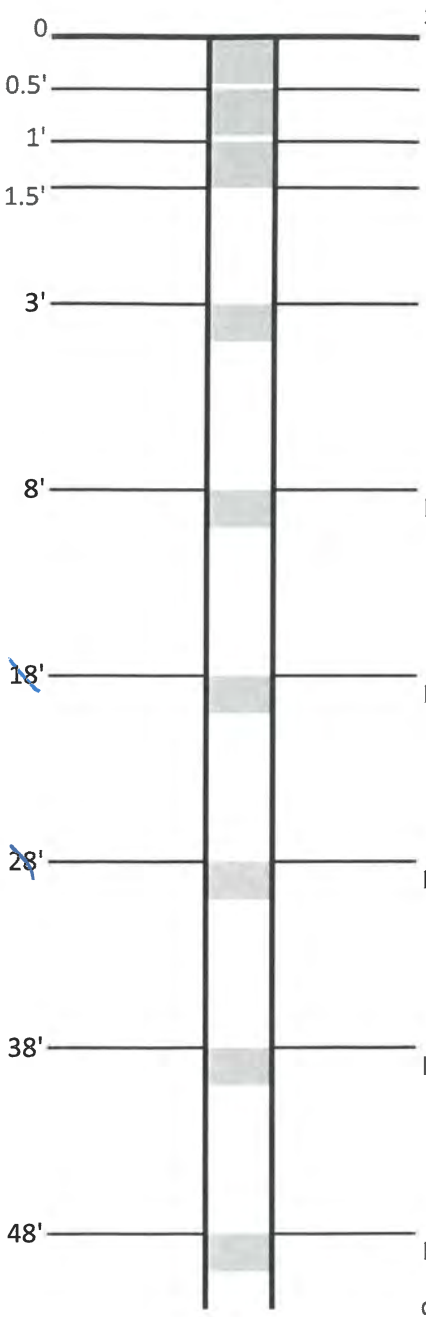
D-03

DEEP SOIL PROFILES

Collected SG3-FBSOZ-170828 (pour) @ 15:00



SOIL

PFCs, pH, TOC, moisture content SG3-D03-0-0.5' @1320

PFCs, pH, TOC, moisture content SG3-D03-0.5-1' @1325

PFCs, pH, TOC, moisture content SG3-D03-1-1.5' @1330

PFCs, pH, TOC, moisture content SG3-D03-3-4' @1350

PFCs, pH, TOC, moisture content SG3-D03-8-9' @1405

PFCs, pH, TOC, moisture content SG3-D03-12-13' @1445

PFCs, pH, TOC, moisture content SG3-D03-15-16' @

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

DOE 11-9-17

~~Sediment~~ PSA Samples

SG3-D03-0-10' @1450

SG3-D03-10-20' @1455

Water

SG3-D03-170829

@0745

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SSPP Bennington	PROJECT #: 324210.01.03	PAGE 1 OF	
CLIENT: SSPP		DATE COLLECTED: 8-28-17	
LOCATION: D-03 North Bennington			
INSTRUMENT USED: MiniRae 3000 LAMP 10.6 eV		DATE ANALYZED: 8-28-17	
DATE INSTRUMENT CALIBRATED: 8-28-17	BY: DJZ	ANALYST: DJZ RAK	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-03	1	0-0.5	Soil	11.8	0.1	No odor, sheen, or discoloration
D-03	2	0.5-1	Soil	17.3	0.2	
D-03	3	1-1.5	Soil	14.1	0.3	
D-03	4	1.5-3	Soil	10.7	0.1	
D-03	5	3-4	Soil	15.8	0.1	
D-03	6	4-8	Soil	15.2	0.4	
D-03	7	8-9	Soil	11.8	0.5	
D-03	8	9-10	Soil	14.4	0.3	
D-03	9	10-12	Soil	15.9	0.2	
D-03	10	12-13	Soil	6.1	0.1	
D-03	11	13-15	Soil	11.2	0.2	
D-03	12	15-16	Soil	11.5	0.3	
D-03	13	16-20	Soil	7.8	0.3	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

* Used Zip lock bags for all samples

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-05
ELEV.: DATUM:
START DATE: 8-28-17 FINISH DATE: 8-28-17
SHEET 1 of 2

PROJECT: SGPP Bennington
LOCATION: D-05 North Bennington
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	S-1 0	1	3.0	SILTY CLAY TOPSOIL, Dvk Brown, moist, w/10% fg SAND, few mg-cg w/ roots 0-1.5' OL/OH 1.5-~~15~~' Till (CL) Gravels + elongated green schist 6 DJZ 11-9-17 SANDY LEAN CLAY w/ GRAVEL (CL) DJZ 11-6-17 1.5-6' Till, brown, moist 50% ~~45%~~ ~~SILT/CLAY~~ ~~FAT~~ FINES DJZ 11-9-17 30% fg-cg SAND 20% Gravel - subrounded (10% Cobbles - subrounded by volume)	0-0.5' w/10% SAND 0.5-1' w/30% SAND w/few gravels 1-1.5 w/30% SAND w/10% Gravels schist/slate gravels metamorphics
4					
6					trace roots @ 7ft
8	S-2 0	2	4.0	6-10' Till, brown, moist to wet SILTY to CLAYEY SAND (SM-SC) DJZ 11-6-17 50% very fg to fg SAND w/ few mg-cg areas 10% Gravels - Subround 40% ~~SILTY CLAY~~ FINES DJZ 11-9-17 thin laminations	
10					
12	S-3 0	3	5.0	10-12' Till, brown, moist to wet GRAVELLY LEAN CLAY w/ SAND (CL) (5% Cobble by volume) subround 50 ~~60~~% ~~CLAY (Silty)~~ FINES DJZ 11-9-17 30 ~~35~~% Gravels - subround 12-15' Till, brown, moist DJZ 11-6-17 Gravelly LEAN CLAY w/SAND (CL) DJZ 11-6-17 DJZ 11-9-17 30% Gravel - subrounded 15% SAND - fg w/few Mg 1.5 ~~15~~ Till (CL) 55% ~~CLAY (Silty)~~ FINES DJZ 11-9-17	20% SAND few fg w/ mg & cg DJZ 11-6-17 (15% Cobbles/boulders by volume subrounded) few rusty orange oxidation spots
14					
16				15-20' Till, Gray, dry to low moist (CL)	Rig added water to remove core 15-20 ft.

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-05
ELEV.:
DATUM:
START DATE: 8-28-17
FINISH DATE: 8-28-17
SHEET 1 of 1

PROJECT:
CTM PROJECT NO.:
LOCATION: D-05 North Bennington
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	5.0	SANDY to Gravelly LEAN CLAY (CL) 15 % SAND - fg-cg DSS 11-6-17; 15 % gravels - subrounded + elongated shale/schist; (5 % cobbles by volume) - subrounded DSS 11-6-17; 70 % Silty Clay FINES	black schist
20					
22	20-25	5	5.0	Till, light brown, dry to low moist; 20-27 ft; w/some gray mottles 20-22 ft; boulder @ 21 ft; very hard; 25 % gravel, subrounded; Gravelly LEAN CLAY w/(SAND) (CL) (20 % cobble by volume)/boulder - rounded; DSS 11-6-17 25 % SAND, fg w/few mg to cg; 55 % Silty Clay FINES; few rusty oxidation spots	metamorphic rocks elongated shale/schist
24					
26					
28	25-30	6	4.0	Quartzite bedrock, very hard drilling; gray, fractured; medium-grained; rusty orange oxidation top 4 inches	
30				EOB @ 30 ft	No groundwater
32					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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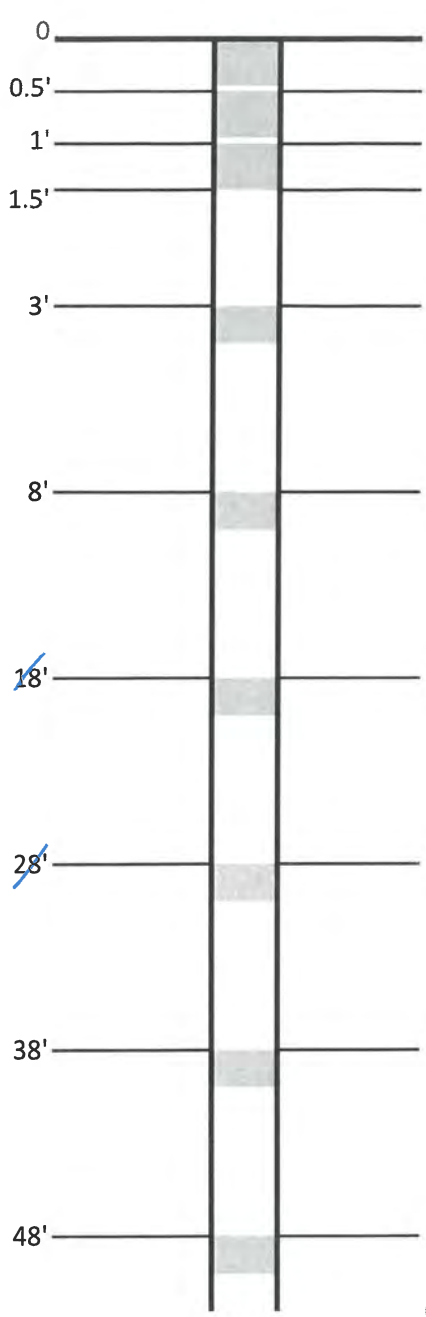
D-05

DEEP SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content SG3-D05-0-0.5' @ 0835

PFCs, pH, TOC, moisture content SG3-D05-0.5-1' @ 0840

PFCs, pH, TOC, moisture content SG3-D05-1-1.5' @ 0845

PFCs, pH, TOC, moisture content SG3-D05-3-4' @ 0900

PFCs, pH, TOC, moisture content SG3-D05-8-9' @ 0915

PFCs, pH, TOC, moisture content SG3-D05-16-17' @ 1000

PFCs, pH, TOC, moisture content SG3-D05-26-27' @ 1030

EOB @ 30 ft

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

DOB 11-9-17

~~Sediment~~ Samples (PSA)

SG3-D05-0-1.5' @ 1120

SG3-D05-1.5-15' @ 1125

SG3-D05-15-20' @ 1130

SG3-D05-20-27' @ 1135

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF
CLIENT: SGPP			DATE COLLECTED: 8-28-17
LOCATION: Bennington			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 8-28-17
DATE INSTRUMENT CALIBRATED: 8-28-17		BY: DJZ	
TEMPERATURE OF SOIL: ambient			ANALYST: DJZ

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-05	1	0-0.5	Soil	9.8	0.1	No odor, sheen, or discoloration
D-05	2	0.5-1	Soil	1.2	0.2	
D-05	3	1-1.5	Soil	2.3	0.2	
D-05	4	1.5-3	Soil	0.6	0.2	
D-05	5	3-4	Soil	0.4	0.2	
D-05	6	4-8	Soil	0.4	0.2	
D-05	7	8-9	Soil	0.3	0.2	
D-05	8	9-10	Soil	7.1	0.2	
D-05	9	10-15	Soil	14.6	0.2	
		~~15-18~~				
		~~18-19~~				
D-05	10	15-16	Soil	4.7	0.3	No odor, sheen, or discoloration
D-05	11	16-17	Soil	3.6	0.3	
D-05	12	17-20	Soil	3.2	0.3	
D-05	13	20-25	soil	7.7	0.2	
D-05	14	25-27	Soil	14.6	0.3	
D-05	15	27-30	Soil	11.6	0.3	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

@ 9-10' switched to Zip Lock bags.
Zip Lock bag background empty: 10.6 ppm.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-06
ELEV.: DATUM:
START DATE: 9/22/17 FINISH DATE: 9/22/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5'	1	5'	0-0.1' OL/OH: Mostly silty sand (fg), moist, abundant roots, ~75% sand 0.1-2.5' ~~SMg~~ SCg (RQM): Fg-cg, mostly fg, brown to dk. brown, moist, silty, ~30% clay fines, few to little fg gravel, trc organics to ~1'.	
4				2.5-~~10~~ 7' SMg (RQM): Fg-cg, brown, moist, little fg-cg gravel & cobbles, grv. & cobbles are ang to sub-rnd., mostly mg-cg sand	Hard drilling past 3', soil is warm in liner so friction likely burnt/ baked some moisture out from ~3-7'.
6				7-10' GP: Fg-cg w/ some cobbles (~40%), wet, brown, little cg sand, few fg-mg sand, angular to subrounded.	
8	5-10'	2	5'	10-10.2' Rock: Quartzite, grey to lt. grey, very hard, medium grained.	
10	10-10.2'	3	0.2'	EOB @ 10.2'	
12				Installing a 7' screen 4-11'	
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9/22	5.7'	bgs WD
9/22	5.7'	bgs ~45min. AD

SAMPLE CLASSIFICATION BY: RQM

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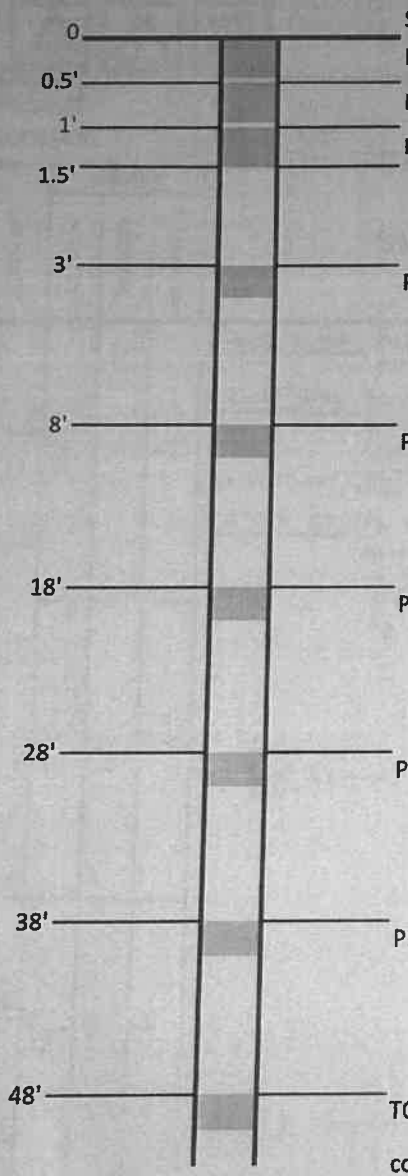
D06 9/22/17

Collected MS/MSD volume @ SG3-D06-1-1.5' @ 1140

DEEP SOIL PROFILES - LANDFILL



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D06-0-0.5' @ 11:25

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D06-0.5-1' @ 11:35

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D06-1-1.5' @ 11:40

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D06-3-4' @ 11:50

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D06-8-9' @ 12:05

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001		PAGE OF
CLIENT: SGPP			DATE COLLECTED: ~~9/21/17~~ 9/22/17 RQM
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9/22/17
DATE INSTRUMENT CALIBRATED: ~~9/21/17~~ 9/22/17 RQM	BY: RQM		ANALYST: ~~KAM~~/RQM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D08 ~~D22~~ RQM	1	0-0.5'	SOIL	4.3	0.0	No D/O/S
D08	1	0.5-1'	SOIL	4.0	0.0	No D/O/S
D08	1	1-1.5'	SOIL	2.0	0.0	No D/O/S
D08	1/2	3-5'	SOIL	1.8	0.0	NO D/O/S
D08	2	6-10'	SOIL	1.2	0.0	NO D/O/S wet
D08	3	10-11	SOIL	4.3	0.0	NO D/O/S saturated
D08	3	11-15	SOIL	1.1	0.0	NO D/O/S saturated
D06	1	0-0.5	SOIL	5.5	0.0	No D/O/S
D06	1	0.5-1	SOIL	2.4	0.0	No D/O/S
D06	1	1-1.5	SOIL	1.1	0.0	No D/O/S
D06	1	3-4	SOIL	1.0	0.0	No D/O/S
D06	2	5-8	SOIL	1.0	0.0	No D/O/S
D06	2	8-10	SOIL	0.9	0.0	No D/O/S
D25	1	0-0.5'	SOIL	0.5	0.0	No D/O/S
D25	1	0.5-1'	SOIL	0.5	0.0	No D/O/S
D25	1	1-1.5'	SOIL	0.5	0.0	No D/O/S
D25	1	3-4'	SOIL	0.4	0.0	No D/O/S
D25	2	8-9'	SOIL	0.4	0.0	No D/O/S
D25	4	18-19'	SOIL	1.1	0.0	No D/O/S
D25	2	5-8'	SOIL	1.0	6.0	No D/O/S
D24	3	10-15'	SOIL	3.1	0.0	NO D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D24	4	15-18'	SOIL	2.0	0.0	NO D/O/S

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
START DATE: 9-8-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-11-17

PROJECT: SGPP Bennington
LOCATION: D-07
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0				0-1 ft Topsoil- silty w/ fine to coarse SAND Drk brown/black, wet, w/roots/organics	
2	0-5	1	3.0	TILL (CL) LEAN SANDY CLAY ~~w/ some silt~~ w/ Gravels, (CL) light brown, moist to wet, fg Sand w/few mg/cg (25% SAND) mod/high plasticity, low cohesiveness w/subround gravels subangular	25% SAND 15% Gravels 60% clay FINES DJZ 11Oct17
4					
6				w/ few cobbles 4-5 ft & 7.5 ft Wetter	
8	5-10	2	5.0	light yellowish brown to olive brown colors	25% SAND 15% Gravel 60% clay FINES DJZ 11Oct17
10					
12	10-15	3	4.0	few cobbles w/in - Subrounded	25% SAND 15% Gravel 60% clay FINES DJZ 11Oct17
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 2 of 14

PROJECT: SGPP Bennington
LOCATION:
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	4.5	TILL (CL) SANDY LEAN CLAY ~~w/ some SILT~~ w/ Gravel DJZ 11-6-17 continued... ↓	25 % SAND 10 % Gravel 65 % Clay FINES DJZ 11-6-17
20				light yellowish brown to olive brown colors ↓ moist to low wet, low cohesiveness fg/vfg SAND w/some mg/cg Subround gravels Subangular Subround cobbles w/in (few)	
22	20-25	5	5.0		25 % SAND 15 % Gravel (5 % cobble by vol) 60 % Clay FINES DJZ 11-6-17
24				moist (drier than above)	
26	25-30	6	6.0		25 % SAND 20 % Gravel (5 % Cobble by vol) 55 % Clay FINES DJZ 11-6-17
28				DJZ 11-6-17 ~~Clayey Gravelly~~ SAND w/ ~~clay~~ Gravel (SC) light yellowish brown, ~~moist~~ to low moist fg SAND w/some mg/cg Subround to subangular gravels Subround cobbles	
30					20 % Clay 20 % Gravel (5 % Cobble by vol) 60 % SAND DJZ 11-6-17
	30-31	7	2.0		
32	31-32	8	0.2	-Boulder 31-32.5 ft (Quartzite)	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 3 of 14

PROJECT: SGPP Bennington
LOCATION: D-07
CTM PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
32	32-35	9	2.5	@ 32.5 TILL SANDY to Gravelly LEAN CLAY (CL) ~~SANDY CLAY w/ some SILT~~ DJZ 11-6-17 (CL) light yellowish brown, low moist hard / crumbly fg / very fg SAND w/ few mg/cg Subround to subangular Gravels Subround Cobbles	(CL) 20 % SAND 20 % Gravel (5 % Cobble by vol) 60 % Clay FINES DJZ 11-6-17
36					
38	35-40	10	5.0		
40					
42	40-45	11	5.0	more silty / silty clay TILL (CL) hard/crumbly low moisture	15 % SAND 15 % Gravel (5 % Cobble by vol) 80 % SILTY CLAY FINES DJZ 11-6-17
44					
46	45-50	12	5.0		15% SAND 15 % Gravel (5% Cobble by vol) 80 % SILTY CLAY FINES DJZ 11-6-17
48					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 4 of 14

PROJECT: SGPP Bennington
LOCATION: D-07
CTM PROJECT NO.: 32421001.03
CTM OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				SANDY to GRAVELLY LEAN CLAY (CL)	
				Large boulder @ 50-52 ft area - gray quartzite	
52				(CL) ~~SILTY CLAY TILL~~ DJZ 11-6-17 (as above)	25% SAND
				hard / crumbly - low moist	25% Gravel
	50-55	13	4.5		(30% boulder by volume)
54					50% SILTY CLAY FINES
					DJZ 11-6-17
56					
				Cobbles @ 57 ft	15% SAND
58	55-60	14	5.0		15% Gravel
					(5% Cobble by vol)
60				Continued @ 60 ft 9-9-17	70% SILTY CLAY FINES
					DJZ 11-6-17
					Stopped @ 60 ft on 9-8-17
62	60-65	15	5.0		20% SAND
					20% Gravel
					(5% Cobble by Vol)
64					65% SILTY CLAY FINES
					DJZ 11-6-17

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.: DATUM:
START DATE: 9-8-17 FINISH DATE: 9-11-17
SHEET 5 of 14

PROJECT: SGPP Bennington CTM PROJECT NO.: 32421001.03
LOCATION: D-07 CTM OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
66				SANDY to GRAVELLY LEAN CLAY (CL)	
68	65-70	16	4.0	moist (more than above) softer than above	20 % SAND 20 % Gravel (5 % Cobble by vol) 60 % SILTY clay FINES DJZ 11-6-17
70					
72	70-75	17	4.0	low moist	20 % SAND 15 % Gravel 65 % SILTY CLAY FINES DJZ 11-6-17
74					
76	75-80	18		color change 7.5YR 5/6 strong brown SANDY LEAN CLAY TILL (CL), moist DJZ 11-6-17 +GRAVELLY Larger subround/subangular gravels fg SAND w/ mg/cg w/in	25 % SAND 20 % Gravel 55 % SILTY CLAY FINES DJZ 11-6-17
78				boulder 78-79 ft (white low grade coarse quartzite marble)	
80					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 6 of 14

PROJECT: SGPP Bennington
LOCATION: D-07
CTM PROJECT NO.: 3242100L.03
CTM OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
82	80-85	19	5.0	change in color @ 80 ft 5YR 5/6 Yellowish Red Less sandy & gravelly higher plasticity than above moist more clayey ~~SANDY LEAN CLAY~~ (LL) DJZ 11-6-17 LEAN CLAY w/ SAND (CL) DJZ 11-6-17	15% SAND 10% Gravel 75% ~~SILTY~~ CLAY DJZ 11-6-17 FINES
84					
86	85-90	20	5.0	2.5YR 4/8 Red color SANDY to Gravelly LEAN CLAY (CL) gravels are fragments of low grade white ~~quartzite~~ marble w/tr quartzite boulder 87-89 ft (low grade ~~quartzite~~ marble, white)	25% SAND 20% Gravel (30% Boulder by volume) 55% CLAY FINES DJZ 11-6-17
88					
90					
92	90-95	21	5.0	fg ~~quartzite~~ marble SAND w/some mg/cg w/in Subangular quartzite tr gravels w/in & marble cobble (~~quartzite~~ marble (white)) @ 92.5 ft boulder (~~quartzite~~ marble (white)) @ 93-94 ft SANDY LEAN CLAY w/GRAVEL (CL)	30% SAND 15% Gravel (15% Boulder by Vol) (5% Cobble by Vol) 55% Clay FINES DJZ 11-6-17
94					
96				Quartzite boulder 95-96 ft, white, hard	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.: DATUM:
START DATE: 9-8-17 FINISH DATE: 9-11-17
SHEET 7 of 14

PROJECT: SGPP Bennington CTM PROJECT NO.: 32421001.03
LOCATION: D07 CTM OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
98	95-100	22	5.0	@ 96 ft SANDY SILT (ML) w/some clay very fg SAND w/few mg/cg (quartzite) trace quartzite (white) gravels + marble moist, tan and red swirls w/in ↳ laminations	96-100 ft interval 30 % SAND 5 % Gravel 65 % SILT FINES DJZ 11-6-17
100				~~96~~ 96-100 ft ML	
102	100-105	23	6.0	TILL ~~SILTY CLAY / CLAY~~ (CL) DJZ 11-6-17 LEAN CLAY w/ SAND & GRAVEL moist, reddish colors, mod/high plasticity fine/very fine SAND w/few mg/cg (~~quartzite~~ marble) Few gravels – subangular quartzite & marble trace cobbles - ~~quartzite~~ marble	10 % SAND 10 % Gravel (5 % Cobble by volume) 80 % Clay FINES DJZ 11-6-17
104					
106	105-110	24	5.0	SANDY to GRAVELLY LEAN CLAY (CL) DJZ 11-6-17 more clayey than silty clay (for 105-107 ft) more sandy @ 107 ft w/in Less cohesive; mix of SAND, GRAVEL, BOULDER, CLAY - crushed boulder/cobble @ 109 ft	25 % SAND 25 % Gravel (10 % Boulder Cobble by vol) 50 % CLAY FINES DJZ 11-6-17
108					
110				continued @ 110 ft on 9-10-17 @ 110 ft SANDY SILT (ML), red, wet	Stopped @ 110 ft on 9-9-17
112					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.: DATUM:
START DATE: 9-8-17 FINISH DATE: 9-11-17
SHEET 8 of 14

PROJECT: SGPP Bennington
LOCATION: D-07
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ RAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
114	110-120	25	10'	SANDY SILT (ML), red, wet, w/some clay fg to very fine SAND w/few mg/cg marble ~~quartzite~~ SAND particles w/few quartzite + marble gravels (subrounded to Subangular) w/trace subround/subangular marble ~~quartzite~~ ~~boulder~~ Cobbles w/ areas of thin laminations of red and yellowish red colors low cohesiveness, moderate plasticity 2.5YR 4/6 Red	110-120 ft 35 % SAND 10 % Gravel (5 % Boulder by volume) 55 % SILT FINES DJZ 11-6-17
120	120-125	26	5.0	increase in SAND content (fg to very fg) SILTY SAND w/ GRAVEL (SM) 122.5' to 123.4 & 123.6 to 124.5 ft Crushed marble boulders/cobbles 123.4 to 123.6 is Dark Red SILTY CLAY lens	50 % SAND 15 % Gravel (30% Boulder by volume) 35 % SILT DJZ 11-6-17
125	125-130	27	4.0	Color change @ 125 ft 2.5Y8/2 Pale yellow SAND (SP) very fg/fg w/few mg/cg (subangular, rough) Few subangular gravels (quartzite) Few subround to subround cobble (quartzite)	
130					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
START DATE: 9-8-17
SHEET 9 of 14
DATUM:
FINISH DATE: 9-11-17

PROJECT: SGPP Bennington
LOCATION: D-07
~~CTM~~ PROJECT NO.: 3242001.03
~~CTM~~ OBSERVER: DJZ KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
130				SAND continued.... ↓ high moisture	
132	130-135	28	4.5	SILTY SAND (SM) ~~w/some SILT~~ color change @ 132 ft 10YR 8.5/1 white fg/very fg w/few mg/cg - subangular to subrounded Little quartzite subround/subangular gravels Trace subround quartzite Cobbles	
134					
136					
138					
140	135-145	29	10		
142					
144					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
START DATE: 9-8-17
SHEET 11 of 14

DATUM:
FINISH DATE: 9-11-17

PROJECT: SCPP Bennington
LOCATION: D-07

CTM PROJECT NO.: 32421001.03
CTM OBSERVER: DJZ KAM KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
146				@ 144 ft 10YR 6/8 Brownish Yellow GRAVELLY SAND (SP), high moist fg/very fg w/ few mg/cg (quartzite) some (30%) fine to coarse subround to subangular gravels (primarily quartzite)	
148	145-152	30	7'		
150				10% Subround Cobbles (quartzite) by volume	
152				@152 ft Quartzite boulder (1.5 ft)	
154	152-157	31	5.0	CLAYEY SAND (SC) w/ Gravel 10YR6/8 Brownish yellow high moist, dense fg/very fg SAND w/ few mg/cg (quartzite) some (30%) subround to subangular quartzite gravels trace subround quartzite cobbles quartzite/marble boulder/cobbles 157.5-158.5	Stopped @ 157 ft on 9-10-17
156					
158	157-160	32	3.5		
160					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 12 of 14

PROJECT: SGPP Bennington
LOCATION: D-07
~~CTM~~ PROJECT NO.: 32421001,03
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
162			DJZ 11-6-17	160-163' is a SANDIER transition to description below SANDY CLAY (CL) w/ Gravel 30% SAND (fg to mg) w/ few cg low plasticity high cohesiveness 15% Gravel - subround to subangular, low moist	Yellow, brown, + red color mix
164				CLAY (CL), low moist, moderate plasticity low cohesiveness	Varve
166	160-170	33	10'	trace very fg SAND w/in & lenses Few quartz gravels + coarse sand frags Many very thin laminations (some silty) w/ colors: red, pink, brown, yellow, + white varieties	Kaolinite ~appears to be hydrothermally altered bedrock
168				@ 165 ft quartz cobble - subround few fragments of muscovite	
170				more pink @ 170 ft to 190 ft w/ few quartz gravels + cobbles subround to subangular	
172					
174	170-180	34	10'		
176					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D07
ELEV.:
START DATE: 9-8-17
SHEET 13 of 14
DATUM:
FINISH DATE: 9-11-17

PROJECT: SGPP Bennington
LOCATION: D-07
~~CTM~~ PROJECT NO.: 3242001.03
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
178				start getting dk gray laminations & pockets (muscovite)	
180					
182				@ 182 & 183 ft, 1/4 in hydrothermal quartz veins	
184				Few Quartz gravels (subangular) w/in	
186	180-190	35	10'		
188					
190				color change @ 189 ft to more white, no pinks @ 189.5 Sandstone fragment (Quartz) 2.5" w/ fg/vfg Sand lenses/laminations & pockets w/few quartz ~~cobb~~ gravels	
192					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-07
ELEV.:
DATUM:
START DATE: 9-8-17
FINISH DATE: 9-11-17
SHEET 14 of 14

PROJECT: SGPP Bennington
CTM PROJECT NO.: 3242100L.03
LOCATION: D-07
CTM OBSERVER: DJE KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
194				Nsty orange laminations	
196	190-200	36	10'		
198				Few dark gray laminations/ pockets muscovite fragments	
200				EOB @ 200 ft 9-11-17	
10					
12					
14					
16					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

SAMPLE CLASSIFICATION BY:

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 324210001.03	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9-8-17	
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-8-17	
DATE INSTRUMENT CALIBRATED: 9-8-17 @ 0840	BY: DJZ		
TEMPERATURE OF SOIL: ambient		ANALYST: DJZ KMJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	0-0.5	Soil	0.6	0	No odor, sheen, or discoloration
D-07	2	0.5-1	Soil	1.3	0	
D-07	3	1-1.5	Soil	0.7	0	
D-07	4	1.5-3	Soil	6.7	0	
D-07	5	3-4	Soil	0.9	0	
D-07	6	4-8	Soil	2.2	0	
D-07	7	8-9	Soil	1.0	0	
D-07	8	9-15	Soil	2.9	0	
D-07	9	15-18	Soil	2.5	0	
D-07	10	18-19	Soil	0.9	0	
D-07	11	19-25	Soil	3.6	0	
D-07	12	25-28	Soil	2.3	0	
D-07	13	28-29	Soil	1.5	0	
D-07	14	29-31	Soil	9.3	0	Boulder below 31 ft bgs
D-07	15	33-38	Soil	3.5	0	No odor, sheen, or discoloration
D-07	16	38-39	Soil	1.1	0	
D-07	17	39-45	Soil	1.7	0	
D-07	18	45-48	Soil	2.0	0	
D-07	19	48-49	Soil	2.4	0	
D-07	20	49-55	Soil	0.8	0.1	
D-07	21	55-58	Soil	4.8	0.1	
D-07	22	58-59	Soil	1.9	0.1	
D-07	23	59-60	Soil	2.6	0.1	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #:	PAGE OF
CLIENT:			DATE COLLECTED: 9-9-17
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9-9-17 @ 1030	BY: DJZ		ANALYST: DJZ KMJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	60-65	Soil	4.3	0.0	No odor, sheen,
D-07	2	65-68	Soil	1.2	0.0	or discoloration
D-07	3	68-69	Soil	1.6	0.0	
D-07	4	69-75	Soil	7.8	0.0	
D-07	5	75-77	Soil	3.5	0.0	
D-07	6	77-78	Soil	2.5	0.0	
D-07	7	78-85	Soil	2.0	0.0	
D-07	8	85-86	Soil	6.2	0.0	
D-07	9	86-87	Soil	3.2	0.0	
D-07	10	87-90	Soil	20.4	0.0	boulder powder included - metalic smelling vapor
D-07	11	90-95	Soil	3.4	0.0	
D-07	12	95-98	Soil	1.1	0.0	No odor, sheen,
D-07	13	98-99	Soil	0.9	0.0	or discoloration
D-07	14	99-100	Soil	0.8	0.0	
D-07	15	100-107	Soil	2.6	0.0	
D-07	16	107-108	Soil	0.9	0.0	
D-07	17	108-110	Soil	1.2	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF
CLIENT:			DATE COLLECTED: 9-10-17
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-10-17
DATE INSTRUMENT CALIBRATED: 9-10-17 @ 0900	BY: DJZ		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	110-115	Soil	0.6	0.0	No odor, sheen, or discoloration
D-07	2	115-118	Soil	0.7	0.0	
D-07	3	118-119	Soil	1.0	0.0	
D-07	4	119-125	Soil	4.2	0.0	
D-07	5	125-128	Soil	2.5	0.0	
D-07	6	128-129	Soil	1.1	0.0	
D-07	7	129-132	Soil	6.0	0.0	
D-07	8	132-138	Soil	1.1	0.0	
D-07	9	138-139	Soil	1.5	0.0	
D-07	10	139-145	Soil	3.1	0.0	
D-07	11	145-148	Soil	1.4	0.0	
D-07	12	148-149	Soil	0.8	0.0	
D-07	13	149-157	Soil	1.5	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001.03	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9-11-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-11-17	
DATE INSTRUMENT CALIBRATED: 9-11-17 @ 0830	BY: DJE		
TEMPERATURE OF SOIL: ambient		ANALYST: DJE KMJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	158-159	Soil	1.2	0.0	No odor, sheen, or discoloration
D-07	2	159-163	Soil	0.7	0.0	
D-07	3	163-168	Soil	0.4	0.0	
D-07	4	168-169	Soil	0.3	0.0	
D-07	5	169-175	Soil	0.6	0.0	
D-07	6	175-178	Soil	0.6	0.0	
D-07	7	178-179	Soil	0.5	0.0	
D-07	8	179-185	Soil	0.9	0.0	
D-07	9	185-188	Soil	0.8	0.0	
D-07	10	188-189	Soil	0.7	0.0	
D-07	11	189-195	Soil	0.6	0.0	
D-07	12	195-198	Soil	0.8	0.0	
D-07	13	198-199	Soil	0.8	0.0	
D-07	14	199-200	Soil	0.9	0.0	

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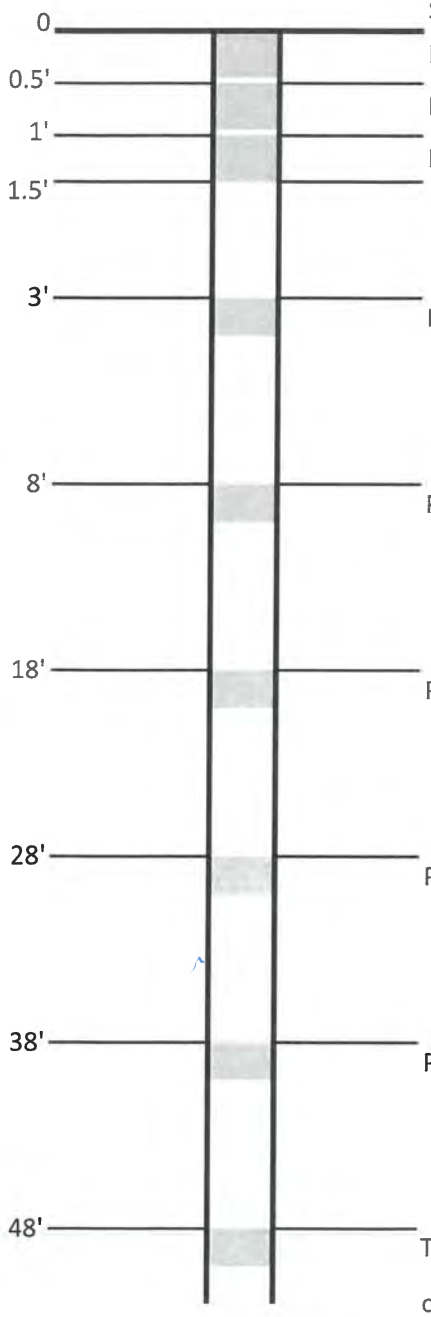
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

DEEP SOIL PROFILES D-07 9-8-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-0-0.5 @ 0910

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-05-1 @ 0915

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-1-1.5 @ 0920

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-3-4 @ 0930

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-8-9 @ 0935 MS/MSD collected

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-18-19 @ 1000

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-28-29 @ 1005

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D07-38-39 @ 1110

TOC, moisture content, TAL meta SG3-D07-48-49 @ 1340

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered) SG3-D07-58-59 @ 1440 MS/MSD collected

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

0728 11-9-17

Sediment Samples (PSA)

SG3-D07-0-1'
SG3-D07-1-10'
SG3-D07-10-20'
SG3-D07-20-28'
SG3-D07-28-31'
SG3-D07-33-40
SG3-D07-40-50
SG3-D07-50-60
SG3-D07-60-75

D-07 9-9-17 Samples

SG3-D07-68-69 @ 0905

~~SG3-D07-76-78~~

SG3-D07-77-78 @ 1010 (boulder from 78-79')

SG3-D07-86-87 @ 1240 (boulder from 87-89 ft)

SG3-D07-98-99 @ 1400

SG3-D07-107-108 @ 1515 (boulder / crushed rock 108-109')

D-07 9-10-17 Samples

SG3-D07-118-119 @ 0920

SG3-D07-128-129 @ 1100

SG3-D07-138-139 @ 1300

SG3-D07-148-149 @ 1340

D07- 9-11-17 Samples

SG3-D07-158-159' @ 0900

SG3-D07-168-169' @ 1000

SG3-D07-178-179 @ 1215

SG3-D07-188-189 @ 1320

SG3-D07-198-199' @ 1530

DE 11-9-17 ~~Sediment~~ PSA Samples 9-11-17

SG3-D07-159-163'

SG3-D07-163-170'

SG3-D07-170-190'

SG3-D07-190-200'

Additional ~~Sediment~~ DE 11-9-17 PSA Samples 9-9-17

SG3-D07-75-78

SG3-D07-80-85

SG3-D07-85-87

SG3-D07-90-92'

SG3-D07-95-100'

SG3-D07-100-110'

~~Sediment~~ 11-9-17 PSA Samples 9-10-17

SG3-D07-110-123'

SG3-D07-125-132'

SG3-D07-132-144'

SG3-D07-144-157'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 39421001.03	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9-8-17	
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-8-17	
DATE INSTRUMENT CALIBRATED: 9-8-17 @ 0840	BY: DJZ		
TEMPERATURE OF SOIL: ambient		ANALYST: DJZ KMJ2	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	0-0.5	Soil	0.6	0	
D-07	2	0.5-1	Soil	1.3	0	
D-07	3	1-1.5	Soil	0.7	0	
D-07	4	1.5-3	Soil	6.7	0	
D-07	5	3-4	Soil	0.9	0	
D-07	6	4-8	Soil	2.2	0	
D-07	7	8-9	Soil	1.0	0	
D-07	8	9-15	Soil	2.9	0	
D-07	9	15-18	Soil	2.5	0	
D-07	10	18-19	Soil	0.9	0	
D-07	11	19-25	Soil	3.6	0	
D-07	12	25-28	Soil	2.3	0	
D-07	13	28-29	Soil	1.5	0	
D-07	14	29-31	Soil	9.3	0	Boulder below 31 ft bgs
D-07	15	33-38	Soil	3.5	0	
D-07	16	38-39	Soil	1.1	0	
D-07	17	39-45	Soil	1.7	0	
D-07	18	45-48	Soil	2.0	0	
D07	19	48-49	Soil	2.4	0	
D07	20	49-55	Soil	0.8	0.1	
D-07	21	55-58	Soil	4.8	0.1	
D-07	22	58-59	Soil	1.9	0.1	
D-07	23	59-60	Soil	2.6	0.1	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #:		PAGE OF
CLIENT:			DATE COLLECTED: 9-9-17
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9-9-17 @ 1030	BY: DJZ		ANALYST: DJZ KMJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	60-65	Soil	4.3	0.0	
D-07	2	65-68	Soil	1.2	0.0	
D-07	3	68-69	Soil	1.6	0.0	
D-07	4	69-75	Soil	7.8	0.0	
D-07	5	75-77	Soil	3.5	0.0	
D-07	6	77-78	Soil	2.5	0.0	
D-07	7	78-85	Soil	2.0	0.0	
D-07	8	85-86	Soil	6.2	0.0	
D-07	9	86-87	Soil	3.2	0.0	
D-07	10	87-90	Soil	20.4	0.0	boulder powder included └ metalic smelling vapor
D-07	11	90-95	Soil	3.4	0.0	
D-07	12	95-98	Soil	1.1	0.0	
D-07	13	98-99	Soil	0.9	0.0	
D-07	14	99-100	Soil	0.8	0.0	
D-07	15	100-107	Soil	2.6	0.0	
D-07	16	107-108	Soil	0.9	0.0	
D-07	17	108-110	Soil	1.2	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 324210016.03	PAGE 1 OF
CLIENT:			DATE COLLECTED: 9-10-17
LOCATION: D-07			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-10-17
DATE INSTRUMENT CALIBRATED: 9-10-17 @ 0900	BY: DJZ		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	110-115	Soil	0.6	0.0	
D-07	2	115-118	Soil	0.7	0.0	
D-07	3	118-119	Soil	1.0	0.0	
D-07	4	119-125	Soil	4.2	0.0	
D-07	5	125-128	Soil	2.5	0.0	
D-07	6	128-129	Soil	1.1	0.0	
D-07	7	129-132	Soil	6.0	0.0	
D-07	8	132-138	Soil	1.1	0.0	
D-07	9	138-139	Soil	1.5	0.0	
D-07	10	139-145	Soil	3.1	0.0	
D-07	11	145-148	Soil	1.4	0.0	
D-07	12	148-149	Soil	0.8	0.0	
D-07	13	149-157	Soil	1.5	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421004.03	PAGE / OF	
CLIENT:		DATE COLLECTED: 9-11-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-11-17	
DATE INSTRUMENT CALIBRATED: 9-11-17 @ 0830	BY: DJE		
TEMPERATURE OF SOIL: ambient		ANALYST: DJE KMJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-07	1	158-159	Soil	1.2	0.0	
D-07	2	159-163	Soil	0.7	0.0	
D-07	3	163-168	Soil	0.4	0.0	
D-07	4	168-169	Soil	0.3	0.0	
D-07	5	169-175	Soil	0.6	0.0	
D-07	6	175-178	Soil	0.6	0.0	
D-07	7	178-179	Soil	0.5	0.0	
D-07	8	179-185	Soil	0.9	0.0	
D-07	9	185-188	Soil	0.8	0.0	
D-07	10	188-189	Soil	0.7	0.0	
D-07	11	189-195	Soil	0.6	0.0	
D-07	12	195-198	Soil	0.8	0.0	
D-07	13	198-199	Soil	0.8	0.0	
D-07	14	199-200	Soil	0.9	0.0	

*Instrument was calibrated in accordance with manufacturers recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-08
ELEV.: DATUM:
START DATE: 9/22/17 FINISH DATE: 9/22/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5'	1	~2'	0-0.2' OL/OH: Mostly fg sand, dk brown, abundant roots, very silty 0.2-9.5' SM/G: Fg-cg, mostly fg-mg, lt. brown to brown, some fg-cg gravel and cobbles, gvl & cobbles are subrounded, trc organics to ~1.25' -At 1.25', ~1" lyr of sandy lean clay.	Likely pushed a rock from 2-5' (cause of lower recovery).
4				9.5-15' GP: Fg-cg w/ ~10% cobbles [fill], brown *[fines matrix]*, mostly subrounded to rounded w/ trc-few angular qtz. particles, trc silt fines, few to little mg-cg sand, trc fg sand	Bumping 3-4' sample (analytical) to 5-6' due to low recovery.
6					
8	5-10'	2	4.5'	-At ~~8.5'~~ 9.0' am, becomes wet.	
10					*Cuttings disposed of before grain size analysis samples were collected
12	10-15'	3	5'		
14				-At 14.5' becomes mostly cobbles (~4" in diameter).	
				EOB @ 15'	
16				Installed a 10' screen ~5-15'	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS
TOC = 0.7' above gsf

DATE	LEVEL	REFERENCE MEASURING POINT
9.14'	9/22	bTOC WD
9.10'	9/22	bTOC ~20 min. AD
8.40'	9/22	bgs

SAMPLE CLASSIFICATION BY: RQM

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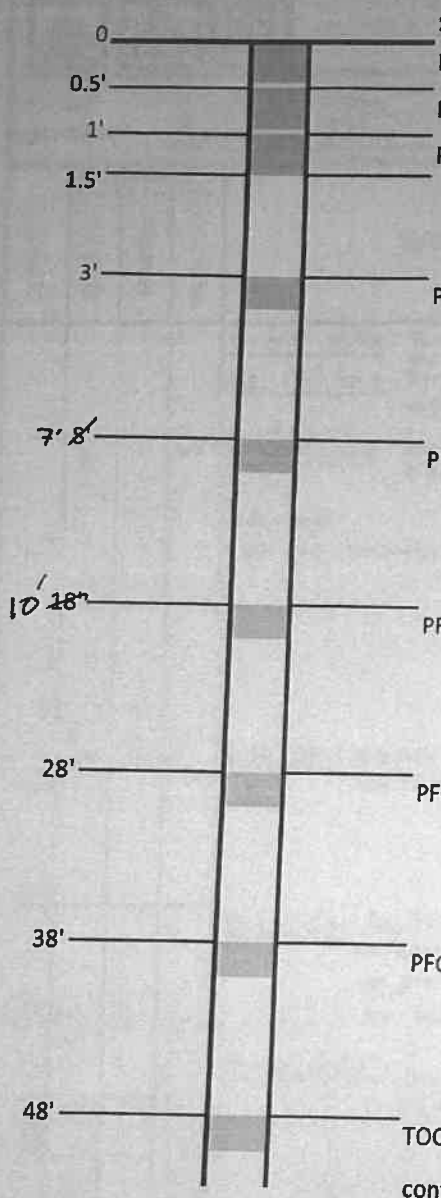
DØ8 9/22/17

Collected SG3-FDSO6-170922 from 1-1.5' @ 9:20
Collected SG3-D08-3-5' MS/MSD Volume

DEEP SOIL PROFILES - LANDFILL



PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-0-0.5' @ 09:05

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-0.5-1' @ 09:15

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-1-1.5' @ 09:20

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-3-5' @ 09:30
(collected 3-5' to obtain adequate volume).

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-7-8' @ 09:45

WL = 8.4' bgs

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D08-10-11' @ 10:20

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001		PAGE OF
CLIENT: SGPP			DATE COLLECTED: ~~9/20/17~~ 9/22/17 RQM
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9/22/17
DATE INSTRUMENT CALIBRATED: ~~9/20/17~~ 9/22/17 RQM	BY: RQM		ANALYST: KAM/RQM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D08 ~~D22~~ RQM	1	0-0.5'	SOIL	4.3	0.0	No D/O/S
D08	1	0.5-1'	SOIL	4.0	0.0	No D/O/S
D08	1	1-1.5'	SOIL	2.0	0.0	No D/O/S
D08	1/2	3-5'	SOIL	1.8	0.0	NO D/O/S
D08	2	6-10'	SOIL	1.2	0.0	NO D/O/S wet
D08	3	10-11	SOIL	4.3	0.0	NO D/O/S Saturated
D08	3	11-15	SOIL	1.1	0.0	NO D/O/S Saturated
D06	1	0-0.5	SOIL	5.5	0.0	No D/O/S
D06	1	0.5-1	SOIL	2.4	0.0	No D/O/S
D06	1	1-1.5	SOIL	1.1	0.0	No D/O/S
D06	1	3-4	SOIL	1.0	0.0	No D/O/S
D06	2	5-8	SOIL	1.0	0.0	No D/O/S
D06	2	8-10	SOIL	0.9	0.0	No D/O/S
D25	1	0-0.5'	SOIL	0.5	0.0	No D/O/S
D25	1	0.5-1'	SOIL	0.5	0.0	No D/O/S
D25	1	1-1.5'	SOIL	0.5	0.0	No D/O/S
D25	1	3-4'	SOIL	0.4	0.0	No D/O/S
D25	2	8-9'	SOIL	0.4	0.0	No D/O/S
D25	4	18-19'	SOIL	1.1	0.0	No D/O/S
D25	2	5-8'	SOIL	1.0	6.0	No D/O/S
D24	3	10-15'	SOIL	3.1	0.0	NO D/O/S
D24	4	15-18'	SOIL	2.0	0.0	NO D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-09
ELEV.: DATUM:
START DATE: 10-16-17 FINISH DATE: 10-17-17
SHEET 1 of 4

PROJECT: SGPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-09 Landfill OBSERVER: DJZ RAK RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Gravelled Storage Area	
2				2" black topsoil mix OL/OH, w/roots	
	0-5	1	2.5	FILL - SAND (SP), brown/tan, low moist, loose	
4				fg SAND w/some mg - mainly subangular w/some subrounded	
				w/little gravels - subround	
				w/trace cobbles - subround	
6				w/ Approx ~15% FINES w/in - SILT/CLAY	Color
				trace garbage 0-3 ft (plastic fragments)	0-3-brown
8	5-10	2	2.5		3-7-reddish brn
					7-10-tan
10					
12				increase in cobbles to few	
	10-15	3	2.5	Increase in SILT content with to 30-35%	
14				SILTY SAND (SM)	
				w/details same as above	Added drilling water @ 15 ft
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-09
ELEV.: DATUM:
START DATE: 10-16-17 FINISH DATE: 10-17-17
SHEET 2 of 4

PROJECT: SGPP Bennington
LOCATION: D-09 Landfill
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	~~1.5~~ 5.0	@16 ft FILL Poorly Graded GRAVEL w/ SILT & SAND (GP), loose fine to coarse gravels - subround to subangular w/ few SAND - fg w/ some mg/cg w/ few SILTY/CLAY FINES, brown w/ trace cobbles - subround boulder area 16-18 ft	wet from drill fluid
20					
22	20-25	5	4.0		
24					
26	25-30	6	5.0	@26 ft Native CLAY TILL (CL), brown, hard, low moist, cohesive high plasticity w/ few gravels - subround w/ few to little SAND - fg to cg - subround to subangular Gravelly SAND lens 27.5 to 29 ft, loose	
28					
30	25-35				
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-09
ELEV.:
DATUM:
START DATE: 10-16-17
FINISH DATE: 10-17-17
SHEET 3 of 4

PROJECT: SGPP Bennington
LOCATION: D-09 Landfill
PROJECT NO.: 45021004.00
OBSERVER: DJZ RAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34				Different Till unit? Color change to reddish brown	
				Native CLAY TILL (CL), reddish brown, low moist, cohesive, high plasticity	
36	30-40	7	7.0	w/ few gravels - subround to subangular	
				w/ few - little SAND - fg to cg - subround to subangular	
38				trace cobbles	
				w/ areas of trace rusty red oxidation	
40					
42					
44	40-50	8	10		
46					
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-09
ELEV.: DATUM:
START DATE: 10-16-17 FINISH DATE: 10-17-17
SHEET 4 of 4

PROJECT: SCPP Bennington
LOCATION: D-09 Landfill
PROJECT NO.: 45621004.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				Small boulder @ 49 ft / cobble TILL color transitions back to brown increase in SILT content w/in	
52				high plasticity, high dry strength, low moist, cohesive	
54					
56	50-60	9	10	large cobble @ 55 ft	
58				few small cobbles	
60					
65	60-70	10	10	fragments of Kaolin mixed w/in TILL (Small) few small fragments of phyllite w/in	
70				EOB @ 70 ft	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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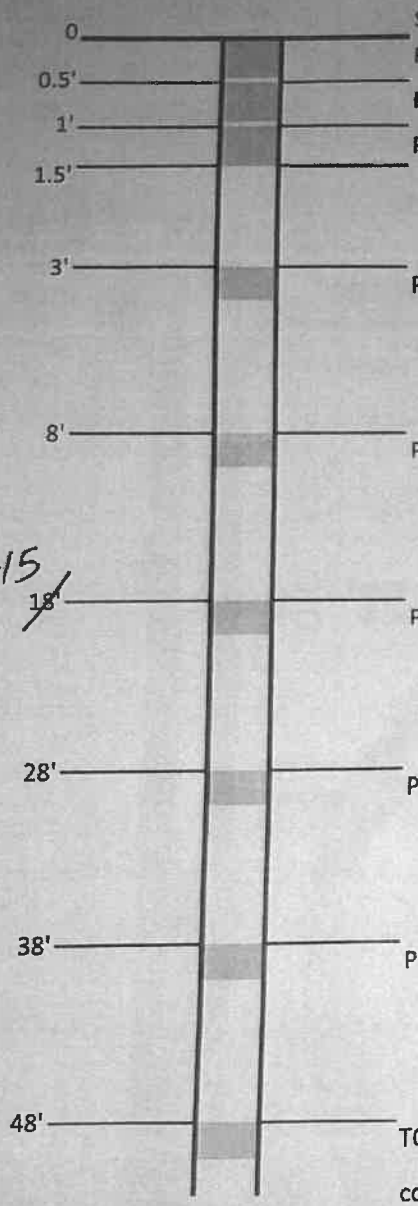
D-09 10-16-17

DEEP SOIL PROFILES - LANDFILL



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-0-0.5 @ 1120

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-0.5-1' @1125

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-1-1.5' @ 1130

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-3-4' @ 1140

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-8-9' @ 1150

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-~~18-19'~~ 14-15' @ 1210

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-28-29' @ 1350

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D09-38-39' @1450

TOC, moisture content, TAL meta SG3-D09-48-49' @ 1510

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered) 10-17-17
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

SG3-D09-58-59' @ 1030
SG3-D09-68-69' @ 1050

Sediment Samples 10-16-17

SG3-D09-0-15'
SG3-D09-15-26'
~~SG3-~~ SG3-D09-34-70'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 45021004.00	PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-16-17
LOCATION:			DATE ANALYZED: 10-16-17
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		ANALYST: DJZ
DATE INSTRUMENT CALIBRATED: 10-16-17 @ 1100		BY: DJZ	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-09	1	0-0.5	Soil	0.4	0.0	
D-09	2	0.5-1	Soil	0.3	0.0	
D-09	3	1-1.5	Soil	0.3	0.0	
D-09	4	1.5-3	Soil	0.3	0.0	
D-09	5	3-4	Soil	0.4	0.0	
D-09	6	4-8	Soil	0.3	0.0	
D-09	7	8-9	Soil	0.4	0.0	
D-09	8	9-14	Soil	0.3	0.0	
D-09	9	14-15	Soil	1.1	0.0	
D-09	10	15-20	Soil	0.7	0.0	
D-09	11	20-30	Soil	0.7	0.0	
D-09	12	30-40	Soil	0.7	0.0	
D-09	13	40-50	Soil	1.3	0.0	
10-17-17						
D-09	14	50-58	Soil	0.9	0.0	
D-09	15	58-59	Soil	0.8	0.0	
D-09	16	59-68	Soil	1.3	0.0	
D-09	17	68-69	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.:
DATUM:
START DATE: 10-7-17
FINISH DATE: 10-10-17
SHEET 1 of 4

PROJECT: SGPP Bennington
LOCATION: D-10 landfill
PROJECT NO.: 45021004.00
OBSERVER: DSZ / RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Vegetated / Mowed	
				No to minimal topsoil	
2	0-5	1	4.0	SILTY SAND (SM) Glacial Till, brown, low moist, loose	
				w/very fine SAND, w/few to little mg/cg SAND	
				w/few to little Gravels w/in - subround to subangular	
4				moderate plasticity, cohesive,	
				w/organics / roots 0-5' ft	
				w/ trace cobbles - subrounded	
6					Water added to casing @5 ft + below
8	5-10	2	3.0		
10				Color change to grayish brown	
12	10-15	3	4.2		
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.:
START DATE: 10-7-17
SHEET 2 of 4
DATUM:
FINISH DATE: 10-10-17

PROJECT: SGPP Bennington
LOCATION: D-10 Landfill
PROJECT NO.: 45021004.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	4.2	↓ SILTY SAND TILL continued ↓	
20				Color change to orangish brown low moisture Very hard / crumbly	
22	20-25	5	4.5	w/ few areas of rusty orange oxidation spots	
24					
26	25-30	6	5.5		
28					
30				— — — — — — — ?	
32				brown more clayey / silty clay TILL	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.:
START DATE: 10-7-17
SHEET 3 of 4
DATUM:
FINISH DATE: 10-10-17

PROJECT: SGPP Bennington Landfill
LOCATION: D-10
PROJECT NO.: 45021004.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				↓ SILTY CLAY TILL continued... ↓	
34				few cobbles w/in - subround	
36	30-40	7	7.5		
38					
40					
				Small boulder @ 40-41 ft	
42				low moist, hard, cohesive	
		8		high plasticity, high dry strength	
44	40-50		10		
46					
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.: DATUM:
START DATE: 10-7-17 FINISH DATE: 10-10-17
SHEET 4 of 4

PROJECT: SGPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-10 Landfill OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				↓ SILTY CLAY TILL continued... ↓	
50					
52					
54					
56	50-60	9	10		
58					
60					
62				increase in gravels w/in Gravelly CLAY TILL brown, low moist, hard, cohesive w/ subrounded to subangular gravels w/in (35%+) w/ trace to few subround cobbles w/in w/ fine to coarse SAND w/in (35%+)	
64					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.:
START DATE: 10-8-17
SHEET 5 of 7
DATUM:
FINISH DATE: 10-10-17

PROJECT: SGPP Bennington
LOCATION: D-10 Landfill
PROJECT NO.: 45021004.00
OBSERVER: DSZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
60				↓ Gravelly Clay Till continued.... ↓	
62			10		
64	60-70	10			
66					
68					
70					
72					
74					
76	70-80	11	10		
78					
80					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.: DATUM:
START DATE: 10-7-17 FINISH DATE: 10-10-17
SHEET 6 of 4

PROJECT: GPP Bennington
LOCATION: D-10 Landfill
PROJECT NO.: 45021004.00
OBSERVER: DJZ / DA

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
82				↓ Gravelly Clay TILL continued.... ↓	
84	80-90	12	10		
86					
88					
90				color change to tan/earthy w/orangish brown laminations No gravels 90-93 ft SANDY CLAY TILL, no gravels high plasticity, hard, cohesive, low moist w/reddish oxidation stains w/in w/ sand (fg) lenses w/in - about 0.5 inches max	
92					
94	90-100	13	10	Color change to orangish brown less cohesive, more sandy SANDY TILL, brown/orangish brown, low moist,	
96				not very cohesive, easily falls apart (from sonic?)	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-10
ELEV.:
START DATE: 10-7-17
SHEET 7 of 7
DATUM:
FINISH DATE: 10-10-17

PROJECT: SGPP Bennington
LOCATION: D-10 Landfill
PROJECT NO.: 45021004.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
98				↓ SANDY TILL continued... ↓ w/few to little? SILT/CLAY - FINES w/in mainly fg SAND w/few/little mg/cg SAND - subangular w/few gravels w/in - smaller - subangular w/little red oxidation stains w/in w/black iron concretions @ 96 ft area + black stains w/in	
100					
102	100-105	14	5.0	@ 101 ft SAND (SP), stratified, weathered Cheshire? fg SAND w/little mg/cg SAND w/in brown/orangish brown, moist, subangular w/fragments of weathered Cheshire Quartzite w/in (SAND to Gravel sized) w/fragments of "cemented SANDSTONE" looking gravels - Cheshire?	
104					
106				Possible paleo soil (preglacial), SAND with SILT, browns/tans/grays w/iron concretions (few to 1"), moist to low wet w/black staining & stratification/lenses	
108	105-110	15	5.0	Cheshire Quartzite, white/cream/orangish mix fine-med grain Quartz SAND) near vertical fractures areas of cross-bedding black manganese & rusty red oxidation w/in few pinholes w/in	
110					
112	110-115	16	1.5	EOB @ 115 ft	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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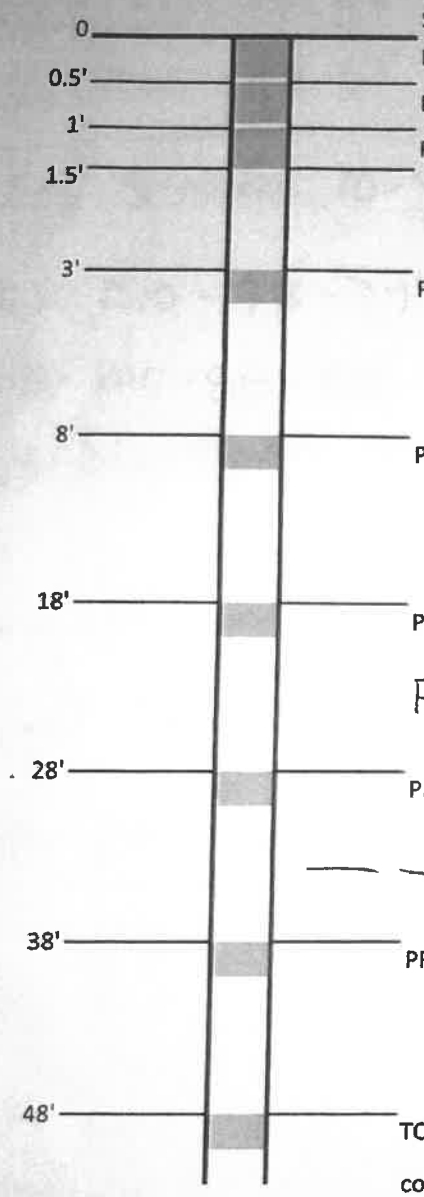
DEEP SOIL PROFILES - LANDFILL D-10 10-7-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-0-0.5' @1310

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-0.5-1' @ 1315

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-1-1.5' @1325

FIELD DUPLICATE SG3-FDS11-171007
1-1.5'

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-3-4' @1335

Collected MS/MSD 3-4'

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-8-9' @1345

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-18-19' @ 1355

FIELD RINSATE SG3-FBS11-171007 @ 1400

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-28-29' @ 1430

10-8-17

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D10-38-39' @ 0920

TOC, moisture content, TAL meta SG3-D10-48-49' @0945

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-8-17

SG3-D10-0-20'
SG3-D10-20-30'
SG3-D10-30-60'

Sediment Samples 10-10-17

SG3-D10-60-90'
SG3-D10-90-93'
SG3-D10-93-101'

D-10

Soil Samples 10-8-17

SG3-D10-58-59' @ 1020
SG3-D10-68-69' @ 1050

Soil Samples 10-9-17

SG3-D10-78-79' @ 1100
SG3-D10-88-89' @ 1230
SG3-D10-98-99' @ 1415

Soil Samples 10-10-17

SG3-D10-103-104' @ 0830

Sediment Samples 10-10-17

SG3-D10-101-105'
SG3-D10-105-107'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 450210044.00	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 10-7-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 10-7-17	
DATE INSTRUMENT CALIBRATED: 10-7-17 @ 1315	BY: DJZ	ANALYST: DJZ / RAM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-10	1	0-0.5	Soil	23.0	0.0	No odor / sheen / discolor
D-10	2	0.5-1	Soil	2.0	0.1	
D-10	3	1-1.5	Soil	1.5	0.1	
D-10	4	1.5-3	Soil	0.7	0.1	
D-10	5	3-4	Soil	0.9	0.1	
D-10	6	4-8	Soil	3.3	0.1	
D-10	7	8-9	Soil	4.3	0.1	
D-10	8	9-18	Soil	1.5	0.0	
D-10	9	18-19	Soil	1.3	0.0	
D-10	10	20-28	Soil	1.0	0.0	
D-10	11	28-29	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 45021004.00		PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-8-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10-8-17
DATE INSTRUMENT CALIBRATED: 10-8-17 @ 0910	BY: DJZ		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-10	1	30-38	Soil	0.8	0.0	
D-10	2	38-39	Soil	0.6	0.0	
D-10	3	39-48	Soil	0.7	0.0	
D-10	4	48-49	Soil	0.7	0.0	
D-10	5	49-58	Soil	0.7	0.0	
D-10	6	58-59	Soil	0.5	0.0	
D-10	7	59-68	Soil	0.8	0.0	
D-10	8	68-69	Soil	0.6	0.0	
10-9-17						
D-10	9	70-78	Soil	3.4	0.1	
D-10	10	78-79	Soil	0.3	0.1	
D-10	11	79-88	Soil	0.2	0.0	
D-10	12	88-89	Soil	0.2	0.0	
D-10	13	89-98	Soil	0.5	0.0	
D-10	14	98-99	Soil	0.5	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

Calibrated 10-9-17 @ 1050

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SCAPE Bennington	PROJECT #: 45021004.00	PAGE	OF
CLIENT:		DATE COLLECTED:	10-10-17
LOCATION:		DATE ANALYZED:	10-10-17
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	ANALYST:	DDZ
DATE INSTRUMENT CALIBRATED: 10-10-17 @ 0630	BY: DDZ		
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-10	15	100-103	Soil	3.0	0.0	
D-10	16	103-104	Soil	0.5	0.0	
D-10	17	104-107	Soil	1.2	0.0	
D-26	1	0-0.5	Soil	0.7	0.0	
D-26	2	0.5-1	Soil	0.8	0.0	
D-26	3	1-1.5	Soil	0.7	0.0	
D-26	4	1.5-3	Soil	0.8	0.0	
D-26	5	3-4	Soil	0.8	0.0	
D-26	6	4-8	Soil	0.6	0.0	
D-26	7	8-9	Soil	4.8	0.0	
D-26	8	9-15	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.:
START DATE: 9-25-17
SHEET 1 of 10
DATUM:
FINISH DATE: 9-27-17

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ KAM RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Grass/Vegetation	
2				0-1' ~~SANDY CLAY / SANDY SILT mix (ML/CL)~~ SILTY to CLAYEY SAND w/ Gravel (SM-SC) w/ fg/ very fg SAND, brown, moist w/ little ~~gravels~~ - subround/subangular Geotextile liner ~ 1 ft bgs DJZ 11-6-17	0-1' Est 40% SAND 40% FINES 20% Gravel DJZ 11-6-17
4	S-1 0	1	4.0	@ 1 ft ~~LEAN CLAY~~ TILL (CL), brown, moist w/ fg SAND w/in w/ mg/cg (little) w/ little gravels w/in - Subround to Subangular trace subround cobbles mod/high plasticity DJZ 11-6-17	SANDY LEAN CLAY w/ GRAVEL (CL) DJZ 11-6-17
6					
8	S-1 0	2	5.0	→ 4-10 ft is wet/saturated below 10 ft is low moist	
10				w/ some silty areas w/in	
12					
14	S-1 0	3	5.0	Crushed boulder/cobbles @ 13.5-14.5 ft	
16				harder	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

* Geotextile liner @ 1 ft - fibers in 0.5-1' sample

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.:
START DATE: 9-25-17
SHEET 2 of 16
DATUM:
FINISH DATE: 9-27-17

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
~~GTM~~ PROJECT NO.: 45021004.00
~~GTM~~ OBSERVER: DJZ KAM RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	6.0	↓ SANDY LEAN CLAY TILL continued... ↓ w/ Gravel DJZ 11-6-17	
20					
22	20-25	5	3.0	Several boulders / cobbles drilled through from 21-23 ft, lost some sample due to water drilling ↳ Quartzite dk gray	
24				moist	
26					
28	25-30	6	5.5		
30				more golden brown color	
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-25-17 FINISH DATE: 9-27-17
SHEET 3 of 10

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	30-35	7	5.5	SANDY LEAN CLAY TILL continued.... w/ Gravel DJZ 11-6-17	
36				36-38 ft boulder - quartzite - dk gray	
38	35-40	8	3.5	Quartzite Gravels	
40				increase in few Cobbles - Subround	
42				moist / more moist	
44	40-45	9	6.0	w/ few areas of dk gray mottles & reddish mottles Few fragments of slate (SAND SIZE)	
46	45-50	10	5.2		
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-25-17 FINISH DATE: 9-27-17
SHEET 4 of 10

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DSZ KAM RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				SANDY LEAN CLAY TILL continued... w/ Gravels DSZ 11/6/17	
				low moist	
				harder	
54	50-55	11	5.0		
56				darker brown	
58	55-60	12	5.5	dense/tight/hard	
60					
62	60-65	13	5.0		
64					

DRILLING CONTRACTOR: Sonic 4" Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-26-17 FINISH DATE: 9-27-17
SHEET 5 of 10

PROJECT: SGPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-11 Landfill OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
66				↓ ~~LEAN CLAY~~ TILL continued... ↓	
				SANDY LEAN CLAY w/ GRAVELS (CL)	
				moist	
				hard	
				DJZ 11-6-17	
68	65-70	14	5.0		
70					End @ 70 ft on 9-25-17
					Continue on 9-26-17
72	70-75	15	6.0		
74					
76	75-80	16	5.0	trace subround cobbles	
78					
80					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-26-17 FINISH DATE: 9-27-17
SHEET 1 of 10

PROJECT: SCPP Bennington CTM PROJECT NO.: 45021004.00
LOCATION: D-11 Landfill CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
82	80-85	17	5.0	several cobbles @ 80.5 ft ~~LEAN CLAY TCL~~ continued... SANDY LEAN CLAY w/ GRAVELS (CL)	DJZ 11-6-17
84				82-84 ft - area of very thin laminations w/ drk gray/black colors & browns - Per RAK → possible sheared boulder area?	
86				low moist hard	
88	85-90	18	5.0		
90				89-96 ft ~~Other Fm ?~~ DJZ CLAY (CL/CH) mix w/some silty areas dark brown, moist w/ ~10% fg SAND w/in - high plasticity - high dry strength w/ few areas of whitish silty clay inclusions w/ few gravels w/in	
92	90-95	19	3.5		
94					
96					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-26-17 FINISH DATE: 9-27-17
SHEET 1 of 10

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
CEM PROJECT NO.: 45021004.00
CEM OBSERVER: DJZ, RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
98	95-100	20	5.0	96-99 ft Boulder, lots of white powder cuttings	
100 ft				~~SILTY CLAY~~ TILL (CL), light brown, moist, mod plasticity, ~~wt~~ SANDY LEAN CLAY w/ GRAVELS (CL) DJZ 11-6-17	
102	100-105	21	4.5	Gravelly CLAY lens	
104				~~Saprolite~~ LEAN CLAY (CL) w/ weathered phyllite w/ fine to coarse SAND w/in w/ ~~fine~~ gravels w/in	
106					
108 12	105-110	22	2.5	107-110 ft Boulder Dolomitic Quartzite dark gray, low effervescence when scratched	
110				~~SILTY LEAN CLAY~~ TILL (CL), brown moist to low moist SANDY LEAN CLAY w/ Gravels (CL) DJZ 11-6-17	
112					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.:
START DATE: 9-25-17
SHEET 8 of 10
DATUM:
FINISH DATE: 9-27-17

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DSZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
114	110-115	23	5.0	~~SILTY LEAN CLAY~~ continued... SANDY LEAN CLAY w/ GRAVELS (CL) moist DSZ 11-6-17	
116				low moist w/ weathered quartzite fragments w/in (gravel to sand size) - breaks down to sand size fairly easily, (KAOLIN)	
118	115-120	24	5.0	hydrothermally altered rock ? w/ Silty inclusions	
120					
122	120-125	25	5.5	121-123 Wet SILTY CLAY, drk brown, w/ few gravels of weathered quartzite w/in trace SAND w/in, high plasticity, w/ fragments of slate w/ drk brown/brown mottles w/ black manganese oxidation spots	
124				low moist Weathered ~~Bed~~ Quartzite & CLAY mix	
126	125-130	26	5.0	125-126.5 BOULDER - Dolomitic Quartzite, drk gray w/ white ~~SILTY LEAN CLAY~~ TILL, brown, moist SANDY LEAN CLAY w/ Gravels (CL) DSZ 11-6-17	
128					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.: DATUM:
START DATE: 9-25-17 FINISH DATE: 9-27-17
SHEET 9 of 10

PROJECT: SGPP Bennington
LOCATION: D-11 Landfill
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
130				↓ ~~SILTY LEAN CLAY~~ continued... SANDY LEAN CLAY w/ Gravels (CL)	DJZ 11-6-17
				128-133 ft - more weathered quartzite fragments w/in (gravel sized)	
132					
	130-135	27	5.5	more SILTY than CLAYEY w/ orange & drk brown mottles w/ few black manganese oxidation stains mod plasticity	
134				w/ pockets of weathered quartzite fragments / KAOLIN	
136				SANDY LEAN CLAY w/ GRAVEL (CL) DJZ 11-6-17	
				~~SILTY CLAY~~ TILL ~~(CL)~~ brown, moist to wet	
138				w/ fine to coarse SAND) w/in (little to some)	
	135-140	28	1.5	w/ fine to coarse gravel (few to little)	
140					
				fragments quartzite, quartz	
142				thin laminations of black, orange brown, & drk brown	
	140-145	29	5.0	black manganese oxidation lenses / discoloration areas	
				- abundant quartz inclusions	
144					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-11
ELEV.:
DATUM:
START DATE: 9-25-17
FINISH DATE: 9-27-17
SHEET 1 of 10

PROJECT: SCRP Bennington
LOCATION: D-11 Landfill
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
146	145-150	3	2.0	@ 144 ft SAND (SP), brown, wet, saturated ? fg SAND w/ little mg/cg weathered Cheshire Quartzite fragments (gravel to CG SAND size)	
148				@ 145.5 ft Cheshire Quartzite white/cream, fine to med gr Quartz SAND near vertical fracture, areas of crossbedding black manganese & rusty red oxidation w/in few pinholes, 1 Vug observed	
150				EOB @ 150 ft on 9-27-17	
152					
154				* 3 ft Cheshire Quartzite fell out, drillers attempted to recover unsuccessfully	
156					
158					
160					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 411
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

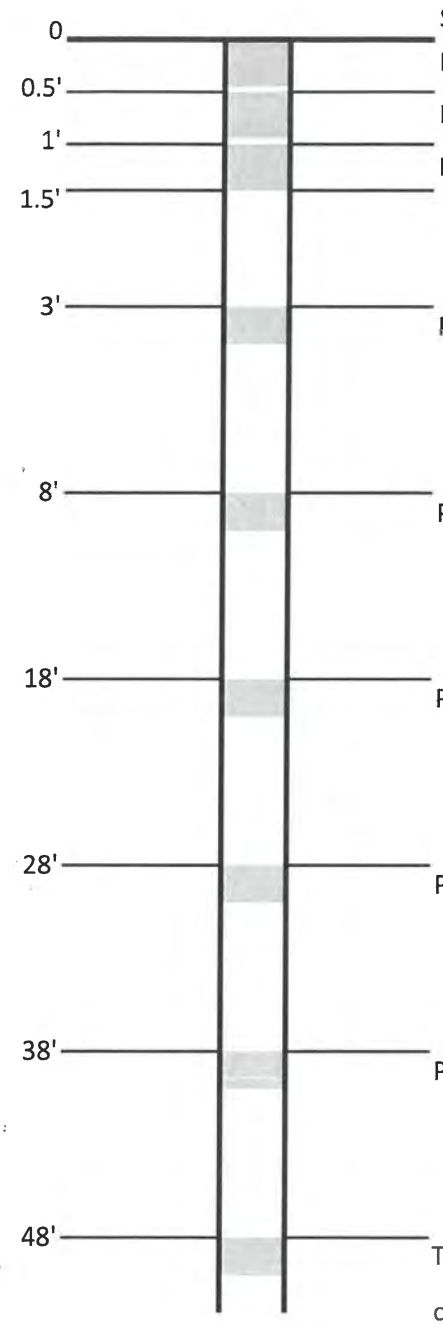
DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

D-11 9-25-17

DEEP SOIL PROFILES - LANDFILL



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-0-0.5' @ 0930

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-0.5-1' @ 0945

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-1-1.5' @ 0955

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-3-4' @ 1010

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-8-9' @ 1025

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-18-19' @ 1035

Duplicate Sample of 18-19' SG3-FD508-170925

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-28-29' @ 1105

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D11-38-39' @ 1250

SG3-D11-48-49' @ 1330

TOC, moisture content, TAL meta → collected MS/MSD for 48_49'

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

SG3-D11-58-59' @ 1400

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered SG3-D11-68-69' @ 1555

D-11 9-26-17 Soil Samples

SG3-D11-78-79' @ 0855

SG3-D11-88-89' @ 0900

SG3-D11-99-100' @ 0925

SG3-D11-113-114' @ 1410

SG3-D11-118-119 @ 1450

→ Boulder 107 to 110 ft

Rinse of bowl Stainless Steel

SG3-FBS07-170926 @ 1450

DB 11-9-17 ~~Sediment~~ PSA Samples 9-26-17

SG3-D11-1-20'

SG3-D11-23-50'

SG3-D11-50-80'

SG3-D11-80-89'

SG3-D11-89-96'

SG3-D11-102-104'

SG3-D11-104-121'

D-11 9-27-17

Soil Samples

SG3-D11-128-129' @ 1000

SG3-D11-138-139' @ 1040

SG3-D11-144-145' @ 1145

PSA

RSB 11-9-17 ~~Sediment~~ Samples 9-27-17

SG3-D11-121-123'

SG3-D11-123-144'

SG3-D11-144-145'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 45021004.00	PAGE 1 OF 3
CLIENT:			DATE COLLECTED: 9-25-17
LOCATION: D-11			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-25-17
DATE INSTRUMENT CALIBRATED: 9-25-17	BY: DJZ		
TEMPERATURE OF SOIL: ambient			ANALYST: DJZ

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-11	1	0-0.5	Soil	2.2	0.0	No odor, sheen, or discoloration
D-11	2	0.5-1	Soil	0.9	0.0	
D-11	3	1-1.5	Soil	1.0	0.0	
D-11	4	1.5-3	Soil	1.3	0.0	
D-11	5	3-4	Soil	1.1	0.0	
D-11	6	4-8	Soil	1.1	0.0	
D-11	7	8-9	Soil	1.2	0.0	
D-11	8	9-10	Soil	1.2	0.0	
D-11	9	10-18	Soil	2.8	0.0	
D-11	10	18-19	Soil	1.2	0.0	
D-11	11	19-20	Soil	0.8	0.0	
D-11	12	23-28	Soil	4.1	0.0	
D-11	13	28-29	Soil	1.7	0.0	
D-11	14	30-35	Soil	1.2	0.0	
D-11	15	38-40	Soil	0.9	0.0	
D-11	16	40-45	Soil	1.6	0.0	
D-11	17	45-48	Soil	0.9	0.0	
D-11	18	48-49	Soil	1.3	0.0	
D-11	19	50-58	Soil	2.6	0.0	
D-11	20	58-59	Soil	1.4	0.0	
D-11	21	59-68	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D-11	22	68-69	Soil	0.6	0.0	

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 450210004.00	PAGE 2 OF 3	
CLIENT:		DATE COLLECTED: 9-26-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-26-17	
DATE INSTRUMENT CALIBRATED: 9-26-17 @ 0830	BY: DJE		
TEMPERATURE OF SOIL: ambient		ANALYST: DJE	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-11	23	69-78	Soil	1.4	0.0	No odor, sheen, or discoloration
D-11	24	78-79	Soil	1.4	0.0	
D-11	25	79-88	Soil	1.6	0.0	
D-11	26	88-89	Soil	1.1	0.0	
D-11	27	89-99	Soil	3.2	0.0	
D-11	28	99-100	Soil	0.8	0.0	
D-11	29	100-104	Soil	18.1	0.0	crushed rock?
D-11	30	104-105	Soil	1.5	0.0	
D-11	31	110-115	Soil	0.6	0.0	
D-11	32	115-118	Soil	0.8	0.0	
D-11	33	118-119	Soil	1.5	0.0	
D-11	34	119-125	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 45021004.00		PAGE 3 OF 3
CLIENT:			DATE COLLECTED: 9-27-17
LOCATION: D-11			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-27-17
DATE INSTRUMENT CALIBRATED: 9-27-17 @ 1010	BY: DJZ		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-11	35	125-128	Soil	1.5	0.1	No odor, sheen, or discoloration
D-11	36	128-129	Soil	0.8	0.1	
D-11	37	129-138	Soil	1.5	0.2	
D-11	38	138-139	Soil	1.1	0.2	
D-11	39	139-144	Soil	1.2	0.2	
D-11	40	144-145	Soil	1.3	0.2	

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**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-12
ELEV.: DATUM:
START DATE: 10-3-17 FINISH DATE: 10-4-17
SHEET 1 of 3

PROJECT: SGPP Bennington CTM PROJECT NO.: 45021004.00
LOCATION: D-12 Vermont Roofing CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5	1	3.0	FILL - Gravel w/ SAND & SILTY CLAY Grayish brown, moist 0-1.5ft more SILTY FINES more clayey below 1 ft w/ fine to coarse SAND w/in - subround to subangular w/ fine to coarse gravels w/in - subround mod plasticity trace plastics, "zip tie" @ 5.5 ft	0-5 ft Est. 40% Gravel 30% SAND 30% FINES
4					
6					
8	5-10	2	3.0	more fines w/ depth, fragments of SLATE w/in (SAND size) trace rusty orange oxidation few cobbles 8-9 ft, quartzite	
10				@ 7.5 ft Native SILTY CLAY Glacial TILL (CL) moist, gray w/ fine to coarse SAND w/in - subround to subangular w/ fine to coarse gravel w/in - subround w/ few areas of rusty orange oxidation moderate plasticity fragments of slate w/in (mostly SAND size)	
12	10-12	3	1.5		~~End @ 12 ft on 10-3-17~~ Paused for water approval DJZ
14	12-15	4	3.0		
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-12
ELEV.: DATUM:
START DATE: 10-03-17 FINISH DATE: 10-4-17
SHEET 2 of 3

PROJECT: SEPP Bennington ~~CTM~~ PROJECT NO.: 45021004.60
LOCATION: D-12 Vermont Roofing ~~CTM~~ OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	5	5.0	continued.... ↓ SILTY CLAY Glacial Till (CL), gray to dark gray, moist w/ fine to coarse SAND w/in, subround to subangular (some) w/ fine to coarse gravel w/in, subround (some) w/ few cobbles w/in w/ trace to few rusty orange oxidation spots moderate plasticity w/ few elongated fragments of black slate (SAND + Gravel size)	
20					
20	20-25	6	6.0	– less clayey – more silty fines (ML) more sandy less gravels, drier areas w/in	Est Till % 40 % Fines 35 % Gravel 25 % SAND
24					
26	25-30	7	5.0	few cobbles w/in drier areas w/in core not wet from drill water Some harder areas - more stiff high dry strength	End @ 30 ft 10-3-17
28					
30					
30					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.:	D-12		
ELEV.:		DATUM:	
START DATE:	10-3-17	FINISH DATE:	10-4-17
SHEET	3 of 3		

PROJECT: SGPP Bennington
LOCATION: D-12 Vermont Roofing
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	30-35	8	4.7	TILL continued... ↓	
				little areas of mottling grays + brownish gray	
36				some sandy areas w/in	
				hard/stiff, cohesive	
	35-39	9	3.0		Based on hard drilling
38				Bedrock @ 37	
				Dolomitic Quartzite	
40				w/ Quartz veins (hydrothermal)?	
42	39-45	10	2.0		
			2.0	- additional 2ft recovery 2nd attempt	
44					
				EOB @ 45 ft —— 10-4-17	
46					
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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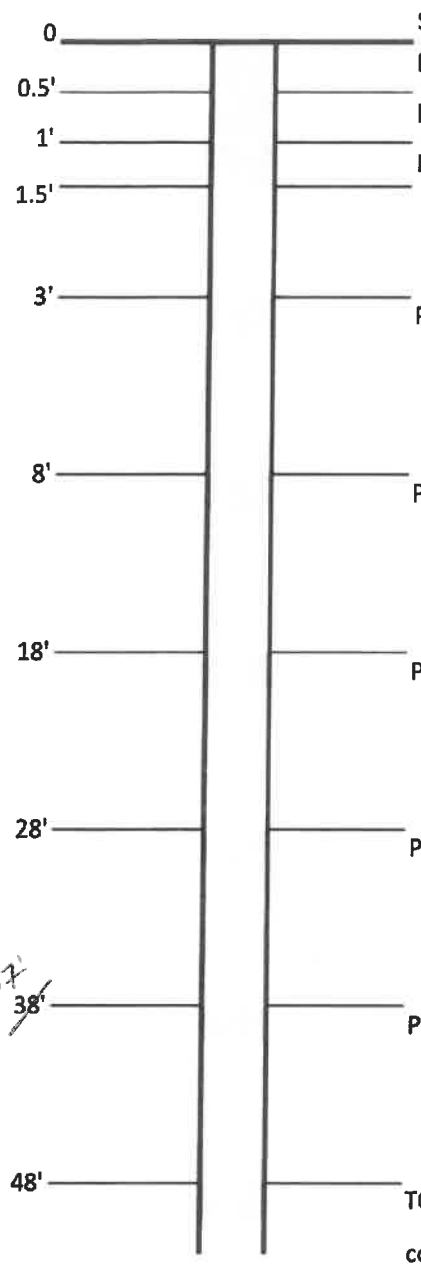
DEEP SOIL PROFILES D-12 10-3-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-0-0.5' @ 1015

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-0.5-1' @ 1025

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-1-1.5' @ 1035

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-3-4' @ 1045

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-8-9' @ 1105

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-18-19' @ 1430

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-28-29' @ 1505

10-4-17

36-37' ~~38'~~ PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D12-36-37' @ 0835

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-3-17

SG3-D12-0-7.5 ft
SG3-D12-7.5-12'
SG3-D12-12-30'

Sediment 10-4-17

SG3-D12-30-37'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	**PROJECT #:**		**PAGE** OF
CLIENT:			**DATE COLLECTED:** 10-3-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 10-3-17
DATE INSTRUMENT CALIBRATED: 10-3-17 @ 1020	**BY:** DJZ		**ANALYST:** DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	~~SAMPLE NUMBER~~ Depth	~~DEPTH (FT.)~~*** Sample #	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-12	0-0.5	1	Soil	0.5	0.0	
D-12	0.5-1	2	Soil	0.6	0.0	
D-12	1-1.5	3	Soil	0.5	0.0	
D-12	1.5-3	4	Soil	0.4	0.0	
D-12	3-4	5	Soil	0.3	0.0	
D-12	4-8	6	Soil	0.3	0.0	
D-12	8-9	7	Soil	0.3	0.0	
D-12	9-12	8	Soil	0.4	0.0	
D-12	12-18	9	Soil	0.3	0.0	
D-12	18-19	10	Soil	0.3	0.0	
D-12	19-28	11	Soil	1.1	0.0	
D-12	28-29	12	Soil	0.3	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	**PROJECT #:** 450210047.00	**PAGE** 1 **OF**	
CLIENT:		**DATE COLLECTED:** 10-4-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000 **LAMP** 10.6 **eV**		**DATE ANALYZED:** 10-4-17	
DATE INSTRUMENT CALIBRATED: 10-4-17 @ 0810 **BY:** DJZ			
TEMPERATURE OF SOIL: ambient		**ANALYST:** DJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-12	13	29-36	Soil	0.3	0.0	
D-12	14	36-37	Soil	0.2	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and vaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-13
ELEV.:
START DATE: 9-6-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-6-17

PROJECT: SGPP Bennington
LOCATION: D-13
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				surface ⇒ grass mowed yard	
2				0-1 CL SANDY CLAY Topsoil w/ SILT, roots, Brown, Wet, fg sand w/ few mg/cg DJZ 11-6-17	
				~~SILTY CLAY w/ fg SAND~~ DJZ	30% SAND
	0-5	1	4.0	SANDY LEAN CLAY (CL) Till few gravels	10% Gravel
4				1-3 CL Brown, wet, some mg to cg	60% SILTY CLAY FINES
				3-4 CL SILTY CLAY, brown, wet few fg sand, mod plasticity like "playdoo" DJZ 11-6-17	4" Large cobble @ 5 ft
6				SANDY to Gravelly LEAN CLAY (CL)	
				1-25 ft ~~SILTY CLAY~~ TILL, brown, wet w/ fg SAND, few mg/cg w/ Subround gravels w/ Subrounded Cobbles	20% SAND 5-10 # DJZ 11-6-17
8	5-10	2	2.9'		20% Gravel (10% Cobble by Vol)
					60% SILTY CLAY FINES
10					
					10-15 ft
12					20% SAND
	10-15	3	1.5		25% Gravel
14					55% SILTY CLAY FINES
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9-6	17'	bgs

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-13
ELEV.:
START DATE: 9-6-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-6-17

PROJECT: SRBP Bennington
LOCATION: D-13
~~CTM~~ PROJECT NO.: 3242100L03
~~CTM~~ OBSERVER: DJS

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	4.5	15-25 ft SILTY to CLAYEY SAND w/ Gravel (SM-SC)	15-20 ft 30% SAND 30% Gravel (15% Cobble by vol) 40% SILTY CLAY FINES DJS 11-6-17
20					20-25 ft 30% SAND 30% Gravel (15% Cobble by volume) 40% Silty Clay FINES DJS 11-6-17
22	20-25	5	3.0		
24					
26				EOB @25 ft	
12					
14					
16					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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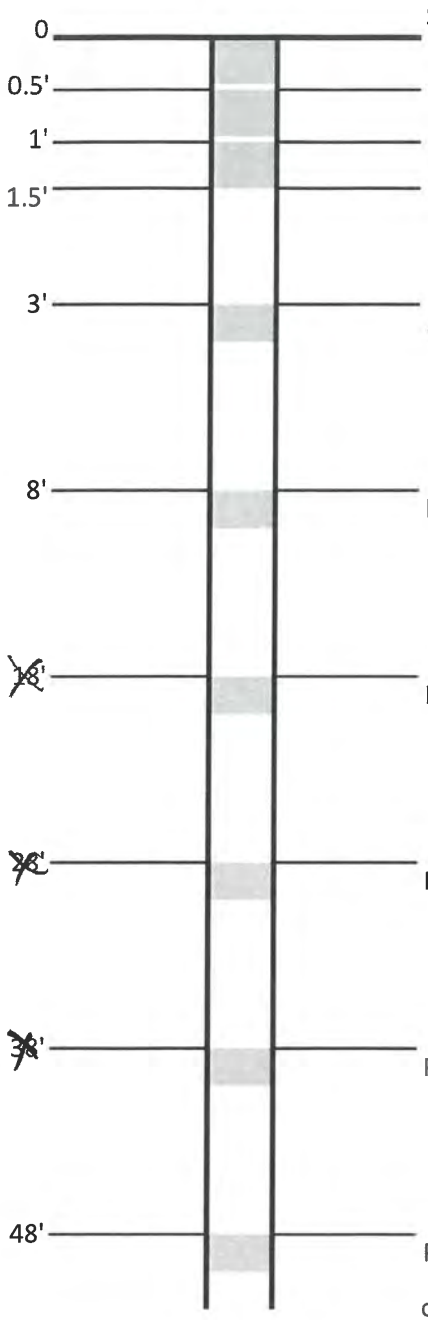
D-13 9-6-17

DEEP SOIL PROFILES



PFCs, pH, TOC, moisture content SG3-D13-0-0.5 @ 1005

PFCs, pH, TOC, moisture content SG3-D13-0.5-1 @ 1010

PFCs, pH, TOC, moisture content SG3-D13-1-1.5 @ 1015

PFCs, pH, TOC, moisture content SG3-D13-3-4 @ 1025

PFCs, pH, TOC, moisture content SG3-D13-8-9 @ 1045

PFCs, pH, TOC, moisture content SG3-D13-15-16 @ 1230

PFCs, pH, TOC, moisture content SG3-D13-18-19 @ 1245

PFCs, pH, TOC, moisture content SG3-D13-24-25 @ 1305

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

YSI

Temp: 15°C

742.4 mmHg

DO: 101.1 %

DO: 9.93 mg/L

0.508 SPC mS/cm

pH = 7.46

~~DRR~~ pH = -45.9 mV

ORP = 132.9 mV

Water Sample

SG3-D13-170906 @ 1230

DDZ 11-9-17

~~Sediment - PFA Samples~~

SG3-D13-0-1

SG3-D13-1-10

Calibrate Turbidity Meter 1200 @ 1345 Turbidity 49.3 NTU

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-6-17
LOCATION: D-13			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-6-17
DATE INSTRUMENT CALIBRATED:		BY: DJZ/John	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-13	1	0-0.5	Soil	0.6	0.0	No odor, sheen, or discoloration
D-13	2	0.5-1	Soil	0.8	0.0	
D-13	3	1-1.5	Soil	0.7	0.0	
D-13	4	1.5-3	Soil	0.9	0.0	
D-13	5	3-4	Soil	0.6	0.0	
D-13	6	4-8	Soil	0.3	0.0	
D-13	7	8-9	Soil	0.8	0.0	
D-13	8	9-15	Soil	3.2	0.1	
D-13	9	15-16	Soil	1.7	0.0	
D-13	10	16-18	Soil	2.3	0.1	
D-13	11	18-19	Soil	1.2	0.1	
D-13	12	19-24	Soil	1.2	0.1	
D-13	13	24-25	Soil	1.0	0.1	
	X					

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-14
ELEV.: DATUM:
START DATE: 8/29/17 FINISH DATE: 8/29/17
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5'	1	5'	0-1.3: OL/OH: Dk. brown, moist, silty in upper 3", then clayey, trc-fw organic, abundant roots. 1.3-1.5: GC: Fg-cg, brown, angular, some cg sand, ~40% clay. 1.5-3: CL: Brown to dk. yellow brn, moist, soft-hard, few fg gvl, few fg-cg sand, low-med. plast.	No water in hole @ 12' refusal, had to use water to drill into bedrock to 17'. WL = 10' bgs, Bailed out to 1325' bgs, water re-charged to 13.2' bgs after ~30 minutes. No evidence of sufficient recharge to sample formation water.
4				3-9': SMg: Fg-cg, pale brown, moist, little to some fg-cg gvl. and cobbles, ~30% fines	
6				9'-12': SM/ML: Fg, reddish brown to brownish red, few fg gravel, ~50% silt fines.	
8	5-10'	2	4'	From 9.25-9.6', brownish grey	
10				12-17': BEDROCK: Grey, hard, very fine grained, ~~likely qtzite, possibly marble but seems too hard~~, strong rxn w/ HCl. Is Marble likely.	
12	10-12'	3	2'		
14	12-17'	4	~4'		
17 18				EOB @ 17'	

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

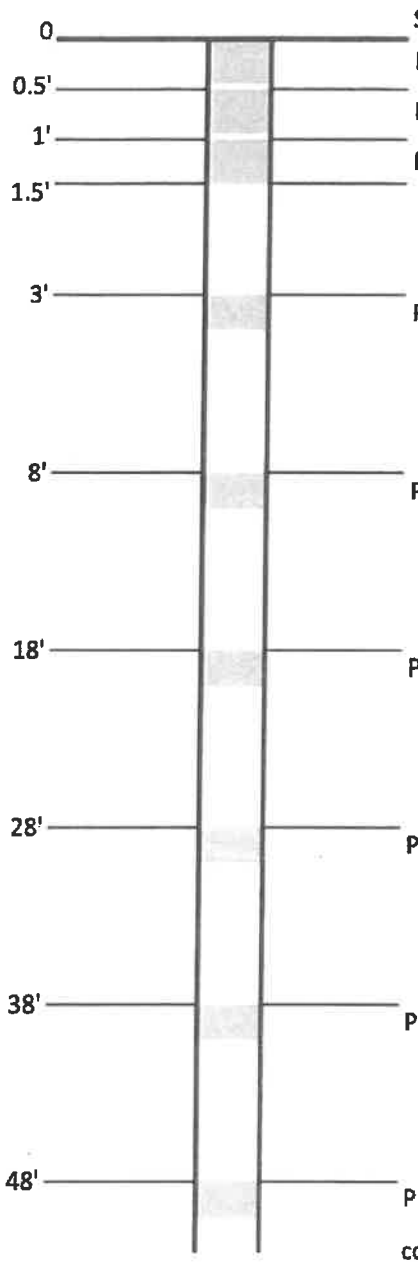
SAMPLE CLASSIFICATION BY: RQM

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

D-14 8/29/17

Collected SG3-FDS03-170829 @ 9.5-10.5'
Collected SG3-FBS03-170829 @ 10:50 (rinsate)
Collected SG3-FDS02-170829 @ 3-4'
Collected MS/MSD from 8-9'

DEEP SOIL PROFILES



SOIL + metals for all samples ↓

PFCs, pH, TOC, moisture content SG3-D14-0-0.5' @ 11:20

PFCs, pH, TOC, moisture content SG3-D14-0.5-1' @ 11:25

PFCs, pH, TOC, moisture content SG3-D14-1-1.5' @ 11:30

SG3-D14-2-3' @ 11:40

PFCs, pH, TOC, moisture content SG3-D14-3-4' @ 11:45 (+DUP)

PFCs, pH, TOC, moisture content SG3-D14-8-9' @ 12:05 (+MS/MSD vol.)

SG3-D14-9.5-10.5' @ 12:15 (+DUP)

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03		PROJECT #:	PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/24/17
LOCATION: Bennington, VT			DATE ANALYZED:
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		ANALYST:
DATE INSTRUMENT CALIBRATED: 8/24/17		BY: RQM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SD-14	1	0-0.5'	Soil	2.1	0.0	No D/O/S
D-14	1	0.5-1'	Soil	2.2	0.0	No D/O/S
D-14	1	1-1.5'	Soil	2.1	0.0	No D/O/S
D-14	1	1.5-2'	Soil	1.9	0.0	No D/O/S
D-14	1	2-3'	Soil	1.9	0.0	No D/O/S
D-14	1	3-4'	Soil	1.2	0.0	No D/O/S
D-14	1	4-5'	Soil	1.7	0.0	No D/O/S
D-14	2	5-8'	Soil	3.4	0.0	No D/O/S
D-14	2	8-9'	Soil	1.4	0.0	No D/O/S
D-14	2	9-10'	Soil	1.0	0.0	No D/O/S
D-14	3	10-12'	Soil	2.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-15
ELEV.:
DATUM:
START DATE: 10-18-17
FINISH DATE: 10-19-17
SHEET 1 of 5

PROJECT: SGPP Bennington
LOCATION: D15 Bennington College
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Trees/brush & vegetated - Native	
				0-0.5' Topsoil, (OL/OH), drk brown, moist, high plasticity, w/ roots	
				@ 0.5 ft SILTY w/ little CLAY & trace fg SAND	
2				TILL - Native CLAYEY SILT w/ SAND & GRAVELS	
	0-5	1	4.5	brown, moist to low moist, high plasticity, cohesive	
4				fg to cg SAND mix w/in ~20% - subround to subangular	
				fine to medium GRAVELS w/in ~20% - subround to subangular	
				w/ fragments of elongated SLATE w/in (SAND to GRAVEL sized)	
6				trace cobbles - subround	
				trace coarse gravels	
8	5-10	2	4.5		
10					
				few cobbles	
12					
	10-15	3	5.0		
14					
				TILL color change to gray / light gray	
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-15
ELEV.: DATUM:
START DATE: 10-18-17 FINISH DATE: 10-19-17
SHEET 3 of 5

PROJECT: SGPP Bennington
LOCATION: D-15 Bennington College
PROJECT NO.: 4502100 4.00
OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				↓ TILL continued.... ↓	
18 ft	15-20	4	5.0	few cobbles	
20 ft				@ 20 ft Quartzite Boulder (1 ft)	
22 ft					
24 ft	20-25	5	4.5	@ 24 ft boulder (8 in) fragments	
				TILL very hard, low moist to moist	
26 ft					
28 ft	25-30	6	5.0		
30 ft					
32 ft					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-15
ELEV.: DATUM:
START DATE: 10-18-17 FINISH DATE: 10-19-17
SHEET 3 of 5

PROJECT: SGPP Bennington PROJECT NO: 45021004.00
LOCATION: D-15 Bennington College OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	30-40	7		↓ Gray Till continued... ↓	
36					
38					
40					
42	40-45	8	5D		
44				44-46.5 Boulder - Quartzite	
46					
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-15
ELEV.: DATUM:
START DATE: 10-18-17 FINISH DATE: 10-19-17
SHEET 9 of 5

PROJECT: SGPP Bennington
LOCATION: D-15 Bennington College
PROJECT NO.: 45021004.00
OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50	45-55	9	7.0	↓ Gray TILL continued... ↓	
52					
54					
56					
58					
60	55-65	10	1.0	55-65 ft run 1 ft recovery of gravels & cobbles Drilling water may have washed out SAND & fines Gravels were subround to rounded quartzite & slate ~ not in-place bedrock	
62					
64					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-15
ELEV.: DATUM:
START DATE: 10-18-17 FINISH DATE: 10-19-17
SHEET 5 of 5

PROJECT: SGPP Bennington CTM PROJECT NO.: 45021004.00
LOCATION: D-15 Bennington College OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
66				65-70 ft Dolomite Boulder nearly 5 ft recovery, dark gray/bluish very fine gr.	
68					
70	65-75	11		TILL - SILT w/ little SAND brown, moist, low plasticity, low cohesive w/ very fine to fg SAND w/in w/ few mg/cg (~20%) w/ few gravels w/in - (~5-10%) w/ few cobbles w/in - Subround	
72					
74					
76	75-80	12	0.5	75 to 85 ft Dolomite, dark gray/bluish very fg Weak HCl rxn	
78					
80				EOB @ 85 ft	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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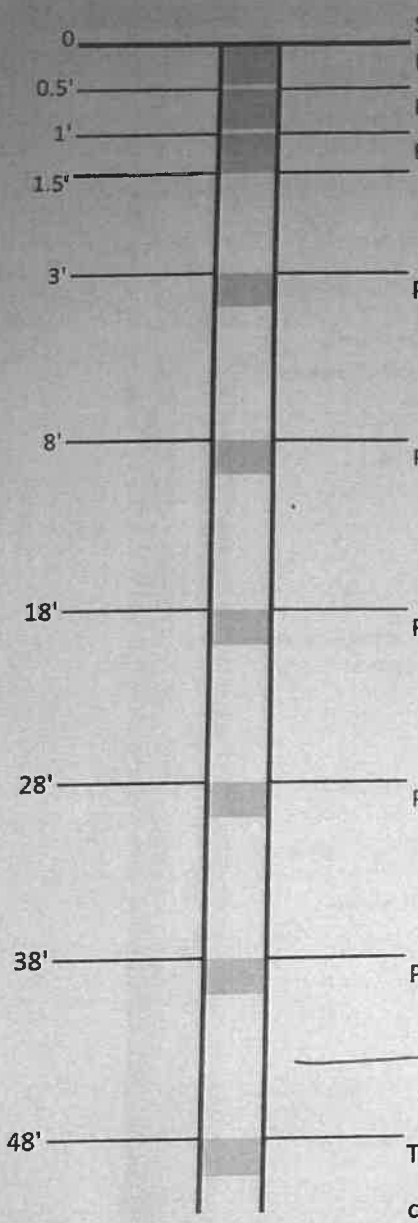
DEEP SOIL PROFILES D-15 10-18-17

Collected SG3-FBS14-171018 (direct pour) @ 1100
Collected SG3-FDS14-171018 from 18-19'



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-0-0.5' @ 0950

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-0.5-1' @ 0955

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-1-1.5' @ 1000

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-3-4' @ 1005

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-8-9' @ 1020

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-[redacted]D15-18-19' @ 1105
Collected SG3-FDS14-171018 from 18-19'

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-28-29 @ 1240

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D15-38-39' @ 1310

10-19-17

TOC, moisture content, TAL meta SG3-D15-48-49' @ 0840

continue sampling every 10' until bedrock or water table Collected MS/MSD 48-49'

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

SG3-D15-73-74' @ 1145

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-18-17

SG3-D15-0.5-15'
SG3-D15-15-75'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 450210054.00	PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-18-17
LOCATION:			DATE ANALYZED: 10-18-17
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		ANALYST: DJE
DATE INSTRUMENT CALIBRATED: 10-18-17 @ 0920	BY: DJE/RAK		
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-15	1	0-0.5	Soil	0.5	0.0	
D-15	2	0.5-1	Soil	0.6	0.0	
D-15	3	1-1.5	Soil	0.4	0.0	
D-15	4	1.5-3	Soil	0.4	0.0	
D-15	5	3-4	Soil	0.4	0.1	
D-15	6	4-8	Soil	0.7	0.0	
D-15	7	8-9	Soil	0.8	0.0	
D-15	8	9-18	Soil	4.9	0.0	
D-15	9	18-19	Soil	1.4	0.0	
D-15	10	19-28	Soil	2.3	0.1	
D-15	11	28-29	Soil	1.1	0.1	
D-15	12	29-38	Soil	1.1	0.1	
D-15	13	38-39	Soil	0.5	0.1	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 45021004.00	PAGE OF
CLIENT:			DATE COLLECTED: 10-19-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10-19-17
DATE INSTRUMENT CALIBRATED: 10-19-17 @ 0835	BY: DJB		ANALYST: DJB
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-15	14	39-48	Soil	0.8	0.0	
D-15	15	48-49	Soil	0.4	0.0	
D-15	16	49-55	Soil	0.6	0.1	
D-15	17	70-73	Soil	1.4	0.1	
D-15	18	73-74	Soil	0.7	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-16
ELEV.: DATUM:
START DATE: 9/20/17 FINISH DATE: 9/21/17
SHEET 1 of 1

PROJECT: SGPP Bennington CTM PROJECT NO.: 32421001
LOCATION: Bennington, VT CTM OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5'	1	~4'	0-0.2' OL/OH: Tan to brown, moist, some fg sand, abun. roots, trc asphalt debris. 0.2-1.1' SMg: Brown, fg-cg, mostly mg, little fg gvl., trc asphalt debris, trc roots. 1.1-8.0' CLs: Greyish brown, moist, medium to hi plast., no dilat., little to some sand & fg gvl.	
4				Ram 8.0-10.0' - At 4.0', becomes brownish grey decreased sand (~20%)	
6					
8	5-10'	2	5'	8-10' SM: Reddish brown, fg-cg, mostly fg, moist, occ. clay fines, few oxidized silt inclusions.	
10					
12	10-15'	3	5'	10-13' CL: Grey-brn w/ reddish brown mottling, med plast., no dilat., becomes harder with depth, fw cg sand & fg gvl., fw-little fg-mg sand, trc inclusions of silt.	
14				13-20' CL/CH: Gry brn, medium to high plast, hi tough, no dilat., few sand, trc gravel	
16	15-20'	4			

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-16
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 1

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
16					
18					
20				20-27' CH: Grey brown, hi plast/tough, very hard, trc-fw fg-cg sand, trc gravel.	
22	20-25'	5	5'		
24				-At 23', 3" cobble	
26				-At 23.5', becomes grey, finely laminated, harder than above 27-28.8' SMg: Fg-cg, grey, moist, little fg angular grl., trc cobbles, little silt fines.	
28	25-30'	6	5'	28.8-37' CLg/CHg: Brownish grey, moist, hard to very hard, some fg-cg gravel - mostly rounded, few-little fg-cg sand, med-hi plast., no dilatn high toughness	
30					
32				-From 31-33', few gravel	

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-16
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 3 of 1

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
32	30-37'	7	~7'	From 35.7 - 37', reddish brown, soft to v. soft, only trc - few sand and gravel, moist to wet	
35					
38	37-41'	8	4'	37 - 41' Bedrock: Quartzite, medium to coarse grained, very hard, light grey, fractured @ ~ 10 & 60°, fairly good RQD (~0.8), trc flaky metallic minerals.	Hit rock @ 37', coring to ensure it's not a boulder
41				EOB @ 41' due to refusal	Attempted using new bit to advance past 41' but are getting refused. Fried a brand new bit on zero ft. of advancement.
44					
47					
50					
53					
56					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

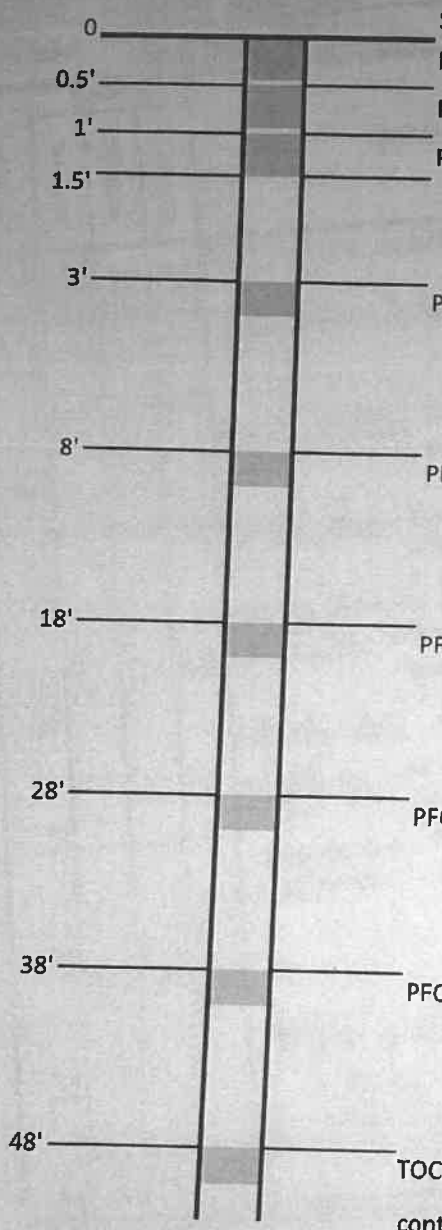
SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

D-16 9/20/17

Collected SG3-FB506-170920 (pour) @ 13:50
Collected SG3-FD506-170920 from 8-9' @ 15:00

DEEP SOIL PROFILES



0 — SOIL

0.5' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-0-0.5' @ 14:10

1' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-0.5-1' @ 14:15

1.5' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-1-1.5' @ 14:20

3' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-3-4' @ 14:35

8' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-8-9' @ 15:00

18' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-18-19' @ 15:15

28' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-28-29' @ *see COC*

38' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D16-36-37' @ 08:40

48' — TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 3242100	PAGE OF	
CLIENT: SGPP		DATE COLLECTED: 9/20/17	
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED:	
DATE INSTRUMENT CALIBRATED: 9/20/17	BY: RQM	ANALYST:	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D02	1	0-2	SOIL	0.1	0.0	No D/O/S
D02	1/2	2-5	SOIL	0.3	0.0	No D/O/S
D02	2	5-10	ROCK FRAGS	0.1	0.0	No D/O/S
D02	3	10-15	ROCK FRAGS	0.0	0.0	No D/O/S
D02	4	15-20	ROCK FRAGS	0.0	0.0	No D/O/S
D16	1	0-0.5	SOIL	0.8	0.0	No D/O/S
D16	1	0.5-1'	SOIL	0.9	0.0	No D/O/S
D16	1	1-1.5	SOIL	1.0	0.0	No D/O/S
D16	1	3-4'	SOIL	1.1	0.0	No D/O/S
D16	1	2-5'	SOIL	0.5	0.0	No D/O/S
D16	2	5-8'	SOIL	2.8	0.0	No D/O/S
D16	2	8-9'	SOIL	1.5	0.1	No D/O/S
D16	2/3	9-13'	SOIL	1.7	0.0	No D/O/S
D16	3/4	13-18'	SOIL	1.7	0.0	No D/O/S
D16	4	18-19'	SOIL	1.3	0.0	No D/O/S
D16	4	19-20'	SOIL	1.6	0.0	No D/O/S
D16	5	20-25'	SOIL	0.9	0.0	NO D/O/S
D16	6	25-28'	SOIL	1.3	0.0	NO D/O/S
D16	6	28-29'	SOIL	1.0	0.0	NO D/O/S
D16	6	29-30'	SOIL	1.0	0.0	NO D/O/S
D16	7	30-37	SOIL	0.9	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-17
ELEV.: DATUM:
START DATE: 10-6-17 FINISH DATE: 10-7-17
SHEET 1 of 1

PROJECT: SCPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-17 OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface is grassey Ditch	
2	0-5	1	4.5	0-9 ft Reworked Native FILL inplace Weathered SLATE bedrock reworked road base w/ some SILT w/in moist w/fg-cg SAND (Slate fragments) w/ Slate gravels - elongated fragments brownish gray to gray w/few roots/organics w/in low plasticity fines, low cohesion	
4					
6					
8	5-10	2	5.0	low moist	
10				Weathered SLATE, black / Dark Gray 9-10 ft	
12	10-15	3	1.5	Unweathered SLATE, black/dark gray w/fragments of pyrite w/in - ~~few to~~ trace (fg SAND sized) 10-20 ft	
14				4" fragment of quartz vein w/pyrite w/in	
16	15-20	4	2.8	EOB @ 20 ft	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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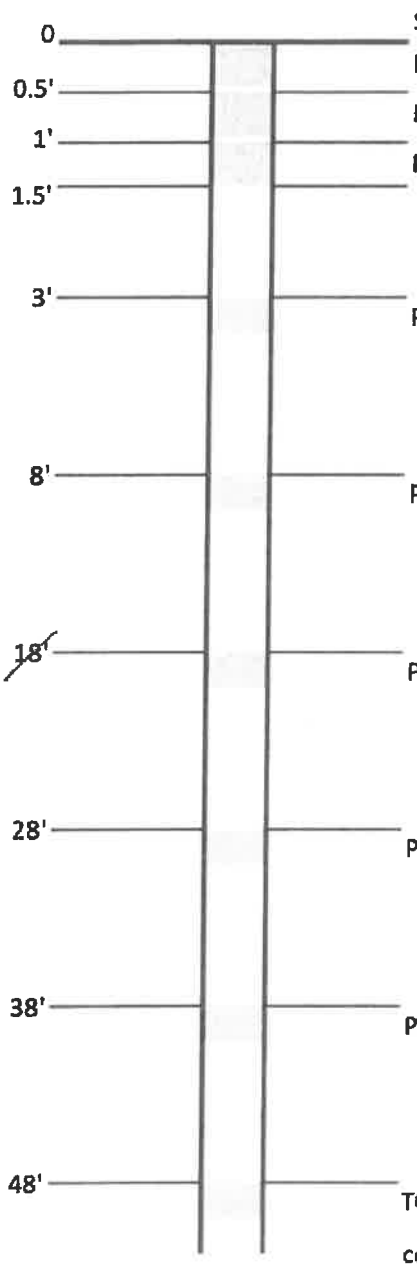
DEEP SOIL PROFILES D-17 10-6-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-0-0.5' @1420

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-0.5-1' @1425

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-1-1.5' @1430

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-3-4' @1440

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-8-9' @1455

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D17-9-10' @ 1500

PFCs, pH, TOC, moisture content, TAL metals/cations

EOB @ 20 ft

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGAP Bennington		PROJECT #: 450216024.00	PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-6-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 10-6-17 @ 0910	BY: DJE		ANALYST: DJE
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-22	1	0-0.5	Soil	0.2	0.0	
D-22	2	0.5-1	Soil	0.2	0.0	
D-22	3	1-1.5	Soil	0.2	0.0	
D-22	4	1.5-3	Soil	0.2	0.0	
D-22	5	3-4	Soil	0.2	0.0	
D-22	6	4-8	Soil	0.2	0.0	
D-22	7	8-9	Soil	0.2	0.0	
D-22	8	9-11	Soil	0.5	0.0	
D-22	9	12.5-15	Soil	0.4	0.0	
D-17	1	0-0.5	Soil	0.5	0.0	
D-17	2	0.5-1	Soil	0.5	0.0	
D-17	3	1-1.5	Soil	0.3	0.0	
D-17	4	1.5-3	Soil	0.2	0.0	
D-17	5	3-4	Soil	0.3	0.0	
D-17	6	4-8	Soil	0.3	0.0	
D-17	7	8-9	Soil	0.2	0.0	
D-17	8	9-10	Soil	0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-18
ELEV.: DATUM:
START DATE: 8-25-17 FINISH DATE: 8-27-17
SHEET 1 of 2

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: North Bennington, VT ~~CTM~~ OBSERVER: DJZ / RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5'	1	5.4'	Fg-Mg SAND w/ SILT + CLAY mix Brown/Light Brown, moist, roots w/ trace to few gravels + cobbles 0-1.7' OL/OH @ 1ft increasing ~~silt~~ clay content and less sandy	
4				@ 1.7 ft CLAY (fat), light brown, moist, hard, trace roots w/ thin laminations mottled (few to mod) w/ gray high plasticity increasing moisture, softer	
6				1.7'-7.5' CH	
8	5-10	2	5.0'	SILT w/ very fine SAND (30%) brown, saturated	Monitoring Well
10				7.5-8.7' ML @ 8.7' CLAY (fat), gray moist to wet, soft w/ very thin/fine laminations harder and softer areas Silty pockets high Plasticity	Bentonite Chip 2-23 ft
12	10-15	3	4.7'	13.5 to 14.5 silty low dry strength	SAND 23-35 ft
14				very soft strong effervescence when dry, more when wet	Screen 25-35 ft
16	15-20	4	5.0'	8.7-19 CH	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
8/27	16.6'	bgs (below ground)

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-18
ELEV.:
DATUM:
START DATE: 8-25-17
FINISH DATE: 8-27-17
SHEET 2 of 2

PROJECT: SGPP Bennington
~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: North Bennington, VT
~~CTM~~ OBSERVER: DJZ / RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18				Silty lenses 18-19 ft Silty 8.7-19 CH	
20				19-~~20~~ 25 ft ½ in elongated black rocks w/in fat clay shale rocks?	End at 20 ft bgs on 8-25-17
22				SILTY CLAY TILL, gray, moist to wet w/ fine to coarse sand w/in (15%) w/ elongated and rounded gravels and cobbles of shale? (black) or schist?	
24	20-25	5	5.0	19-25 CL/ML increasing sand, gravel, & cobbles	
26				Quartzite, gray,	
28	25-30	6 RQD=0.15	4.5	fractured, very hard & hard drilling medium-grained oxidation stains (rusty orange) on fracture planes Fracture planes oriented 60-70° from horizontal Possible 2" shear zone @ 28 ft	
30					
32	30-35	7 RQD=0.13	4.5	25-35 ft EOB	EOB @ 35 ft 8-27-17

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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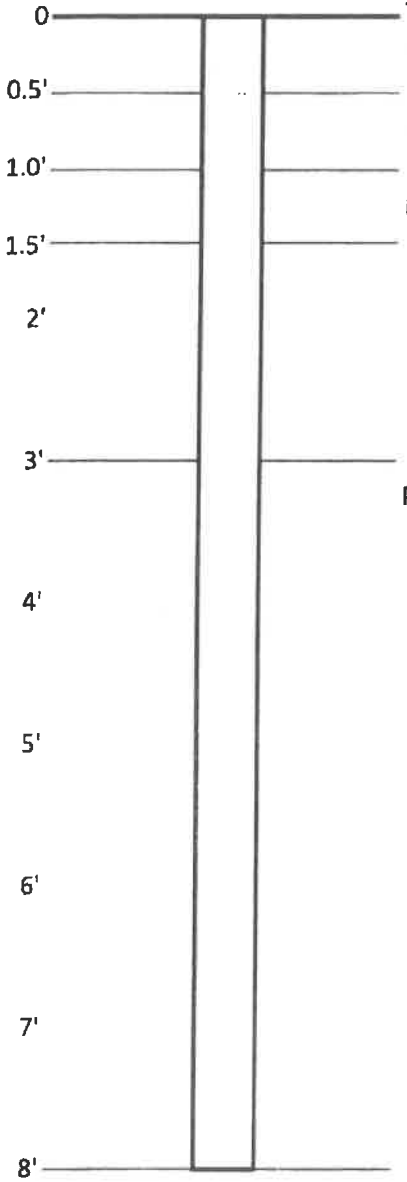
SAMPLE CLASSIFICATION BY:

D18 8/25/17

[redacted] SOIL PROFILES
32421001.03 SGPP

*No deep soil profile form, using this as a temporary/modified form.
Collected SG3-FBSOI-170827 (pour) on 8/27/17 @ 09:00
Collected SG3-FDSOI-170827 from 24-25' @ 09:10



Samples	time
SG3-D18-0-0.5'	@ 14:20
SG3-D18-0.5-1'	@ 14:25
SG3-D18-1-1.5'	@ 14:30
SG3-D18-3-4'	@ 14:35
SG3-D18-8-9'	@ 14:40
SG3-D18-18-19'	@ 15:20

8-27-17

SG3-D18-24-25' @ 0910
(collected SG3-FDSOI-170827 here)

SG3-D18-15-16' @ 10:10
(collected as sample above GW, soil left covered for a day and a half since being recovered.). Sample sat out because we weren't truely sure where water was until getting a stable reading on 8/27.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03	PROJECT #:		PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/25/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/25/17	BY: RQM		ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
S-31	1	0-0.5'	SOIL	0.3	0.0	No D/O/S
S-31	2	0.5-1'	SOIL	1.1	0.0	No D/O/S
S-31	3	1-1.5'	SOIL	Consumed	—	No D/O/S
S-31	4	1.5-3'	SOIL	0.2	0.0	No D/O/S
S-31	4	3-4'	SOIL	0.2	0.0	No D/O/S
S-31	5	4-8'	SOIL	0.3	0.0	No D/O/S
S-31	6	9-10'	SOIL	0.3	0.0	No D/O/S
S-12	1	0.0.5'	SOIL	0.7	0.0	No D/O/S
S-12	2	0.5-1'	SOIL	0.2	0.0	No D/O/S
S-12	3	1-1.5'	SOIL	0.4	0.0	No D/O/S
S-12	4	1.5-3	SOIL	0.6	0.0	No D/O/S
S-12	5	4-8'	SOIL	2.2	0.0	No D/O/S
S-12	6	8-9'	SOIL	0.3	0.0	No D/O/S
S-12	6	9-10'	SOIL	0.2	0.0	No D/O/S
D-18	1	0-0.5'	SOIL	0.6	0.0	No D/O/S
D-18	1	0.5-1'	SOIL	0.3	0.0	No D/O/S
D-18	1	1-1.5'	SOIL	0.2	0.0	No D/O/S
D-18	1	1.5-4'	SOIL	0.2	0.0	No D/O/S
D-18	1/2	4-8'	SOIL	0.1	0.0	No D/O/S
D-18	2	8-9'	SOIL	0.1	0.0	No D/O/S
D-18	2	9-10'	SOIL	0.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:				**PROJECT #:**		**PAGE**	**OF**
CLIENT:						**DATE COLLECTED:**	8-25-17
LOCATION:	D-18						
INSTRUMENT USED:	MiniRae 3000		**LAMP**	10.6	**eV**	**DATE ANALYZED:**	
DATE INSTRUMENT CALIBRATED:				**BY:**			
TEMPERATURE OF SOIL:	ambient					**ANALYST:**	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-18	4	15-18'	Soil	0.0	0.0	No D/O/S
D-18	4	18-19'	Soil	0.2	0.0	No D/O/S
D-18	4	19-20'	Soil	0.1	0.0	No D/O/S
D-18	3	10-15'	Soil	0.2	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03			PROJECT #:			PAGE OF
CLIENT: SGPP						DATE COLLECTED: 8/27/17
LOCATION: Bennington, VT						
INSTRUMENT USED: MiniRae 3000 LAMP 10.6 eV						DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 8/27/17 BY: DSZ						ANALYST:
EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-18	5	20-25'	SOIL	0.1	0.1	No D/O/S
D-18	6	25-30'	ROCK FRAGS	0.2	0.1	No D/O/S
D-18	7	30-35'	ROCK FRAGS	0.1	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-19
ELEV.:
DATUM:
START DATE: 8-30-17
FINISH DATE: 8-30-17
SHEET 1 of 1

PROJECT: SGPP Bennington
~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT
~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Grass on surface	
2	0-3	1	3.0	0-1.5 CL/OH SILTY CLAY Topsoil w/ fg SAND (tr mg + cg) brown, moist, tr gravel, roots 1.5-3 CLs SILTY/SANDY LEAN CLAY, brown, moist w/ gravels, subround, tr roots/organics tr. inclusions of oxidized SILT, mod plasticity	1.5-3 ft interval 20 % SAND 10 % Gravel 70 % CLAY
4	3-5	2	2.0	hit rock @ 3 ft Marble - very hard Reacts with HCl 3-10 ft MARBLE, Gray, massive Quartz in veins	
6					
8	5-10	3	5.0		
10				EOB @ 10 ft	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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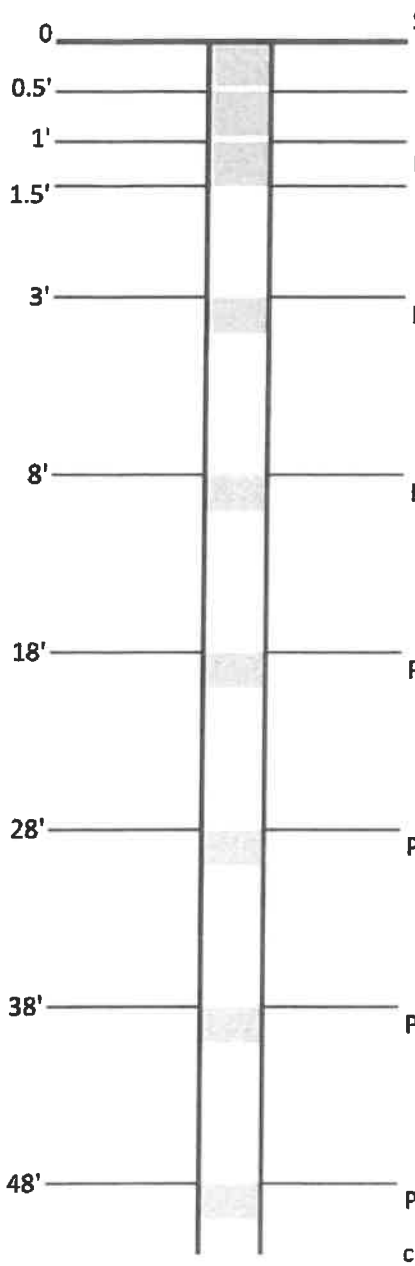
SAMPLE CLASSIFICATION BY: RQM

D-19 8/30/17

Collected SG3-FD504-170830, from 1-1.5'
Collected MS/MSD from 2-3'
Collected SG3-FB504-170830 (rinse) @ 09:15

DEEP SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content SG3-D19-0-0.5' @ 09:20

PFCs, pH, TOC, moisture content SG3-D19-0.5-1' @ 09:25

PFCs, pH, TOC, moisture content SG3-D19-1-1.5' @ 09:35

SG3-D19-2-3' @ 09:45

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

PFCs, pH, TOC, moisture content

continue sampling every 10' until bedrock or water table

and collect a sample from just above either

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SPECT SGPP Bennington	**PROJECT #:** 32421001.03	**PAGE** 1 **OF**	
CLIENT: SGPP		**DATE COLLECTED:** 8-30-17	
LOCATION: D-19			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**	**DATE ANALYZED:**	
DATE INSTRUMENT CALIBRATED: 8-30-17	**BY:** DJF		
TEMPERATURE OF SOIL: ambient		**ANALYST:**	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-19	1	0-0.5	Soil	0.8	0.0	
D-19	2	0.5-1	Soil	0.9	0.0	
D-19	3	1-1.5	Soil	0.8	0.0	
D-19	4	1.5-3	Soil	0.8	0.0	
D-19	5	3-5	Rock Powder	2.2	0.0	Marble Powder/frags

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-20
ELEV.: DATUM:
START DATE: 9/18/17 (to 50') FINISH DATE: ~~9/18/17~~ 9/19/17 (from 50')
SHEET 1 of 5

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.06
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				0-1.0' Organic Soil (OL/OH): V. dk brn, some organics, moist	Wet @ 10' in rapidly dilatant silt.
2				1.0-5' Organic Soil (Peat) (OL): Brown, moist, abundant root material, med-hi plast., slow dilat.	
	0-5'	1	4.2'		Pulled casing from 15-10' & only got about ~6" of water on cave-off @ 13'.
4				5-6.5' CL/SC: Brown, ~50% fg-cg sand & fg gvl., moist, med. plast.	
				6.5-13' MLs: Brown, moist to wet, nonplast., rapid dilat., some fg sand, trc mg-cg sand & gravel.	Pushed to 20, set screen @ 20', pulled casing to 15', only ~9" of water after 45 minutes.
6				~At 10', becomes wet.	
	5-10'	2	4.5'	13-15', CL: Brown w occ. dk. grey mottling, moist, hard to v. hard, med plast., silty.	
8				15-18', MLs: as @ 6.5', wet/sat.	
				18-~~24~~ 24', CL: As above @ 13', trc-few fg gvl, few fg-cg sand.	WL = 18.9' bgs ~60min. after drilling. Pumped dry and only got ~0.1' of recharge after ~30 minutes.
10				~~EOB @ 20'~~ RQM	
				[insufficient water to sample @ 20', continuing boring]	
12	10-15'	3	5.0'		Insufficient yield to collect water sample
14				*[No grain-size-dist. samples 0-20', cuttings mistakenly compiled before collection]*	
~~16~~	15-20'	4	5.0'		

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
9/18	18.9	bgs

Perched

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SAMPLE CLASSIFICATION BY: RQM

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-20
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 5

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
20	20-25'	5	5'	At 20', increased sand content (~35%, CLs).	
22					
24				24-60' Sandy Lean Clay (CLs/~~CLS~~): Lt brown to brn, moist, with gvl (~30%), some fg sand, low-med plast, very silty in some ~3" lyrs.	Difficult drilling ~20' to 35'
26				From 26-30' decreased gvl. (~20%), hard drilling	
28	25-30'	6	5'		
30				From 30-60', decreased gvl (~15%).	
32	30-35'	7	5'		
35					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-20
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 3 of 5

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
35					
37	35-40'	8	5'	At 37.5', color changes to brownish grey to greyish brown.	Moisture baked out of Sample 35-40'
39					
41	40-43'	9	3'		
43				From 42.5-48', large boulder, Qtzite, grey, v. hard.	
45					
47	43-50'	10	7'		
49				At 48', increased sand content (~35-40%), becomes lam'd.	
50					*pausing @ 50' on 9/18/17

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-20
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 4 of 5

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				At 50', no longer laminated	
55	50-60	11	10'		
60	60-61'	12	1'	60-61' SC/CLS: Fg-mg, gray, few to little fg gvl. Some clay fines, ~50% sand, med. plast. clay fines.	
	61-65'	13	3.5'	61-63' Boulder: Quartzite, grey, very hard, trc oxidation	
65				63-68' CLs: Reddish brown, moist, soft to hard, some fg sand, few mg-cg sand and gravel. Silty	
70	65-75'	14	10'	68-68.5' sc: Dk. grayish brown to dk brown, mg, moist to wet, trc fg gvl & cg sand	
				68.5-70' MLs: Reddish brown w/ orangish oxidized laminations, moist to wet, very soft, nonplastic, rapid dilat.	
75	75-80'	15	5'	At 70', 4" cobble	
				70-74' ~~SMg: Dk brown, fg-cg, mostly mg, trc-fw fg~~ CLS: As @ 63'	
80	see nxt pg.	see nxt pg.	see nxt pg.	74-75' SMg: Dk brown, fg-cg, mostly mg, trc-fw fg gvl, ~40% fines., moist	
				75-77' SC: Fg-mg, reddish brown, sat., ~45% fines	
				77-78' Boulder	
				78-79' CLs: Reddish brown wl dk brn mottling, med plast, some fg-cg sand & gvl. (cont. on nxt pg.)	

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-20
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 5 of 5

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
80				(cont. from last page), Single 0.5" lyr of black (manga.?) material	
	80-90'			~~[illegible] 0.5" lyr~~	
				79-90' Bedrock: ~~Granite~~, grey, very hard. Dolomite fam	
90					
				EOB @ 90'	

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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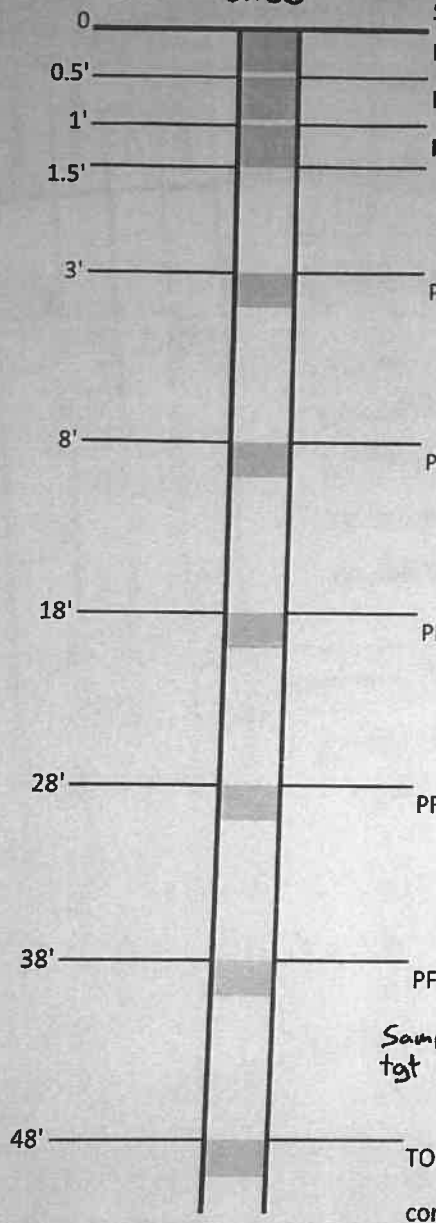
D-20 9/18/17

DEEP SOIL PROFILES

32421001.06



SOIL RQM

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-0-0.5' @ 10:50

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-0.5-1' @ 10:55

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-1-1.5' @ 11:00

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-3-4' @ 11:15

SG3-D20-6.5-7.5' @ 11:35
(unique lithology)

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-8-9' @ 11:40

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-18-19' @ 12:45

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-28-29' @ 13:40

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D20-38-39' @ 14:30

Sampled 68.5-69.5' to tgt a unique silt lith.,

↑9/18/17 SG3-D20-48-49' @ 15:15

↓9/19/17 SG3-D20-58-59' @ 09:20

SG3-D20-68.5-69.5' @ 10:55

SG3-D20-75-77' @ 12:00

SG3-D20-78-79' @ 13:20

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

collected to tgt. black lyr that yielded high PID (15.3 ppm). Ana. for extra para's.

Collect one soil sample from below the water table, if encountered

* Grain size analysis samples not collected 0-20', disposed/compiled by mistake before collection, began collecting @ 20'.

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 32421001	PAGE 1 OF
CLIENT: SGPP			DATE COLLECTED: 9/18/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9/18/17		BY: RQM	ANALYST: RQM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D20	1	0-0.5	SOIL	0.9	0.0	No D/O/S
D20	1	0.5-1	SOIL	0.7	0.0	No D/O/S
D20	1	1-1.5	SOIL	0.7	0.0	No D/O/S
D20	1	1.5-3	SOIL	0.4	0.0	No D/O/S
D20	1	3-5	SOIL	0.4	0.0	No D/O/S
D20	2	5-8	SOIL	0.5	0.0	No D/O/S
D20	2	8-10	SOIL	0.2	0.0	No D/O/S
D20	3	10-15	SOIL	0.3	0.0	No D/O/S
D20	4	15-20	SOIL	0.3	0.0	No D/O/S
D20	5	20-25	SOIL	0.2	0.0	No D/O/S
D20	6	25-30	SOIL	0.2	0.0	No D/O/S
D20	7	30-35	SOIL	0.3	0.0	No D/O/S
D20	8	35-40	SOIL	0.2	0.0	No D/O/S
D20	9	40-43	SOIL AND ROCK FRAG	0.1	0.0	No D/O/S
D20	10	48-50	SOIL	0.1	0.0	No D/O/S
D20	11	50-55	SOIL	0.1	0.0	No D/O/S
D20	~~10~~ 11	55-60	SOIL	0.2	0.0	No D/O/S
D20	12	60-61	SOIL	0.2	0.0	No D/O/S
D20	13	63-65	SOIL	0.2	0.0	No D/O/S
D20	14	65-70	SOIL	0.1	0.0	No D/O/S
D20	14	70-75	SOIL	0.1	0.0	No D/O/S

9/18/17 ↑
9/19/17 ↓

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:		PROJECT #:	PAGE OF
CLIENT:			DATE COLLECTED: 9/19/17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: recal'd on 9/19/17		BY: RBM	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D20	15	75-80'	SOIL	15.3	0.1	No D/O/S
D20	16	80-90'	ROCK FRAGS	0.2	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-21
ELEV.: DATUM:
START DATE: 10-5-17 FINISH DATE: 10-5-17
SHEET 1 of 2

PROJECT: SGPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-21 Rural Fire Dept OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0 to 5	1	3.1	0-3.5 : Med. Brown Clayey (-) SILT, little fine Sand, little coarse to fine (+) Gravel. Dry, soft, no stain, no odor.	Color change to light Brown at 3.5 ft.
4				increasing gravel content to "some"	
6				SANDY SILT (ML) TILL, light brown, moist to wet but not yielding / high moist w/ very fine SAND w/in SILT, few to little rng/cg SAND w/in little to some gravels w/in - Subround to Subangular trace Cobbles w/in - Subround low plasticity, weak/mod cohesion few areas w/ rusty orange oxidation spots	
8	5-10	2	4.0		
10					
12	10-15	3	3.0	increasing moisture	
14					
16					No soil sample recovery 15-17 ft, switched to water drilling

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-21
ELEV.: DATUM:
START DATE: 10-5-17 FINISH DATE: 10-5-17
SHEET 2 of 2

PROJECT: SGPP Bennington PROJECT NO.: 45021004.00
LOCATION: D-21 Rural Fire Dept OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	1.5	@ 17 ft Dolomitic Quartzite very hard, gray	
20					
20	20-25	5	3.0		
24					
				EOB @ 25 ft	
28					
30					
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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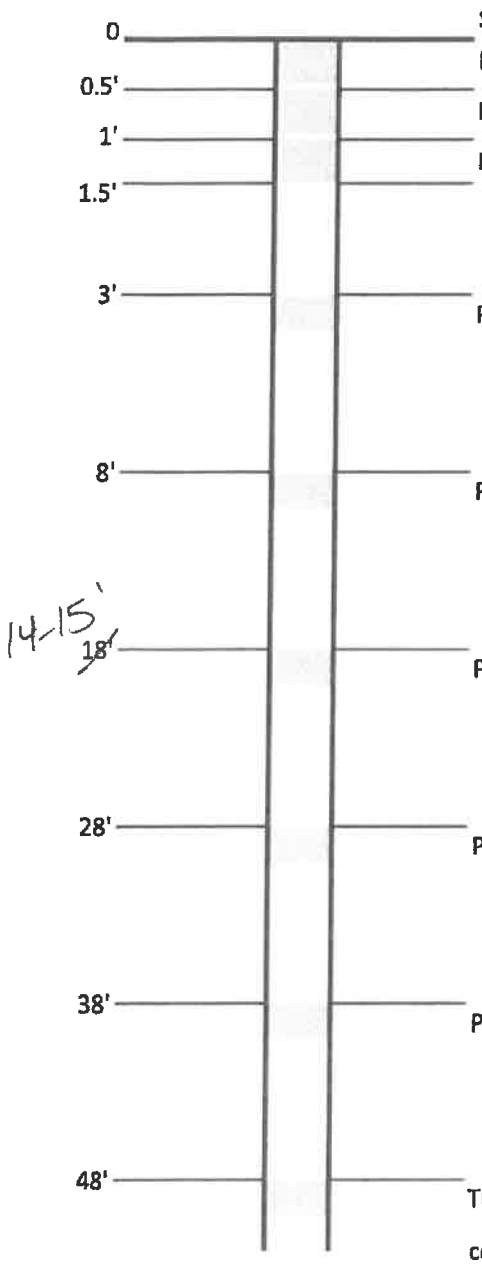
DEEP SOIL PROFILES D-21 10-5-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-0-0.5' @ 0915

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-0.5-1' @ 0925

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-1-1.5' @ 0930

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-3-4' @ 0935

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-8-9' @ 0945

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D21-14-15' @ 1305

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-5-17

SG3-D21-0-3.5'
SG3-D21-3.5-17'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		**PROJECT #:** 45021004.00	**PAGE** / **OF**
CLIENT:			**DATE COLLECTED:** 10-5-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 10-5-17
DATE INSTRUMENT CALIBRATED: 10-5-17 @ 0850	**BY:** ~~DSZ~~ RAK		**ANALYST:** DSZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-21	1	0-0.5	Soil	0.7	0.2	
D-21	2	0.5-1	Soil	0.8	0.2	
D-21	3	1-1.5	Soil	0.9	0.2	
D-21	4	1.5-3	Soil	1.1	0.2	
D-21	5	3-4	Soil	0.6	0.2	
D-21	6	4-8	Soil	1.0	0.2	
D-21	7	8-9	Soil	1.0	0.2	
D-21	8	9-14	Soil	1.5	0.1	
D-21	9	14-15	Soil	0.7	0.1	
D-21	10	No Recovery				

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-22
ELEV.: DATUM:
START DATE: 10-6-17 FINISH DATE: 10-6-17
SHEET 1 of 1

PROJECT: SGPP Bennington GEM PROJECT NO.: 4502/004.00
LOCATION: D-22 Austin Hill Rd GEM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Grassy Ditch	
2	0-5	1	5.0	0-1 ft - FILL or Reworked Native moist CLAYEY SILT (ML) mix w/some fg SAND w/few mg/cg moderate plasticity, brown, w/ trace gravel, roots w/in	
4				@ 1 ft SILTY CLAY (CL) TILL, native, brown, moist high plasticity, soft, cohesive w/fg SAND (some), w/ few mg/cg SAND w/little gravel - subrounded w/ trace areas of black organics ~ 3-4 ft area 2-4 ft wet but not yielding	
6					
8	5-10	2	5.0	low moist, harder	
10				few areas of rusty orange oxidation stains	
12				11-12.5 ft SLATE BOULDER Very Hard Dark Gray/Bluish	w/ horizontal/Slatey cleavage
14	10-15	3	4.0	12.5-15 ft CLAYEY (CL) TILL, light brown w/ 45% gray mottles w/fg SAND (some) w/few-little mg/cg SAND w/few-little gravels - subround high plasticity, hard, cohesive	
16				15-20 ft SLATE, very hard, Dark bluish gray w/ horizontal & vertical slaty cleavage	15-17 ft w/ carbonate & quartz veins

EOB @ 20 ft

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sbox 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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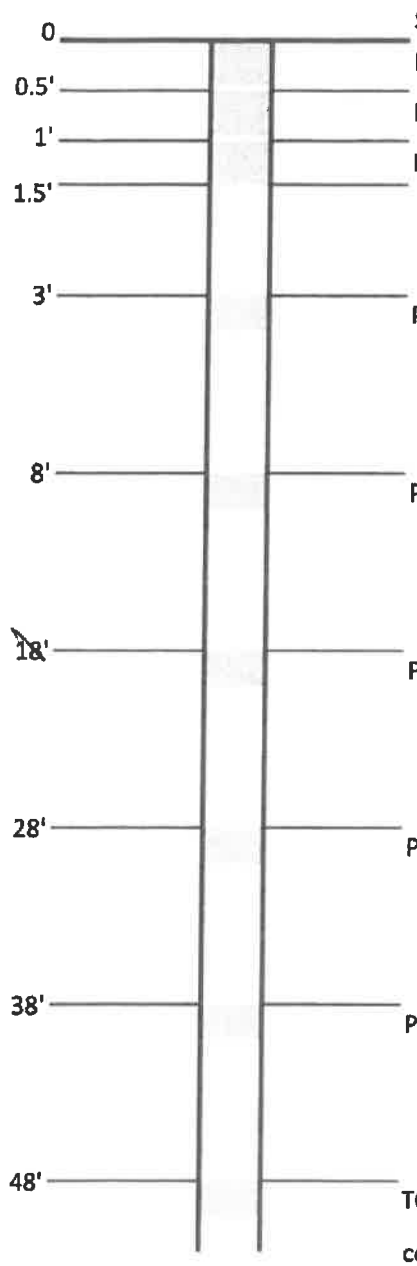
DEEP SOIL PROFILES D-22 10-6-17



0 SOIL

0.5' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-0-0.5' @ 0905

1' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-0.5-1' @ 0910

1.5' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-1-1.5 @ 0915

3' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-3-4' @ 0980

8' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-8-9' @ 0945

1445 18' PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D22-14-15' @ 1030

↑ This sample was rained on

28' PFCs, pH, TOC, moisture content, TAL metals/cations

38' PFCs, pH, TOC, moisture content, TAL metals/cations

EOB 20 ft

48' TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-6-17

SG3-D22-0-1'
SG3-D22-1-11'
SG3-D22-12.5-15'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: Sage Bennington	**PROJECT #:** 45021004.00	**PAGE** 1 **OF**	
CLIENT:		**DATE COLLECTED:** 10-6-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**	**DATE ANALYZED:**	
DATE INSTRUMENT CALIBRATED: 10-6-17 @ 0910	**BY:** DJZ		
TEMPERATURE OF SOIL: ambient		**ANALYST:** DJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-22	1	0-0.5	Soil	0.2	0.0	
D-22	2	0.5-1	Soil	0.2	0.0	
D-22	3	1-1.5	Soil	0.2	0.0	
D-22	4	1.5-3	Soil	0.2	0.0	
D-22	5	3-4	Soil	0.2	0.0	
D-22	6	4-8	Soil	0.2	0.0	
D-22	7	8-9	Soil	0.2	0.0	
D-22	8	9-11	Soil	0.5	0.0	
D-22	9	12.5-15	Soil	0.4	0.0	
D-17	1	0-0.5	Soil	0.5	0.0	
D-17	2	0.5-1	Soil	0.5	0.0	
D-17	3	1-1.5	Soil	0.3	0.0	
D-17	4	1.5-3	Soil	0.2	0.0	
D-17	5	3-4	Soil	0.3	0.0	
D-17	6	4-8	Soil	0.3	0.0	
D-17	7	8-9	Soil	0.2	0.0	
D-17	8	9-10	Soil	0.0	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-23
ELEV.:
START DATE: 9-7-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-7-17

PROJECT: SGPP Bennington
LOCATION: D-23
~~CTM~~ PROJECT NO.: 32421001.03
~~CTM~~ OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-3	1	2.0	4" SILTY CLAY Topsoil w/ fg SAND, Dk brown wet, tr mg/cg SAND, w/ roots CLAYEY SAND mix (Road fill?), brown, wet, fg SAND w/ few mg + cg. Few subrounded gravels	
4	3-5	2	1.5	Large Quartzite Boulder 3-5 ft gray, very hard shards & fragments	
6	5-10 ft	3	5.0	(CL) ~~SILTY CLAY/CLAY~~ TILL DJZ 11-6-17 SANDY to GRAVELLY LEAN CLAY (CL) brown, MOIST fg SAND w/ some mg/cg subrounded gravels Trace Cobbles & fragments w/ gray mottles near 6 ft area w/ few rusty red oxidation spots	5-10 ft interval 20 % SAND 20 % Gravel (5% Cobble by Wt) 60 % CLAY FINES DJZ 11-6-17
10					
12	10-15	4	5.0	(CL) CLAY TILL, gray, moist w/ fg to cg SAND mix w/ subrounded gravels w/ some brown/rusty mottles	10-15 ft interval 15% SAND 15% Gravel 70% CLAY FINES DJZ 11-6-17
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

No Groundwater

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-23
ELEV.:
START DATE: 9-7-17
SHEET 1 of 1
DATUM:
FINISH DATE: 9-7-17

PROJECT: SGPP Bennington
LOCATION: D-23
~~CTM~~ PROJECT NO.: 3242100103
~~CTM~~ OBSERVER: DJZ KMJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	5	5.0	DJZ 11/6/17 SANDY to Gravelly LEAN CLAY (CL)	15-38 ft interval
20				(CL) ~~CLAY~~ Till continued.... gray, moist, hard/firm/tight w/ fg to cg SAND mix w/in w/ subround gravels trace cobble 16 ft	15% SAND 15% Gravel 70% Clay FINES
22	20-25	6	5.0		used water starting at 15 ft due to tight clay.
24					
26	25-30	7	5.0		
28					
30					
32				elongated fragments (gravel size) of black slate, no orientation w/in clay	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-23
ELEV.:
DATUM:
START DATE: 9-7-17
FINISH DATE: 9-7-17
SHEET 1 of 1

PROJECT: SGPP Bennington
CTM PROJECT NO.: 32421001.03
LOCATION: D-23
CTM OBSERVER: DJZ KMJ2

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	30-35	8	5.0	DJZ 11-6-17 SANDY to Gravelly LEAN CLAY (CL) ~~CLAY~~ Till Continued .... ↓ (CL)	
36	35-38			/ pockets & veins of metalic bluish clay w/in – most likely slate residue	
38	~~35~~ 38-40	9	3.5		
40	38-40	10	1.5	(CL) CLAY 5GY 5/2 Grayish Green SAPPROLITE moist, softer w/subangular sand size slate fragments w/in (20 %) very "slippery" feeling few mg/cg	
42	40-45	11			
44				Heavily weathered green SLATE w/some rusty orange oxidation stains some softer easily weathered areas and some hard rock areas "disc"	
46	45-50 ft	12		EOB @ 50 ft	
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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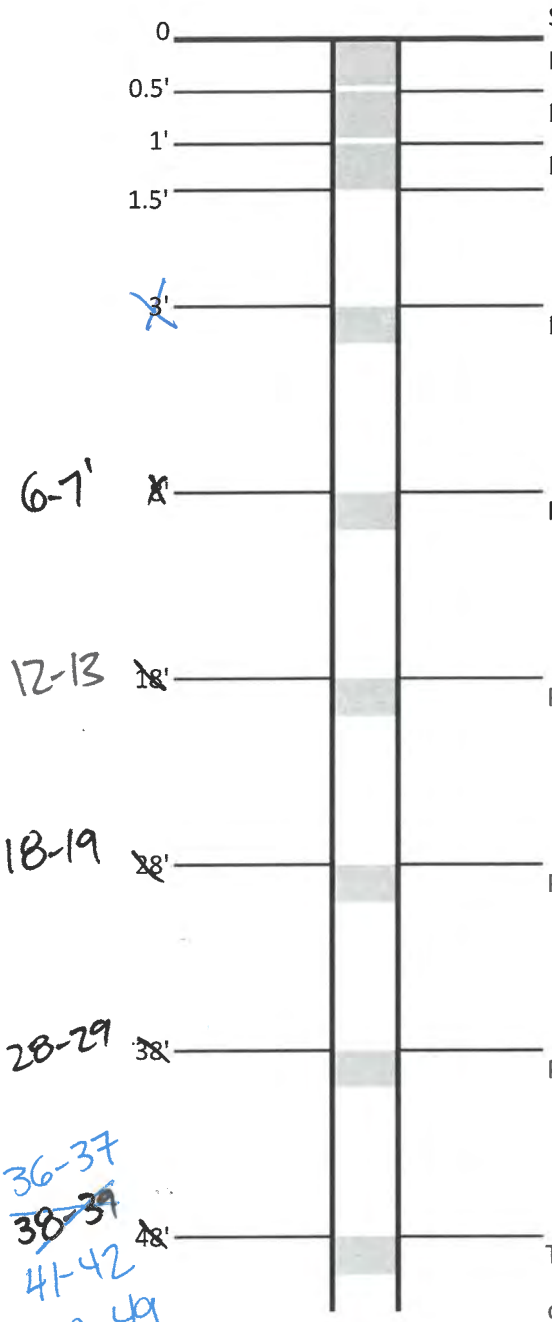
DEEP SOIL PROFILES

D-23

9-7-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-0-0.5 @ 1245

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-0.5-1 @ 1240

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-1-1.5 @ 1235

PFCs, pH, TOC, moisture content, TAL metals/cations — Boulder 3-5 ft No sample

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-6-7' @ 1020

→ SG3-FD505-170907 (of 6-7ft)

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-12-13 @ 1040

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-18-19 @ 1045

PFCs, pH, TOC, moisture content, TAL metals/cations — SG3-D23-28-29 @ 1110

TOC, moisture content, TAL meta — SG3-D23 ~~38-39~~ 36-37' DJZ @ 1140

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN — SG3-D23-41-42' @ 1300

Collect one soil sample from below the water table, if encountered — SG3-D23-48-49' @ 1350

DJZ 11-9-17 ~~Sediment~~ PSA Samples

SG3-D-23-0-2'
SG3-D23-5-10'
SG3-D23-10-15'
SG3-D23-15-38'
SG3-D23-38-43'
SG3-D23-43-50'

Field Blank @ 1330
SG3-FBS05-170907 (rinse) Stainless steel bowl

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 327421001.03	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-7-17
LOCATION: D-23			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-7-17
DATE INSTRUMENT CALIBRATED: 9-7-17	0946	BY: DJZ	
TEMPERATURE OF SOIL: ambient			ANALYST: DJZ KMJZ

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-23	1	0-0.5	Soil	1.1	0.1	No odor, sheen, or discoloration
D-23	2	0.5-1	Soil	0.7	0.1	
D-23	3	1-1.5	Soil	0.8	0.2	
D-23	4	1.5-3	Soil	1.0	0.1	
D-23	5	3-5	Soil	0.9	0.1	
D-23	6	5-6	Soil	0.8	0.1	
D-23	7	6-7	Soil	0.9	0.1	
D-23	8	7-10	Soil	0.9	0.1	
D-23	9	10-12	Soil	0.9	0.1	
D-23	10	12-13	Soil	0.9	0.1	
D-23	11	13-18	Soil	1.0	0.1	
D-23	12	18-19	Soil	1.1	0.1	
D-23	13	19-24	Soil	1.5	0.1	
D-23	14	24-28	Soil	1.2	0.1	
D-23	15	28-29	Soil	1.3	0.1	
D-23	16	29-35	Soil	1.4	0.2	
D-23	17	35-36	Soil	1.5	0.1	
D-23	18	36-37	Soil	1.5	0.1	
D-23	19	37-38	Soil	1.7	0.1	
D-23	20	38-41	Soil	3.4	0.1	
D-23	21	41-42	Soil	2.1	0.1	
D-23	22	42-43	Soil	6.1	0.1	
D-23	23	43-48	Soil	1.3	0.1	
D-23	24	48-49	Soil	1.6	0.2	
D-23	25	49-50	Soil	1.4	0.1	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-24
ELEV.:
START DATE: 9-23-17
SHEET 1 of 5
DATUM:
FINISH DATE: 9-24-17

PROJECT: SGPP Bennington
LOCATION: D-24 Airport
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ KAM RAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface: Mowed Grass Area	
2	0-5	1	5.0	minimal Topsoil SILTY CLAY (CL) Glacial Till, brown, low moist w/ fine to coarse SAND mix w/in (little to some) -subround to subangular w/ little gravels w/in - subround to subangular w/ ~~elongated~~ flat fragments of slate (sand to gravel size)	
4					
6				w/ trace subround cobbles w/ areas of rusty orange oxidation spots moderate to high plasticity	
8	5-10	2	5.0	Quartzite Boulder, drk gray, hard	
10				~~LEAN CLAY~~ SANDY LEAN CLAY w/ GRAVEL (CL) Glacial TILL, Dark Gray, low moist DB 11-6-17 w/ fine to coarse SAND mix w/in (some ~30%) -subround to subangular	
12	10-15	3	5.0	w/ gravels w/in -subround to subangular - (15-20%) w/ ~~elongated~~ flat fragments of black slate w/in (SAND to Gravel size) w/ trace subround cobbles - quartzite	
14				Quartzite cobble @ 9.5 ft mod/high plasticity, weak HCl reaction	
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-24
ELEV.:
DATUM:
START DATE: 9-23-17
FINISH DATE: 9-24-17
SHEET 2 of 5

PROJECT: SGPP Bennington
LOCATION: D-24 Airport
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ, KAM, RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4	5.0	SANDY LEAN CLAY TILL Continued.... ↓ w/ Gravel DJZ 11-6-17	
20				harder / tough	
22	20-25	5	5.0	dense Quartzite cobble @ 23 ft	
24					
26	25-30	6	5.0	High dry strength	
28					
30					
30	30-31	7	2.0		
32	31-33	8	1.0	→ 31-33 ft Quartzite Boulder, very hard drilling, dk gray	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-24
ELEV.:
START DATE: 9-23-17
SHEET 3 of 5
DATUM:
FINISH DATE: 9-24-17

PROJECT: SGPP Bennington
LOCATION: D-24 Airport
~~CTM~~ PROJECT NO.: #5021004.00
~~CTM~~ OBSERVER: DJZ KAM RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	31-35	8	1.0	SANDY ↓ LEAN CLAY TILL (CL) continued.... ↓ w/ Gravel DJZ 11-6-17	
36					
38	35-40	9	3.5		
40					* Stop @ 40 ft on 9-23-17 Continue 9-24-17
42	40-45	10	2.2		
44				color change LEAN CLAY TILL (CL), brown, moist to high moist	
46	45-50	11	5.0		
48					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-24
ELEV.: DATUM:
START DATE: 9-23-17 FINISH DATE: 9-24-17
SHEET 4 of 5

PROJECT: SGPP Bennington
LOCATION: D-24 Airport
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DTR RAM KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				48-51 ft SANDY SILT (ML), brown, wet (not yielding) very fine to fg SAND w/in, low plasticity w/thin laminations high dilatency	
52	S0-S2	12	4.8	Interbedded mix of SANDY CLAY & SANDY SILT (ML/CL) brown, moist to wet (not yielding) w/ very fine to fg SAND w/in w/ few to little mg & cg w/in w/ few gravel fragments & pockets w/in ~ Hydrothermal quartz vein (1-2") @ 53 ft ~~calcite~~ Quartz fragments (SAND/Gravel size) w/in @ 57 ft, 1" diameter ~~calcite~~ Quartz nodule (secondary mineralization) laminations & mottles of various brown colors & reddish browns	KAOLIN - hydrothermally altered rock "Ocher" Kaolin?
54					
56					
58	S5-S6	13	5.0		
60				3" Quartz nodule	
62	S6-S7	14	5.0	several 1-2" zones of quartz gravels/sand w/in	
64					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-24
ELEV.:
DATUM:
START DATE: 9-23-17
FINISH DATE: 9-24-17
SHEET 5 of 5

PROJECT: SGPP Bennington
LOCATION: D-24 Airport
~~CTM~~ PROJECT NO.: 4502.1004.00
~~CTM~~ OBSERVER: DJE RCM KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
66	65-70	15	5.0	Qtz inclusions of up to 2" through out Several 1-2" zones of quartz gravels / SANDS w/in Few gravels of chert w/in few white silt laminations at bottom of sample EOB @ 70 ft Boring completed into "ocher"	9-24-17
68					
70					
8					
10					
12				No Groundwater	
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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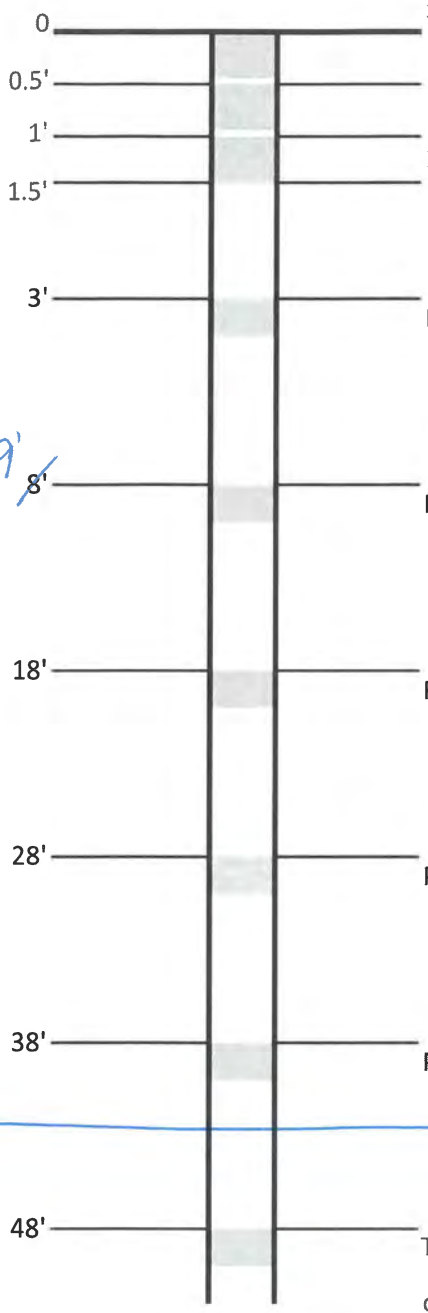
DEEP SOIL PROFILES D-24 9-23-17 & 9-24-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-0-0.5' @ 1255

PFCs, pH, TOC, moisture content, TAL metals/cations ~~SG3-D24-0.5-1'~~ @ 13:05

PFCs, pH, TOC, moisture content, TAL metals/cations ~~SG3-D24-1-1.5' @ 13:10~~ SG3-D24-1-1.5' @ 13:05

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-3-4' @ 1310

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-9-10' @ 1330

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-18-19' @ 1345

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-28-29' @ 1405

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D24-38-39' @ 1500

9-23-17
9-24-17

TOC, moisture content, TAL meta SG3-D24-48-49' @ 0925

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

SG3-D24-58-59' @ 1035

SG3-D24-68-69' @ 1100

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

JSB 11-9-17 PSA ~~Sediment~~ Samples 9-23-17

SG3-D24-0-8'
SG3-D24-9-45'

DSZ 11-9-17 PSA ~~Sediment~~ Samples 9-24-17

SG3-D24-45-48'
SG3-D24-48-51'
SG3-D24-51-70'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001	PAGE OF	
CLIENT: SGPP		DATE COLLECTED: ~~9/21/17~~ 9/22/17 RQM	
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9/22/17	
DATE INSTRUMENT CALIBRATED: ~~9/20/17~~ 9/22/17 RQM	BY: RQM	ANALYST: KAM/RQM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D08 ~~D22~~ RQM	1	0-0.5'	SOIL	4.3	0.0	No D/O/S
D08	1	0.5-1'	SOIL	4.0	0.0	No D/O/S
D08	1	1-1.5'	SOIL	2.0	0.0	No D/O/S
D08	1/2	3-5'	SOIL	1.8	0.0	NO D/O/S
D08	2	6-10'	SOIL	1.2	0.0	NO D/O/S wet
D08	3	10-11'	SOIL	4.3	0.0	NO D/O/S saturated
D08	3	11-15	SOIL	1.1	0.0	NO D/O/S saturated
D06	1	0-0.5	SOIL	5.5	0.0	No D/O/S
D06	1	0.5-1	SOIL	2.4	0.0	No D/O/S
D06	1	1-1.5	SOIL	1.1	0.0	No D/O/S
D06	1	3-4	SOIL	1.0	0.0	No D/O/S
D06	2	5-8	SOIL	1.0	0.0	No D/O/S
D06	2	8-10	SOIL	0.9	0.0	No D/O/S
D25	1	0-0.5'	SOIL	0.5	0.0	No D/O/S
D25	1	0.5-1'	SOIL	0.5	0.0	No D/O/S
D25	1	1-1.5'	SOIL	0.5	0.0	No D/O/S
D25	1	3-4'	SOIL	0.4	0.0	No D/O/S
D25	2	8-9'	SOIL	0.4	0.0	No D/O/S
D25	4	18-19'	SOIL	1.1	0.0	No D/O/S
D25	2	5-8'	SOIL	1.0	0.0	No D/O/S
D24	3	10-15'	SOIL	3.1	0.0	NO D/O/S
D24	4	15-18'	SOIL	2.0	0.0	NO D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #:		PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 9-23-17
LOCATION: D-24 - Airport			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 9-23-17
DATE INSTRUMENT CALIBRATED: 9-23-17 @ 1220	BY: KAM		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-24	1	0-0.5	Soil	0.6	0.1	NO O/D/S
D-24	2	0.5-1	Soil	0.8	0.2	
D-24	3	1-1.5	Soil	0.4	0.2	
D-24	4	1.5-3	Soil	0.6	0.2	
D-24	5	3-4	Soil	0.8	0.2	
D-24	6	4-9	Soil	0.6	0.2	
D-24	7	9-10	Soil	0.7	0.2	
D-24	8	10-18	Soil	0.7	0.3	
D-24	9	18-19	Soil	1.1	0.2	
D-24	10	19-28	Soil	1.3	0.2	
D-24	11	28-29	Soil	1.4	0.2	
D-24	12	29-38	Soil	1.8	0.2	
D-24	13	38-39	Soil	1.3	0.2	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 45021004.00	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 9-24-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9-24-17	
DATE INSTRUMENT CALIBRATED: 9-24-17 @ 0900	BY: DJZ	ANALYST: DJZ	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-24	1	40-45	Soil	0.7	0.0	No odors
D-24	2	45-48	Soil	0.8	0.0	
D-24	3	48-49	Soil	0.6	0.0	
D-24	4	49-58	Soil	0.7	0.1	
D-24	5	58-59	Soil	0.7	0.1	
D-24	6	59-68	Soil	0.9	0.1	
D-24	7	68-69	Soil	1.0	0.1	
D-24	8	69-70	Soil	1.0	0.1	✓
	9		Soil			
	10		Soil			

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-25
ELEV.: DATUM:
START DATE: 9/22/17 FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington ~~GTM~~ PROJECT NO.: 32421001
LOCATION: Bennington, VT ~~GTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Ground cover: Sparse weeds in sand.	
2	0-5'	1	5'	0-1.1' SMg: Fg-cg, mostly fg-mg, lt. brown, trc gravel, abundant roots in upper inch, trc-few fg gravel, gravel is rounded.	
				1.1-5' MLs: Pale brown, moist, some very fine grained sand (~45%), platy structure, very well packed, finely laminated after 4'.	
4				-At 4.5', 0.5" lyr of fg silty sand.	
6	5-10'	2	5'	5-9.5' CLs: Brown, moist, medium plasticity, slow dilat., trc gravel and cobbles, hard to v. hard, silty in some lyrs (<2").	Relatively homogenous unit with 40-60% fines and variable gravel content.
				9.5-13' SC: Fg, brown, moist to wet, very well packed, trc-few gravel and cobbles, (~45% fines) [till]	
8				13-15' SM: Fg-cg, mostly fg, trc fg gravel, moist to wet, ~35% fines	
10				15-20' MLs/SM: Fg, brown, very packed, wet, trc gravel and cobbles, ~50% silt fines, occ. thin lyrs (<2") have clay fines present (app. low plast.)	
12	10-15'	3	5'	At 6.0', ~2" lyr of mg brown silty sand.	Very warm sample 10-15', high friction, possible some moisture baked out.
				EOB @ 20'	
14					
20' TD	15-20'	4	5'		

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS
TOC = 0.6' above gsf

DATE	LEVEL	REFERENCE MEASURING POINT
9/22	11.9'	bTOC ~20 min AD
9/22	10.8'	bTOC ~30 min AD
9/22	9.7'	bgs ~40 min AD
9/23	8.2'	bgs ~15 hrs AD

SAMPLE CLASSIFICATION BY: RQM

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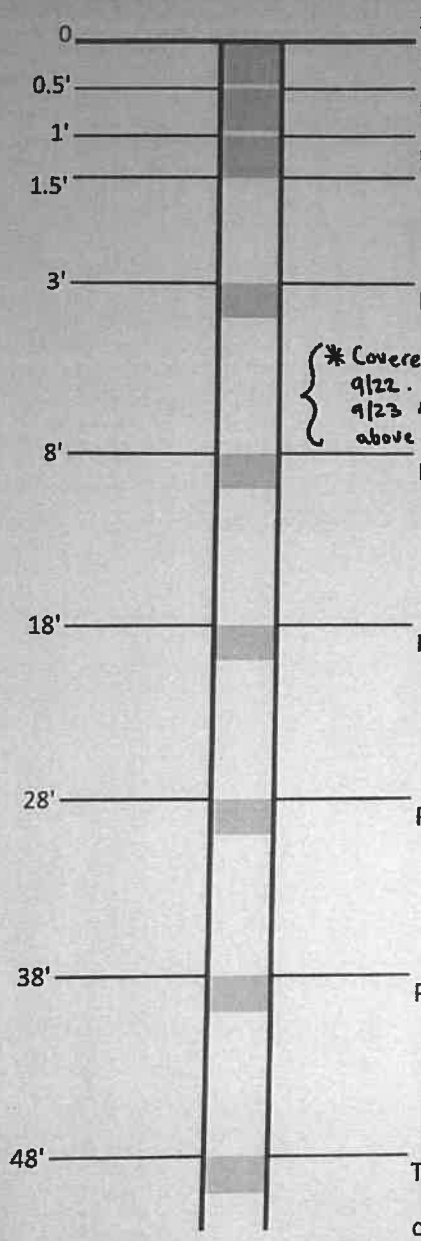
D25 9/22/17

DEEP SOIL PROFILES - LANDFILL



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-0-0.5'@1545

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-0.5-1'@1550

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-1-1.5'@1555

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-3-4' @ 1600

*Covered soil cores with poly @ EOD on 9/22. Water came up to 8.2' bgs by 9/23 AM. Sampled 6.5-7.5' as sample above water table on 9/23 @ 7:10

SG3-D25-6.5-7.5' @ 07:10 (9/23)

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-8-9' @ 16:40

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D25-18-19' @ 1650

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 32421001	PAGE OF	
CLIENT: SGPP		DATE COLLECTED: ~~9/20/17~~ 9/22/17 RAM	
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 9/22/17	
DATE INSTRUMENT CALIBRATED: ~~9/20/17~~ 9/22/17 RAM	BY: RAM	ANALYST: RAM/RAM	
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D08 ~~D22~~ RAM	1	0-0.5'	SOIL	4.3	0.0	No D/O/S
D08	1	0.5-1'	SOIL	4.0	0.0	No D/O/S
D08	1	1-1.5'	SOIL	2.0	0.0	No D/O/S
D08	1/2	3-5'	SOIL	1.8	0.0	ND D/O/S
D08	2	6-10'	SOIL	1.2	0.0	ND D/O/S wet
D08	3	10-11	SOIL	4.3	0.0	ND D/O/S Saturated
D08	3	11-15	SOIL	1.1	0.0	ND D/O/S Saturated
D06	1	0-0.5	SOIL	5.5	0.0	No D/O/S
D06	1	0.5-1	SOIL	2.4	0.0	No D/O/S
D06	1	1-1.5	SOIL	1.1	0.0	No D/O/S
D06	1	3-4	SOIL	1.0	0.0	No D/O/S
D06	2	5-8	SOIL	1.0	0.0	No D/O/S
D06	2	8-10	SOIL	0.9	0.0	No D/O/S
D25	1	0-0.5'	SOIL	0.5	0.0	No D/O/S
D25	1	0.5-1'	SOIL	0.5	0.0	No D/O/S
D25	1	1-1.5'	SOIL	0.5	0.0	No D/O/S
D25	1	3-4'	SOIL	0.4	0.0	No D/O/S
D25	2	8-9'	SOIL	0.4	0.0	No D/O/S
D25	4	18-19'	SOIL	1.1	0.0	No D/O/S
D25	2	5-8'	SOIL	1.0	6.0	No D/O/S
D24	3	10-15'	SOIL	3.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D24 4 15-18' SOIL 2.0 0.0 No D/O/S

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-26
ELEV.: DATUM:
START DATE: 10-10-17 FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: D-26 - Landfill
PROJECT NO.: 45021004.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				Surface - Vegetated	
2	0-5	1	4.0	Brown CLAY TILL 0-1 ~~silty~~ LEAN low moist 1-3.5 ~~SANDY~~ SILT w/fine to coarse SAND (little) subangular w/fine to med gravels (little) subangular w/trace cobbles	high plasticity cohesive
4				color change to gray SILTY CLAY TILL, gray, moist high plasticity, cohesive w/fine to coarse SAND w/in - subangular w/fine to med gravels w/in - subangular w/trace cobbles	
6					
8	5-10	2	1.0	pushed boulder/rock/cobble ~ 6-7 ft	* pushed a rock 6 to 10 ft is why minimal recovery
10				TILL, brown, low moist, hard LEAN CLAY TILL (CL) high plasticity, cohesive w/~15-20% fg SAND w/few mg/cg w/~20% fine-med gravels - subround/subangular w/trace cobbles few/little SILT w/in fines trace red oxidation stains	
12					
14	10-15	3	5.0		
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-26
ELEV.:
START DATE: 10-10-17
SHEET 2 of 3
DATUM:
FINISH DATE:

PROJECT: SGPP Bennington
LOCATION: D-26 - Landfill
PROJECT NO.: 4502100 4.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18	15-20	4		↓ LEAN CLAY TILL continued.... ↓ few areas w/ black manganese oxidation	
20				trace large gravels	
22	20-25	5			
24					
26	25-30	6		increase in SAND content w/in (25-30 ft area) more moist	
28				~~trace large~~	
30					
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: D-26
ELEV.: DATUM:
START DATE: 10-10-17 FINISH DATE: 10-11-17
SHEET 3 of 3

PROJECT: SGPP Bennington
LOCATION: D-26 Landfill
PROJECT NO.: 45021664.00
OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
34	30-35	7		↓ LEAN CLAY TILL continued... ↓ trace large gravels moist, high plasticity, cohesive, hard	
36					
38	35-40	8		38-40 ft more SANDY / SILTY content w/in very fine grained SAND mod plasticity, moist, cohesive	1 3" thick Cobble of Breccia just above the Cheshire Quartzite @ the contact
40					
42	40-45	9		40-50 ft Cheshire Quartzite white / cream fg to mg Quartz SAND near vertical fractures areas of crossbedding / bedding black manganese + rusty red oxidation ↳ especially on fractures – secondary mineralization few pinholes / vugs few wormholes infilled	3 pieces were 6" long
44					
46	45-50	10			
48				EOB @ 50 ft	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic 4"
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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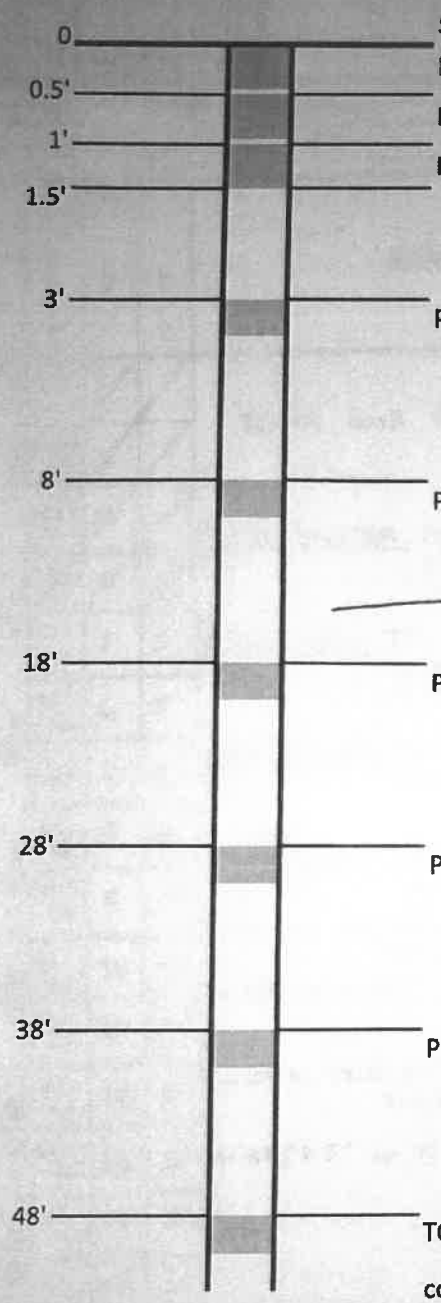
D-26 10-10-17

DEEP SOIL PROFILES - LANDFILL



0 — SOIL

0.5' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-0-0.5' @ 144

1' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-0.5-1' @ 1450

1.5' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-1-1.5' @ 1500

3' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-3-4' @ 1505

8' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-8-9' @ 1515

10-11-17

18' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-18-19' @ 0900

28' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-28-29' @ 092

38' — PFCs, pH, TOC, moisture content, TAL metals/cations SG3-D26-38-39' @ 0940

48' — TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

Sediment Samples 10-10-17

SG3-D26-0-3.5'
SG3-D26-3.5-10'

Sediment Samples 10-11-17

SG3-D26-10-40'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 45021004.00	PAGE 1 OF	
CLIENT:		DATE COLLECTED: 10-10-17	
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED: 10-10-17	
DATE INSTRUMENT CALIBRATED: 10-10-17 @ 0830	BY: DJZ		
TEMPERATURE OF SOIL: ambient		ANALYST: DJZ	

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-10	15	100-103	Soil	3.0	0.0	
D-10	16	103-104	Soil	0.5	0.0	
D-10	17	104-107	Soil	1.2	0.0	
D-26	1	0-0.5	Soil	0.7	0.0	
D-26	2	0.5-1	Soil	0.8	0.0	
D-26	3	1-1.5	Soil	0.7	0.0	
D-26	4	1.5-3	Soil	0.8	0.0	
D-26	5	3-4	Soil	0.8	0.0	
D-26	6	4-8	Soil	0.6	0.0	
D-26	7	8-9	Soil	4.8	0.0	
D-26	8	9-15	Soil	0.8	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 45021004.00	PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-11-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10-11-17
DATE INSTRUMENT CALIBRATED: 10-11-17 @ 1030	BY: DJZ		ANALYST: DJZ
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
D-26	1	15-18	Soil	2.0	0.0	
D-26	2	18-19	Soil	0.5	0.0	
D-26	3	19-28	Soil	1.0	0.0	
D-26	4	28-29	Soil	0.6	0.0	
D-26	5	29-38	Soil	1.3	0.0	
D-26	6	38-39	Soil	0.7	0.0	
D-26	7	39-40	Soil	1.6	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: BG1
ELEV.:
START DATE: 8/18/17
SHEET 1 of 1
DATUM:
FINISH DATE: 8/18/17

PROJECT: SGPP
LOCATION: Bennington VT
CTM PROJECT NO.: 32421001.03
CTM OBSERVER: KMM/RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-.5	1	0.5	0-0.3' leaf litter at surface (OH/OL) organic Topsoil; Silty; v. dk brn to blk; abundant Roothetts, moist;	3" HA 0-0.5' 0.5-1', 1-1.5
2	.5-1	2	0.5	0.3- ML clayey Silt; tr. fg-cg Sand tr. F. gravel; Sub Ang to Sub Rnd; few Roothetts moist, brn, becomes Sandy Silt with depth.	
	1-1.5	3	0.5		Macro Core Sampler 1.5-4' x1 0-4 x1 4-8' 8-10'
4					
6					
8					
10					
12					
14					
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Macro Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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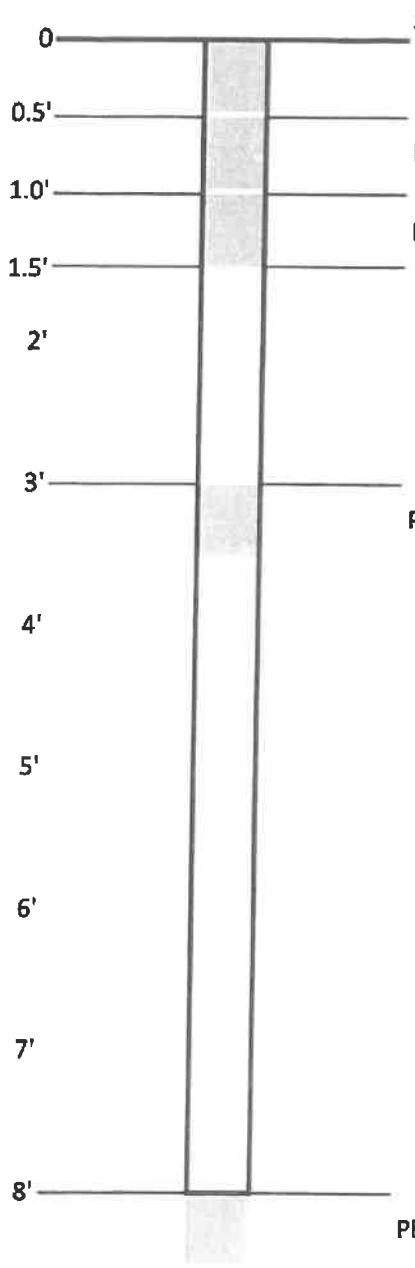
BG1 KAM/RAK 8/18/17

SHALLOW SOIL PROFILES



SOIL

PFCs, pH, TOC, moisture content SG3-BG1-0-0.5' @ 14:10

PFCs, pH, TOC, moisture content SG3-BG1-0.5-1' @ 14:20

PFCs, pH, TOC, moisture content SG3-BG1-1-1.5' @ 14:25

@14:35 Collect SG3-FB02-170818- Rinse of the bowl used to collect the 3-4' samples

PFCs, pH, TOC, moisture content SG3-BG1-3-4' @ 14:40

calibrate YSI

Cond. 7000 Reading 6876 µs/cm

pH 4.0 Reading 4.05

7.0 Reading

10.0 Reading

PFCs, pH, TOC, moisture content SG3-BG1-8-9' @ 15:15

GROUNDWATER (if encountered)

PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32420001.03	PROJECT #:		PAGE 1 OF 1
CLIENT: SAPP			DATE COLLECTED: 8/18/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 8/18/17
DATE INSTRUMENT CALIBRATED: 8/18/17	BY: KAM		ANALYST: KAM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
SΦ7	1	0-0.5'	Soil	0.3	0.1	No odor/sheen/DISCO
SΦ7	2	0.5-1'	Soil	0.4	0.1	No odor/sheen/DISCO
SΦ7	3	1-1.5'	Soil	0.2	0.1	No odor/sheen/DISCO
SΦ7	4	1.5-3'	Soil	0.2	0.1	No odor/sheen/DISCO
SΦ7	5	3-4'	Soil	0.3	0.1	No odor/sheen/DISCO
SΦ7	6	4-8'	Soil	0.3	0.1	No odor/sheen/DISCO
SΦ7	7	8-9'	Soil	0.4	0.1	No odor/sheen/DISCO
SΦ7	8	9-10'	Soil	0.3	0.1	No odor/sheen/DISCO
S30	1	0.5-1	Soil	1.8	0.2	No odor/sheen/DISCO
S30	2	1-1.5	Soil	1.9	0.2	No odor/sheen/DISCO
S30	3	1.5-3	Soil	0.4	0.2	No odor/sheen/DISCO
S30	4	3-4	Soil	0.4	0.2	No odor/sheen/DISCO
S30	5	4-8	Soil	0.4	0.2	No odor/sheen/DISCO
S30	6	8-9	Soil	0.5	0.2	No odor/sheen/DISCO
S30	7	9-10	Soil	0.4	0.2	No odor/sheen/DISCO
BG-1	1	0-0.5	Soil	17.1	0.2	No odor/sheen/DISCO
BG-1	2	0.5-1		1.5	0.4	
BG-1	3	1-1.5		0.5	0.4	
BG-1	4	1.5-3		2.3	0.4	
BG-1	5	3-4'		14.8	0.4	
BG-1	6	4-8'		0.6	0.4	
BG-1	7	8-10		0.5	0.4	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: BG-02
ELEV.: DATUM:
START DATE: 8/23/2017 FINISH DATE: 8/23/2017
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 32421001.03
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5'	0-0.8' OL/OH: V. dk. brn., moist, abundant roots.	3" HA to 1.5'
	0.5-1'	2	0.5'	0.8-1.4' CL: Dk. reddish brown, moist, few organics (roots), med-hi plast., silty, trc fg sand.	MC 1.5-EOB
	1-1.5'	3	0.5'		
2	1.5-4'	4	2.6'	1.4-1.8' CLs: Dk. reddish brown, moist, little fg-cg sand, trc fg gravel, trc silt, medium plasticity.	Two HA holes to 0.5' for sufficient vol. for QC samples.
4				1.8-10' SM: Tannish brown to lt. grey brn, fg-cg, mostly fg, moist, trc ang. gravel, few clay fines, ~65% sand.	
6	4-8'	5	3.9'		
8				From 7-10', little fg gravel [SMg]	
10				EOB @ 10'	
12					
14					
16					

DRILLING CONTRACTOR: CASCADE
DIRECT-PUSH TYPE: GEOPROBE
METHOD OF SAMPLING: HAND AUGER/MACRO-CORE

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		Dry

SAMPLE CLASSIFICATION BY: RQM

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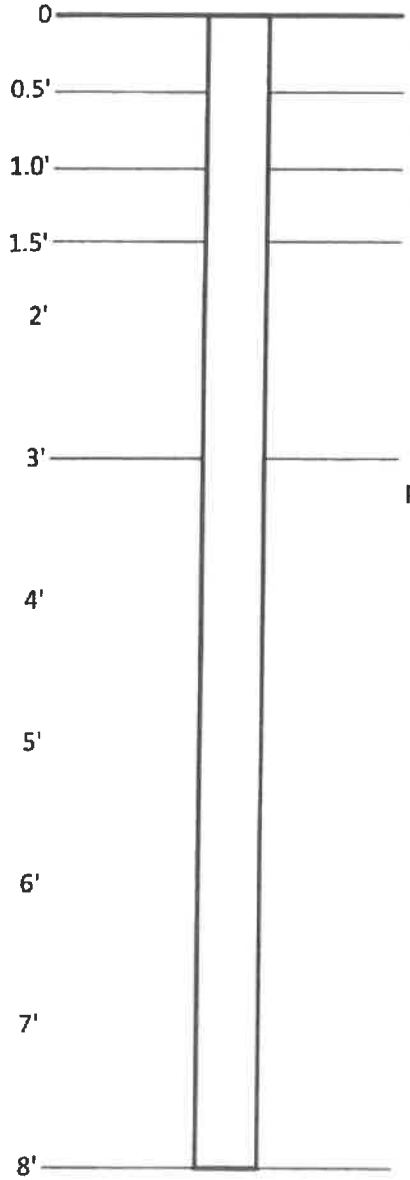
BG-02 8/23/2017

SHALLOW SOIL PROFILES
32421001.03 SGPP

Collected SG3-FB05-170823 (rinsate)
Collected SG3-FD05-170823 from 0-0.5'
Collected SG3-BG02-0-0.5' as MS/MSD



PFCs, pH, TOC, moisture content SG3-BG02-0-0.5' @ 11:05

PFCs, pH, TOC, moisture content SG3-BG02-0.5-1' @ 11:25

PFCs, pH, TOC, moisture content SG3-BG02-1-1.5' @ 11:35

PFCs, pH, TOC, moisture content SG3-BG02-3-4' @ 11:40

PFCs, pH, TOC, moisture content SG3-BG02-8-9' @ 12:00

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 32421001.03		PROJECT #:	PAGE OF
CLIENT: SGPP			DATE COLLECTED: 8/23/2017
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:		BY:	ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
BG-02	1	0-0.5'	SOIL	0.4	0.0	No D/O/S
BG-02	2	0.5-1'	SOIL	0.4	0.0	No D/O/S
BG-02	3	1-1.5'	SOIL	0.3	0.0	No D/O/S
BG-02	4	1.5-3'	SOIL	0.3	0.0	No D/O/S
BG-02	4	3-4'	SOIL	0.3	0.0	No D/O/S
BG-02	5	4-8'	SOIL	0.1	0.0	No D/O/S
BG-02	6	8-9'	SOIL	0.2	0.0	No D/O/S
BG-02	6	9-10'	SOIL	0.1	0.0	No D/O/S
S-10	1	0-0.5'	SOIL	1.3	0.2	No D/O/S
S-10	2	0.5-1'	SOIL	0.8	0.2	No D/O/S
S-10	3	1-1.5'	SOIL	1.0	0.2	No D/O/S
S-10	4	1.5-3'	SOIL	0.8	0.2	No D/O/S
S-10	4	3-4'	SOIL	0.6	0.1	No D/O/S
S-10	5	4.1-5.1'	SOIL	0.2	0.1	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

D/O/S = Discoloration/Odor/Sheen

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: BG3
ELEV.:
START DATE: 8/17/17
SHEET 1 of 1
DATUM:
FINISH DATE: 8/17/17

PROJECT: SGPP Bennington
LOCATION: Lake Raponda Boat Ramp
GTM PROJECT NO.: 32421001.03
OBSERVER: KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-0.5	1	0.5	0-0.1' Leaf litter at the surface	3" Hand Auger
	0.5-1	2	0.5	0.1-4' bgs w/silt fg-cg sand w/~5% fine gravel, SubAng to Sub Rnd grains/clasts Abundant mica, Bn to Dk yw-bn, few Rootlets ↓ w/depth, gravel & Pulverized Rock ↑ w/ depth; moist,	0-0.5'
2	1-1.5	3	0.5		0.5-1'
	1.5'-4'	4	1.8'		1-1.5'
4					Macro Core
6					1.5-4'
8				Obstruct at 4' bgs on Rock	
10				Move 3' North - obstruct at 4'	
12				Move 10' N. obstruct at 2.9'	
14				Move ~30' west - obstruct at 3.5'	
16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Hand Auger / Macro Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
		NE water

SAMPLE CLASSIFICATION BY:

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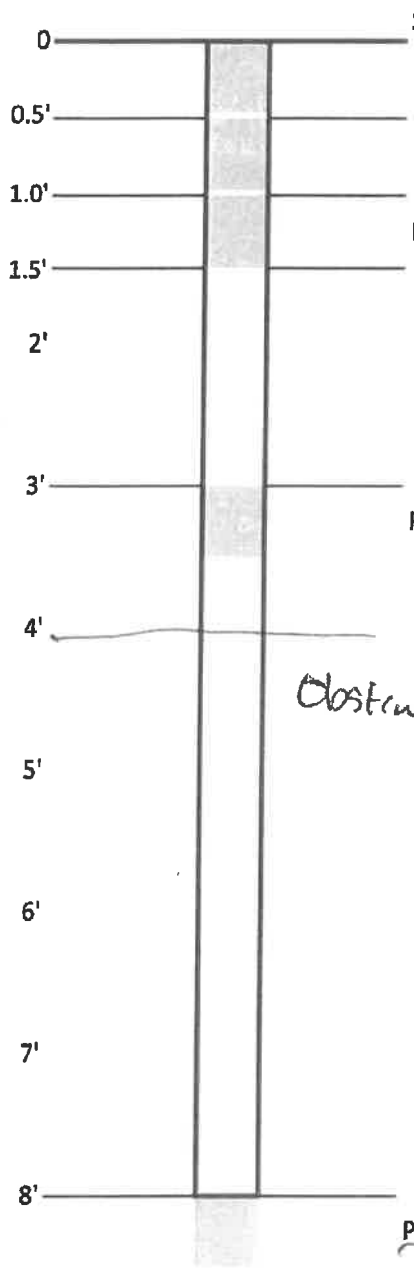
BG3 KAM/RAK 8/17/17

SHALLOW SOIL PROFILES



PFCs, pH, TOC, moisture content SG3-BG3-0-0.5' @ 13:10

PFCs, pH, TOC, moisture content SG3-BG3-0.5-1' @ 13:25

PFCs, pH, TOC, moisture content SG3-BG3-1-1.5' @ 13:30

PFCs, pH, TOC, moisture content SG3-BG3-3-4' @ 13:45

Collect Dup here SG3-FD02-170817

Obstruct at 4'

No H_2O

PFCs, pH, TOC, moisture content

~~GROUNDWATER (if encountered)~~

~~PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN~~

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 3242 002.03	PROJECT #:		PAGE 1 OF
CLIENT: SEQRP			DATE COLLECTED: 8/17/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 8/17/17
DATE INSTRUMENT CALIBRATED: 8/17/17	BY: KMM		ANALYST: KMM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
BG4	1	0-0.5'	Soil	0.3	0	No odor/sheen/Disco
BG4	2	0.5-1'	Soil	0.2	0	No odor/sheen/Disco
BG4	3	1-1.5'	Soil	0.2	0	No odor/sheen/disco
BG4	4	3-4	Soil	0.1	0	Noodor/Sheen/disco
BG4	5	4-8	Soil	0.2	0	Noodor/Sheen/disco
BG3	1	0-0.5	Soil	2.2	0	Noodor/Sheen/disco
BG3	2	0.5-1	Soil	1.1	0	No odor/sheen/disco
BG3	3	1-1.5	Soil	0.7	0	No odor/sheen/disco
BG3	4	3-4	Soil	0.0	0	No odor/sheen/disco

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: BG4
ELEV.: DATUM:
START DATE: 8/17/17 FINISH DATE: 8/17/17
SHEET 1 of 1

PROJECT: ~ SGPP Bennington VT ~~GTM~~ PROJECT NO.: 32421024.03
LOCATION: ~~GTM~~ OBSERVER: KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
	0-0.5	1	0.5'	0 - 0.8 Leaf Litter at surface (OL/OH) organic soil, clayey, trace fg sand, abundant Rootlettes, moist V. dk bn to BK	Hand Auger 0.0 - 0.5 0.5 - 1 1 - 1.5'
	0.5-1	2	0.5		
2	1-1.5	3	0.5		
	1.5-4'	4	1.3	0.8 - 3.8' (SM) - Silty Sand; fg, abundant Mica; ~ 15% fines, brown, fines ↑ w/depth & become more clayey V. moist	
4					
	4-8'	5	2'	3.8 - 4' weathered Rock ~~finite~~ Gneiss - pulverized by probe.	
6					
				4-8' Sandy lean clay w/gravel, silty Sand lenses present, wet, soft gy-bn.	
8					
10					
12				Set temp well w/ screen from 3-8' bgs - 0.010 slot pvc. Collect GW Sample at 11:30	
14					
16					

DRILLING CONTRACTOR: CME Geoprobe
DIRECT-PUSH TYPE: Geoprobe
METHOD OF SAMPLING: Macro Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT
	1.9	bgs

SAMPLE CLASSIFICATION BY:

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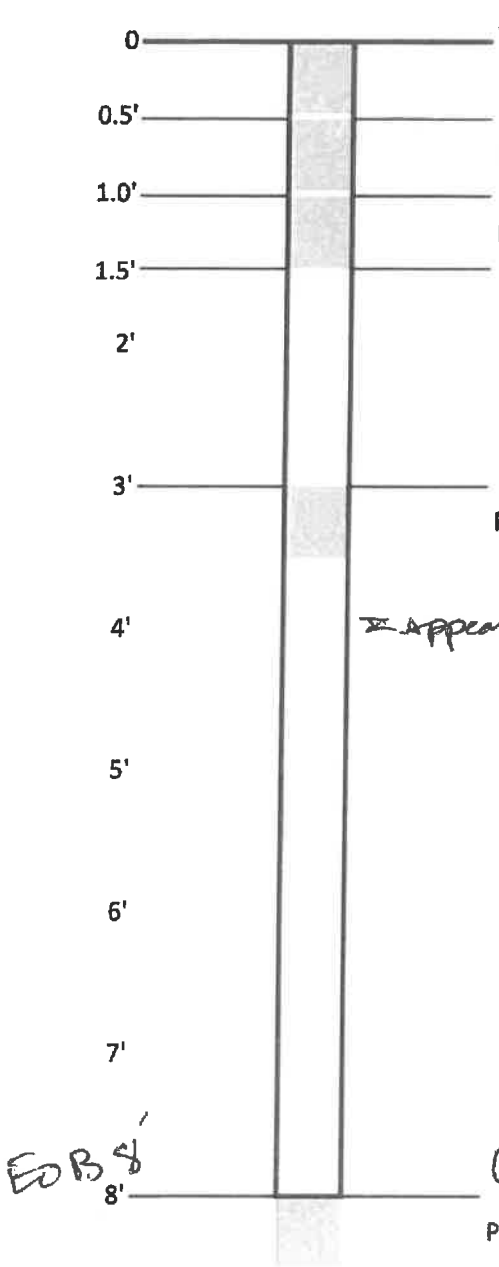
BG4 Kamy RAK 8/17/17-

SHALLOW SOIL PROFILES



PFCs, pH, TOC, moisture content SG3-BG4-0-0.5'@09:15

PFCs, pH, TOC, moisture content SG3-BG4-0.5-1'@09:25

PFCs, pH, TOC, moisture content SG3-BG4-1-1.5'@09:35

PFCs, pH, TOC, moisture content SG3-BG4-3-4'@09:50

∇ appeared wet @ 4'

Temp 13.5°C
~~Cond~~ DO 3.59 mg/L
pH 7.22
Sp cond 0.149 mS/cm
ORP 77.8 mV

Calibrate YSI pro
Cond. - 7000 Reading 6897
pH - 4.0 Reading 4.03
7.0 Reading 7.01
10 Reading 10.08
DO 100% Reading 98.7%

61.3 NTU prior to Sampling
63.7 NTU after Sampling
PFCs, pH, TOC, moisture content

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect SG3-BG4-170817 @ 11:30

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 3242 1001.03	**PROJECT #:**		**PAGE** 1 **OF**
CLIENT: SEPP			**DATE COLLECTED:** 8/17/17
LOCATION: Bennington VT			
INSTRUMENT USED: MiniRae 3000	**LAMP** 10.6 **eV**		**DATE ANALYZED:** 8/17/17
DATE INSTRUMENT CALIBRATED: 8/17/17	**BY:** KMM		**ANALYST:** KMM
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
BG4	1	0-0.5'	Soil	0.3	0	No odor/sheen/Disco
BG4	2	0.5-1'	Soil	0.2	0	No odor/sheen/Disco
BG4	3	1-1.5'	Soil	0.2	0	No odor/sheen/disco
BG4	4	3-4	Soil	0.1	0	Noodor/Sheen/disco
BG4	5	4-8	Soil	0.2	0	Noodor/Sheen/disco
BG3	1	0-0.5	Soil	2.2	0	Noodor/Sheen/disco
BG3	2	0.5-1	Soil	1.1	0	No odor/sheen/disco
BG3	3	1-1.5	Soil	0.7	0	No odor/sheen/disco
BG3	4	3-4	Soil	0.0	0	No odor/sheen/disco

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
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*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: ~~D-25~~ RQM (bedrock well install)
ELEV.: MW-BR1 DATUM:
START DATE: 9/26/17 FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: Bennington, VT

~~GTM~~ PROJECT NO.: 45021004
~~GTM~~ OBSERVER: RQM/KAM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
0	0-5	1		Blind drill to 15', see D-25 log for lith. info.	0-20' logged on original D-25 log (for shallow well install)
	5/10	2			
10	10/15	3		15-21' MLs/SM: Fg, brown, very packed/hard, wet, trc grvl., trc. cobbles, ~50% silt fines, occ. thin lyrs (<2") have clay fines present.	
	15/20	4			
20	20-25	5	5'	21-30.5' CLs: Till, reddish brown, very hard, some fg-cg sand & fg-cg gravel, trc cobbles, moist to dry, cobbles up to 9" in dia., ~40% sand.	
	25-30	6	5'	"	
30	30-35	7	5'	30.5-33' SM: Fg-cg, mostly fg-mg, wet, reddish brown, trc gravel, ~35% silt fines	
	35-40	8	5'	33-~~130~~ 130' RQM CLs: as @ 21', with few to little gravel & cobbles.	
40	40-45	9	5'	From 43-55': dk grey to black mottling, poss. manganese secondary mineralization.	
	45-50	10	5'	At 50', becomes brown, slight decrease in sand content (~30%)	
50	50-55	11	5'		
	55-60	12	5'	At 57.9, 58.5, 59'; 1" distinct lyr of fg-cg gravel. Cheshire qtzite particles.	
60	60-65'	13	5'	At 62'; 0.5" lyr of soft saturated silt.	
	65-70'	14	5'		
70	70-75'	15	5'		
	75-80'	16	5'		

See D-25

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic (big rig)
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS
6.3' bgs @ adj. shallow well.

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY: RQM/KAM

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-8R1
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 1

PROJECT: SGPP Bennington
LOCATION: Bennington, VT
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
80	80-85	17	5'		
	85-90	18	5'		
90				At 90', becomes reddish brown to brown.	
	90-95	19	5'		
	95-100	20	5'		
100				At 100', slight decrease in sand content. (~20-25%)	
	100-105	21	5'		
	105-110	22	5'		
110					
	110-115	23	5'		
	115-120	24	5'	From 116-123', mottled w/ deep reddish brown. ~40% quartzite cobbles.	
120					
	120-125	25	5'	At 123', color changes to deep reddish brown with ~45% quartzite cobbles. Trc-few qtzite cobbles have phyllite onlapped on upper surface.	
	125-130	26	5'	At 124', decreased cobbles (~20%), increased sand (~35%).	
130				130-136' Ocher: Dk. reddish brown, moist, moist, low-med plast. clay matrix, little fg-cg ~~sand~~, gravel & cobbles, few angular qtz. inclusions.	
	130-135	27	5'		
	135-140	28	5'	136-170' Kaolin: V. lt. reddish brown to white, moist, friable, few lt. grey inclusions, low-med plast. clay matrix, occ. lyrs are mostly silt matrix, lt. grey incl. occ. exhibit vitreous luster. Clay matrix has few fg-cg sand, very silty and m-w in bot 2'.	
140					
	140-145	29	5'		
	145-150	30	5'	At 146', decreased sand (~15%), increased plast. (med-hi).	
150				170-178' Ocher: Reddish brown to dk. reddish brown, moist, clay matrix w/ few-little sand, trc qtz inclusions	
	150-155	31	5'	From 170-174', some (~45%) kaolin inclusions of white & lt. grey.	
	155-160'	32	5'	At 177', 4" lyr w/ little qtz. inclusions	
160					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR1
ELEV.: See survey data
START DATE: ~~to~~ 9/26/17
SHEET 3 of 1
DATUM: See survey data
FINISH DATE:

PROJECT: SGPP Bennington
LOCATION: Bennington, VT
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
160	160-165'	33	5'	From 166-167.5', weathered zone of kaolin, pink mineralization in upper 3", then mostly yellowish white to lt. grey below, friable, occ. planes exhibit vitreous lustre.	
	165-170'	34	5'	~~From 170-175', color changes to reddish brown, some inclusions of white to grey kaolin.~~ 170-178 Ocher: see descrip. on last page.	
170	170-180'	35	10'	178-200: Kaolin: Light grayish brown with some inclusions of white to gray, medium plast. clay matrix, clay matrix is occ. sandy. Trc-little sand throughout, moist, friable. At 182', 9-inch zone pink to greyish red mineralization.	At 170', switching to 4" core in 6" casing to increase rate of adv. and decrease water usage.
180	180-190'	36	10'	From 182-188', kaolin material is lt. grey to bluish grey, about 50% of material. From 190-192', brown medium plast. clay with only few kaolin mineralization, is same as matrix in above & below intervals.	
190	190-200'	37	10'	At 192', becomes mostly very lt. reddish brown, white, lt. gry. At 198', 9" lyr of lt. reddish brown w/ few kaolin.	Note: All material from 130 to ' appears to be material geothermally altered from bedrock back to clayey soils w/ varying amounts of silicates leeched out. Alternating "kaolin" and "ocher".
200	200-210'	38	10'	200-211' Ocher: Lt. reddish brown w/ little to some lyrs and lams of lt. tan & brown to dk. brown, moist, low to med. plast. clay matrix. Occ. lyrs of clay are sandy. trc-few qtz. inclusions in dk. brown material. From 202-205: apparently vertically dipping strata/lyrs.	
210	210-220'	39	10'	211-223' Kaolin: Grey w/ some inclusions of lt. rd-brn., moist, medium plast. clay matrix, occ. lyrs/lams are mostly silt w/ slow dilat., few to little inclusions of dk. brown and reddish brown. From 215-215.5' weathered gray schist. From 218-219', peat, v. dk. brown to blk., fibrous, silty, few ang. gravel. From 219-220', weathered gray schist.	
220	220-230'	40	10'	223- Ocher: Reddish brown w/ few to some inclusions of lt. reddish brown, dk. brown, and tan. Trc-few qtz. inclusions in dk. brown material. trc incl of white to grey material w/ evap-like app but does not react w/ HCl. Little fg-cg sand. Variable clay/silt content in lyrs of various thick...	
230	230-240'	41	10'	At 226', becomes medium plast. w/ decreased sand (~15%). At 228', 3" zone w/ little qtz inclusions.	
240					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Core
METHOD OF SAMPLING: Liner

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY: RQM

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-8R1
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 45021004.00
LOCATION: Bennington, VT ~~CTM~~ OBSERVER: RQM

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
240	240-250	42	10'	At 242', 6" zone w/ some kolin mineralization. At 245', 5" zone w/ some kaolin mineralization. At 246', becomes med-hi plast. clay matrix.	
250	250-260	43	10'	At 252', becomes very silty w/ low-med. plast., slow to rapid dilat	
260	260-270	44	10'	At 260', becomes dark reddish brown clayey sand w/ ~65% sand (fg-cg, mostly mg-cg). Trc-few fg gravel, fines are clayey w/ low to med. plast, becomes wet. From 264-266', sandy silt, bright reddish brn to orange, ~35% sand At 266', becomes v. dk. brn sandy silt (~35% sand) with 2" lyr of cg sand on top. Cg sand lyr contains fg-gvl-sized iron concretions w/ cg sand sized qtz. inclusions on particles	
270	270-280	45	10'	At 270', becomes reddish brown (still wet ML). At 276', ~0.5" lyr of cg sand - as described @ top of 266' (sand lyr). At 277.5', ~2" lyr of cg sand - as @ 266' & 276'. From 280-281.5', brigh brownish red/orangish cg sand w/ few ang. fg gvl (largely composed of iron concretions). ~70% sand.	
280	280-290	46	10'	At 281.5', becomes brown med-hi plast. clay w/ highly variable sand & silt content (10-35% sand). At 286', becomes mottled w/ tan and grey silt (10-50%). From 290-299', interbedded med-hi plast. clay and silt with highly variable sand content. Some clay intervals (<1' thick) are very hard & high plast.	
290	290-300	47	10'	At 299', becomes white cg sand, ~15% fines, possibly a very highly decomp'd sandstone or qtzite, contains trc-few chunks of fg gvl composed of cg sand sized particles stuck together.	
300	300-305	48	5'	300-301' Qtzite gravel in a Sandy clay matrix - gravel is sub-Ang to sub-Rnd, generally lon.	
310	305-310	49	2'	301-304' - weathered Qtzite fractured & Broken, Ang to Sub-Ang pieces (Fgravel-Cobble Size) Silty to Clayey Sand filling of fractures/Joints makes up Matrix Material (cheshire) 304-310' cheshire Qtzite, pinkish gray to Rusty weathering; Fine to coarse grained Qtz grains; rounded, Some manganese oxide along fracture planes, Hard	
320					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS

SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

~~DIRECT-PUSH~~ EXPLORATION LOG

BORING NO.: MWBR-1 (Rock Coring)
ELEV.: DATUM:
START DATE: 11.3.17 FINISH DATE:
SHEET 1 of

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.6131
LOCATION: MWBR-1 (Bennington Landfill CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
310	310-312	1	2.0	310-310.7: Quartzite fragments in grout. 310.7 - : Quartzite consistent with Cheshire Fm. Tan and medium gray subangular medium to fine Sand (quartz) sized grains (no interstitial cement), trace medium sand sized opaque mineral grains (ie: illmanite/ magnetite). Massive - no apparent original sedimentary structures. Very hard - unable to scratch with knife. Poorly developed	R1: RQD = 0, Run Time = 3.08 min.
	312-317	2	5.0		R2: RQD = 48%, Time = 7.19 min 313 - 314.6: 75-80° dip fracture, SiO_2 Filled
320	317-322	3	4.6		R3: RQD = 0, T = 13 min
	322-325	4	1.2	conchoidal fracture on fresh broken surfaces. Pervasive (0.2 - 0.6' spacing) set of tight (0.01 - 0.02' wide) shallow dipping (20 - 25°) fractures - all broken by drilling and filled with light tan - Fe stained SiO_2 exhibiting poorly developed lineation at 45 to 90° from dip direction. Driller reports water ~~loss~~ loss when stops coring.	R4: RQD = 0, T = 19 min. Ground off core bit.
	325-330	5	4.5		R5: T = 16 min Rods broke at 65' fbg.
330		6	<1	330: Color change to a darker gray. Poor return/recovery ~ 1 ft on a 10 ft run. Material is broken up significantly (ranging from less than .1 ft in diameter to .4 ft). Driller reports periods of "soft" material that appears to wash away (with brown water return). When contact is made with quartzite, gray water is returned to surface.	R5: RQD = 0, T = 15 min
					R6: RQD = 0, T = 45 min
340		7	3	340: Similar color as R6, but more competent (pieces ranging from .3 to .7 ft). Some iron staining. No noticeable change in composition from 340 - 350. (Mineralogical)	R7: RQD = 0, T = N/A
350					

DRILLING CONTRACTOR: Cascade 6.5"
~~DIRECT-PUSH TYPE:~~ Note: Barr instructed to use 8" (vs 4") for RQD.
METHOD OF SAMPLING: 310-325 PQ (10H) Core, 325: 4x6 Sonic Core

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-3R1
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: MW-3R1 Landfill
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
312	310-312	1 (3.08 min)	2*	310-311' grouted rock fragment mix Quartzite, gray, massive, very ~~hard~~ strong, non-foliated 312-317' no HCl reaction no HCl reaction on fracture planes - silica infilled RQD = 29/60 x100 = 48.3 % ~ near vertical fracture ~ 75-85° from horizontal Silica infilled fractures w/ black manganese oxidation w/ rusty oxidation ~ moderately fractured 2-4" near horizontal fractures 5-10° dip from horizonal 1 fracture @ 45° from horizontal	Cored thru 25 ft of grout 286-311 ft
314					
316	312-317	2	5 (7.19 min)		
318				317-322' RQD = 0/60 = 0	
320	317-322	3	5		
322			(13 min)		
324	322-329	4	1 (19 min)	322-325' RQD = 0/24 = 0 mostly broken fragments low recovery - issues w/ drilling	
326					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

~~DIRECT-PUSH~~ EXPLORATION LOG

BORING NO.: MWBR-1
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 2

PROJECT: Saint-Gobain Bennington
LOCATION: MWBR-1 (Landfill) Bennington
CTM PROJECT NO.: 16.6131
CTM OBSERVER: KMD

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
350					
	350-380	8	3	3 feet of broken quartzite returned on a 30 foot run. Fragments range from medium sand (fines washed away) to pieces ~5" in diameter. No apparent change in mineral content. Note- rubbalized material is infered to be driller-induced. Driller reported continued changes of easy to hard resistance that was consistent with color change of water return.	Runtime was difficult to estimate, as drilling often spanned over multiple days.
360					
370					
					Due to collapsing/bridging hole, drilling stopped @ 380 ft and 4 in PVC pipe will be installed.
380				Bottom of boring @ 380 ft.	
~~390~~					

DRILLING CONTRACTOR: Cascade
~~DIRECT PUSH TYPE~~: Sonic Coring 4x6
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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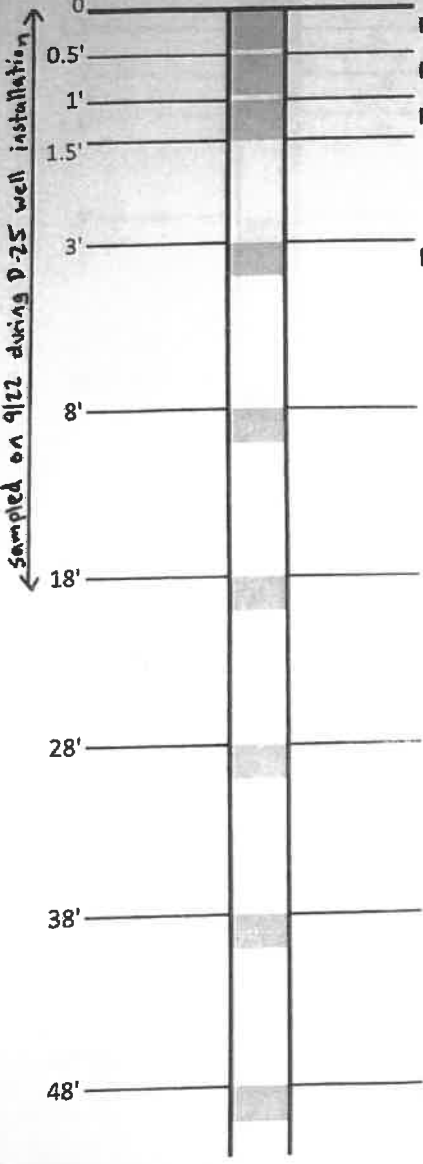
MW-BR1 9/26/17

Collected MS/MSD volume @ SG3-MW-BR1-28-29' @ 10:35
Collected SG3-FDS09-170927 from 88-89' @ 16:25
Collected SG3-FBS08-170928 (rinse) 9/28 @ 13:05 (PM)
Collected SG3-FBS09-170929 (pour) 9/29 @ 15:50

DEEP SOIL PROFILES - LANDFILL



PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
PFCs, pH, TOC, moisture content, TAL metals/cations
TOC, moisture content, TAL meta

9/27/17
SG3-MW-BR1-28-29' @ 10:35
SG3-MW-BR1-31-32' @ 11:25
SG3-MW-BR1-38-39' @ 11:05
SG3-MW-BR1-48-49' @ 11:10
SG3-MW-BR1-58-59' @ 10:50
SG3-MW-BR1-68-69' @ 13:30
SG3-MW-BR1-78-79' @ 15:05
SG3-MW-BR1-88-89' @ 16:25

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

9/28/17
SG3-MW-BR1-98-99' @ 08:20
SG3-MW-BR1-108-109 @ 10:50
SG3-MW-BR1-118-119 @ 13:00

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

9/29/17
SG3-MW-BR1-128-129' @ 10:00
SG3-MW-BR1-138-139' @ 11:50
SG3-MW-BR1-148-149' @ 15:00

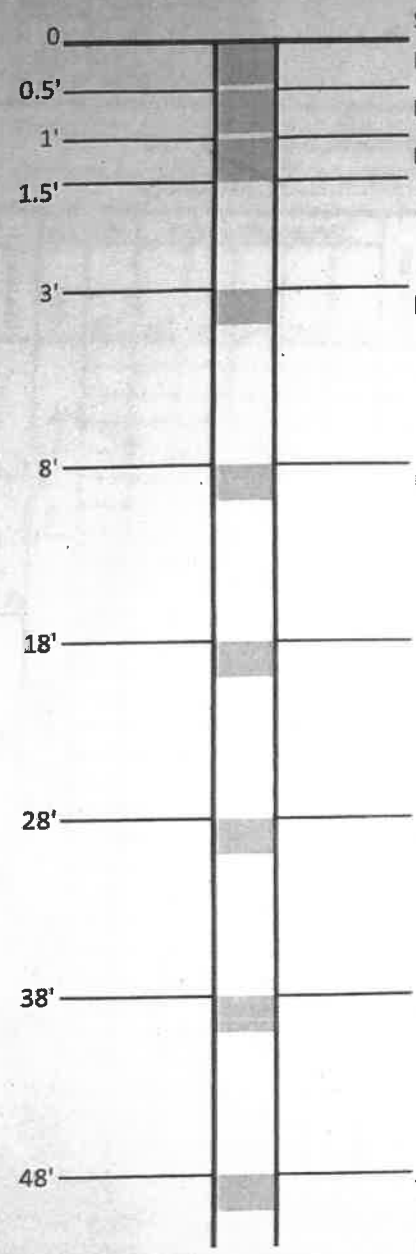
10/03/17
SG3-MW-BR1-158-159' @ 1545

10/04/17
SG3-MW-BR1-168-169' @ 0850
SG3-MW-BR1-178-179' @ 1045
SG3-MW-BR1-188-189' @ 1100

MW-BR1

collected SG3-FDS10-171004 from 178-179' @ 1045
collected SG3-FBS10-171004 (pour) @ 1130

DEEP SOIL PROFILES - LANDFILL



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

10/04/17 (cont. from pg. 1)
SG3-MW-BR1-198-199' @ 1150
SG3-MW-BR1-208-209' @ 1310
SG3-MW-BR1-218-219' @ 1520
SG3-MW-BR1-228-229' @ 1630

10/05/17
SG3-MW-BR1-238-239' @ 0940
SG3-MW-BR1-248-249' @ 1110
SG3-MW-BR1-258-259' @ 1350
SG3-MW-BR1-268-269' @ 1520
SG3-MW-BR1-278-279' @ 1600
SG3-MW-BR1-288-289' @ 1655

10/06/17
SG3-MW-BR1-298-299' @ 1000

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

Collect one soil sample from below the water table, if encountered

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 45021004	PAGE 1 OF 2
CLIENT: SGPP			DATE COLLECTED: 9/26/17
LOCATION: Bennington, VT			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 9/26/17, each day after	BY: RQM		ANALYST: RQM
TEMPERATURE OF SOIL: ambient			

	EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
ALL MW-BR1	~~D-25~~	5/6	20-28	SOIL	1.4	0.0	No D/O/S
	~~D-25~~	6	28-29	SOIL	0.2	0.0	No D/O/S
	~~D-25~~	7	31-32	SOIL	0.1	0.0	No D/O/S
	~~D-25~~	8	38-39	SOIL	0.1	0.0	No D/O/S
	~~D-25~~	8/9/10	39-48	SOIL	0.6	0.0	No D/O/S
	~~D-25~~	10	48-49	SOIL	0.0	0.0	No D/O/S
		10/11/12	49-58	SOIL	0.5	0.0	No D/O/S
		12	58-60	SOIL	0.7	0.0	No D/O/S
		13/14	60-68	SOIL	1.1	0.0	No D/O/S
	MW-BR1	14	68-69	SOIL	0.6	0.0	No D/O/S
	MW-BR1	14/15	69-75	SOIL	1.4	0.0	No D/O/S
	MW-BR1	15	75-78	SOIL	0.9	0.0	No D/O/S
	MW-BR1	16	78-79'	SOIL	0.8	0.0	No D/O/S
	MW-BR1	~~9/25~~ 9/16/17	79-85	SOIL	3.1	0.0	No D/O/S
9/27/17 ↑	MW-BR1	18	85-88	SOIL	0.7	0.0	No D/O/S
	MW-BR1	18	88-89	SOIL	0.7	0.0	No D/O/S
↓ 9/28/17	MW-BR1	18/19/20	89-98'	SOIL	3.3	0.0	No D/O/S
	MW-BR1	20	98-99'	SOIL	2.2	0.0	No D/O/S
	MW-BR1	20/21/22	99-108'	SOIL	0.5	0.0	No D/O/S
	MW-BR1	22	108-109'	SOIL	0.6	0.0	No D/O/S
	MW-BR1	22/23/24	109-118	SOIL	8.9	0.0	No D/O/S, "baked" core

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

9/28/17 ↑	MW-BR1	24	118-119	SOIL	9.3	0.0	No D/O/S "baked" core
	MW-BR1	24/25	119-125	SOIL	8.2	0.0	No D/O/S "baked" core
↓ 9/29/17	MW-BR1	26	125-128	SOIL	1.5	0.0	No D/O/S
	MW-BR1	26	128-129	SOIL	0.6	0.0	No D/O/S
	MW-BR1	26/27/28	129-138	SOIL	0.6	0.0	No D/O/S
	MW-BR1	28	138-139	SOIL	0.7	0.0	No D/O/S
	MW-BR1	28/29/30	139-148	SOIL	0.5	0.0	No D/O/S
9/29/17 ↑	MW-BR1	30	148-149	SOIL	0.5	0.0	No D/O/S
	MW-BR1	30	149-150	SOIL	0.6	0.0	No D/O/S

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:		PROJECT #:	PAGE 2 OF 2
CLIENT:			DATE COLLECTED:
LOCATION:			
INSTRUMENT USED:	MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:		BY:	ANALYST:
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR1	31/32	150-158	SOIL	0.5	0.0	No D/O/S
	32	158-159	SOIL	0.5	0.0	No D/O/S
	32/33/34	159-168	SOIL	0.4	0.0	No D/O/S
	34	168-169	SOIL	0.5	0.0	No D/O/S
	34/35	169-178	SOIL	0.5	0.0	No D/O/S
	35	178-179	SOIL	0.5	0.0	No D/O/S
	35/36	179-188	SOIL	0.4	0.0	No D/O/S
	36	188-189	SOIL	0.3	0.0	No D/O/S
	36/37	189-198	SOIL	0.3	0.0	No D/O/S
	37	198-199	SOIL	0.1	0.0	No D/O/S
	37/38	199-208	SOIL	0.1	0.0	No D/O/S
	38	208-209	SOIL	0.3	0.0	No D/O/S
	38/39	209-218	SOIL	0.6	0.0	No D/O/S
	39	218-219	SOIL	0.9	0.0	No D/O/S
	39/40	219-228	SOIL	0.8	0.0	No D/O/S
	40	228-229	SOIL	0.8	0.0	No D/O/S
	40/41	229-238	SOIL	0.4	0.0	No D/O/S
	41	238-239	SOIL	0.4	0.0	No D/O/S
	41/42	239-248	SOIL	0.3	0.0	No D/O/S
	42	248-249	SOIL	0.3	0.0	No D/O/S
↓	42/43	249-258	SOIL	0.4	0.0	No D/O/S
	43	258-259	SOIL	0.2	0.0	No D/O/S
	43/44	259-268	SOIL	0.4	0.0	No D/O/S
	44	268-269	SOIL	0.4	0.0	No D/O/S
	44/45	269-278	SOIL	0.3	0.0	No D/O/S
	45	278-279	SOIL	0.5	0.0	No D/O/S
	45/46	279-288	SOIL	0.4	0.0	No D/O/S
	46	288-289	SOIL	0.4	0.0	No D/O/S
	46/47	289-298	SOIL	0.8	0.0	No D/O/S
	47	298-299	SOIL	0.4	0.0	No D/O/S
↓	47	299-300	SOIL	0.1	0.0	No D/O/S

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2
ELEVATION:
LATITUDE:
START DATE: 10-11-17
SHEET / OF
DATUM:
LONGITUDE:
FINISH DATE: 10-13-17

PROJECT: SaintGobain Bennington
LOCATION: MWBR-2 - West of Landfill
CTM PROJECT NO.: 16.6131
CTM OBSERVER: RAK / DA

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
5	①	0-7						7'	0-7.8 Med. Brown Cly (-) SILT, trace fine Sand, trace coarse to fine Gravel. Dry to moist below 4.2ft, soft, no stain, no odor.	Saturated to wet from 4.2 to 19.5 ft.
10									7.8-13.3: Med. Brown Cly (-) SILT, some coarse to fine Sand, some coarse to fine Gravel. Moist to dry below 20 ft. Hard to very hard.	Till
15	②	7 to 17						10'		Cobbles at 16.5 and 37ft.
20										
25	③	17 to 27						10'		
30	④	27-37								

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade
DRILL RIG TYPE: Rota-Sonic
METHOD OF INVESTIGATION: 4" Sonic Core

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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(2)

C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2
ELEVATION:
LATITUDE:
START DATE: 10-11-17
SHEET 2 OF 5

DATUM:
LONGITUDE:
FINISH DATE: 10-13-17

PROJECT: St. Gobain Bennington
LOCATION: MWBR-2

CTM PROJECT NO.: 16.6131
CTM OBSERVER: MAK/MA

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
35	(4)							9.5		Till - as above dry, very hard, no stain, no odor.
	27									
	~~30~~ 37									
40	~~20~~ (5)							11		
	37									
	to									
45	~~25~~ 47									
50	~~20~~ (6)							11		49-53 ft: silty layer w/o Gravel.
	47									
	to									
55	~~25~~ 57									Cobble at 58.5 ft.
	(7)							10		
60	~~30~~ 57-67									

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:

DRILL RIG TYPE:

METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2
ELEVATION:
LATITUDE:
START DATE: 10.11.17
SHEET 3 OF 5

DATUM:
LONGITUDE:
FINISH DATE: 10.13.17

PROJECT: St Gobain Bennington
LOCATION: MWBR-2

CTM PROJECT NO.: 16.6131
CTM OBSERVER: RAK/DA

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
5	(7)	57						16		Till as above
10	(8)	67						10'		
15		77								
20	(9)	77						10'		82.5 - 84: Thinly laminated light brown, brown & dark gray. 86ft: Quartzite and slate gravel infill. (86-87ft.)
25		87								
30		10 87 to 97								

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2
ELEVATION:
LATITUDE:
START DATE: 10.11.17
SHEET 4 OF 5

DATUM:
LONGITUDE:
FINISH DATE: 10.13.17

PROJECT: Saint Gobain Bennington
LOCATION: MWBR-2

CTM PROJECT NO.: 16.6131
CTM OBSERVER: BAK/DA

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
90										
95	10		87	to	97			10'	Till ~~as above~~ As above with some (40%) angular medium to fine gravel (slate/Quartzite), medium dense, dry, no stain no odor.	89 ft: higher percentage (40%) medium to fine Gravel in till. Angular slate, quartzite: Possible Kadin clasts included.
100	11		97	to	107			10'		
105	12		107	to	117			10'		
110	13		117	to	127			10'		
115										
120										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.:
ELEVATION:
LATITUDE:
START DATE: 10·11·17
SHEET 5 OF 5
DATUM:
LONGITUDE:
FINISH DATE: 10·13·17

PROJECT: Saint Gobain Bennington
LOCATION: MWBR-2
CTM PROJECT NO.: 16.6131
CTM OBSERVER: BAK/DA

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
125	(13)	117 to 127						10'		Till w/angular c.f. Gravel as above
130	(14)	127 to 137						10'	Bottom of till at 133 ft.	
135	(15)	137 to 147						5'	133-138': Light orange-brown coarse to fine SAND, trace coarse to fine Gravel, trace (-) Silt. Loose, moist, no stain, no odor Bedrock: Tan Quartzite - some solution of thin horizontal - discontinuous layers near top (upper 0.3 ft) of core. Near vertical fracture (joint - unfilled - no slickensides) through core. Bottom of boring at 147'	138' - Top of Bedrock. Recovered 5' of rock core In till and rock. Groundwater not evident - introduced water for drilling.

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2 Rock Coring
ELEVATION: DATUM: Ground Surface
LATITUDE: LONGITUDE:
START DATE: 11·13·17 FINISH DATE:
SHEET 1 OF

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.6131
LOCATION: MWBR-2 - Bennington Landfill CTM OBSERVER: BAK

DEPTH (FT.)	SAMPLE TYPE	SAMPLE RUN NO.	BLOWS ON SAMPLER Box	0/6	6/12	12/18	18/24	ROD	RECOVERY	SAMPLE CLASSIFICATION	NOTES
140										Box 1: 4ft material left onsite from overburden drilling; Light tan and Gray Quartzite; Mostly massive with conchoidal fracture, Festained - eroded - weathered in upper 1.7ft. Some m-f quartz and opaque mineral grains. Drilling induced breaks, no natural fractures, H>steel, No HCl reaction,	
145		1	1					0	4'	151 ft: Medium Gray Quartzite with horizontal foliation. Drilling breaks along foliation every 0.03 to 0.3 ft. Wash 5 gal mixed in from 151-153 ft then clean Quartzite, Rock segments spun on drilling fractures, Very Hard > steel No HCl reaction. Breaking rods/worn cutting heads.	Run 1: 147-151, 10 min. 0.8ft Wash over 1.0 ft Quartzite over Quartzite rubble
150		2	1					0	3.0		Run 2: 151-154, 90 m.
		3	2					0	2.0		Run 3: 154-156, 90 m.
		4	2					0	2.0		Run 4: 156-158, 75 m
		5	2					0	2.0		Run 5: 158-160, 60 m.
160		6	2					0	0.9	Darker gray with black streaks below 156.5	Run 6: 160-162, 40 min.
											Run 7: 162-164: Rod broke, core stuck at 162-164.
165										* Hole abandoned: Video 11/27 casing broke at 70 fbg & lower 10'. Casing lifted 2' while pulling on stuck core - seal broken. Will move & drill new well.	
170											

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade
DRILL RIG TYPE: RotoSonic
METHOD OF INVESTIGATION: 4X6" Sonic Core

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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Barr Engineering Company
Rock Coring Log

Project: Saint Gobain Bennington Location: Bennington Landfill Proj# 16.6131 Boring: MWBR-2 Observer: RAK
Client: SG-PP Driller: Cascade Rig Type: Sonic AT / Truck Start Date: 11.13.17 Start Time: _____
Offset: _____ Crew: Ben Grim, Ralf Winn Core Type: ~~NQ / NX~~ / 4X6 End Date: _____ End Time: _____
Coords: _____ Datum: _____ GSEL: _____

Box No.	Depth Interval	Recovery	Rate of Advance & Hydraulic Pressure	Length of Each Piece Greater than 8" in Length	RQD: Sum of pieces ≥4"/total run	Lithology: Rock Type (sandy/silty) Comments	Hardness (Strong-Weak)	Color	Texture/ Grain Size	Structure (Bedding)	Weathering (Fresh-Residual Soil)	Fractures: Orientation	Fractures: Spacing	Moisture/ Staining/ HCL Reaction
1	R1 147-151	1/4	10min	0	0	Sand over Quartzite over Quartzite Rubble	Quartzite Very Hard	Tan	Massive mf Sand	NONE Evident	Fresh	None	—	NO HCl reaction
1	R2 151-154	3.0	95min	0	0	Quartzite	"	Gray	No grains	~Horiz Foliation	Fresh	NONE	—	"
2	R3 154-156	2.0	90min	0	0	Quartzite	"	Gray	No grains	"	"	"	—	"
2	R4 156-158	1.8	75min	0	0	Quartzite	"	"	No grains	"	"	"	—	"
2	R5 158-160	2.0	60min	0	0	Quartzite	"	"	No grains	Horiz. Foliation	"	"	—	"
2	R6 160-162	0.9	40min	0	0	Quartzite	"	"	"	"	"	"	—	"

WL: _____ While Drilling
WL: _____ After Drilling
WL: _____ ___ Hours After Drilling

Depth to Weathered Bedrock: _____ ft
Depth to Bedrock: _____ ft
Total Depth: _____ ft

Abandonment: SOIL ___ to ___ GROUT ___ to ___ CEM ___ to ___
Comments: _____

Measured / Estimated

Weather: _____

Page ____ of ____

C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2 (Relocated) DATUM: Ground Surface
ELEVATION:
LATITUDE: LONGITUDE:
START DATE: 12.8.17 FINISH DATE: 12.9.17
SHEET 1 OF 4

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16,6131
LOCATION: MWBR-2 CTM OBSERVER: PAK

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
140									Started drilling at 146 fbg	12.8.17: 1400-1600 drilled 146 to 203 ft. 12.9.17 drilled 203-263 ft.
									146-153: Medium Gray and Light Tan Quartzite. Cuttings: fine Sand → fine Gravel.	No HCl reaction
150									153-183: Mostly Tan Quartzite cuttings: c-f Sand. Gray Quartzite near bottom.	No HCl reaction
160										
170										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: Cascade
DRILL RIG TYPE: Roto-Sonic - Rigged for air rotary
METHOD OF INVESTIGATION: 6" Air hammer
Logged by cuttings in 10' intervals

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME
12.9	108	fbg	

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2 (Relocated)
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: FINISH DATE:
SHEET 2 OF 4

PROJECT: CTM PROJECT NO.:

LOCATION: CTM OBSERVER:

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
170										
180									183-213: Tan and Medium Gray Quartzite f-c Sand size cuttings	No HCl reaction
190										Driller reports low water yield between 193-203 ft.
200										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:

DRILL RIG TYPE:

METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR-2 (Re)located.
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: FINISH DATE:
SHEET 3 OF 4

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
200										
210									213-253: Tan Quartzite, cuttings of Sand size.	No HCl reaction.
220										
230										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.:
ELEVATION: DATUM:
LATITUDE: LONGITUDE:
START DATE: FINISH DATE:
SHEET 4 OF 4

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT.)	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	RECOVERY	SAMPLE CLASSIFICATION	NOTES
230										MWBR-2 left as 6" open hole in rock 146-263'. Developed and Sampled 12.11.17.
240										
250									253-263: Tan and Dark Gray Quartzite. C-f Sand size cuttings	No HC Reaction.
260									Bottom of boring at 263'	

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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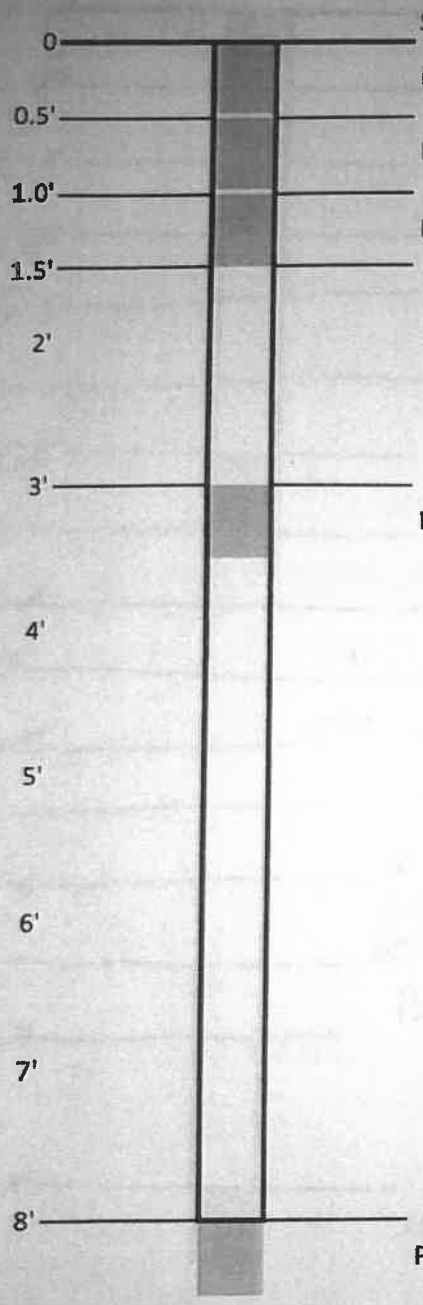
MWBR-2

10-12-17 ①

Deep

~~SHALLOW~~ SOIL PROFILES - LANDFILL



SOIL

0750 SG3-MWBRZ-0-0.5'

PFCs, pH, TOC, moisture content ~~0-0.5~~

PFCs, pH, TOC, moisture content 0800: SG3-MWBRZ-0.5-1'

PFCs, pH, TOC, moisture content 0810: SG3-MWBRZ-1-1.5'

PFCs, pH, TOC, moisture content 0815: SG3-MWBRZ-3-4'

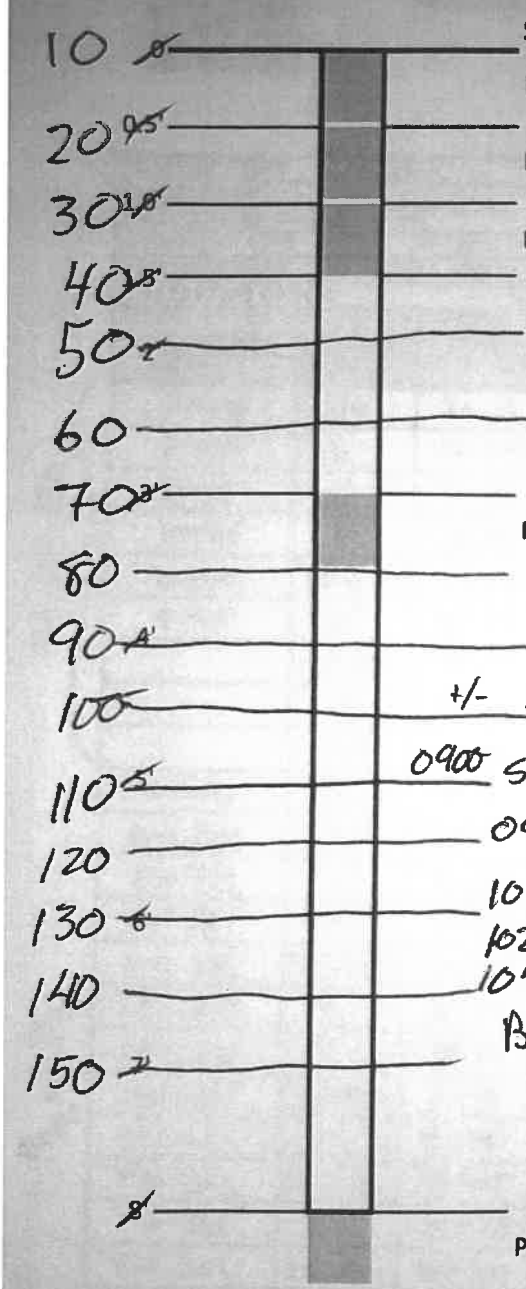
PFCs, pH, TOC, moisture content 0820: SG3-MWBRZ-8-9'

GROUNDWATER (if encountered) Not Sampled: in overburden.

PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

MWBR-2 10-12-17 & 10-13-17 (2)

~~SHALLOW~~ SOIL PROFILES - LANDFILL



0825: SG3-MWBR2-18-19'

0945: SG3-MWBR2-28-29'

1045: SG3-MWBR2-38-39'

1055: SG3-MWBR2-48-49'

1110: SG3-MWBR2-58-59'

1130: SG3-MWBR2-68-69'

1300: SG3-MWBR2-78-79'

1540: SG3-MWBR2-88-89' (+Field Dup.) FDS12

+/- 1600: SG3-MWBR2-98-99' 10.12.17

0900 SG3-MWBR2-108-109' (MS/SD) 10.13.17

0925: SG3-MWBR2-118-119' (FDS13)

1015: SG3-MWBR2-128-129'

1025: SG3-MWBR2-133-134' (MS/SD - Top of Sand)

1045: SG3-MWBR2-137-138' (Sand atop Bedrock)

Bottom at 136' atop Quartzite.

GROUNDWATER (if encountered) None Evident (use water for drilling)

PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - North Bennington	PROJECT #: 16.6131	PAGE 1 OF
CLIENT:	SGPP		DATE COLLECTED: 10/12/17
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000	LAMP 10.6 eV	DATE ANALYZED: 10/12/17
DATE INSTRUMENT CALIBRATED:	10/12/17	BY: DA	ANALYST: DA
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MWBR2		0-0.5	Soil	0.4	0.0	NO/NS
		0.5-1		0.8	0.0	NO/NS
		1-1.5		1.0	0.0	NO/NS
		1.5-3		0.5	0.0	NO/NS
		3-4		0.5	0.0	NO/NS
		4-8		0.4	0.0	NO/NS
		8-9		0.5	0.0	NO/NS
		9-18		1.0	0.0	NO/NS
		18-19		0.4	0.0	NO/NS
		19-28		0.7	0.0	NO/NS
		28-29		1.3	0.0	NO/NS
		29-38		1.1	0.0	NO/NS
		38-39		1.3	0.0	NO/NS
		39-48		0.7	0.0	NO/NS
		48-49		0.7	0.0	NO/NS
		49-58		1.0	0.0	NO/NS
		58-59		2.4	0.0	NO/NS
		59-68		1.1	0.0	NO/NS
		68-69		1.6	0.0	NO/NS
		69-78		1.6	0.0	NO/NS
		78-79		0.9	0.0	NO/NS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

(2)

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - North Bennington	PROJECT #: 16.6131	PAGE 2 OF
CLIENT:	SGPP		DATE COLLECTED: 10/12/17
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000 LAMP 10.6 eV		DATE ANALYZED: 10/12/17
DATE INSTRUMENT CALIBRATED:	10/12/17 BY: SA		ANALYST: SA
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MWBR2		79-88	Soil	0.4	0.0	NO/NS
↓		88-89	↓	0.5	0.0	NO/NS
		89-98		0.3	0.0	NO/NS
↓		98-99	↓	0.5	0.0	NO/NS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

DRAFT

PROJECT:	SGPP - North Bennington	**PROJECT #:** 16.6131	**PAGE 1 OF 1**
CLIENT:	SGPP		**DATE COLLECTED:** 10/13/17
LOCATION:	North Bennington, VT		
INSTRUMENT USED:	Mini-Rae 3000 **LAMP** 10.6 eV		**DATE ANALYZED:** 10/13/17
DATE INSTRUMENT CALIBRATED:	10/13/17 **BY:** PA		**ANALYST:** DA
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MWBR2		99-107	So.1	0.6	0.0	NO/NS
		107-109		0.4	0.0	NO/NS
		109-118		0.6	0.0	NO/NS
		118-119		0.3	0.0	NO/NS
		119-128		0.3	0.0	NO/NS
		128-129		0.8	0.0	NO/NS
	129-133	~~129-133~~		0.8	0.0	NO/NS
		133-134		0.5	0.0	NO/NS
		134-137		0.5	0.0	NO/NS
		137-138		0.7	0.0	NO/NS

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
***FT represents depth of sample collected feet below ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 1 of 8

PROJECT: SGPP Bennington
LOCATION: MW-BR3 SQUAW HILL Rd
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJE RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
2	0-5	1	2.5	0-7.5 ft FILL Poorly Graded SAND w/ SILT and Gravel (SP-SM) DJE 11-6-17 ~~Gravelly SAND (SP-SM)~~, tan/light brown, low moist fg SAND w/ few mg/cg (~65% SAND) - subangular fine to coarse Gravels - subround to subangular (~25 % gravel) few SILT/CLAY fines	(10 % fines)
4					
6					
8	5-10	2	3.0	@ 7.5 ft Native TILL SANDY to Gravelly LEAN CLAY TILL (CL) ~~SILTY CLAY~~ TILL w/ SAND & GRAVEL w/in DJE 11-6-17 brown, moist, mod/high plasticity, cohesive	
10					
12				DJE 11-6-17 ~20% SAND - mostly fg to cg mix - subround to subangular ~20% GRAVEL - Fine to coarse mix - Subround to subangular (~10 % Cobble - subround by volume) DJE 11-6-17 ~60% FINES - SILTY CLAY mix	
14	10-20	3	10		
16				Large cobbles @ 15 ft area 15-17 ft - possible boulder	

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 2 of 8

PROJECT: SGPP Bennington CTM PROJECT NO.: 45021004.00
LOCATION: MW-BR3 SQUAW HILLRd CTM OBSERVER: DTZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
18				↓ TILL Continued... ↓	
20					
22				f: trace cobbles	
24					
26	20-30	4	10		
28					
30				Cobbles / possible boulder @ 30-31.5 ft	Started using drilling water @ 30 ft ↓
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 1 of 8

PROJECT: SCAPP Bennington
LOCATION: MW-BR3 SQUAW HILL Rd
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				↓ TILL Continued... ↓	
34 2					
36 4	30-40	5	10	trace fragments of KAOLIN? w/in - small gravel sized crumbly / degrading rocks?	
38 6					
40 8				reddish brown, moist, high plasticity, cohesive	
				~10% SAND DJZ 11-6-17	
42 10				~20% GRAVEL	
				(~5% Cobble by volume) DJZ 11-6-17	
44 12				~60% FINES - SILTY CLAY / CLAY	
	40-50	6	10+	few fragments of slate w/in (SAND to GRAVEL size)	
46 14					
				hard / tight	
48 16					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 4 of 8

PROJECT: SGPP Bennington
LOCATION: MW-BR3 SQUAW HILL Rd
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
50				↓ TILL continued... ↓	
52					
54					
56	50-60	7	10+		
58					
60				large cobble @ 59 ft	
62					
64					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 5 of 8

PROJECT: SGPP Bennington
LOCATION: MW-BR3 - SQUAW HILL Rd
~~CTM~~ PROJECT NO.: 45021004.00
~~CTM~~ OBSERVER: DJZ / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
66	60-70	8	10+	↓ TILL continued.... ↓ areas of weathered metamorphic rock fragments some purple colored areas slate & schist fragments	w/in
68					
70					
72	70-80	9	10+	w/elongated slate fragments (SAND to Gravel size)	
74					
76					
78					
80					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 6 of 8

PROJECT: SGPP Bennington
LOCATION: MW-BR3 SQUAW HILL Rd
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
				↓ TILL continued... ↓	
82					
				NOT TILL	
84				Glacial Lacustrian / varve	
	80-90	10	10+	CLAY (CH) ~~some~~ fat, brown, moist, high plasticity, cohesive,	
86				laminations - very thin silt laminations (85-86' & 88-89')	
				trace to few mg log SAND fragments w/in	
88				very hard & high toughness	
90				90-96 ft SANDY CLAY (CL), brown, moist,	
				w/fg SAND w/in (some)	
92				laminations orangish brown + light grays	
				w/some areas more sandy than clayey (1 to 2" layers)	
94	90-100	11	10+	~~w/ inclusions of iron oxide~~	
96					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-19 FINISH DATE:
SHEET 1 of 8

PROJECT: SGPP Bennington
LOCATION: MW-BR3 SQUAW HILL Rd
CTM PROJECT NO.: 45021004.00
CTM OBSERVER: DJZ / RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
98 2				@ 96 ft TILL LEAN CLAY TILL (CL/CH) w/some fat to FAT orangish brown, moist, high plasticity, cohesive few SAND w/in - fg to mg w/trace cg trace gravel, fine to medium - subround to subangular reddish brown color areas areas w/ black "stains" + inclusions of reddish iron oxide @ 103 sandier & siltier (fg SAND) mix w/in	
100 4						
102 6						
104 8						
106 10	100-110			@ 106 ft Bedrock Cheshire Quartzite white/cream, some fine/med gr quartz sand. near vertical fracture black manganese & rusty red oxidation	
108 12						
110 14						
112 16						

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR3
ELEV.: DATUM:
START DATE: 10-23-17 FINISH DATE:
SHEET 8 of 8

PROJECT: SGPP Bennington CTM PROJECT NO.: 45021004.00
LOCATION: MW-BR3 SQUAW HILL Rd CTM OBSERVER: DJZ RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
114 112				Cheshire Quartzite	
116 114				– EOB	EOB @ 115 ft 10-24-17
118 116					
120 118					
122 120					
124 122					
126 124					
128 126					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE: Sonic
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

~~DIRECT-PUSH~~ EXPLORATION LOG

BORING NO.: MWBR-3 (Relocated)
ELEV.: DATUM:
START DATE: 12.20.17 FINISH DATE: 12.21.17
SHEET 1 of 3

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.613
LOCATION: MWBR-3 Squaw Hill Rd. CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
100					Bottom of 6" casing: 115'.
110				113.5 Top of material in casing (grout).	Air Hammer (6") in 10ft runs. Logged by rock chips. No HCl reaction
120				113.5-123.5: Light tan Quartzite; coarse to fine Sand size cuttings. Few chips of med Gray Quartzite. Few grains of clear & milky quartz.	
130				123.5-143.5: Light Tan Quartzite. C-f Sand size (breaks around original sand grains). No gray/clear/milky quartz. Few fine gravel size chips.	No HCl Reaction
140					
150				143.5-183.5: Light tan Quartzite with little med-dark gray Quartzite. Few coarse to fine gravel size pieces of quartzite. Trace coarse to fine Sand size grains of milky quartz.	143.5-153.5 Driller reports low ground-water yield & "soft" interval near bottom of run. No HCl Reaction
160					
170					
180					

DRILLING CONTRACTOR: CASCADE
~~DIRECT-PUSH TYPE~~:
METHOD OF SAMPLING: 6" Air Hammer Logged by cuttings in 10ft intervals

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-3 (Relocated)
ELEV.: DATUM:
START DATE: 12.20.17 FINISH DATE:
SHEET 2 of 3

PROJECT: Saint Gobain Bennington CTM PROJECT NO.: 16.613
LOCATION: MWBR-3 CTM OBSERVER: RAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
180				183.5 - 223.5: Very Light Tan Quartzite. Trace clear and light gray sand size grains. Cuttings: coarse to fine Sand size, some fine gravel size, trace coarse gravel size).	No HCl Reaction
190					
200					
210					At 213.5 Air lift with water off - yields 20-30 gpm - clear water.
220				223.5 - 253.5: Light Tan Quartzite and dark Gray phyllitic Slate. Coarse to fine Sand and fine gravel size cuttings. Trace c-f Sand grains of Milky and Clear quartz.	No HCl Reaction
230					
240					
250				253.5 - 273.5: Dark Gray phyllitic Slate (Soft drilling). C-f Sand, f-f Gravel size.	No HCl Reaction
260					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-3 (relocate 5) | ELEV.: | DATUM:
START DATE: 12.20.17 | FINISH DATE:
SHEET 3 of 3

PROJECT: Saint Gobain Bennington | CTM PROJECT NO.: 16.6131
LOCATION: MWBR-3 | CTM OBSERVER: DAK

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
260				True c-f Sand size grains of Milky Quartz.	Air lift for 1 HR at 273.5. Groundwater turbid & sand free. Yield 20-30 gpm - few slate chips in discharge. Filled 2 roll-offs with drilling and development water.
270				Bottom of MWBR-3 at 273.5 ft	
280					
290					
300					
310					
320					
330					
340					
350					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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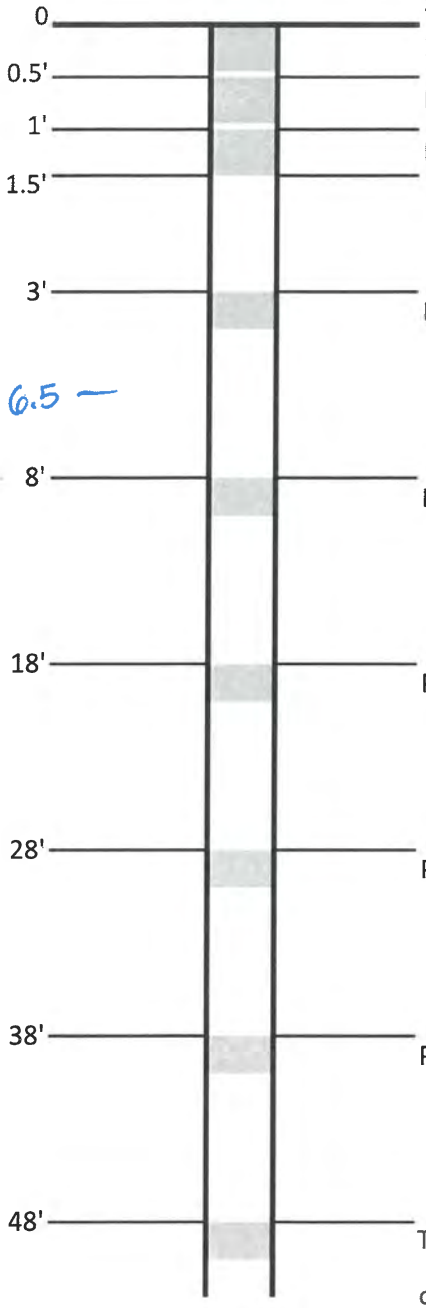
DEEP SOIL PROFILES ~~– LANDFILL~~ MW-BR3 10-23-17



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-0-0.5' @ 1215

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-0.5-1' @ 1220

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-1-1.5' @ 1225

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-3-4 @ 1230

→ SG3-MWBR3-6.5-7.5' @ 1235

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-8-9' @ 1240

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-18-19' @ 1335

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-28-29' @ 1400

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MWBR3-38-39' @ 1445

TOC, moisture content, TAL meta SG3-MWBR3-48-49' @ 1615

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

SG3-MWBR3-58-59' @ 1645

GROUNDWATER (if encountered)
PFCs, VOCs, Metals/Cations, Anions, Ammonia, Orthophosphate, TKN, 1,4-Dioxane

PSA Collect one soil sample from below the water table, if encountered

~~Sediment~~ Samples 10-23-17

SB 11-9-17

SG3-MWBR3-0-7.5'
SG3-MWBR3-7.5-40'
SG3-MWBR3-40-83

MW-BR3

Soil Samples 10-24-17

SG3-MWBR3-68-69' @ 0900
SG3-MWBR3-78-79' @ 0920
SG3-MWBR3-88-89' @ 0950
SG3-MWBR3-98-99' @ 1100
SG3-MWBR3-104-105 @ 1230

PSA
~~Sediment~~ Samples 10-24-17

DDZ 11-9-17

SG3-MWBR3-83-90'
SG3-MWBR3-90-96'
SG3-MWBR3-96-106'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington		PROJECT #: 450210044.00	PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-23-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10-23-17
DATE INSTRUMENT CALIBRATED: 10-23-17 @ 1250		BY: DJZ	ANALYST: DJZ / RAK
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR3	1	0-0.5	Soil	0.3	0.0	
MW-BR3	2	0.5-1	Soil	0.6	0.0	
MW-BR3	3	1-1.5	Soil	0.3	0.0	
MW-BR3	4	1.5-3	Soil	0.3	0.0	
MW-BR3	5	3-4	Soil	0.3	0.0	
MW-BR3	6	4-6.5	Soil	0.3	0.0	
MW-BR3	7	6.5-8	Soil	0.3	0.0	
MW-BR3	8	8-9	Soil	0.3	0.0	
MW-BR3	9	9-18	Soil	0.7	0.0	
MW-BR3	10	18-19	Soil	0.2	0.0	
MW-BR3	11	19-28	Soil	0.9	0.0	
MW-BR3	12	28-29	Soil	2.2	0.0	
MW-BR3	13	29-38	Soil	2.2	0.0	
MW-BR3	14	38-39	Soil	0.3	0.0	
MW-BR3	15	39-48	Soil	1.0	0.0	
MW-BR3	16	48-49	Soil	0.5	0.0	
MW-BR3	17	49-58	Soil	0.6	0.0	
MW-BR3	18	58-59	Soil	0.4	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington	PROJECT #: 45021004.000		PAGE 1 OF
CLIENT:			DATE COLLECTED: 10-24-17
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10-24-17
DATE INSTRUMENT CALIBRATED: 10-24-17 @ 1040	BY: DJZ RAK		ANALYST: DJZ / RAK
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR3	19	59-68	Soil	0.3	0.0	
MW-BR3	20	68-69	Soil	0.5	0.0	
MW-BR3	21	69-78	Soil	0.4	0.0	
MW-BR3	22	78-79	Soil	0.4	0.0	
MW-BR3	23	79-88	Soil	0.3	0.0	
MW-BR3	24	88-89	Soil	0.3	0.0	
MW-BR3	25	89-98	Soil	0.5	0.0	
MW-BR3	26	98-99	Soil	0.7	0.0	
MW-BR3	27	99-104	Soil	1.3	0.0	
MW-BR3	28	104-105	Soil	0.4	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: 10/20/2017 FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 45021004
LOCATION: Bennington, VT ~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY FT	SAMPLE CLASSIFICATION	NOTES
				grass & trc pine needles @ surface.	
4	0-7'	1	~5'	0-0.3' OL/OH: V dk. brn to black, few fg sand, trc fg gravel, moist, abundant roots (~60%). Fill 0.3-22' SMg: Greyish brown, moist, fg-cg sand, fg-cg gravel, some gravel (~40%), trc cobbles (up to 5"), ang-rnd., most gravel is sb-rnd to round. Little silt fines, loose, trc organics to ~2'. -At 7.0', 10" zone of mostly cobbles and fg-cg gravel. -At 8.0', becomes saturated, dk. greyish brown to gry-brn. slight increase in fines, possibly the approx. fill/native boundary., trc organics	Drilled to 27' and had to offset due to boulder challenging verticallity.
8					
12	7-17'	2	~9'		
16				-At 16.25', 9" lyr of very silty fg sand, grey, no gvl or sand above mg, possibly a sandy silt, soft, cohesive, nonplastic.	
20	17-27'	3	10'	-At 19', becomes dk. yellowish brown w/ decreased gvl (~10%), fg-mg sand, packed, slightly cohesive 22-29' TILL: SC: Fg-mg w/ trc cg, dk. yellowish brown to brown, moist, hard, trc-few fg ang. gravel, some clay fines	
24					
28	27-37	4	10'	29-67' TILL: CLS: Reddish brown, moist, hard to very hard, med plast., med-hi toughness, little to some fg-cg gravel, trc cobbles, trc qtz. inclusions (poss. just gravel particles), gvl is ang-sb rnd. 30-50% sand (highly variable).	
32					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 2 of 1

PROJECT: SGPP Bennington ~~CTM~~ PROJECT NO.: 45021004
LOCATION: Bennington, VT ~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
32					
36					At 36', soil getting sign. baked by sonic friction resulting in moisture loss in soil. Notably 37-47', 60-67', 84-87', 92-97
40					
44	37-47'	5	10'		33-47', may look like gravel in photos but is primarily very hard clay that baked + shattered while being drilled.
48				From 47-50, medium to high plast., decreased sand (~25%)	
52	47-57'	6	10'		
56					
60	57-67'	7	10'		

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.:
START DATE:
SHEET 3 of 1
DATUM:
FINISH DATE:

PROJECT: SGPP Bennington
LOCATION: Bennington, VT
~~CTM~~ PROJECT NO.: 45021004
~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
60				*[60% sand in jar settlement test, enter SM from 71-80' as "from 71-80'..." NOT as a new lithology]*	
64				67-80' SM:	
68				~~67-71' ML~~ RQM: Pale brown to lt. tannish grey, wet, soft, cohesive, few-some fg sand, laminated, rapid dilat., nonplastic., ~~occ thin lyrs (<3") are >50% sand (SM).~~ RQM	Driller noted very difficult advancement through sands from ~67' to
72	67-77'	8	10'	From 71-80', ~~71-80' SM~~: Tan to lt. brown, ~~wet, cohesive,~~ packed, ~~fgr~~ occ thin lyrs (<4") have silt laminations, ~45% silt fines.	
76					
80				At 78', becomes fg-mg	
				80-81.5' CH: Brown, moist to wet, hard, high plast./tough, blocky, trc-few fg sand.	
	77-87'	9	10'	81.5-84' CLS: Reddish brown, wet, low-med plast, med tough, slow dilat., some fg sand, trc-fw cg sand & fg gravel. Sand content increases w/ depth from ~35% @ top to ~45% @ bottom.	
84				84-92' SMg: Reddish brown to brown, wet, fg-cg, mostly fg, little fg-cg gravel, trc cobbles, loose, trc particles/clasts of very hard sandy clay, ~35% fines	
88				At 87', 2.5" lyr of well sorted, brown, mg sand w/ ~25% fines.	
	87-97'	10	10'	From 88-92', some cg gvl & cobbles, are sb-rnd to rnd., increased fines in sand matrix (~45%)	
92					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 4 of 1

PROJECT: SGPP Bennington PROJECT NO. 45021004
LOCATION: Bennington, VT OBSERVER:

DEPTH (FT.)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY	SAMPLE CLASSIFICATION	NOTES
92				*[From 92-97', possibly ocher, that was severely baked + shattered during drilling, much of sample is shattered chunks of packed clay with distinct iron-oxide-like color and ang. qtz inclusions w/in]	At 97', water returning to surface during drilling, some onto ground (<5g), halted drilling to seal circ.-tub. Advancing 7" casing into till on 10/22 AM to solve problem.
96				*[presence of kaolin below indicates lith starting @ 92' is ocher (seen more competently @ BR1]	
100	97-107'	11	10'	92-97' Ocher: Reddish brown, moist, ~55% fg-mg sand, occ. lyrs (<6") with up to 70% sand, variable fines (clay vs. silt), primarily clay fines. Little to some cg sand and fg gvl including angular qtz. inclusions, distinct "iron-oxide" color. At 96.5', 8" thick intercept of cheshire qtzite.	End of "very" difficult/hard drilling @ ~97'
104				97'- Kaolin: Light tan w/ occasional grey inclusions, light tan material is medium plasticity + grey material is nonplastic to low plast, dry to moist, friable, grey inclusions/zones concentrated in "zones" approx. 2' thick.	
108				From 100-102': some gray inclusions. At 104', 107', 108' } ~5" thick lyrs of white mg sand w/ orange oxidation colors (tru-few ox)	Bent. seal blew out going to 117', re-sealing will take some time (10/22 AM).
112	107-117'	12	10'	At 109', becomes very lt. tan to yellowish white, possible cross stratification @ 111'	
116				At 116', becomes platy w/ alternating lt. tan + grey material	
120	117-127'	13	10'	From 117-120', few fg-mg sand, mostly fg, low to med. plast., moist, laminated, laminations are lt. brown, tan, yellow, orange. Trc laminations are pinkish red or black (manganese). From 120-121.5', grey phyllite, moist. From 121.5-137', highly variable sand content (15-35%), moist.	
124					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 5 of 1

PROJECT:
LOCATION:
CTM PROJECT NO.:
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
124					
127	127-137'	14	10'		
130					
133					
136				At 137', 12" lyr of dark grey material, silty, trc sand, medium plast, dry to moist, friable.	
139	137'-147'	15	10'	From 138-142', laminated, laminations alternate between lt. tan and grey to dark grey. trc laminations are orangish brown or red. Some thin lyrs (<1") may be phyllitic- have vitreous luster.	
142				From 142-143.5', distinct alternating 1/4" layers of dk grey medium plast. lyrs w/ little fg sand and lt. tan lyrs with variable sand content (10-35%).	
145				At 143.5', 12" lyr of v. dk. grey material w/ platy textures. From 144.5-148', becomes lt. tan and sandy with ~30% fg Sand.	
148					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 6 of 1

PROJECT:
LOCATION: CTM PROJECT NO.:
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
148				From 148-150', layers (0.1 to 0.3" thick) of dark grey, light tan, and orangish brown, highly variable sand content and plasticity	
151				From 150-156', alternating ~~tyrs~~ laminations of lt. tan and brown. Laminations vary in silt content, some brown lams are mostly silt.	
154	147-157'	16	10'		
157				From 156-157', laminated, 80% very dk grey to dk greenish grey high plast. clay lams alternating with lt. tan and orangish brown low plast. silty lyrs.	
160				From 157-166', becomes brown, very silty clay interbedded with sandy lyrs in 3-9" intervals, sandy lyrs are silty or clayey and highly variable in plast (non to med., trc hi plast).	
163	157-167'	17	10'		
166				From 166-170', same as 157-166' with trc sand lyrs <1" thick.	
169	167-177'	18	10'	From 170-175', mostly med. plast. lt tan to brown clay w/ little lyrs (0.25-2") of argillicous phyllite thatrs dark grey and has vitreous luster.	
172					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 7 of 1

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
172					
175				From 175-177', very sandy (30-40%). fg-cg, mostly mg, lyrs of inconsistent thickness (0.1-2") are white, lt. tan, brown, and dk grey, white sandy lyrs may be >50% sand in some lyrs.	
178				From 177-184.5', mg brown saturated sand, ~70% sand, well sorted, likely severely altered or decomp'd quartzite.	
181	177-187'	19	10'		
184				From 184.5-207', primarily sandy silt w/ highly variable sand content (10-40%), saturated, soft to firm, rapid dilatancy, brown, tan, and lt. tan "lyrs" that were severely distorted by drilling.	
187					
190	187-197'	20	10'		
193					
196					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 8 of 1

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
196					
199					
202	197-207'	21	10'		
205					
208				From 207-216.5', same as 184.5-207' but mostly dark brown and contains trc fg-gvl-sized ang. qtz. inclusions. Qtz inclusions have alteration haloes around them of black, white, & lt. tan material.	
211	207-217'	22	10'		
214					
217				At 216.5', 6" lyr of black friable material, either a metamorphozed organic layer or massive manganese. Possible root trs filled w/ orangish brown silty mat., some faces of material have glassy luster.	
220					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.:
START DATE:
SHEET 9 of 1

DATUM:
FINISH DATE:

PROJECT:
LOCATION:

CTM PROJECT NO.:
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
220				From 217-226', some fg sand (~30%), reddish brown with trc to some deep reddish brown oxidized infusions, sat., soft to firm, med. plast., slow dilat.	
223	217-227'	23	10'		
226				From 226-242', little fg sand (15-20%), moist to wet, very silty, mostly grayish brown with thin lyrs and lams of brownish grey, dark brownish grey, reddish brown, and tan. Low to med. plast., slow dilat.	
229					
232	227-237'	24	10'		
235					
238					
241	237-247'	25	10'	At 242.0', 6" lyr as above w/ about 50% phyllite. At 242.5' 12" lyr of mostly phyllite/decomp'd schist.	
244					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MW-BR4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 10 of 1

PROJECT:
LOCATION:
CTM PROJECT NO.:
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
244				From 243.5-245', little to some fg sand (20-35%), moist, mostly reddish brown with brown, lt. tan, and lt. grey laminations and thin lyrs. Occ thin lyrs (1-6") are very silty, med. plast., slow dilat., firm to hard	
247				From 245-247', mostly phyllite/decomp'd schist, about 60% to 246', then 70-80% in bottom foot.	
250	247-257'	26	5'	From 247-252', as described from 243.5-245'	
253				No recovery 252-257', driller thought he hit rock and attempted to core it. Water completely washed out 5' very quickly and interval was lost into tub. Sampled 251-252' for analytical.	
256					
259	257 to 267	27	10'	From 257-262', brown, moist, med-hi plast, cohesive, trc-few sand.	* Ended 10 day shift @ 257', drillers resuming 10/30.
262				From 262-271', brown to reddish brown, moist, med. plast, few to little fg sand.	10.31.17 RAK takes over sampling and logging.
265					
268					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 11 of 1

PROJECT: SGPP Bennington — ~~CTM~~ PROJECT NO.: 45021001
LOCATION: Bennington, VT — ~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
268					
271	267 to 277	28	10'	271-276: Kaolinitic! Tan and light gray CLAY with discontinuos/convoluted, intercalated lamina of medium brown clay. Slightly moist, medium stiff.	No D/S/O
277				276-284: "Ocher": Dark Brown and Orange-Brown CLAY with convoluted/ discontinuous Kaolinitic lamina, Slightly moist, medium stiff.	No D/S/O
280	277 to 287	29	11'		
283				284-289: Kaolinitic! Light tan CLAY, trace fine Sand with discontinuous/ convoluted medium brown Clay lamina. Very slightly moist, medium stiff.	No D/S/O
286					
289	287 to 297	30	11'		
292'					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4
ELEV.: DATUM:
START DATE: FINISH DATE:
SHEET 1 of 1

PROJECT: SGPP Bennington
LOCATION: Bennington, VT
~~CTM~~ PROJECT NO.: 45021001
~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
292	287 to 297	30	11'	289-304: "Ocher". Orange-brown and medium Brown CLAY, trace fine Sand with discontinuous/convoluted, kaolinitic CLAY lamina: Very slightly moist, stiff.	No D/S/O More kaolinitic from 296-299.
295					
298					
301	297 to 307	31	11'		
304				304-309: Kaolinitic. Light tan and light gray CLAY with discontinuous/convoluted laminaand thin interbeds of orange-brown CLAY. Slightly moist, medium stiff.	No D/S/O
307					
310	307 to 317	32	11'	309-321: "Ocher". Medium brown and orange brown laminated (discontinuos/convoluted) CLAY with intercalated kaolin. Stiff, slightly moist.	No D/S/O 313 Color changes to dark brown/dark orange-brown.
313					
316					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4
ELEV.:
START DATE:
SHEET 13 of 1

DATUM:
FINISH DATE:

PROJECT: SGPP Bennington
LOCATION: Bennington, VT

~~CTM~~ PROJECT NO.: 45021001
~~CTM~~ OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
316					
319	317 to 327	33	10'	321-331; "Ocher". Dark brown and orange-brown CLAY, trace fine Sand with few Kaolin nodules and few discontinuous/convoluted kaolinitic lamina.	No D/S/O Soft Medium stiff with kaolinitic lamina/thin layers from 325 to 327.
322					
325					
328					
331	327 to 337	34	10'	331-341; "Ocher". Light brown and light orange-brown CLAY, trace fine Sand. Discontinuously/Convoluted laminated with intercalated medium to fine Gravel-sized pieces of dark gray-black phyllite (slate). Slightly moist, medium stiff.	Lighter Colored & No D/S/O
334					
337					
340					

DRILLING CONTRACTOR: Cascade
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4
ELEV.:
START DATE:
SHEET 14 of 1
DATUM:
FINISH DATE:

PROJECT:
LOCATION:
CTM PROJECT NO.:
CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
340					
343	337 to 347	35	11'	341-348: Kaolinatic. Light tan and light gray discontinuous/convoluted laminated CLAY, trace fine Sand, trace medium to fine Gravel (altered Quartzite), with orange-brown and dark gray laminations. Very slightly moist, stiff.	No D/S/O "Ocher" layers at 342-343 and 344-345. Logged to 347 10:31 Begin 11.1.17
346					
349	347 to 357	36	10'	348-364: "Ocher". Medium and light Brown Silty CLAY, trace coarse to fine Sand, little coarse to fine Gravel. Unlaminated/massive with intercalated 1-3" nodules of Kaolinitic material. Gravel = angular/altered phyllitic slate and quartzite. Slightly moist to moist, soft to medium stiff	No D/S/O
352					
355					
358	357 to 367	37	10'		
361					
364					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4 DATUM:
ELEV.: FINISH DATE:
START DATE:
SHEET 15 of 1

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
364				364-366: Tan CLAY, trace coarse to Kaolinitic fine Sand, some coarse to fine Gravel. Gravel is unaltered and altered black phyllitic slate and Quartzite (angular). Very slightly moist, stiff.	NO D/S/O
367					
370	367 to 377	38	9'	366-375: "Ocher": Light and dark Brown and gray Silty CLAY, little(-) coarse to fine Sand, some coarse to fine Gravel, few Cobbles. Unlaminated Massive. Gravel and cobbles = relatively unaltered black phyllitic slate and quartzite. slightly moist to moist, Soft to medium stiff.	NO D/S/O
373					
376				375-376: Kaolinitic layer with altered and relatively unaltered black phyllitic slate and quartzite. Slightly moist, stiff.	NO D/S/O
379	377 to 387	39	11'	376-392: "Ocher" Orange brown and medium Brown Silty CLAY, little coarse to fine Sand, little coarse to fine Gravel (angular, altered and relatively unaltered quartzite and phyllite) with Kaolinitic inclusions. Unlaminated - Massive. Moist, soft to medium stiff.	No D/S/O Dark brown coarse to fine Sand at +/- 385.5-385.9- Moist, loose) No D/S/O Kaolin lamina at 386-387.
382					
385					
388					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

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SAMPLE CLASSIFICATION BY:

C.T. MALE ASSOCIATES

DIRECT-PUSH EXPLORATION LOG

BORING NO.: MWBR-4 DATUM:
ELEV.: FINISH DATE:
START DATE:
SHEET 16 of 1 16

PROJECT: CTM PROJECT NO.:
LOCATION: CTM OBSERVER:

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE NUMBER	SAMPLE RECOVERY (FT)	SAMPLE CLASSIFICATION	NOTES
388					
391	387 to 397	40	5'	392-396.5: Orange brown medium to fine SAND, trace Silt. Wet (driller reports water loss), loose.	No D/S/O
394					Top of Rock 396.5
397				396.5-397: Unweathered Quartzite in core bit fragmented into 4 pieces. Top 0.1ft rock appears altered - SiO_2 cement evoded from surface.	11.1.17: End boring at 397 - driller reports broken drive head - 0.6" Quartzite in drill bit (unweathered)
400				11.3.17: Sonic core with water to 310ft: Drill reports cored rock full run with loss of water. Recovered 4ft of core: Gray quartzite with massive layers (eg. re-crystallization of original sand) exhibiting concoidal fracture and layers exhibiting original (unmetamorphosed) sand grains. SiO_2 - filled slightly dipping fractures present (as observed at BR1 on 11.2.17). Lower foot of core contains cherty (crypto-crystalline quartz) w/ strain fractures.	Bedding in rock appears +/- horizontal.
403					
406					- 11.3.17 - Begin overboring w/ 10" casing through overburden.
409					
412					

DRILLING CONTRACTOR:
DIRECT-PUSH TYPE:
METHOD OF SAMPLING:

GROUNDWATER LEVEL READINGS

DATE	LEVEL	REFERENCE MEASURING POINT

SAMPLE CLASSIFICATION BY:

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C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: MWBR4
ELEVATION:
LATITUDE: 42°55'10"N
START DATE: 12/6/17
SHEET 1 OF 2

DATUM: Ground surface
LONGITUDE: 73°11'26" W
FINISH DATE: 12/14/17

PROJECT: SGPP- Bennington
LOCATION: Andre Ln. Bennington, VT

CTM PROJECT NO.: [redacted]16.6131
CTM OBSERVER: KMD

DEPTH (FT.)	SAMPLE TYPE	SAMPLE RUN NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	BOX 18/24	RQD %	RECOVERY (INCHES)	SAMPLE CLASSIFICATION	NOTES
397	397-407	R1				1	0	60	First several inches include med. sand quartz grains cemented with finer ocher-colored sand. Crumbly, able to scratch with steel knife. Grades into harder, more competent dolomitic quartzite - effervescence w/ HCL. Unable to scratch with knife w/ moderate pressure. Grades into chert w/ discontinuous black bands (~.1" width).	R1 marks the top of bedrock (397 flag) and cored w/ 4" core. All cores after R1 was PQ coring. [redacted]
405										
407	407-408	R2				1●	0	12	407-408: Rubble, consistent comp. w/ R1	dip @ 30°-35°
408	408-409	R3				1	58	12	408-409: Dolomitic throughout run. Single fracture along plane of weakness (~30-35°) lined w/ kaolinite	R2 and R3: drillers experienced changes in resistance to down pressure.
410	409-414	R4				2	12	60	409-414: Heavy iron staining with "ocher" coating throughout run. Vertical fracture (80-90°) from top to bottom. Sub-horizontal fractures (25-30°) throughout run, spaced ever 2-3". Layered, slatey cleavage intervals (bedding dipping 25-30°).	
414									414-419: Fracture set (25-30°) every 2-18" 3 V shape, filled fractures 6-8" apart - filled w/ quartz. Sub horizontal fractures filled with kaolinite and iron staining. Vugs throughout with dolomitic fill.	
415	414-419	R5				2	90	60		
419									419-424: Reappearance of ~.1" discontinuous black bands - appears to have slatey cleavage, but very hard to see clearly. other veins with same composition having no apparent trend of orientation	
420	419-424	R6				3	23	47		
424									424-429: More pronounced layered, slatey cleavage intervals. Clearly a part of original sed. deposition. Bedding dips @ 30°-35° and breaks along bedding planes very easily. Effervescence when introduced to HCL.	
425	424-429	R7				3	48	60		
429										
430										

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR: CASCADE
DRILL RIG TYPE: Roto sonic
METHOD OF INVESTIGATION: 4x6 coring (R1)
PQ coring after R1

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

THE SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FOR C.T. MALE EVALUATION. IT IS MADE AVAILABLE TO AUTHORIZED USERS ONLY THAT THEY MAY HAVE ACCESS TO THE SAME INFORMATION AVAILABLE TO C.T. MALE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATIONS, INTERPRETATION OR JUDGMENT OF SUCH AUTHORIZED USERS.

C.T. MALE ASSOCIATES

TEST BORING LOG

BORING NO.: (CONT'D FROM MW8R4)
ELEVATION:
LATITUDE:
START DATE:
SHEET 2 OF 2
DATUM:
LONGITUDE:
FINISH DATE:

PROJECT: SGPP - Bennington
LOCATION: Andre Ln. - Bennington, VT
CTM PROJECT NO.: KMD
CTM OBSERVER:

DEPTH (FT.)	SAMPLE TYPE	SAMPLE RUN NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	BOX	RQD %	RECOVERY INCHES	SAMPLE CLASSIFICATION	NOTES
429										429-434: Very clear set of sub horizontal fractures (25-30°), spaced 4"-18" inches apart. Subvertical fractures (80°) discontinuous. V shaped fractures appear to be surficial.	
	429-434	R7					4	98	60		
435										434-439: Top half of run exhibits consistent dolomitic quartzite from previous runs w/ subhorizontal fracturing (25-30°) and staining along fractures. Bottom half of run appears to be more compact kaolinite - very thin bedding, able to scratch with knife, does not react with HCL, dips @ ~30° and breaks easily along bedding planes (slate-like bedding/cleavage)	kaolinite / iron
	434-439	R8					4	14	44		
440										439-444: Return to dolomitic quartzite. Broken fragments, many appearing to be "split" vertically. Unable to confidently identify fracture sets.	
	439-444	R9					5	12	60		
445										444-449: Almost all rubble. Some pieces showing sub-vertical (~80°) fractures with quartz fill ~.2" diameter veins.	
	444-449	R10					5	0	60		
450										449-454: Sub vertical fracture sets (80°) with iron staining - top half of run. (bottom half completely rubble). Sub-horizontal fractures (25-30°) coated with kaolinite along breaks.	
	449-454	R11					6	16	60		
455										454-459: Final run. Completely rubble. Only 24" of return - rest fell out of core barrel and back into hole.	* open hole tagged to 458 *
	454-459	R12					6	0	24		
460											

N = NO. OF BLOWS TO DRIVE 2" SAMPLER 12" WITH A 140 LB. WT. FALLING 30" PER BLOW

DRILLING CONTRACTOR:
DRILL RIG TYPE:
METHOD OF INVESTIGATION:

GROUNDWATER LEVEL

DATE	LEVEL	CASING	STABILIZATION TIME

SAMPLE CLASSIFICATION BY:

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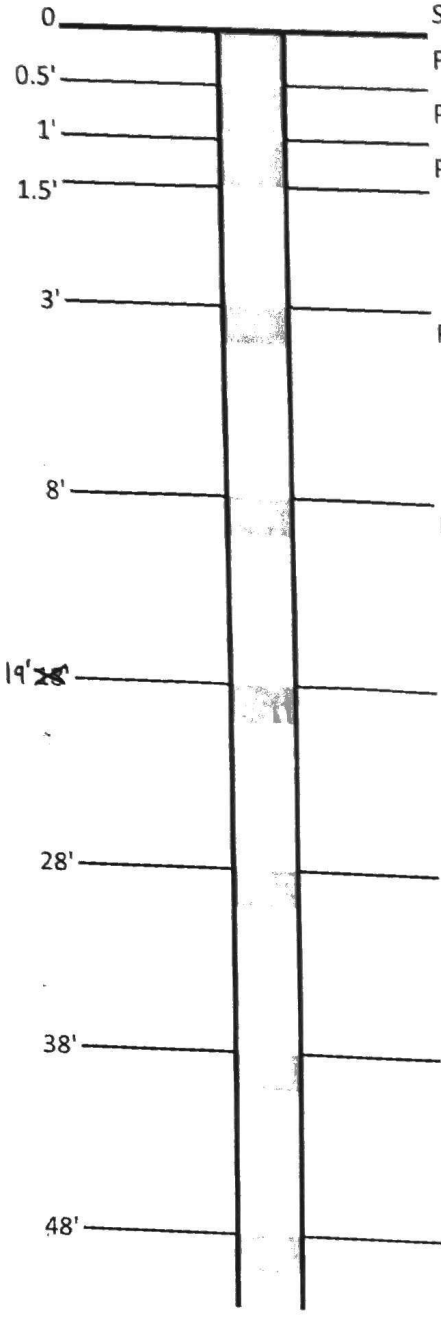
MW-BR4 10/20/17

Collected SG3-FBS15-171020 (pour) on 10/20/17 @ 1300
Collected SG3-FDS15-171021 from 38-39'
Collected SG3-MW-BR4-28-29' as MS/MSD vol.
Collected SG3-MW-BR4-108-109' as MS/MSD vol.

DEEP SOIL PROFILES



PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-0-0.5' @ 1210

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-0.5-1' @ 1215

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-1-1.5' @ 1220

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-3-4' @ 1230

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-8-9' @ 1235

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-19-20' @ 1245

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-28-29' @ 1000
* MS/MSD sample *

PFCs, pH, TOC, moisture content, TAL metals/cations SG3-MW-BR4-38-39' @ 1010
* SG3-FDS15-171021 collected *

TOC, moisture content, TAL meta SG3-MW-BR4-48-49' @ 1115

continue sampling every 10' until bedrock or water table

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts. Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

10/21/17 (cont.)
SG3-MW-BR4-58-59' @ 1140
SG3-MW-BR4-68-69' @ 1220
SG3-MW-BR4-78-79' @ 1330
SG3-MW-BR4-88-89' @ 1410
SG3-MW-BR4-98-99' @ 1530

10/22/17
SG3-MW-BR4-108-109' @ 1200
[108-109' = MS/MSD vol.]
SG3-MW-BR4-118-119' @ 1340
SG3-MW-BR4-128-129' @ 1515
SG3-MW-BR4-138-139' @ 1545
SG3-MW-BR4-148-149' @ 1625

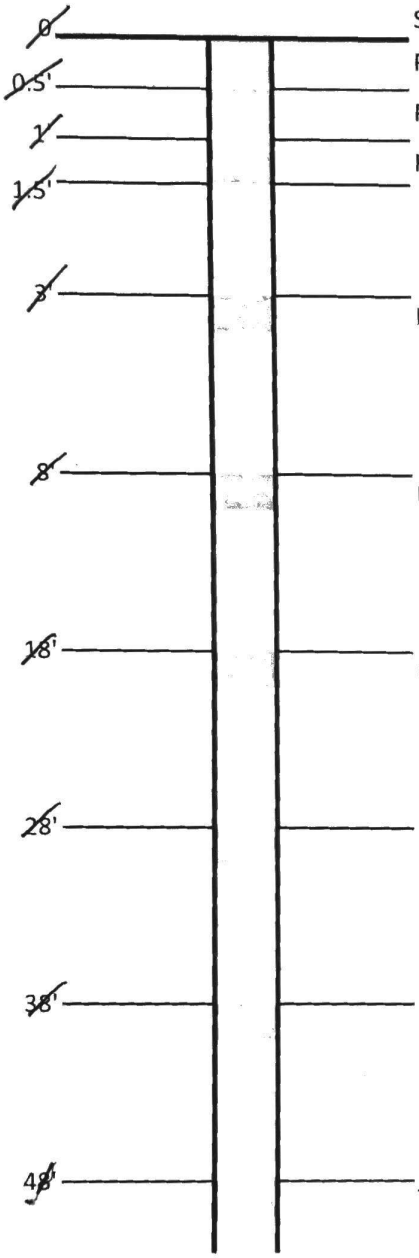
10/23/17
SG3-MW-BR4-158-159' @ 1040
SG3-MW-BR4-168-169' @ 1045
SG3-MW-BR4-178-179' @ 1105
SG3-MW-BR4-188-189' @ 1200
SG3-MW-BR4-198-199' @ 1300
SG3-MW-BR4-208-209' @ 1345
SG3-MW-BR4-216.5-217' @ 1425
* organics sample *

* cont. on Page 2 *

MW-BR4

DEEP SOIL PROFILES

Collected SG3-FDS16-171025 From 251-252'
Collected MS/MSD volume from 245-246'
Collected SG3-FBS16-171025 (rinsate)
Collected SG3-FBS17-171025 (pour)
Collected SG3-FDS17-171030 from 271-272'
Collected MS/MSD vol. from 261-262'



SOIL

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

PFCs, pH, TOC, moisture content, TAL metals/cations

TOC, moisture content, TAL meta

continue sampling every 10' until bedrock or water table

10/23/17 (cont. from pg 1)
SG3-MW-BR4-225-226' @ 1520
SG3-MW-BR4-235-236' @ 1650

10/24/17
No samples collected

10/25/17
SG3-MW-BR4-245-246' @ 1250
SG3-MW-BR4-251-252' @ 1300

*Wash-out from 252-257' so bumped sample int. to avoid a gap >10'

10/30/17
SG3-MW-BR4-261-262' @ 1200
SG3-MW-BR4-271-272' @ 1240
SG3-MW-BR4-281-282' @ 1440
SG3-MW-BR4-291-292' @ 1530

10.31.17
0800: SG3-MWBR4-301-302'
0830: SG3-MWBR4-311-312'
1130: SG3-MWBR4-321-322'
1500: SG3-MWBR4-331-332'
1530: SG-MWBR4-341-342'
1600: SG3-MWBR4-351-352'

11.1.17
1045: SG3-MWBR4-361-362'
1110: SG3-MWBR4-371-372'
1350: SG3-MWBR4-381-382'
1530: SG3-MWBR4-391-392'

11.2.17
1420: SG3-MWBR4-395-396'

In addition to the prescribed sampling interval, collect samples at distinct, thick lithologic contacts.
Collect a "soil" sample of any altered bedrock or saprolite, if encountered above the water table.

GROUNDWATER (if encountered)
PFCs, Metals/Cations (excluding CN- & Hg), Anions, Ammonia, Orthophosphate, TKN

Collect one soil sample from below the water table, if encountered

11.1.17 Lithology Samples
SG3-MWBR4-334-335' (Kaolinitic Layer)
SG3-MWBR4-353-354' (Ocher Layer)
SG3-MWBR4-374-375 ("OCHER" w/ Slate & Quartzite Fragments)
SG3-MWBR4-394-395 (Sand)

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: SGPP Bennington, CSM Investigation	PROJECT #: 45021004.00	PAGE 1 OF
CLIENT: SGPP		DATE COLLECTED: 10/20/17 to
LOCATION: Bennington, VT		
INSTRUMENT USED: MiniRae 3000 LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED: 10/20/17, daily after BY: RQM		ANALYST: RQM
TEMPERATURE OF SOIL: ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR4		0-0.5'	SOIL	0.5	0.0	No D/O/S
		0.5-1'		0.0	0.0	
		1-1.5'		0.0	0.0	
		1.5-4'		0.0	0.0	
		4-8'		3.0	0.0	
		8-9'		0.9	0.0	
		9-18'		0.3	0.0	
		18-20'		0.0	0.0	
		20-27'		0.2	0.0	
		27-30'		0.0	0.0	
		30-38'		0.0	0.0	
		38-39'		0.1	0.0	
		39-48'		5.3	0.0	Soil baked by friction
		48-49'		0.2	0.0	
		49-58'		0.0	0.0	
		58-59'		0.1	0.1	
		59-68'		0.1	0.1	
		68-69'		0.6	0.1	
		69-78'		0.0	0.1	
		78-79'		0.0	0.1	
↓		79-88'	↓	0.0	0.0	↓

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

MW-BR4		88-89'	SOIL	0.0	0.0	No D/O/S
		89-98'		0.2	0.0	
		98-99'		0.2	0.0	
		99-108'		0.1	0.0	
		108-109'		0.0	0.0	
		109-118'		0.0	0.0	
		118-119'		0.0	0.0	
		119-128'		0.0	0.0	
		128-129'		0.0	0.0	
↓		129-138'	↓	0.0	0.0	↓

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:		PROJECT #:	PAGE 2 OF
CLIENT:			DATE COLLECTED:
LOCATION:			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:	BY:		ANALYST:
TEMPERATURE OF SOIL: ambient			

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR4		138-139'	SOIL	0.1	0.0	No Odors
		139-148'		0.1	0.0	
		148-149'		0.0	0.0	
		149-158'		0.0	0.0	
		158-159'		0.0	0.0	
		159-168'		0.0	0.0	
		168-169'		0.0	0.0	
		169-178'		0.1	0.0	
		178-179'		0.0	0.0	
		179-188'		0.0	0.0	
		188-189'		0.2	0.0	
		189-198'		0.1	0.0	
		198-199'		0.3	0.0	
		199-208'		0.0	0.0	
		208-209'		0.0	0.0	
		~~209-218'~~		~~—~~	~~0.0~~	
		~~218-219'~~		~~—~~	~~0.0~~	
		209-216.5'		0.0	0.0	
		216.5-217'		0.9	0.0	
		217-225		0.0	0.0	
↓		225-226	↓	0.0	0.0	↓

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:		PROJECT #:	PAGE 3 OF
CLIENT:			DATE COLLECTED:
LOCATION:			
INSTRUMENT USED:	MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:		BY:	ANALYST:
TEMPERATURE OF SOIL:	ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MW-BR4		226-235'	SOIL	0.0	0.0	No D/O/S
		235-236'		0.0	0.0	
		236-237'		0.0	0.0	
		237-245		0.0	0.0	
		245-246		0.0	0.0	
		246-251		0.0	0.0	
		251-252		0.0	0.0	
		252-257				NO RECOVERY
		257-261		0.0	0.0	No D/O/S
		261-262		0.0	0.0	
		262-271		0.2	0.0	
		271-272		0.3	0.0	
		272-281		0.4	0.0	
		281-282		0.4	0.0	
		282-291		0.5	0.0	
		291-292		0.4	0.0	
		292-301		0.0	0.0	
		301-302		0.2	0.0	
		302-311		0.2	0.0	
		311-312		0.3	0.1	
		312-321		0.1	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT:	PROJECT #:	PAGE 4 OF
CLIENT:		DATE COLLECTED:
LOCATION: MWBR-4		
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV	DATE ANALYZED:
DATE INSTRUMENT CALIBRATED:	BY:	ANALYST:
TEMPERATURE OF SOIL: ambient		

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	~~SAMPLE TYPE~~	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
MWBR-4		321-322		0,1	0,0	No P/O/S
		322-331		0,3	0.0	
		331-332		0,3	0.0	
		332-341		3.2	0.0	
		341-342		1,0	0.0	
		342-351		0,3	0.0	
End 10.31.17		351-352		0,2	0,0	
		~~361-362~~	352-361	1,3	0,0	
		~~371-372~~	361-362	1,4	0,0	
		~~381-382~~	362-371	2,1	0,0	
		~~391-392~~	371-372	2,8	0,0	
			372-381	0,7	0,0	
			381-382	0,5	0,0	
			382-391	0,1	0,0	
			391-392	0,1	0,0	
End 11.1.17			392-396	0.1	0,0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.
**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.
*** represents feet below the ground surface

Appendix A.4

Well Development Logs

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/20/17 Time On-Site: 7:30 Time Off-Site: 16:50

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Clear, Calm, ~60°F

Present at Site: Dan King

Observations:

7:30 – Onsite @ McCaffrey to discuss sampling w/ JD + pickup/cal. equipment.
9:30 – Over to Bennington. Calibrated YSI + Turb meter. Met with Bob K. + Dan A.
10:30 – Finished preparing sampling materials + reviewing sampling procedure w/ Bob K.
12:00 – Travelled w/ BK to locations of treatment Facility + landfill wells.
12:20 – Began purging DO6 @ landfill.
13:00 – Began low-flow of DO6.
13:30 – Began sampling DO6.
15:00 – Finished sampling + loaded equipment. Back to Facility.
15:45 – Collected remaining rinse blanks off of tape to be used in slug tests + DTW meter → RB01 → RB02
16:10 – Met Derek (Bass) @ Frac tanks. Followed to hotel to ship coolers.
16:45 – Finished packing coolers for shipment.
16:50 – Offsite

Items to Verify:

List of Attachments: Checklist(1), Cal. log(1), GW serv. log(1), Purge log(1), COC(1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/20/17

Weather (*temp./precipitation*): Clear, Calm, ~60°F Site Name: SGPP-N. Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan Kling

Field Lead Signature: Dan Kling Time: 8:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-North Bennington
LOCATION: North Bennington

CTM PROJECT NO.: 16.6131
DATE: 10/20/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA00468)	8:00	pH 7.00	7.02	Cal.	DK
		pH 4.00	3.97		
		pH 10.00	10.06		
		ORP 244.0	250.6		
		~~0~~ Cond. 6241	6082		
Turb. (FA01856)	8:40	10.00	9.86	Bump	DK

Groundwater Services Field Log

DATE: 10/20/17 PROJECT NAME: SCAPP-North Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION:

SAMPLING PERSONNEL: Dan King

MONITORING WELL ID#: D06 NOTES TAKEN BY: D. King

DEPTH TO WATER: 9.88 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 14.80 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 4.92 ft BAILER: STAINLESS STEEL N/A

OTHER

WELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 0.79 GALLONS

VOLUMES PURGED: 2.5 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 12:21 ; TIME FINISHED:

OBSERVATIONS: COLOR transparent tan ; ODOR None

SHEEN None ; TURBIDITY 4.128 NTU

OTHER —

WATER RECOVERY HEIGHT: 9.88 ft ; RECOVERY TIME IN MINUTES: 5 mi

FIELD PARAMETERS: pH 6.48 SU , TEMPERATURE 15.3 °C

CONDUCTIVITY 1049 µS , OTHER DO=0.12

ORP = -25.8

Turb = 1.11

SAMPLE COLLECTION TIME: 13:35

NOTES: Sampled for

WELL LOW-FLOW PURGING LOG

Project Name: SGPP – N. Bennington

Project Number: 16.6131

Date Started: 10/19/17

Date Finished: 10/20/17

Field Parameters		Time (minutes)									
Purge	Intitial	5	10	15	20						
Water Level	9.88	9.88	9.88	9.88	9.88						
pH	5.7	6.46	6.42	6.42	6.44						
Conductivity (uS)	1032	1029	1027	1026	1023						
ORP (mV)	-48.9	-36.4	-29.1	-25.9	-25.0						
DO (mg/L)	0.93	0.30	0.19	0.18	0.15						
Temperature (C)	14.0	14.0	14.0	14.0	14.0						
Turbidity (NTU)	128	67.1	20.7	24.2	8.84						

Monitoring Well: D06

Notes:

Total Depth: 14.80'

Water Column: 4.92'

One Well Volume: 0.79 gal

Field Parameters		Time (minutes)									
Low-Flow	Intitial	5	10	15	20	25	30	✓			
Water Level	9.88	9.88	9.88	9.88	9.88	9.88	9.88	✓			
pH	~~5.56~~	6.10	~~6.46~~	6.48	6.48	6.48	6.48	✓			
Conductivity (uS)	1039	1045	1045	1047	1045	1046	1049	✓			
ORP (mV)	-21.3	-22.8	-24.0	-24.2	-24.3	-25.2	-25.8	✓			
DO (mg/L)	0.18	0.12	0.11	0.11	0.12	0.13	0.12	✓			
Temperature (C)	15.2	15.2	15.3	15.3	15.2	15.2	15.3	✓			
Turbidity (NTU)	16.1	15.1	1.14	1.20	1.18	1.62	1.11	✓			

Monitoring Well: D06

Notes:

150mL/min. (pump minimum)

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 555842

Client Information

Client: ~~Barr Engineering Co.~~ CT Male Associates	Acct. #:
Project Name/#: SGPP – North Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Dan King	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ | Other: Rinse Water ✓

Analysis Requested

Preservation and Filtration Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	19 PFAS	Remarks
SG3-RB01-171020	10/20/17	15:30	✓		2	✓	Rope
SG3-RB02-171020	10/20/17	15:35	✓		2	✓	DTW Meter

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 24h TAT 10/24/17

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
(NYSDEC Category A or B)
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	10/20/17	15:50			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/24/17 Time On-Site: 0735 Time Off-Site: 1745

Project Name: North Bennington Project No.: 16.6131

Purpose: Well Development Field Report No:

Weather Conditions: Cloudy, Rain on/off, windy

Present at Site: ~~0735 onsite~~

Observations: 0735 onsite at McCaffrey Street to calibrate/load equipment for well Development in North Bennington

0810 Reviewing work plan with Jon Dippert

0835 En route to north bennington

Stopped for fuel for generator on the way

1120 Onsite at landfill - Searching for B-4-3

↳ found well, Tubing is placed in cap with brass fittings. Called Jon Dippert and was instructed to pull tubing out and set up for Development

0955 Setting up for well development at B-4-3

1040 Started Purge but unable to get any water, Troubleshooting Dan Actyl / Jon King onsite to help, well is pumping @ 100-200 ml/min max.

1250 Dan Actyl offsite, Continuing Purge

1450 Development Stopped after 6 well volumes, Cleaning up equipment/loading truck

1540 En route to Bennington College to purge well with Dan Actyl / Jon Dippert

1625 Began Purge @ D15

1645 Purge Complete, 3 well volumes Purged, Cleaning up equipment/loading truck

1715 Taking filled buckets of purged waste water to dump into waste water frack tanks

1745 offsite

Items to Verify:

List of Attachments: well low flow purging log, well development log, daily cal log

Field Log Prepared by: Cliff Bandi

Copies to:

WELL DEVEOPMENT LOG

Project Name: SBPP- Bennington

Project Number: 16.6131

Date Started: 10/24/17

Date Finished: 10/24/17

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level	198.81	198.83	198.86	198.85	198.85	198.84	198.85				
pH	6.63	6.57	6.00	6.05	6.19	6.26	6.25				
Conductivity (uS)	87.9	89.4	50.0	49.7	49.9	50.3	50.7				
ORP (mV)	152.5	158.2	182.3	185.2	181.2	181.9	183.3				
DO (mg/L)	8.33	7.84	9.82	10.38	9.89	9.66	8.99				
Temperature (C)	16.9	16.8	11.8	10.9	10.8	10.9	11.2				
Turbidity (NTU)	72.2	115	31.6	20.0	13.0	10.82	10.27				

Monitoring Well: B-4-3

Total Depth: 223.30

Water Column: 24.49

One Well Volume: 3.9 gallons

Notes: Development Start @ 1040
stop @ 1450

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

WELL LOW-FLOW PURGING LOG

Project Name: SGPP - Bennington

Project Number: 16.6131

Date Started: 10/24/07

Date Finished: 10/24/07

Field Parameters		Time (minutes)										
	Intitial	10	20	30	—							
Water Level	14.27	55.19	68.72									
pH	7.41	~~8.44~~ 7.51	7.53									
Conductivity (uS)	656	628	627									
ORP (mV)	-96.1	-138.7	-124.4									
DO (mg/L)	1.03	1.00	1.49									
Temperature (C)	11.8	10.7	10.5									
Turbidity (NTU)	1742	over	over									

Monitoring Well: D15
Total Depth: 78.9'
Water Column: 64.63'
One Well Volume: 10.34 gal

Notes: Purge Start @ 1625
Stop @ 1645
3 well volumes Purged

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)										
	Intitial											
Water Level												
pH												
Conductivity (uS)												
ORP (mV)												
DO (mg/L)												
Temperature (C)												
Turbidity (NTU)												

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: ~~SGPP - McCaffrey Street~~ SGPP-Bennington CTM PROJECT NO.: 16.6131 ~~14.4756~~

LOCATION: ~~Hoosick Falls, NY~~ North Bennington DATE: 10/24/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI FA 00226	0755	PH 7.00	6.95	Cal	CB
		PH 4.00	4.01		
		PH 10.00	9.95		
		ORP 237.5	224.2		
		Cond. 6737	6678		
Turb FA 01390	0810	10.00 NTU	10.14	Bump	CB

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/25/17 Time On-Site: 0800 Time Off-Site: 1645

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: GW Sampling Field Report No:

Weather Conditions: Cloudy, 65° F, wind ESE @ 1 mph

Present at Site: CTMale (Dan King, Cliff Bondi, Nicole Castagnier)

Observations:

0800 - Arrive on site. (McCaffrey)
YSI and turbidity meters calibrated at office earlier this morning.
Collect equipment needed for GW Sampling in Bennington.

0920 - Arrive at Bennington LF.

0930 - Notice that GeoTech sent us ½" by ¾" HDPE tubing (needed & expecting ¼" HDPE tubing).

0945 - Call John Dippert and inform him of this. He instructed us to connect multiple sections of ¼" HDPE tubing with silicon tubing and stainless steel hose clamps.

1000 - Head to Home Depot to purchase hose clamps.

1030 - Arrive back on site.
Began setting up bladder pump at well B-4-3. (total depth ≈ 223 ft.)

1145 - On the phone w/ John Dippert while starting purge of B-4-3, top section of silicon tubing in airline burst under pressure from pump. Removed top section of airline tubing after it had broken free.

Items to Verify:

List of Attachments: Well Low Flow Purging Log, GW Services Field Log, QC Calibration Log

Field Log Prepared by: N. Castagnier

Copies to:

C.T. MALE ASSOCIATES

Date 10/25/17

Environmental Services Field Log

(continued)

Project Name: SGPP - Bennington Project No.: 16.6131

Observations:

We were instructed to pull pump out of well. Pump stuck near bottom section of well.

1205 - Call John Dippert. He instructed us to leave pump in well until tomorrow.

Pack up equipment and move to well D-15.

1230 - Set-up equipment at D15.

1310 - Start low flow purge prior to sampling w/ bladder pump.

1350 - Start sampling D-15.

1515 - Head to McCaffrey Street - SGPP to pack up coolers for courier.

1645 - Left site

WELL LOW-FLOW PURGING LOG

Project Name: SGPP - Bennington

Project Number: 16.6131

Date Started: 10/25/17

Date Finished: 10/25/17

Field Parameters		Time (minutes)									
	Intitial	5	10	15	20	25	30	35			
Water Level	14.16	15.20	15.54	15.93	16.16	16.32	16.49	16.61			
pH	7.19	7.28	7.35	7.39	7.41	7.42	7.44	7.45			
Conductivity (uS)	698	694	690	689	688	686	685	485			
ORP (mV)	-247.6	-303.2	-358.8	-376.2	-414.9	-454.3	-462.4	-462.7			
DO (mg/L)	1.33	0.76	0.56	0.39	0.33	0.25	0.23	0.24			
Temperature (C)	12.0	11.7	11.5	11.3	11.3	11.1	11.1	11.0			
Turbidity (NTU)	948 AW	738 AW	237	194	138	123	124	182			

Monitoring Well: D-15

Total Depth: 78.90

Water Column: 64.74

One Well Volume: 10.4

Notes: start low flow purge @ 13:10
stable @ 13:45 ~ 2.5 gallons.
sample @ 13:50

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Groundwater Services Field Log

ATE: 10/25/17 PROJECT NAME: SGPP – ~~McCaffrey St~~ Bennington (NC)

ROJECT NO.: ~~14.4756~~ 16.6131 PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT (NC)

AMPLING PERSONNEL: NC, CB

ONITORING WELL ID#: D-15 NOTES TAKEN BY: NC

EPTH TO WATER: 14.16 ft FROM: TPVC BAILER ID: N/A

EPTH TO BOTTOM: 78.90 ft FROM: TPVC BAILER: NEW DISPOSABLE

'ATER COLUMN HEIGHT: 64.74 ft BAILER: STAINLESS STEEL N/A

OTHER

'ELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

'ELL VOLUME: 10.4 GALLONS

OLUMES ~~PURGED~~: 2.5 GALLONS PURGE METHOD: Bladder Pump

IME STARTED: 13:10 ; TIME FINISHED: 13:45

BSERVATIONS: COLOR cloudy ; ODOR none

SHEEN none ; TURBIDITY NTU

OTHER

'ATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

ELD PARAMETERS: pH 7.45 SU , TEMPERATURE 11.0 °C

CONDUCTIVITY 685 µS/cm , ~~OTHER~~ DO 0.24 mg/L

ORP -462.7 mV

AMPLE COLLECTION TIME: 13:50

OTES: Sampled for ~~TCL VOCs, PFCs, TOC, TDS, TAL Metals, Cyanide, TCL SVOCs, TCL Pesticides, TCL PCBs,~~ and Anions/~~Cations~~ CB

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - N. Bennington

LOCATION: N. Bennington, NY

CTM PROJECT NO.: 16.6131

DATE: 10/25/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
FA00226	645	pH 4.00	4.06	Cal	NC
		pH 7.00	7.00		
		pH 10.00	10.12		
		ORP 237.5	244.8		
		Cond. 6737	6934		

eurofins | Lancaster Laboratories — Environmental Services Analysis Request/Chain of Custody

COC#: 17639

Acct. #: 37191 Group #: Sample #:

For Lab Use Only
SF#: 292959
SCR#: 211659

Client: C.T. Male Associates

Project Name/#: SGPP - Liberty Street (Military) Site ID:

P.O. #: 16.6132 (CB 14.4756)

Sampler: Cliff Brunk

Phone #: 518-786-7400 Quote #: 214135

State where sample(s) were collected: NY

Matrix: Soil ☐ Sediment ☐ Water ☒ Potable ☐ Ground ☐ NPDES ☐ Other: Rinse Blk

Analyses Requested / Preservation Codes

Sample Identification	Collection Date	Collection Time	Grab	Composite	Total # of Containers	TCL VOAs (8260C) + TIC	TAL Metals	TCL Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D) + TIC	TOC (5310 C)	Cl-, SO4- (300.0)	CN (9012A)	Alk, Bicarb, Carb. (2320 B)	12 PFCs (EPA 537 mod.)	Remarks
						H	N				P		B			
SG1-MW26-171023	10/23/17		X		17	X	X	X	X	X	X	X	X	X	X	
SG1-LTB01-171024	10/24/17	235			4	X									X	
SG1-FTB01-171025	10/25/17	1545	X		2										X	

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☐

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K molne@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐ TX TRRP - 13 ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ ASP Type A ☐
Type VI (Raw Data Only) ☐ ASP Type B ☒

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Cliff Brunk	10/25/17	1600			

Airbill No.:
Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/26/17 Time On-Site: 0800 Time Off-Site: 1615
Project Name: SGPP - Bennington Project No.: 16.6131
Purpose: GW Sampling Field Report No:

Weather Conditions: 50°F, Rain, Wind 5-15 mph From South
Present at Site: CTMale (Cliff, Nicole, Dan K., Keegan)
Observations:

0800 - Arrive on site. YSI and turbidity meters calibrated at office.
0900 - Nicole & Cliff set up equipment at D-11.
0950 - Start initial purge at D-11. Parameters collected every 10 minutes. Dan King is purging and low flow purging DJ21 (He has a seperate paperwork)
1000 - Nicole left site to pick up wattera tubing at McCaffrey.
1100 - Nicole back on site at Bennington. Now using both the bladder pump and wattera pump to conduct initial purge.
1220 - Start low flow of D-11 prior to sampling. Parameters collected every 5 mins.
1415 - D-11 is stable Collecting samples now.
1545 - Done with sampling. Pack up equipment.
1615 - Left site to send samples out from office.

Items to Verify:

List of Attachments: Calibration Log, Well Low Flow Purging Log, GW Services Field Log, COC
Field Log Prepared by: N. Castagnier
Copies to:

WELL LOW-FLOW PURGING LOG

Project Name: SGPA - Bennington

Project Number: 16.6131

Date Started: 10/26/17

Date Finished: 10/26/17

Field Parameters		Time (minutes)									
	Intitial	10	20	30	40	50	60	70	80	90	
Water Level	106.42	106.46	106.52	106.32	106.51	106.47	108.52	108.83	108.90	107.55	
pH	11.13	9.38	9.56	9.57	9.13	9.27	9.23	9.24	9.00	8.75	
Conductivity (uS)	630	316.5	314.7	317.6	319.7	322.1	307.1	317.1	319.8	29.5	
ORP (mV)	77.6	-76.2	-104.7	-112.8	-163.9	-121.2	-116.8	-97.6	-90.7	-2.1	
DO (mg/L)	2.99	1.15	1.07	0.91	0.88	0.74	0.88	1.43	1.63	9.91	
Temperature (C)	10.8	10.6	10.5	10.3	10.4	10.8	9.8	10.8	10.6	10.8	
Turbidity (NTU)	35.0	29.0	23.0	39.2	138		151	193	160	over range	

Monitoring Well: D15
Notes: Initial 3 well volume purge Start @ 0950
Stop @ 1040
↳ Battery dead waiting for nozzle to return from Webster Street w/ truck
Total Depth: 149.40
Water Column: 42.98
One Well Volume: 6.87 gal x 3 = 20.61 gal

Field Parameters		Time (minutes)									
	Initial	5	10	15	20	25	30	35	40	45	50
Water Level	106.75	106.82	106.69	106.69	106.80	106.00	106.54	106.52	106.52	106.51	106.00
pH	8.44	8.27	8.08	7.99	7.85	7.71	7.64	7.6	7.59	7.60	7.64
Conductivity (uS)	331.1	335.0	347.0	354.4	363.5	369.8	371.4	374.2	371.6	371.0	194.0
ORP (mV)	-256.3	-265.5	-269.8	-256.5	-171.7	-198.1	-196.5	-151.6	-149.9	-149.8	50.5
DO (mg/L)	0.10	0.12	0.19	0.21	1.45	0.25	0.21	0.38	0.27	0.44	1.49
Temperature (C)	10.6	10.5	10.5	10.5	10.6	10.6	10.6	10.8	10.5	10.7	10.5
Turbidity (NTU)	over range	over range	over range	1776AU	1242 AU	1400AU	661	758	643	664	745

Restart @ 1140
end @ 1210

Monitoring Well: D-11
Notes: Start low flow @ 12:20
Total Depth: 149.40
Water Column: 42.65
One Well Volume: 6.8

Field Parameters		Time (minutes)									
	Intitial	55	60	65	70	75	80	85	90	95	100
Water Level				106.50	106.50	106.60	106.59	106.51	106.59	106.50	106.52
pH				7.60	7.61	7.58	7.56	7.55	7.51	7.51	7.51
Conductivity (uS)				365.6	364.5	359.9	358.7	353.5	390.4	327.9	350.6
ORP (mV)				-66.0	-122.9	-119.9	-92.4	-113.5	-113.2	-113.4	-112.1
DO (mg/L)				2.28	0.36	0.50	1.26	0.29	0.24	0.24	0.31
Temperature (C)				10.7	10.6	10.6	10.8	10.6	10.5	10.5	10.6
Turbidity (NTU)				723	211	211	57.8	55.1	72.2	12	42.8

Monitoring Well:
Notes: pump temp. Stopped
Could not record readings
Total Depth:
Water Column:
One Well Volume:

Field Parameters		Time (minutes)									
	Intitial	105	110								
Water Level		106.51	106.56								
pH		7.50	7.49								
Conductivity (uS)		350.3	351.0								
ORP (mV)		-112.8	-114.8								
DO (mg/L)		0.26	0.26								
Temperature (C)		10.5	10.5								
Turbidity (NTU)		40.9	40.7								

Monitoring Well:
Notes:
Total Depth:
Water Column:
One Well Volume:

Stable at 14:10 ~ 2 gallons

Sample @ 14:15

Groundwater Services Field Log

ATE: 10/26/17 PROJECT NAME: SGPP - ~~McCaffrey St~~ Bennington VT

ROJECT NO.: ~~14.1756~~ 16.6131 PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington ~~NY~~ VT (52)

AMPLING PERSONNEL: CB, NC

ONITORING WELL ID#: D-11 NOTES TAKEN BY: NC

EPTH TO WATER: 106.75 ft FROM: TPVC BAILER ID: N/A

EPTH TO BOTTOM: 149.40 ft FROM: TPVC BAILER: NEW DISPOSABLE

'ATER COLUMN HEIGHT: 42.65 ft BAILER: STAINLESS STEEL N/A

OTHER

'ELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

'ELL VOLUME: 6.8 GALLONS

OLUMES ~~PURGED~~: ~2 GALLONS PURGE METHOD: Peri. Pump

'ME STARTED: 12:20 ; TIME FINISHED: 1410

BSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 40.7 NTU

OTHER

'ATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

ELD PARAMETERS: pH 7.49 SU , TEMPERATURE 10.5 °C

CONDUCTIVITY 351.0 µS/cm , ~~OTHER~~ DO 0.26 mg/L

AMPLE COLLECTION TIME: 1415 ORP -114.8 mV

OTES: Sampled for ~~TCL VOCs, PFCs, TOC, TDS, TAL Metals, Cyanide, TCL SVOCs, TCL Pesticides, TCL PCBs, and Anions/Cations~~ CB

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-N. Bennington
LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 10/26/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA00226)	6:20	pH 4.00	3.85	Cal.	DK
		pH 7.00	6.88		
		pH 10.00	10.02		
		Cond. 6737	6601		
		ORP 231.0	238		
YSI (FA01785)	6:20	pH 4.00	4.02	Cal.	DK
		pH 7.00	~~6.99~~ 7.00		
		pH 10.00	10.05		
		Cond. 6737	6855		
		ORP 231.0	232.6		

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/27/17 Time On-Site: 0730 Time Off-Site: 1545

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: GW Sampling Field Report No:

Weather Conditions: 65°F, Sunny, Wind NW @ 3 mph

Present at Site: CTMale (Nicole, Keegan, Dan K)

Observations:

0730 - Arrive on site.
Calibrate YSI and turbidity meters.
Fill generator w/ gas.

0830 - Arrive at Bennington LF.
Set up equipment with John Dippert and Dan Achtyl.

1010 - Start initial purge of B-4-3 with wattera pump. Keegan is on site.
Parameters collected every 10 mins.

1110 - Dan K. is sampling D-21 (He has a seperate log).
Start low flow purge of B-4-3 prior to sampling w/ the wattera. Parameters collected every 5 mins.

~~1140~~ NC

1140 - Start sampling B-4-3.

1230 - Pack up equipment.
Head back to McCaffrey to pack coolers for courier and write up COC.

1515 - Courier is on site.

1545 - Left site for the day.

Items to Verify:

List of Attachments: COC, Calibration Log, GW Services Field Log, Well Low Flow Purging Log

Field Log Prepared by: N. Castagnier

Copies to:

Groundwater Services Field Log

ATE: 10/27/17 PROJECT NAME: ~~SGPP – McCaffrey St~~ Bennington (NC)

ROJECT NO.: ~~14.4756~~ 16.6131 PROJECT LOCATION: ~~Hoosick Falls, NY~~ Bennington, VT

AMPLING PERSONNEL: NC, KD

ONITORING WELL ID#: B-4-3 NOTES TAKEN BY: NC

EPTH TO WATER: 199.15 ft FROM: TPVC BAILER ID: N/A

EPTH TO BOTTOM: 223 ft FROM: TPVC BAILER: NEW DISPOSABLE

'ATER COLUMN HEIGHT: 23.85 ft BAILER: STAINLESS STEEL N/A

OTHER

'ELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

'ELL VOLUME: 3.8 GALLONS

OLUMES PURGED: ~6 GALLONS PURGE METHOD: Wattera Pump

IME STARTED: 11:00 ; TIME FINISHED: 11:35

BSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 3.71 NTU

OTHER

'ATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — min

ELD PARAMETERS: pH 6.40 SU , TEMPERATURE 10.0 °C

CONDUCTIVITY 50.1 µS/cm , ~~OTHER~~ DO 9.30 mg/L

AMPLE COLLECTION TIME: 11:40 ORP 187.9 mV

OTES: Sampled for ~~TCL VOCs, PFCs, TOC, TDS, TAL Metals, Cyanide, TCL SVOCs, TCL Pesticides, TCL PCBs, and Anions/Cations~~ CB

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey Street~~ Bennington

LOCATION: ~~Hoosick Falls, NY~~ N. Bennington, VT

CTM PROJECT NO.: 16.6131 ~~14.4756~~

DATE: 10/27/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
FA00226	0800	pH 4.00	4.08	Cal	NC
		pH 7.00	6.99		
		pH 10.00	10.07		
		ORP 250.5	241.0		
FA01~~8556~~ 390 (NC)		Cond 5255	5215		
	0810	10.00 NTU	9.25		
				Cal	NC

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52272

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-N. Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/ HNO3+a; 250 mL - HNO3; 40 mL glass-unpres.; 250 mL - H2SO4; 500 mL - H2SO4; 250 mL; Soil: 40mL glass - HCl; 250mL plastic - NaOH/ass; 250 mL Glass; % Solids	Preservative Code	Field Filtered Y/N
1. SG3-DZ1-171027	—	—	—	10/27/17	9:15	GW	N	7	2 1 1 1 2	O C A A D A B E A	N N N N N Y N N N
2. SG3-LTB01-171027	—	—	—	10/27/17	—	RW	N	2	2		
3. SG3-FTB01-171027	—	—	—	10/27/17	10:20	RW	N	2	2		
4. SG3-B-4-3-171027	—	—	—	10/27/17	11:40	GW	N	15	2 2 2 1 1 1 3 1 2		
5.											
6.											
7.											
8.											
9.											
10.											

OUTSIDE LANDFILL

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LANDFILL

Analyses:

(19) PFCs, TCL VOCs (SOM02.2 Vol), TAL Metals + Cations (including CN + Hg), Anions, Ammonia, Orthophosphate, Total Kjeldahl Nitrogen, 1,4-dioxane

* See attachments & Verify w/ MDD

BARR USE ONLY

Sampled by: DK, NC

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? (Y) N Date Time

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: Date Time

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/3/17 Time On-Site: 7:40 Time Off-Site: 14:30

Project Name: SGPP – ~~Liberty Street~~ McCaffrey + Bennington Project No.: 16.6132, 14.475C

Purpose: GW Sampling Field Report No:

Weather Conditions: Fair, slight breeze, ~50°F

Present at Site: Dan King

Observations:

7:40 – Onsite @ McCaffrey. Prepared sampling materials + equipment. Left for Bennington.

8:30 – Onsite @ Bennington facility, trailer to gather remaining sample materials/equipment. Need to meet NC to get filter for orthophosphate sample.

9:50 – Set up @ location of DZ1.

10:25 – Collected GW sample for orthophosphate analysis. Began loading equipment.

11:30 – Dropped off equipment @ facility trailer. Onsite @ McCaffrey.

12:00 – Moving to set up @ location of MW-26S to collect grab sample (GW)

12:50 – Collected GW sample for PFCs @ MW-26S, ~~well~~ well purged dry.

13:30 – Finished sample paperwork @ trailer. Discussed progress w/ PW development w/ JD + drillers.

14:30 – Unloaded unnecessary equipment. Offsite, need to ship samples from offices

Items to Verify:

List of Attachments: Checklist(1), Cal. log(1), GW serv. log(2), COC(1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/31/17

Weather (*temp./precipitation*): Fair, slight breeze, ~50°F Site Name: SGPP-N. Bennington + SGPP-McCaffrey

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☐ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☐ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☐ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☐ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 8:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~Liberty St.~~ N. Bennington CTM PROJECT NO.: 16.6137X1

LOCATION: ~~Hoosick Falls, NY~~ N. Bennington, VT DATE: 10/31/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
Turb. Meter (Bat)	10:00	0.10 NTU	0.11	bump	DJS

Rev. 6/10/2011

Groundwater Services Field Log

DATE: 10/31/17 PROJECT NAME: SGPP-N.Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N.Bennington, VT

SAMPLING PERSONNEL: Dan King

MONITORING WELL ID#: D21 NOTES TAKEN BY: D. King

DEPTH TO WATER: 14.38 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 17.15 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: ft BAILER: STAINLESS STEEL N/A

*Collecting sample for remaining analyses only

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

WELL CASING DIAMETER

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: — GALLONS

VOLUMES PURGED: GALLONS PURGE METHOD: Peristaltic

TIME STARTED: — ; TIME FINISHED: —

OBSERVATIONS: COLOR — ; ODOR —

SHEEN — ; TURBIDITY 111 NTU

OTHER —

WATER RECOVERY HEIGHT: — ft ; RECOVERY TIME IN MINUTES: — mi

FIELD PARAMETERS: pH — SU , TEMPERATURE — °C

CONDUCTIVITY — µS , OTHER —

SAMPLE COLLECTION TIME: 10:25

NOTES: Sampled for Orthophosphate

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 564579

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-N. Bennington	PWSID #:
Project Manager: MDD	P.O. #: 16.6131
Sampler: D. King	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested — Preservation and Filtration Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

1 of 1

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	F Ortho-phosphate	Remarks
SG3-DZ1-171031	10/31/17	10:25	✓		1	1	2x250 mL plastic-unpres. (OUTSIDE LAB FIELD)

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: mdupay@barr.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	10/31/17	15:45			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes (No)

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt _____ °C

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/23/17 Time On-Site: 8:50 Time Off-Site: 15:20

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Overcast, Windy, ~65°F

Present at Site: Dan King, Nicole Castagnier

Observations:

8:50 - Onsite.

9:45 - Calibrated 2x YSI + Turb. Meters. Leaving for Bennington.

10:15 - Onsite @ Bennington. Met w/ Adam from Barr & Dan A., discussed sampling + slug tests. Prepared GW sample kits + coolers.

11:15 - Set up @ location of D18 @ WWTP.

11:28 - Began well purging of D18.

12:10 - Finished purge.

12:51 - Achieved 80% recovery, began low-flow.

13:28 - Stable conditions, begin sampling.

14:10 - Finish sampling. Loaded equipment. Moving to D08 in Landfill.

14:48 - Begin well purging of D08.

15:20 - Finished initial purge of D08, Loaded equipment, offsite. (need to ship coolers from office)

Items to Verify:

List of Attachments: Checklist(1), Cal. log(2), GW serv. log(1), Purge log(1), COC(1)

Field Log Prepared by: Dan King Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/23/17

Weather (*temp./precipitation*): Overcast, Windy ~65°F Site Name: SGPP-N. Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 9:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-N. Bennington
LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 10/23/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA00468)	9:00	pH 7.00	6.98	Cal.	DK
		pH 10.00	10.04		
		pH 4.00	4.04		
		ORP 244.0	242.8		
		Cond. 6007	5812		
Turb. Meter (FA01876)	9:40	10 NTU	9.86 NTU	bump	DK

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP - ~~McCaffrey Street~~ N Bennington

LOCATION: ~~Hoosick Falls, NY~~ N. Bennington, VT

CTM PROJECT NO.: 16.6131 ~~14.4756~~

DATE: 10/23/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
FA01785	0900	pH 4.00	4.16	Cal	NC
		pH 7.00	7.10		
		pH 10.00	10.15		
		ORP 244.0	254.2		
FA01058	0945	Cond. 6007	2944 ~~1500~~ (NC)		
		1060 NTU	10.18	Cal	

Groundwater Services Field Log

DATE: 10/23/17 PROJECT NAME: SGPP-N. Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: Dan King, Nicole Castagnier

MONITORING WELL ID#: D18 NOTES TAKEN BY: DK

DEPTH TO WATER: 25.85 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 36.96 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 11.11 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.78 GALLONS

VOLUMES PURGED: 5.33 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 11:27 ; TIME FINISHED: 12:10

OBSERVATIONS: COLOR None ; ODOR None

SHEEN None ; TURBIDITY 5.22 NTU

OTHER Total drawdown = 1.25'

WATER RECOVERY HEIGHT: 26.09 ft ; RECOVERY TIME IN MINUTES: 41 mi

FIELD PARAMETERS: pH 10.80 SU , TEMPERATURE 13.2 °C

CONDUCTIVITY 452.4 µS , OTHER DO = 0.67
ORP = -86.1
Turb = 0.04

SAMPLE COLLECTION TIME: 13:30

NOTES: Sampled for

WELL LOW-FLOW PURGING LOG

Project Name: SGPP-N. Bennington

Project Number: 16.6131

Date Started: 10/23/17

Date Finished: 10/23/17

Field Parameters		Time (minutes)									
Purge	Intitial	10	20	30	40						
Water Level	25.85	26.84	27.07	27.11	27.10						
pH	10.00	10.59	10.79	10.93	10.98						
Conductivity (uS)	4488	471.4	449.4	440.1	439.2						
ORP (mV)	-104.0	-163.8	-176.9	-190.3	-197.2						
DO (mg/L)	0.60	0.53	0.48	0.40	0.33						
Temperature (C)	12.1	12.0	12.1	12.0	11.9						
Turbidity (NTU)	5.22	0.34	0.06	0.49	0.21						

Monitoring Well: D18

Total Depth: 36.96'

Water Column: 11.11' (25.85' DTW)

One Well Volume: ~~5~~ 1.78 gal.

Notes:

Drawdown = 1.25' x 0.80 = 1.00'

80% rec. = 26.10' DTW

Field Parameters		Time (minutes)									
Low-flow	Intitial	5	10	15	20	25	30	✓			
Water Level	26.09	26.25	26.30	26.35	26.37	26.38	26.41	✓			
pH	10.3	10.75	10.82	10.87	10.93	10.94	10.80	✓			
Conductivity (uS)	460.0	457.3	458.4	457.1	454.0	454.2	452.4	✓			
ORP (mV)	14.2	-59.8	-80.5	-74.7	-90.8	-90.8	-86.1	✓			
DO (mg/L)	1.10	0.61	0.60	0.66	0.65	0.63	0.67	✓			
Temperature (C)	13.6	13.5	13.4	13.5	13.0	13.1	13.2	✓			
Turbidity (NTU)	0.70	0.58	0.77	0.41	0.35	0.68	0.04	✓			

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

140 mL/min. low-flow

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47382

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/Trizma	250 mL - HNO_3	40 mL glass unpres.	250 mL	500 mL - H_2SO_4	250 mL	Soil: 40 mL glass HCl	250 mL plastic - NaOH	250 mL glass	% Solids	Comments
Preservative Code									O	C	A	A	O	A	B	E	A		
Field Filtered Y/N									N	N	N	N	N	Y	N	N	N		
1. SG3-D18-171023	—	—	—	10/23/17	13:30	GW	N	15											(19) PFCs, metals/cations (including CN+Hg), anions, ammonia, TKN, Orthophosphate, 1-4-Dioxane SOMO2, 2 VOCs, Alkalinity (carb, bicarb.), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, sulfate *
2. SG3-FTB01-171023	—	—	—	10/23/17	16:40	GW	N	2											
3. SG3-LTB01-171023	—	—	—	10/23/17	—	GW	N	2											
4.																			
5.																			
6.																			
7.																			
8.																			
9.																			
10.																			

Verify w/ M. Dupay *

* Sample is not from Landfill

BARR USE ONLY							
Sampled by: Dan Kling, Nicole C.	Relinquished by:	On Ice? (Y) N	Date 10-23-17	Time 17:15	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD	Samples Shipped VIA: ☑ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47382

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Pk.	Address: 50 Century Hill Blvd
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/Trizma; 250 mL - HNO_3; 40 mL glass unpres.; 250 mL; 500 mL - H_2SO_4; 250 mL	Soil: 40 mL glass HCl; 250 mL plastic - NaOH; 250 mL glass; % Solids	Preservative Code	Field Filtered Y/N	Comments
									O C A A O A	B E A			
									N N N N Y N	N N			
1. SG3-D18-171023	—	—	—	10/23/17	13:30	GW	N	15					(19) PFCs, metals/cations (including CN+Hg), anions, ammonia, TKN, Orthophosphate, 1-4-Dioxane, SOM02, 2 VOCs, Alkalinity (carb, bicarb.), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, sulfate
2. SG3-~~6~~FTB01-171023	—	—	—	10/23/17	16:40	GW	N	2					
3. SG3-LTB01-171023	—	—	—	10/23/17	—	GW	N	2					
4.													
5.													
6.													
7.													
8.													
9.													
10.													

* Verify w/ M. Dupay

* Sample is not from Landfill

BARR USE ONLY							
Sampled by: Dan King, Nicole C.	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/24/17 Time On-Site: 7:40 Time Off-Site: 16:10

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Overcast (high chance rain), very windy, ~70°F

Present at Site: Dan King, Cliff Bondi, Dan Achtyl

Observations: 6:00 - Calibrated YSI's @ office.
7:40 - Onsite @ McCaffrey. Discuss plan w/ JD + CB. Prepare sample coolers.
8:25 - Onsite @ N. Bennington landfill, location of D08. Prepare to begin lowflow.
8:55 - Began low-Flow of D08.
9:25 - Finished low-flow. Began collecting samples. CB onsite - developing B-4-3.
10:15 - Finished sampling D08. Loading equipment. DA onsite, takes equipment + begins purging D09.
10:30 - Finished loading equipment, over to facility trailer to make more sampling bottle sets.
11:15 - Over to B-4-3 to help DA + CB w/ waterra.
12:00 - To ~~MW~~ D25 location.
12:47 - Began initial purge of D25.
13:27 - Purged 3x well vol..
14:00 - Acheived 80% recovery, began low-Flow.
14:36 - Finished low-Flow. Began collecting samples
15:40 - Finished collecting samples + loaded equipment. Got D09 samples + equipment from DA.
16:00 - Met JD @ facility trailer to get paperwork. Prepared blanks.

~~Items to Verify:~~ 16:10 - Offsite.

List of Attachments: Checklist(1), Cal. log(1), GW sev. log(3), Purge log(3), COC(1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/24/17

Weather (*temp./precipitation*): Overcast, Very Windy ~70°F, high chance rain Site Name: SGPP-N. Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: [signature] Time: 8:20

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-N. Bennington
LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 10/24/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA01785)	6:05	pH 4.00	3.84	Cal.	DK
		pH 7.00	6.80		
		pH 10.00	9.87		
		ORP 231.0	236.7		
		Cond. 6737	6634		
YSI (FA00468)	6:05	pH 4.00	4.00	Cal.	DK
		pH 7.00	6.95		
		pH 10.00	9.96		
		ORP 231.0	236.2		
		Cond. 6737	6638		
Turb. Meter (FA01058)	8:45	10 NTU	10.19	bump	DK
Turb. Meter (FA01786)	8:50	10 NTU	9.74	bump	DK

Groundwater Services Field Log

DATE: 10/23/17 + 10/24/17 PROJECT NAME: SGPP-N. Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: Dan King, Nicole Castagnier

MONITORING WELL ID#: D08 NOTES TAKEN BY: D. King

DEPTH TO WATER: 11.20 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 17.56 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 6.36 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.02 GALLONS

VOLUMES PURGED: 3.06 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 14:48 ; TIME FINISHED: 15:06

OBSERVATIONS: COLOR Transparent tan ; ODOR None

SHEEN None ; TURBIDITY 53.0 NTU

OTHER

WATER RECOVERY HEIGHT: 11.A (0.0 recovery) ft ; RECOVERY TIME IN MINUTES: 18h 7 min.

FIELD PARAMETERS: pH 6.78 SU , TEMPERATURE 15.7 °C

CONDUCTIVITY 911 µS , OTHER DO = 0.33 mg/L

ORP = -17.9 mV

Turb = 1.62 NTU

SAMPLE COLLECTION TIME: 9:30

NOTES: Sampled for See COC

WELL LOW-FLOW PURGING LOG

Project Name: SGPP-N. Bennington

Project Number: 16.6131

Date Started: 10/23/17

Date Finished: 10/24/17

Field Parameters		Time (minutes)									
	Intitial	10	20								
Water Level	11.20	11.12	11.13								
pH	6.73	6.60	6.63								
Conductivity (uS)	855	838	830								
ORP (mV)	5.7	-14.1	-18.8								
DO (mg/L)	3.08	0.39	0.18								
Temperature (C)	15.2	14.8	14.8								
Turbidity (NTU)	53.60		5.75								

Monitoring Well: D08

Total Depth: 17.56'

Water Column: 6.63'(11.20' DTW)

One Well Volume: 1.02gal

Notes:

Drawdown = 0.07 x 0.8 = 0.056

∴ 11.186' = 80% recovery

Field Parameters		Time (minutes)									
Low-Flow	Intitial	5	10	15	20	25	30	✓			
Water Level	11.19	11.18	11.17	11.17	11.17	11.17	11.17	✓			
pH	6.60	6.63	6.71	6.73	6.74	6.76	6.78	✓			
Conductivity (uS)	892	899	909	904	921	912	911	✓			
ORP (mV)	55.9	37.5	1.1	-2.9	-10.1	-14.7	-17.9	✓			
DO (mg/L)	0.62	0.58	0.52	0.46	0.34	0.31	0.33	✓			
Temperature (C)	16.2	16.0	15.9	15.9	15.9	15.7	15.7	✓			
Turbidity (NTU)	3.19	2.85	2.42	2.67	1.89	1.65	1.62	✓			

Monitoring Well: D08

Total Depth:

Water Column:

One Well Volume:

Notes:

low-flow 120mL/min.

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Total Depth:

Water Column:

One Well Volume:

Notes:

Groundwater Services Field Log

DATE: 10/24/2017 PROJECT NAME: SGPP Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: Bennington, VT

SAMPLING PERSONNEL: DA

MONITORING WELL ID#: D09 NOTES TAKEN BY: DA

DEPTH TO WATER: 24.15 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 32.90 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 8.75 ft BAILER: STAINLESS STEEL N/A

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
(2") = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.4 GALLONS

VOLUMES PURGED: 4.25 GALLONS PURGE METHOD: peri pump

TIME STARTED: 1015 ; TIME FINISHED: 1105

OBSERVATIONS: COLOR brown/cloudy to clear; ODOR none

SHEEN none ; TURBIDITY 6.39 NTU

OTHER

WATER RECOVERY HEIGHT: 24.19 ft ; RECOVERY TIME IN MINUTES: 120 mi

FIELD PARAMETERS: pH 6.60 SU , TEMPERATURE 16.0 °C

CONDUCTIVITY 1137 µS , OTHER 0.20 mg/L (DO)
-42.0 mV (ORP

SAMPLE COLLECTION TIME: 1350

NOTES: Sampled for PFCs, TCL VOCs (SemoVOC), TAL Metals + Cations (incl. cyanide, mercury, Anions, Ammonia, orthophosphate, TKN, 1,4-Dioxane

WELL LOW-FLOW PURGING LOG

Project Name: SEPP Bennington

Project Number: 16.6131

Date Started: 10/24/17

Date Finished: 10/24/17

Field Parameters	1305	Time (minutes)									
low-flow	Intitial	~~1305~~	10	15	20	25	30	35	40		
Water Level	24.18	24.18	24.19	24.19	24.19	24.19	24.19	24.19	24.19		
pH	6.57	6.56	6.55	6.56	6.57	6.58	6.59	6.59	6.60		
Conductivity (uS)	1227	1122	1117	1130	1130	1131	1143	1141	1137		
ORP (mV)	-35.4	-29.9	-31.5	-33.7	-37.9	-42.9	-43.0	-43.6	-42.0		
DO (mg/L)	1.11	0.29	0.30	0.33	0.28	0.22	0.20	0.20	0.20		
Temperature (C)	18.6	15.5	15.9	16.0	16.1	15.9	16.0	15.9	16.0		
Turbidity (NTU)	20.7	12.57	11.38	12.50	9.65	6.11	6.30	6.28	6.39		

Monitoring Well: DOA

Notes: start Low flow at 1305, Sample at 1350

Total Depth: 32.90'

Water Column: 8.75'

One Well Volume: 1.4

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:

Notes:

Total Depth:

Water Column:

One Well Volume:

Groundwater Services Field Log

DATE: 10/24/17 PROJECT NAME: SGPP-N. Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: Dan King

MONITORING WELL ID#: DZS NOTES TAKEN BY: D. King

DEPTH TO WATER: 9.70 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 23.17 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 13.47 ft BAILER: STAINLESS STEEL N/A

OTHER

WELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 2.12 GALLONS

VOLUMES PURGED: 6.36 GALLONS PURGE METHOD: Peristaltic

TIME STARTED: 12:47 ; TIME FINISHED: 13:27

OBSERVATIONS: COLOR Transparent tan ; ODOR None

SHEEN None ; TURBIDITY 15.4 NTU

OTHER

WATER RECOVERY HEIGHT: 10.02 (2.65' removed ~~3.00 ft sediment~~ ft) ; RECOVERY TIME IN MINUTES: 33 mi

FIELD PARAMETERS: pH 7.45 SU , TEMPERATURE 16.7 °C

CONDUCTIVITY 544 µS , OTHER DO = 4.04
ORP = 52.7
Turb = 4.21

SAMPLE COLLECTION TIME: 14:40

NOTES: Sampled for See COC

WELL LOW-FLOW PURGING LOG

Project Name: SGPP-N. Bennington
Project Number: 16.6131

Date Started: 10/24/17
Date Finished: 10/24/17

Field Parameters		Time (minutes)									
Purge	Intitial	10	20	30	40						
Water Level	9.70	11.76	11.98	12.43	12.70						
pH	~~6.61~~ 7.24	7.46	7.30	7.38	7.38						
Conductivity (uS)	475.1	481.3	554	546	537						
ORP (mV)	190.5	48.5	71.6	36.4	9.9						
DO (mg/L)	~~1.47~~ 5.71	5.51	5.23	~~3.44~~ 4.64	4.65						
Temperature (C)	16.5	16.1	15.1	15.2	15.3						
Turbidity (NTU)	—	15.4	12.48	10.95	5.98						

Monitoring Well: DZS
Total Depth: 23.17'
Water Column: 13.47' (9.70' DTW)
One Well Volume: 2.12 gal.

Notes:
Drawdown = 3.00 x 80.8 = 2.4
∴ 80% recovery = 10.30' DTW

Field Parameters		Time (minutes)									
	Intitial	5'	10	15	20	25	30	35			
Water Level	10.02	10.23	10.29	10.35	10.38	10.43	10.46	10.46	✓		
pH	7.48	7.43	7.42	7.45	7.45	7.46	7.45	7.45	✓		
Conductivity (uS)	573	566	559	552	549	543	540	544	✓		
ORP (mV)	133.6	105.5	83.3	63.0	57.7	54.0	53.8	52.7	✓		
DO (mg/L)	4.56	4.53	4.10	4.06	3.80	3.90	3.82	4.01	✓		
Temperature (C)	17.2	16.7	16.9	16.3	16.8	16.6	16.6	16.7	✓		
Turbidity (NTU)	10.07	8.45	6.96	4.86	4.21	4.55	4.02	4.21	✓		

Monitoring Well: DZS
Total Depth:
Water Column:
One Well Volume:

Notes:
120 mL/min.

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: NO 47383

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/Trizma; 250 mL – HNO_3; 40 mL glass-unpres.; 250 mL; 500 mL – H_2SO_4; 250 mL; Soil: 40 mL glass – HCl; 250 mL Plastic NaOH/Asc; 250 mL glass; % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D08-171024	—	—	—	10/24/17	9:30	GW	N	5	O C A A D A B E A	N N N N N Y N N N	LANDFILL
2. SG3-LTB01-171024	—	—	—		—	RW	N	2			
3. SG3-D09-171024	—	—	—		13:50	GW	N	5			LANDFILL
4. SG3-D25-171024	—	—	—		14:40	GW	N	5			LANDFILL
5. SG3-FTB01-171024	—	—	—		16:00	RW	N	2			Analyses: (19) PFCs, TCL VOCs (SOM02.2 VOC), TAL Metals + Cations (excluding CN + Hg), anions, ammonia, orthophosphate, total Kjeldahl nitrogen, 1,4-Dioxane
6.											
7.											
8.											
9.											
10.											*Verify w/ MDD

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DK/DA							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47383

COC 1 of 1

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co.	Company:	CT Male
Address:	4300 Market Point Dr.	Address:	50 century Hill Rd.
Name:	Michael Dupay	Name:	Latham, NY
email:	mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:		Barr Project No:	

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL w/Trizma	Water 250 mL – HNO_3	Water 40 mL 9 glass-amb/res.	Water 250 mL	Water 500 mL – H_2SO_4	Water 250 mL	Soil 40 mL glass – HCl	Soil 250 mL Plastic – NaHSO4/Ice	Soil 250 mL glass	% Solids	Preservative Code	Field Filtered Y/N	
									O	C	A	A	D	A	B	E	A				
									N	N	N	N	N	Y	N	N	N				
1. SG3-D08-171024	—	—	—	10/24/17	9:30	GW	N	15													LANDFILL
2. SG3-LTB01-171024	—	—	—	↓	—	GW	N	2													
3. SG3-D09-171024	—	—	—		13:50	GW	N	15													LANDFILL
4. SG3-D25-171024	—	—	—		14:40	GW	N	15													LANDFILL
5. SG3-FTB01-171024	—	—	—		16:00	RW	N	2													
6.																					Analyses:
7.																					(19) PFCs, TCL VOCs (SOM02.2 VC), TAL Metals + Cations (excluding
8.																					CN + Hg), anions, ammonia, orthophosphate, total Kjeldahl
9.																					nitrogen, 1,4-Dioxane
10.																					*Verify w/ MDD

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DK/DA							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/25/17 Time On-Site: 7:45 Time Off-Site: 17:00

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Overcast, Calm, ~60°F

Present at Site: Dan King, Cliff Bondi, Nicole Castagnier

Observations: 6 ILS-Calibrated YSI's @ office

7:45 – onsite @ McCaffrey to get paper work + coolers. Discussed sampling plan w/ JD.

8:30 – Onsite @ Bennington facility for decon water + sample kits + materials.

9:30 – Discussed sampling w/ Derek (Bas.). Going to meet CB+NC @ landfill to give sampling materials + show well locations.

10:00 – Over to location of DIS to set-up for lowflow + sampling

10:30 – Over to McCaffrey to take over for JD. Will oversee MCES rolloff repositioning + emptying of soil drums. (See JD's field log for additional info.)

16:00 – MCES offsite. To trailer to pack coolers.

17:00 – offsite.

Items to Verify:

List of Attachments: Cal. log(1), COCs(1)

Field Log Prepared by: Dan King

Copies to:

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-N. Bennington
LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 10/25/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA00468)	6:15	pH 4.00	4.03	Cal.	DK
		pH 7.00	6.99		
		pH 10.00	9.98		
		Cond. 6737	5335		
		ORP 231.0	230.2		
YSI (FA01785)	6:15	pH 4.00	4.02	Cal.	DK
		pH 7.00	6.98		
		pH 10.00	10.02		
		Cond. 6737	6833		
		ORP 231.0	229.8		
Turb. Meter		10 NTU	10.09	bump	DK
Turb. Meter		10 NTU	9.94	bump	DK

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: NO 47395

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP N. Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL w/Trizma	250 mL – HNO_3	40 mL glass – unpres.	250mL	500mL – H_2SO_4	250mL	Soil 40 mL glass – HCl	250 mL Plastic – NaOH/Ascorbic	250mL Glass	% Solids	Preservative Code	Field Filtered Y/N
									O	C	A	A	D	A	B	E	A			
									N	N	N	N	N	Y	N	N	N			
1. SG3-LTB01-171025	—	—	—	10/25/17	—	RW		2	2										blank	
2. SG3-FTB01-171025	—	—	—	10/25/17	9:20	RW	N	2	2										blank	
3. SG3-D15-171025	—	—	—	10/25/17	13:50	GW	Y	45	6	6	6	3	3	3	9	3	6		OUTSIDE LANDFILL	
4.																				
5.																			Analyses:	
6.																			⑨PFCs, TAL Metals/cations,	
7.																			Anions, Ammonia, orthophosphate,	
8.																			Total Kjeldahl nitroge	
9.																			*verify w/MPD	
10.																				

BARR USE ONLY

Sampled by: DK, CB, NC

Barr Proj. Manager: JTC

Barr DQ Manager: MPD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? (Y) N Date 10/25/17 Time 16:15 Received by: Date Time

Relinquished by: On Ice? Y N Date Time Received by: Date Time

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other: Air Bill Number:

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47395

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP N. Bennington	Barr Project No: 23421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250 mL w/Trizma	250 mL – HNO_3	40 mL glass – unpres.	250mL	500 mL – H_2SO_4	250 mL	Soil 40 mL glass – HCl	250 mL Plastic – NaOH/Zn	250 mL Glass			% Solids
									O	C	A	A	D	A	B	E	A			
									N	N	N	N	N	Y	N	N	N			
1. SG3-LTB01-171025	—	—	—	10/25/17	—	RW	N	2	2											
2. SG3-FTB01-171025	—	—	—	10/25/17	9:20	RW	N	2	2											
3. SG3-D15-171025	—	—	—	10/25/17	13:50	GW	Y	15	6	6	6	3	3	3	9	3	6			
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

Preservative Code: blank / blank / OUTSIDE LANDFILL

Field Filtered Y/N

Analyses:
(9) PFCs, TAL Metals/cations, Anions, Ammonia, orthophosphate, Total Kjeldahl nitrogen

*verify w/MPD

BARR USE ONLY								
Sampled by: DK, CB, NC	Relinquished by:	On Ice? (Y) N	Date 10/25/17	Time 16:15	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MPD	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/26/17 Time On-Site: 7:50 Time Off-Site: 17:00

Project Name: SGPP – Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Cloudy, light rain, calm, ~50°F

Present at Site: Dan King

Observations: 6:15-Calibrated YSI X3 in office.
7:50-Onsite @ Bennington facility. Preparing sample kits + materials. Discussed plan w/ JD
9:00- Assisting CB+NC w/ bladder pump @ DIL.
9:50- Over to location of DZ1 to develop by surging w/ bailer + pumping dry.
10:40- Surged for 30 min., purged dry. Over to facility trailer to prepare sample containers.
12:00- Limited recharge @ DZ1, over to DIL to assist CB+NC.
13:00- Assisting JD @ B-4-3 w/ bladder pump that is stuck in well.
14:30- Back to DIL, CB+NC begin sampling w/ Field duplicate planned for this well as well. Wrote chain. Then over to facility to make PFC blanks.
16:00- CB+NC offsite to pack + ship coolers @ office.
16:15- At DZ1, 80% recovery achieved. Begin low-flow. Cal. Turbidimeter.
16:45- Well purged dry during low-flow (@ after 17 minutes) will sample tommorrow.
17:00- Loaded equipment + offsite.

Items to Verify:

List of Attachments: Checklist(1), Cal. log(1), GW serv. log(1), Purge log(1), COC(1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/26/17

Weather (*temp./precipitation*): Cloudy, light rain, calm, ~50°F Site Name: SGPP N. Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 8:00

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGRP-N. Bennington
LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131
DATE: 10/26/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
YSI (FA00468)	6:15	pH 4.00	3.98	Cal.	DK
		pH 7.00	6.94		
		pH 10.00	10.01		
		Cond. 6737	8870		
		ORP 231.0	230.5		
Turb. Meter	16:15	10 NTU	10.20	bump	DK

Groundwater Services Field Log

DATE: 10/26/17 PROJECT NAME: SGPP-N. Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: Dan King

MONITORING WELL ID#: DZ1 NOTES TAKEN BY: D. King

DEPTH TO WATER: 14.58 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 16.89 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: 2.31 ft BAILER: STAINLESS STEEL N/A

Surge developing, then purge dry

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 0.37 GALLONS

VOLUMES PURGED: 1.11 GALLONS PURGE METHOD: Peristaltic/Bailer

TIME STARTED: ~~EZ~~ 10:25 ; TIME FINISHED: 10:55

OBSERVATIONS: COLOR Brown, Opaque ODOR —

SHEEN — ; TURBIDITY >500 NTU

OTHER —

WATER RECOVERY HEIGHT: 15.03 (2.31 drawdown) ft ; RECOVERY TIME IN MINUTES: ~~5h~~ 30mi

FIELD PARAMETERS: pH 7.17 SU , TEMPERATURE 15.2 °C

CONDUCTIVITY 791 µS , OTHER DO = 5.69
ORP = 168.2
Turb = 58.2

SAMPLE COLLECTION TIME: (will sample on 10/27/17)

NOTES: Sampled for Not sampled @ this time

Sheet 1 of __

Development
WELL ~~LOW-FLOW~~ PURGING LOG

Project Name: SGPP-N. Bennington

Project Number: 16.6131

Date Started: 10/26/17

Date Finished: 10/27/17

16:29

Field Parameters		Time (minutes)									
Low-Flow	Intitial	5	10	15	20	25	30				
Water Level	15.03	15.74	16.18	16.52							
pH	6.97	7.09	7.16	7.17							
Conductivity (uS)	769	770	775	791	Dry @ 17 min.						
ORP (mV)	180.6	174.5	169.0	168.2							
DO (mg/L)	8.25	5.75	5.32	5.69							
Temperature (C)	14.9	15.1	15.3	15.2							
Turbidity (NTU)	17.1	[illegible]	35.3	58.2							

Monitoring Well: DZ1 — 13.0 — Notes:

Total Depth: 16.89'

Water Column: 2.31'

One Well Volume: 0.37 gal.

100mL/min

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: — Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: — Notes:

Total Depth:

Water Column:

One Well Volume:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well: — Notes:

Total Depth:

Water Column:

One Well Volume:

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47396

COC 1 of 1

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co.	Company:	CT Male
Address:	4300 Market Point Dr.	Address:	50 Century Hill Rd.
Name:	Michael Dupay	Name:	Latham, NY
email:	mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	SGPP-N. Bennington	Barr Project No:	23421001.05

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250mL w/Trizma	250mL HNO3 Sulfide	40mL (glass - unpres.)	250mL - H_2SO_4	500mL - H_2SO_4	250mL	Soil: 40mL Glass - HCl	250mL Plastic - NaOH/Ascorbic	250mL Glass	% Solids	Preservative Code	Field Filtered Y/N
									O	C	A	A	D	A	B	E	A			
									N	N	N	N	N	Y	N	N	N			
1. SG3-LTB01-171026	—	—	—	10/26/17		RW	N	2	2											blank
2. SG3-FTB01-171026	—	—	—	10/26/17		RW	N	2	2											blank
3. SG3-D11-171026	—	—	—	10/26/17	15.03	GW	MS	2	2	2	1	1	1	3	1	2				LANDFILL
4. SG3-FD01-171026	—	—	—	10/26/17		GW	MS	2	2	2	1	1	1	3	1	2				LANDFILL
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

Analyses:
(19) PFCs, TCL VOCs (SOM02.2), TAL Metals & Cations (including CN+Hg), Anions, Ammonia, Orthophosphate, Total Kjeldahl Nitrogen, 1,4-Dioxane

BARR USE ONLY							
Sampled by:	CB, NE	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date / Time
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date / Time
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	
Lab Name:	ELLE						
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None	

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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C.T. MALE ASSOCIATES

Environmental Services Field Log

Date: 10/27/17 Time On-Site: 7:40 Time Off-Site: 12:45

Project Name: SGPP - Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions: Cloudy, slight breeze, ~50°F

Present at Site: Dan King

Observations:

7:40 - Onsite @ McCaffrey to prepare sample coolers + discuss plan w/ JD.

8:30 - Onsite @ Bennington, location of DZ1 to collect GW sample. Calibrated Turb. Meter.

9:15 - Began collecting groundwater samples.

10:15 - Finished sampling, well ran dry but filled containers for all 'outside landfill' analyses except orthophosphate (Filtered sample). Loaded equipment over to facility trailer to collect lab + field trip blanks.

10:40 - Over to location of B-4-3 @ landfill to help NC.

11:30 - Finished low-flow of B-4-3, began collecting samples.

12:15 - Finished collecting GW samples.

12:30 - Finished loading equipment. Completed COC for NC + gave equipment + additional paper work for shipping samples.

12:45 - Offsite w/ DA.

Items to Verify:

List of Attachments: Checklist (1), Cal. log (1), GW serv. log (1), COC (1)

Field Log Prepared by: Dan King

Copies to:

PFCs Sampling Checklist

Date: 10/27/17

Weather (*temp./precipitation*): Cloudy, slight breeze, ~50°F Site Name: SGPP-N. Bennington

Field Clothing and PPE:

- ☑ No clothing or boots containing Gore-Tex™
- ☑ All safety boots made from polyurethane and PVC
- ☑ No materials containing Tyvek®
- ☑ Field crew has not used fabric softener on clothing
- ☑ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☑ Field crew has not applied unauthorized sunscreen or insect repellant

Field Equipment:

- ☑ No Teflon® or LDPE containing materials on-site
- ☑ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☑ No waterproof field books on-site
- ☑ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☑ No adhesives (Post-It Notes) on-site
- ☑ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☑ All sample containers made of HDPE or polypropylene
- ☑ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☑ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☑ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☑ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☑ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: Dan King

Field Lead Signature: Dan King Time: 8:30

C.T. MALE ASSOCIATES

DAILY CALIBRATION RECORD

PROJECT: SGPP-N. Bennington

LOCATION: N. Bennington, VT

CTM PROJECT NO.: 16.6131

DATE: 10/27/17

EQUIPMENT (Make, Model, and Serial #)	TIME	STANDARD (Concentration)	METER READING	CALIBRATED or BUMP TEST	CALIBRATED BY
Turb. Meter (FA01058)	9:00	10 NTU	10.41	bump	DK

Groundwater Services Field Log

DATE: 10/27/17 PROJECT NAME: SGPP-N. Bennington

PROJECT NO.: 16.6131 PROJECT LOCATION: N. Bennington, VT

SAMPLING PERSONNEL: Dan King

MONITORING WELL ID#: DZ1 NOTES TAKEN BY: D. King

DEPTH TO WATER: 14.65 ft FROM: TPVC BAILER ID: N/A

DEPTH TO BOTTOM: 16.89 ft FROM: TPVC BAILER: NEW DISPOSABLE

WATER COLUMN HEIGHT: ft BAILER: STAINLESS STEEL N/A

- Development + low-flow completed on 10/26/17.
- Collecting sample + Turb. only

OTHER

WELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: GALLONS

VOLUMES PURGED: GALLONS PURGE METHOD:

TIME STARTED: ; TIME FINISHED:

OBSERVATIONS: COLOR ; ODOR

SHEEN ; TURBIDITY 34.0 NTU

OTHER

Purged dry during sampling.

WATER RECOVERY HEIGHT: ft ; RECOVERY TIME IN MINUTES: mi

FIELD PARAMETERS: pH SU, TEMPERATURE °C

CONDUCTIVITY µS, OTHER

SAMPLE COLLECTION TIME: 9:15

NOTES: Sampled for All 'OUTSIDE LANDFILL' analyses except orthophosphate (ran dry)

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52272

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-N. Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250 mL w/ HNO_3	250 mL - HNO_3	40 mL glass - vapors	250 mL - H_2SO_4	500 mL	250 mL	Soil: 4oz glass - HCl	250mL plastic - NaOH/ascorbic	250 mL Glass	% Solids	Preservative Code	Field Filtered Y/N	
									O	C	A	A	D	A	B	E	A				
									N	N	N	N	N	Y	N	N	N				
1. SG3-DZ1-171027	—	—	—	10/27/17	9:15	GW	N	7	2	1		1	1				2				OUTSIDE LANDFILL
2. SG3-LTB01-171027	—	—	—	10/27/17	—	RW	N	2	2												blank
3. SG3-FTB01-171027	—	—	—	10/27/17	10:20	RW	N	2				2									blank
4. SG3-B-4-3-171027	—	—	—	10/27/17	11:40	GW	N	15	2	2	2	1	1	1	3	1	2				LANDFILL
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Analyses:

(19) PFCs, TCL VOCs (SOM02.2 Voc), TAL Metals + Cations (including CN + Hg), Anions, Ammonia, Orthophosphate, Total Kjeldahl Nitrogen, 1,4-dioxane

* See attachments & Verify w/ MDD

BARR USE ONLY							
Sampled by: DK, NC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

WELL DEVEOPMENT LOG

Project Name: SGPP Bennington

Date Started: 12/6/17

Project Number: 450210094.000 42

Date Finished: _____

15:36 15:48 15:48 15:54 16:00 16:06 16:12 16:18 16:24 16:30

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH		7.93	9.7	9.7	9.12	9.01	8.86	9.25	9.80	8.75	8.31
Conductivity		1049	362	357.8	350.7	353	355	364	382	352	350
EH		101	-83	-117	-61.6	-81	-100	-96	-104	-92	-64
Temperature (C)		9.4	9.0	8.7	8.9	8.3	8.5	8.4	8.7	8.8	8.7
Turbidity		161	164	53.7	48.3	18	14	20	16	14	14

Monitoring Well: SG3-BR1

Water Level: 190.5'

Total Depth: 373'

Water Column: 182.5'

One Well Volume: 120 gallon

Notes: Readings during flow logging and afterwards, 15:30 start pump at 20 gpm 1 well vol every 6 min

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH		9.31	8.43	8.00	7.97	7.90					
Conductivity		367	349	347	346	347					
EH		-74	-48	-11.8	-9.6	-23.5					
Temperature (C)		8.9	8.5	8.7	8.8	8.8					
Turbidity		9.0	9.3	8.4	6.9	8.5					

Monitoring Well:

Water Level:

Total Depth:

Water Column:

One Well Volume:

16:36 Notes: 16:42 16:48 16:52 17:00

17:05 Start Sampling 17:40 End

Collect MS/MSD Here

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:

Water Level:

Total Depth:

Water Column:

One Well Volume:

Notes:

See meter Calibration on Back.

Meter	Time	Temp	STD Solution	Meter Reading	Parameter
YSI Pro+	11:20	14.0 °C	7.00	7.05	PH
	11:25	11.4 °C	10.00	10.00	PH
	11:30	11.6 °C	~~1413~~ us/cm 745	745	Sp. Cond.
	11:40	11.3 °C	231 @ 25°C	231.9 @ 25°C	ORP
	11:45	10.4 °C	100% @ 731.9 MMHg	96.2%	DO

Groundwater Services Field Log

DATE: 12/6/2017 PROJECT NAME: Sapp - Bennington

PROJECT NO.: 450210004.00 PROJECT LOCATION: Bennington VT

SAMPLING PERSONNEL: KAM

MONITORING WELL ID#: ~~SG3-BRT~~ SG3-MW-BR1 NOTES TAKEN BY: KAM

DEPTH TO WATER: 190.50 FROM: BTOC BAILER ID: NA

DEPTH TO BOTTOM: 372.96 FROM: BTOC BAILER: LAB CLEANED / FIELD CLEANED

WATER COLUMN HEIGHT: 182.46' BAILER: STAINLESS STEEL

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER 4 inch

WELL VOLUME: 120 GALLONS

VOLUMES PURGED: 1,900 GALLONS PURGE METHOD: Submersible pump

TIME STARTED: ; TIME FINISHED:

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 8.5 NTU

OTHER —

WATER RECOVERY HEIGHT: 190.06' BTOC 12/7/16 ~10:00 am ; RECOVERY TIME IN ~~MINUTES~~ Hours: 16

FIELD PARAMETERS: pH 7.9 , TEMPERATURE 8.8°C

CONDUCTIVITY 347 UMHO/CM, OTHER ORP -23.5

SAMPLE COLLECTION TIME: 17:05

NOTES: Sample collected from pump after dynamic Flow Logging - Flow meter still in well During Sample collection, collected MS/MSD here - Sample time between 17:05 and 17:40 (SG3-MWBR1-~~17105~~ 17:06 KAM)

Sheet 1 of 1

190.50
2.96

WELL DEVEOPMENT LOG

Project Name: SGPP - Bennington

Date Started: 12/10/17

Project Number: 45021004

Date Finished:

14:10 14:30 14:50 15:10 15:30 15:50 16:10 16:30

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH	—	|	|	7.31	7.31	7.31	7.32	7.32	7.33	7.33	7.33
Conductivity	—	|	|	441	446	442	446	446	447	446	446
EH	—	|	|	42.2	41.7	40.3	38.6	37.2	36.5	35.6	35.2
Temperature (C)	—	|	|	9.5	9.5	9.6	9.6	9.6	9.6	9.5	9.5
Turbidity	—	|	|	1.28	1.3	1.76	0.85	0.76	0.61	0.42	0.61

Monitoring Well: SG-MWBR2
Water Level: 103.5
Total Depth: 263
Water Column: 159.5
One Well Volume: 22 Tgal

Notes: open Hole well flushed w/ air hammer & developed 12/9/17 overpumping occurring today

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH		7.33									
Conductivity		446									
EH		31.8									
Temperature (C)		9.5									
Turbidity		0.74 16:50									

Monitoring Well:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Well Volumes and Corresponding Field Parameters Value									
	Intitial	1	2	3	4	5	6	7	8	9	10
pH											
Conductivity											
EH											
Temperature (C)											
Turbidity											

Monitoring Well:
Water Level:
Total Depth:
Water Column:
One Well Volume:

Notes:

Calibrate YSI prot - See back

Parameter	Time	Temp	Std Solution	Meter Reading
	12:40	16.8°C	7.00	7.03
	12:48	16.5°C	10.00	10.00
	12:50	16.3°C	1409 umhos/cm	~~1410~~ 1410 12/10/17
	12:54	14.8°C	237.5 @ 20°C 231.0 @ 25°C	245 mv

112.15
- 3.60'
108.55' BGS - Static

135' pump

288
- 108.55
154.5' H20

114.2' to top of Table
Table 5'5" aboveground

13:24 start pump
Flow 5 gal in 15 sec - 20 gpm

180 gal

13:29 Running out of water turn down pump

5 gal in 45 sec 7.5gpm - adjust up.
5 gal in 25sec - 12gpm

13:47 163.85' top of table

13:54

14:31 — 166.7' top of Table

360 gal

540

17:05 — Shut off Pump

Groundwater Services Field Log

DATE: 12/10/17 PROJECT NAME: SgPP - Bennington

PROJECT NO.: 45021004.00 PROJECT LOCATION: Bennington VT

SAMPLING PERSONNEL: Kam

MONITORING WELL ID#: SG3 MWBR2 NOTES TAKEN BY: Kam

DEPTH TO WATER: 108.55 FROM: BGS BAILER ID: N/A

DEPTH TO BOTTOM: 263 FROM: BGS BAILER: LAB CLEANED / FIELD CLEANED

WATER COLUMN HEIGHT: 154.5 BAILER: STAINLESS STEEL

OTHER

use 6" for well volume

WELL CASING DIAMETER Casing 6" open Hole 5.25"

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS 3" = 0.38 GALLONS

1.25" = 0.064 GALLONS 4" = 0.66 GALLONS

2" = 0.16 GALLONS 6" = 1.47 GALLONS

WELL VOLUME: 227 GALLONS

VOLUMES PURGED: 11+ (~2,600) GALLONS PURGE METHOD: 4" Submersible

TIME STARTED: 13:29 ; TIME FINISHED: 16:50

OBSERVATIONS: COLOR Clear ; ODOR None

SHEEN None ; TURBIDITY 0.79 NTU

OTHER ~

WATER RECOVERY HEIGHT: 109.2' bgs ; RECOVERY TIME IN ~~MINUTES~~ Hours: 15

FIELD PARAMETERS: pH 7.33 , TEMPERATURE 9.5

CONDUCTIVITY 446 UMHO/CM, OTHER —

SAMPLE COLLECTION TIME: 17:00

NOTES: Collected Sample between 17:00 - 17:15

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 01-20-2018 Time On-Site: 12:55 Time Off-Site: _____

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No: _____

Weather Conditions: 10% cloud cover, 43°F (high temp), no precip.

Present at Site: Justin Campbell

Observations:

12:55 - Parked at location of MW BR2. Prepared to Record parameters. Prior to arrival stopped at McCaffrey St. location to pick up parameter equipment and calibrated equipment (see table below)

1310 - Began pumping. Recorded first parameter set. Then water flow became irregular and stopped/restarted. TRS staff attempted to surge the 199-219 interval depth.

16:00 - Recorded 1st volume. Then Batteries in YSI died.

16:15 - left to Buy C batteries. Placing extra set in the YSI case.

18:25 - Recorded well volume #2 parameters

20:15 - Recorded well volume #3 parameters

20:25 Collected Sample

21:08 - Leave Landfill to drop off supplies at Conex Box and McCaffrey St. Buy ice and place samples at Latham office for shipping Monday via FedEx.

Items to Verify:

List of Attachments: COC's

Field Log Prepared by: Justin Campbell

Copies to:

Parameter Equipment Calibration

	STANDARD	ACTUAL 1300	Bump 21:40
Turbidity Meter	57.9	57.1	58.2
YSI Meter	pH 10/7/4	10.04, 7.05, 4.01	11.02, 7.08, 4.00
	Cond 7000 µs	7051 µS	7250 µS
	ORP 237 mV	243 mV	249 mV

C.T. MALE ASSOCIATES

Date 01-30-2018

Environmental Services Field Log
(continued)

Project Name: SGPP- Bennington Project No.: 16.6131

Observations:

SG3-MWBR2-199-219-180120

Time	13:10	16:00	18:25	2015		
well Volume	0	1	2	3	4	5
Temp	8.9	8.8	8.8	8.7		
pH	7.12	7.97	7.98	7.76		
cond. ms	325.1	324.9	318.9	322.6		
Turb.	50.4	10.6	2.51	0.19		
DO mg/l	3.64	1.49	2.01	1.56		
ORP	106.9	-37.6	-59.7	-63.4		

MW#: BR2

Total Depth: 264 ft.

one well volume: 30 gal

* Digital data on Water level depth to be made available by RAS subcontractor at later date

Depth of packer = 199 ft.

Depth of pump = ~~198~~ 197 ft.

Start pumping: 13:10 HRS

One well volume = 30 gallons

Sample Time 20:25 HRS

Groundwater Services Field Log

DATE: 01-19-2018

PROJECT NAME: SGPP- Bennington

PROJECT NO.: 16.6131

PROJECT LOCATION: North Bennington, VT

SAMPLING PERSONNEL: Justin Campbell

MONITORING WELL ID#: BR-2

NOTES TAKEN BY: Justin Campbell

DEPTH TO WATER: * FROM:

BAILER ID:

DEPTH TO BOTTOM: 264 ft. FROM:

BAILER: ~~NEW DISPOSABLE~~

WATER COLUMN HEIGHT: *

BAILER: ~~STAINLESS STEEL~~

~~OTHER~~

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 30 GALLONS

VOLUMES PURGED: 122 GALLONS

PURGE METHOD: Redi-flow pump

TIME STARTED: 11:55 ; TIME FINISHED: 13:10

OBSERVATIONS: COLOR None/clear ; ODOR None

SHEEN None ; TURBIDITY 0.70

OTHER

WATER RECOVERY HEIGHT: * ; RECOVERY TIME IN MINUTES: 10

FIELD PARAMETERS: pH 7.39 , TEMPERATURE 9.8

CONDUCTIVITY 350.1 , OTHER ORP = 5.0

SAMPLE COLLECTION TIME: 13:20

NOTES: Pump shut down at 13:10 when parameters stabilized

Packer Testing with Redi-flow pump

* Water level depths to be made available by RAS subcontractor at later time when data set released.

C.T. MALE ASSOCIATES, P.C.

Environmental Services Field Log

Date: 01-19-2018 Time On-Site: 08:55 Time Off-Site: 17:00

Project Name: SGPP- Bennington Project No.: 16.6131

Purpose: Groundwater Sampling Field Report No:

Weather Conditions:

Present at Site: Justin Campbell

Observations:

08:20 picked up sample equipment from McCaffrey St.
08:40 Picked up sample containers from Conex box
08:55 at Landfill, No one here, Bill let me know sample may not be able to be collected until 12:00 HRS. Spoke with Bob (CT Male) who instructed me on sample procedure.
10:30 Returned to conex box to pick up extra 250 ml plastic bottles for Field Blank and equipment blank to be collected from the redi-pump and calibrate parameter equipment.
10:55 collected ~~Rinse~~ equipment rinse blank from redi pump.
10:25 Returned to conex box to get the filter apparatus
12:55 Returned to Landfill. Pumping of BR2 had commenced. Set up parameter equipment to record parameters for 4 volumes (30 gallon per volume). Pump rate @ 2 gallons/min stabilized after 4 volumes. Bill slows pump to lowest setting @ 1 gallon per minute. Collected samples plus Metals batch QC. and Field Blank.
Samples collected at 13:20 HRS.
Dropped off samples to Nobsidic falls team right away. and returned to Conex box to unload truck.

Items to Verify:

List of Attachments: COC

Field Log Prepared by: Justin Campbell

Copies to: Jon Dippert

EnvFieldLog.doc

Calibration	Standard	Actual
Turbidity Meter Hach 4042	STD = 57.9	Reading = 57.3
XSI 4464	PH = 10/7/4	10.02/7.09/4.01
	Cond = 7000 µS	7046 µS
	ORP = 237 mV	249 mV

3/2/98

WELL LOW-FLOW PURGING LOG

Project Name: SGPP- Bennington

Date Started: 01-19-2018

Project Number: 16.6131

Date Finished: 01-19-2018

Field Parameters		Time (minutes)									
	Intitial	~~12:15~~ 12:25	12:30	12:49	13:08						
Water Level*		* -	-	-	-						
pH		6.82	7.31	7.34	7.39						
Conductivity (uS)		351.9	3451	345.8	350.1						
ORP (mV)		6.79	17.3	11.4	5.0						
DO (mg/L)		1.58	1.27	0.93	1.02						
Temperature (C)		9.9	9.7	9.8	9.8						
Turbidity (NTU)		5.69	1.85	1.13	0.70						

Monitoring Well: BR-2
Total Depth: 264 feet
Water Column:
One Well Volume: ~~27~~ 30 gallons

Notes: *Digital data on water Level will be made available by RAS subcontractor at a later time
- 243 ft. = depth of Packer - Sample time = 13:20
- ± 242 ft. = depth of pump

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Field Parameters		Time (minutes)									
	Intitial										
Water Level											
pH											
Conductivity (uS)											
ORP (mV)											
DO (mg/L)											
Temperature (C)											
Turbidity (NTU)											

Monitoring Well:
Total Depth:
Water Column:
One Well Volume:

Notes:

Appendix A.5

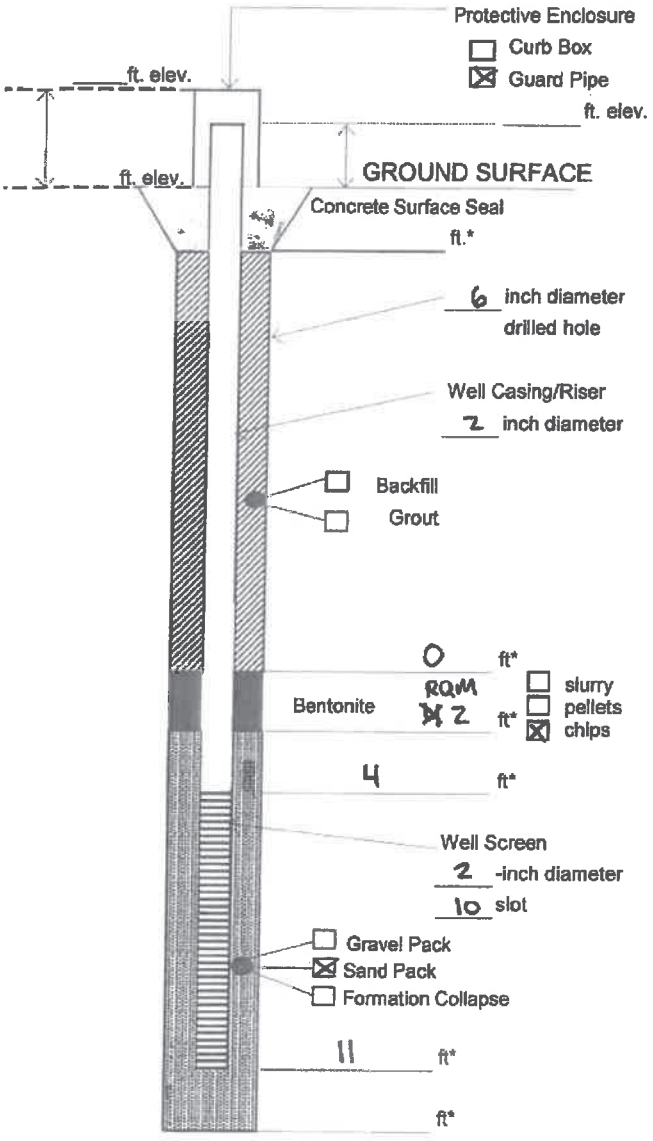
Monitoring Well Construction Logs

[SG3-MW17-01]

Well No. D-06

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP Bennington
CSM Investigation

Project Number: 45021004.00

Well No.: MW17-01 Boring No.: D-06

Town/City: Bennington (Landfill)

County: Bennington State: VT

Installation Date(s): 9/22/17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft ____ Date

~~C.T. Male~~ Observer: RQM

Materials Used:

~4	Bags of Sand	(50 lb. bags)
	Sand Size: #5	Brand: US Silica
1	Bags of Bentonite	(50 lb. bags)
	Brand: CETCO	
7'	ft. of	well screen
	ft. of	well riser
	Bags of Cement/Concrete	(lb. bags)
	Brand:	

Grout Mixture:

	Bags of Cement	(lb. bags)
	Lbs. of Bentonite	
	Gallons of Water	
	Grout Batches	

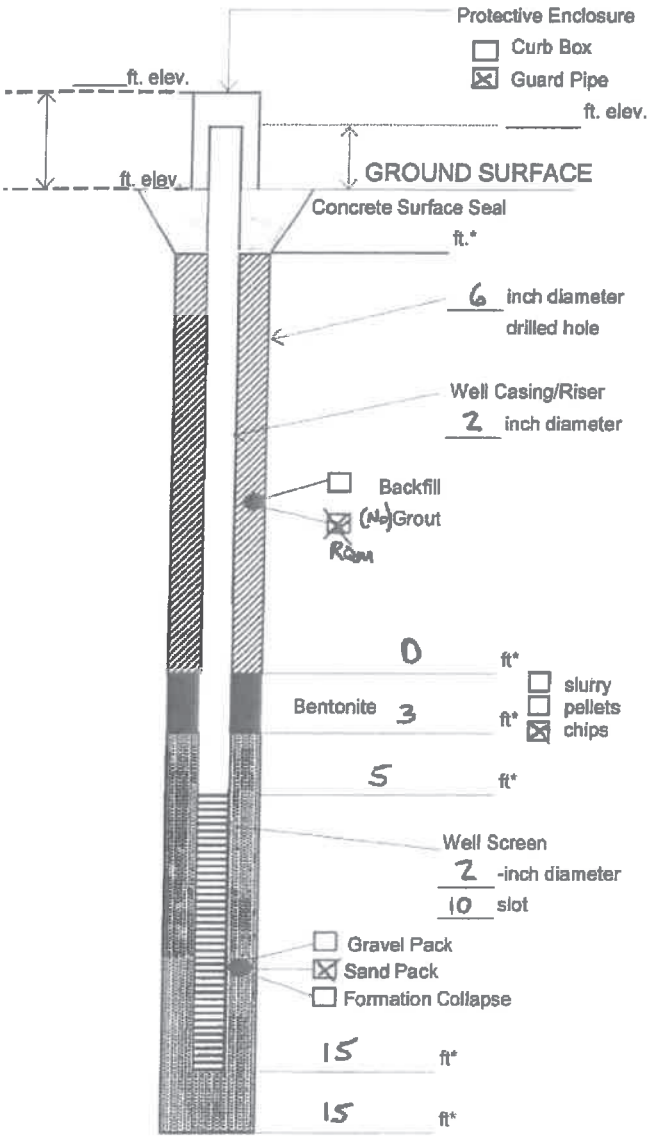
Notes:

[SGB-MW17-02]

Well No. D-08

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington
CSM Investigation

Project Number: 45021004.00

Well No.: MW17-02 Boring No.: D-08

Town/City: Bennington (Landfill)

County: Bennington State: VT

Installation Date(s): 9/22/2017

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft ____ Date

~~G.T. Male~~ Observer: RQM/KAM

Materials Used:

~4 Bags of Sand (50 lb. bags)
Sand Size: #5 Brand: US Silica
1 Bags of Bentonite (50 lb. bags)
Brand: Cetco
10 ft. of ____ well screen
~7 ft. of ____ well riser
____ Bags of Cement/Concrete (____ lb. bags)
Brand: ____

Grout Mixture:

____ Bags of Cement (____ lb. bags)
____ Lbs. of Bentonite
____ Gallons of Water
____ Grout Batches

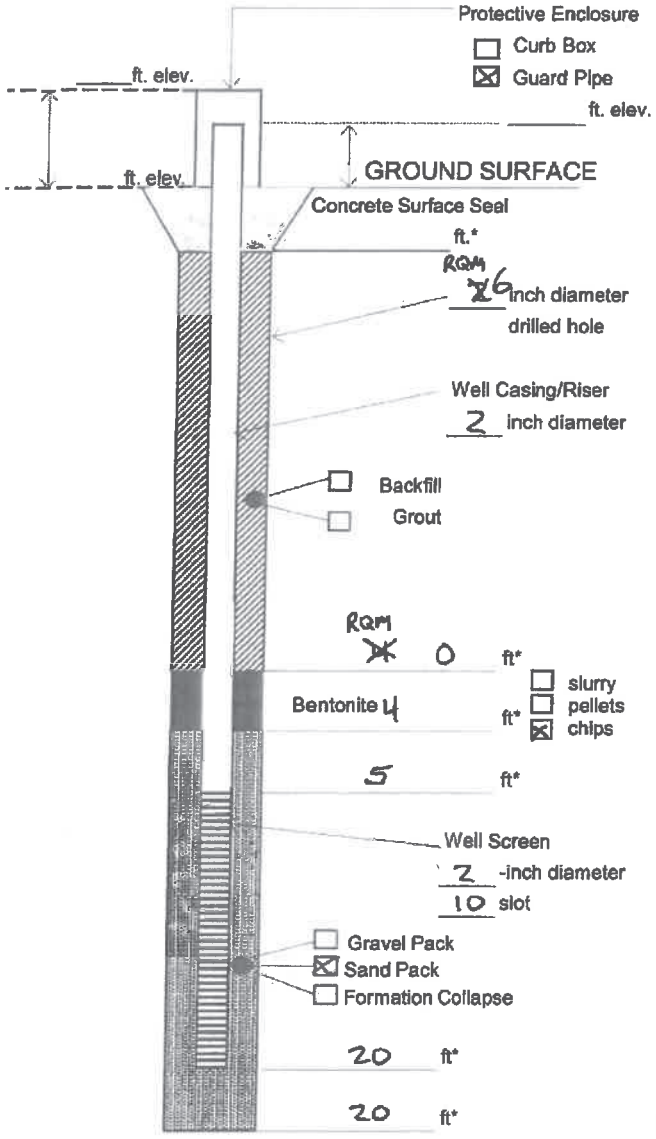
Notes:

[SG3-MW17-03]

Well No. D-25

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington CSM Investigation

Project Number: 45021004.00

Well No.: MW17-03 Boring No.: D-25

Town/City: Bennington (Landfill)

County: Bennington State: VT

Installation Date(s): 9/23/17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft ____ Date

~~C.T. Male~~ Observer: RQM/KAM

Materials Used:

7 Bags of Sand (50 lb. bags)
Sand Size: #5 Brand: US silica

~2 Bags of Bentonite (____ lb. bags)
Brand: CETCO

____ ft. of ____ well screen

____ ft. of ____ well riser

____ Bags of Cement/Concrete (____ lb. bags)
Brand: ____

Grout Mixture:

____ Bags of Cement (____ lb. bags)

____ Lbs. of Bentonite

____ Gallons of Water

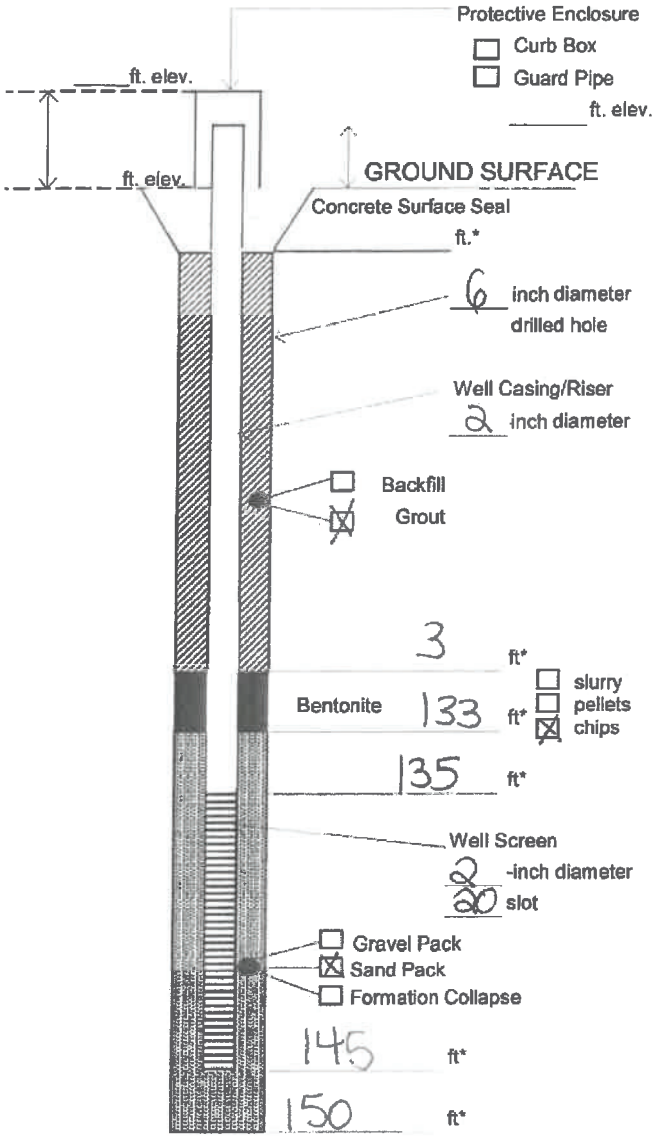
____ Grout Batches

Notes:

Well No. SG3-MW17-04/

MONITORING WELL CONSTRUCTION LOG D-11

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington

Project Number: 45021004.00

Well No.: _____ Boring No.: D-11

Town/City: Bennington, VT Landfill

County: _____ State: VT

Installation Date(s): 10-2-17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft _____ Date

C.T. ~~Male~~ Observer: BWR DJZ

Materials Used:

- 7 Bags of Sand (50 lb. bags) Sand Size: 0 Brand: US Silica (F1/P16)
- 1 Bags of Bentonite (50 lb. bags) Brand: CETCO
- ____ ft. of 10 well screen
- ____ ft. of _____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags) Brand: _____

Grout Mixture:

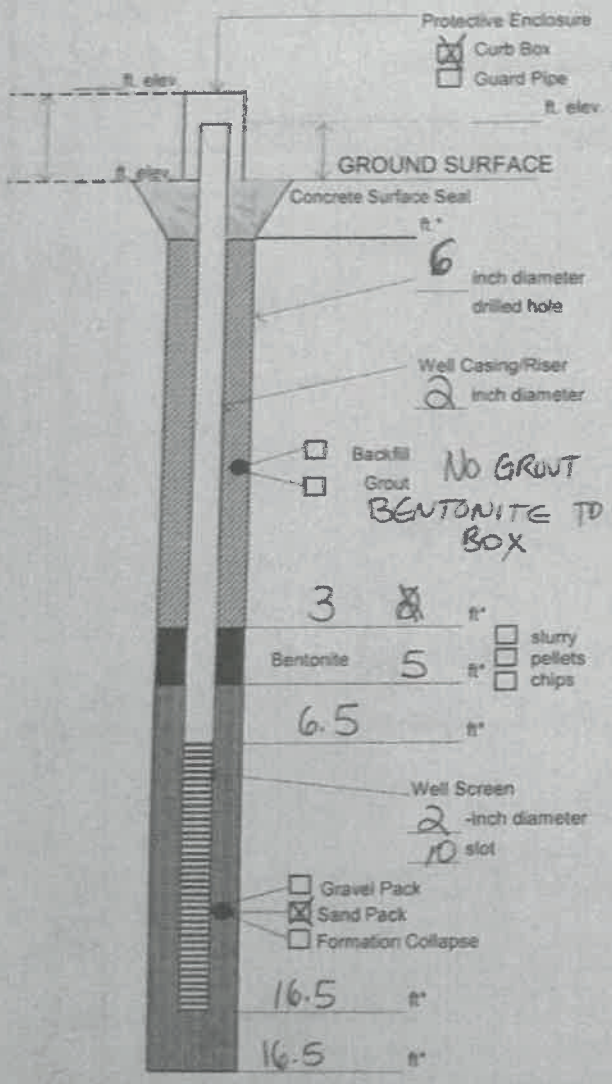
- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

Notes:

Well No. SG3-MW17-05/

MONITORING WELL CONSTRUCTION LOG D-21

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington

Project Number: 45021004.00

Well No.: _____ Boring No.: D-21

Town/City: Bennington VT

County: Bennington State: VT

Installation Date(s): 10-05-2017

Drilling Contractor: Cascade

Drilling Method: Sonic 4"

Water Depth From Top of Riser: ____ ft 10-05-17 Date

~~C.T.~~ BAPR Male Observer: DJZ / RAK

Materials Used:

6 Bags of Sand (50 lb. bags)
Sand Size: 0 Brand: _____

1 Bags of Bentonite (50 lb. bags)
Brand: _____

10 ft. of #10 well screen

6.5 ft. of _____ well riser

____ Bags of Cement/Concrete (____ lb. bags)
Brand: _____

Grout Mixture:

____ Bags of Cement (____ lb. bags)

____ Lbs. of Bentonite

____ Gallons of Water

____ Grout Batches

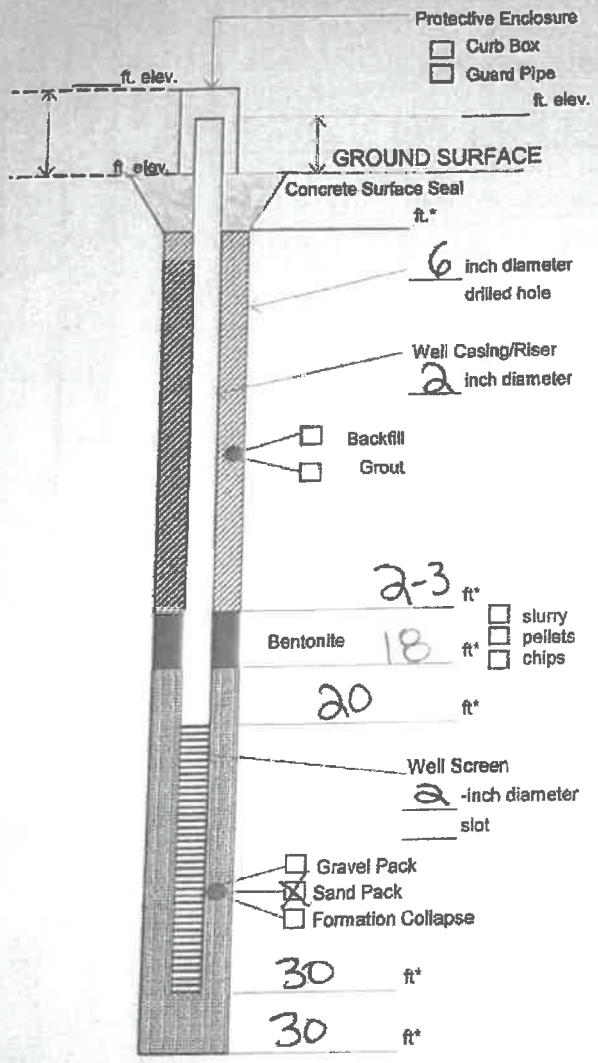
NO GROUT USED

Notes:

Well No. SG3-MW17-06/D-09

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington

Project Number: 45021004.00

Well No.: _____ Boring No.: D-09

Town/City: Bennington - Landfill

County: Bennington State: VT

Installation Date(s): 10-17-17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: 24.01 ft 10-20-17 Date

~~C.T. Male~~ Observer: DJZ

Materials Used:

____ Bags of Sand (____ lb. bags)
Sand Size: _____ Brand: _____
____ Bags of Bentonite (____ lb. bags)
Brand: _____
____ ft. of _____ well screen
____ ft. of _____ well riser
____ Bags of Cement/Concrete (____ lb. bags)
Brand: _____

Grout Mixture:

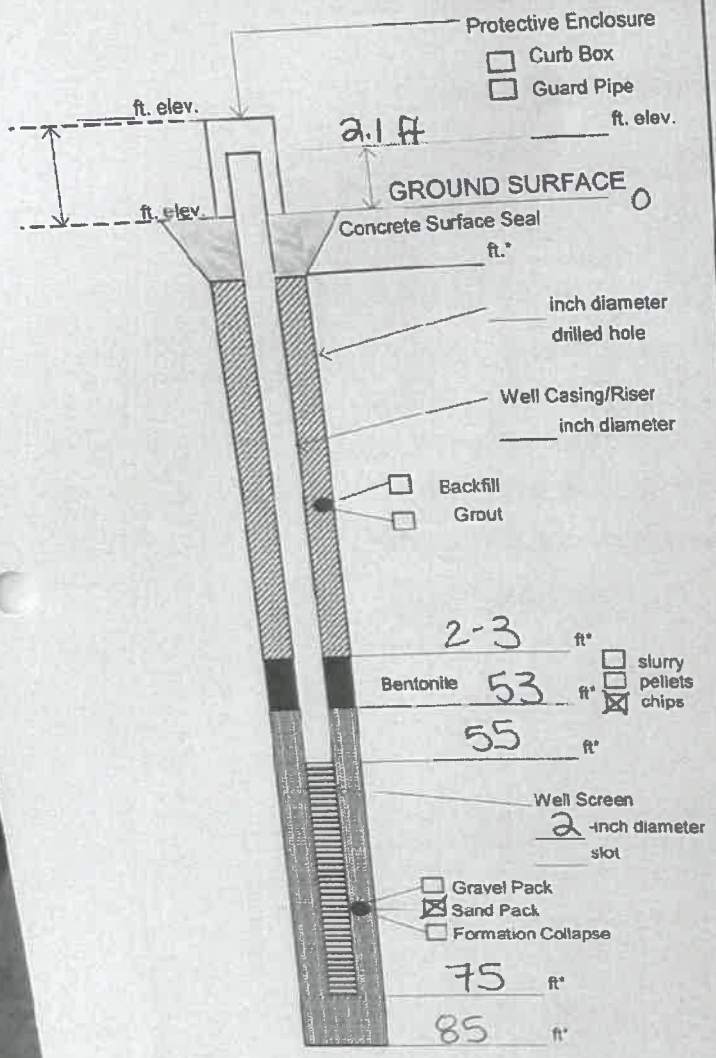
____ Bags of Cement (____ lb. bags)
____ Lbs. of Bentonite
____ Gallons of Water
____ Grout Batches

Notes:

Well No. SG3-MW17-07/ D-15

MONITORING WELL CONSTRUCTION LOG

C.T. MALE ASSOCIATES



* Depth below ground surface.

Project Name: SGPP Bennington

Project Number: 45021004.00

Well No.: _____ Boring No.: D-15

Town/City: Bennington VT

County: Bennington State: VT

Installation Date(s): 10-19-17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft ____ Date

~~C.T.~~ Male Observer: DJZ

Materials Used:

- 1± Bags of Sand (____ lb. bags)
  Sand Size: _____ Brand: _____
- 3+ Bags of Bentonite (____ lb. bags)
  Brand: _____
- ____ ft. of _____ well screen
- ____ ft. of _____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags)
  Brand: _____

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

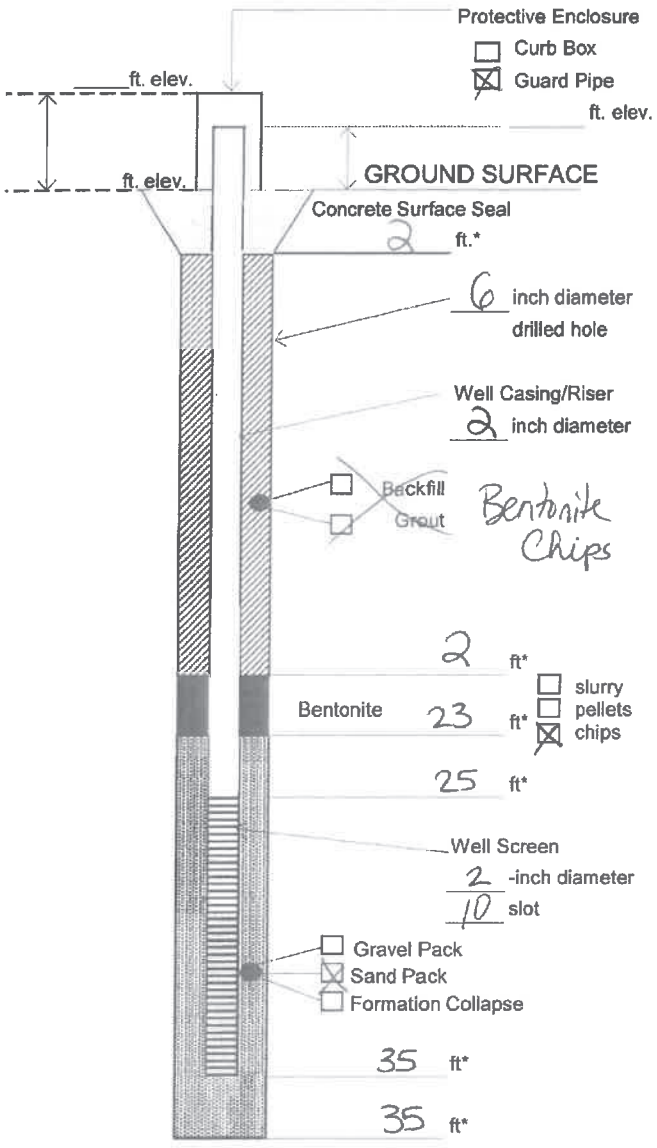
Notes:

SG3-MW17-WWTP

Well No. D-18

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP Bennington

Project Number: 45021004.00

Well No.: SG3-MW17-WWTP Boring No.: D-18

Town/City: Bennington

County: Bennington State: VT

Installation Date(s): 8-27-17

Drilling Contractor: Cascade

Drilling Method: Sonic

Water Depth From Top of Riser: ____ ft ____ Date

~~G.T. Male~~ Observer: DJZ / RGM

Materials Used:

- ____ Bags of Sand (50 lb. bags) Sand Size: #5 Brand: US Silica
- ____ Bags of Bentonite (50 lb. bags) Brand: CETCO
- 10 ft. of _____ well screen
- ~28 ft. of _____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags) Brand: _____

Grout Mixture:

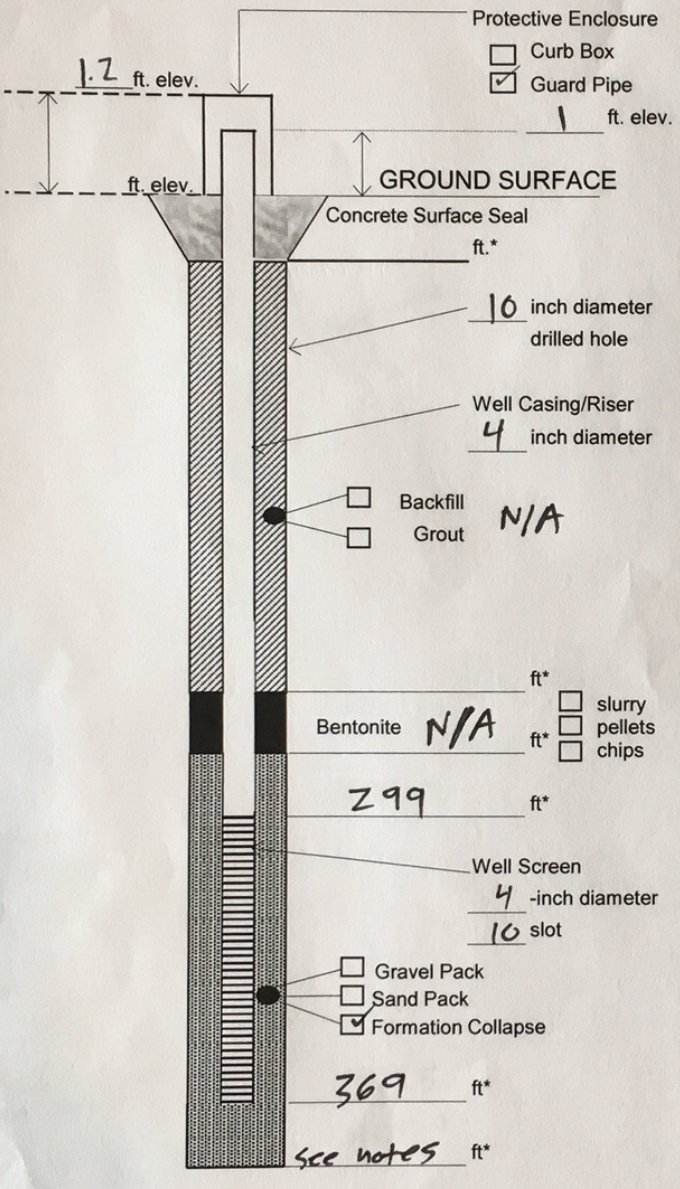
- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

Notes:

Well No. MWBR-1

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MWBR-1 Boring No.: _____

Town/City: Bennington

County: Bennington State: VT

Installation Date(s): 11/17/17

Drilling Contractor: Cascade

Drilling Method: Sonic coring (4"x6")

Water Depth From Top of Riser: 188.4 ft _____ Date

C.T. Male Observer: KMD

Materials Used: N/A

_____ Bags of Sand (_____ lb. bags)
Sand Size: _____ Brand: _____
_____ Bags of Bentonite (_____ lb. bags)
Brand: _____
_____ ft. of _____ well screen
_____ ft. of _____ well riser
_____ Bags of Cement/Concrete (_____ lb. bags)
Brand: _____

Grout Mixture: N/A

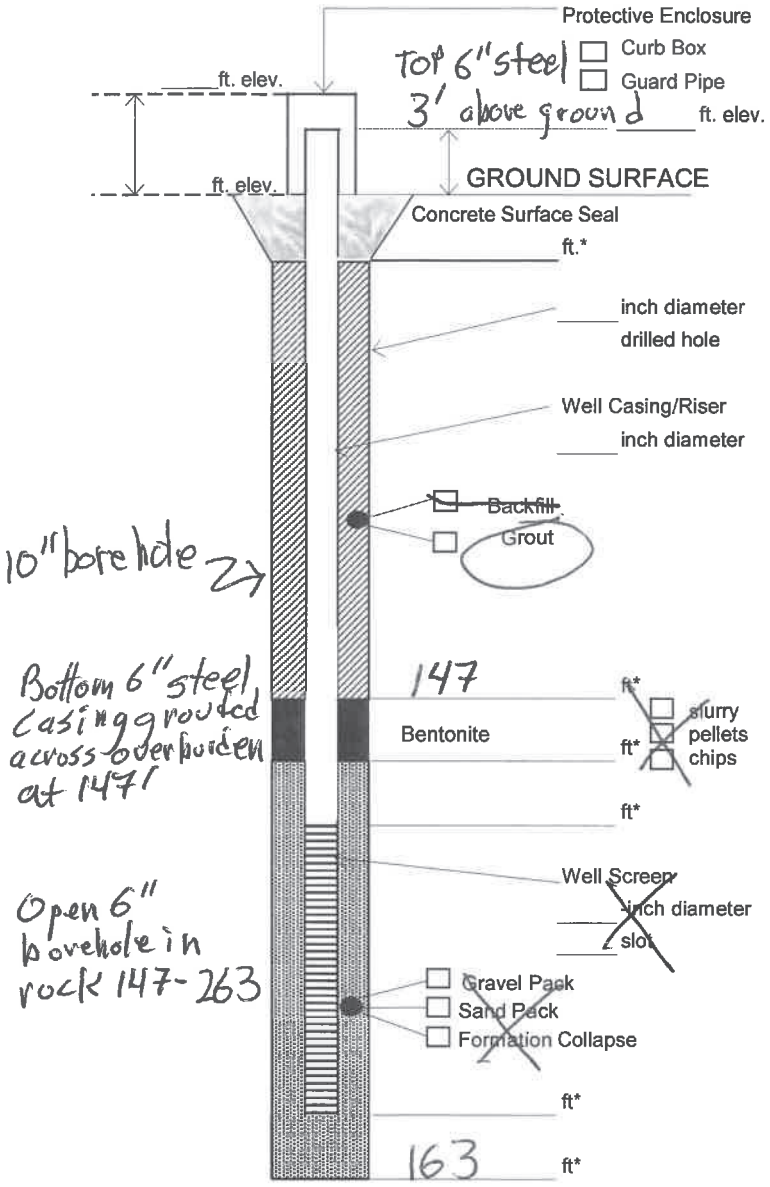
_____ Bags of Cement (_____ lb. bags)
_____ Lbs. of Bentonite
_____ Gallons of Water
_____ Grout Batches

Notes: Hole was drilled to 380' bgs. Rubble from core barrel obstructs the bottom to 373' bgs.

Well No. MWBR-2

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: Saint Gobain Bennington

Project Number: 16.6131

Well No.: MWBR-2 Boring No.: same

Town/City: Bennington (Landfill)

County: Bennington State: VT

Installation Date(s): 12.8/9.17

Drilling Contractor: Cascade

Drilling Method: Overburden-Sonic/Rock-Air Rotary

Water Depth From ~~Top of Riser~~ Ground surface: 108 ft 12.10.17 Date

C.T. Male Observer: BAK

Materials Used: open hole in rock

- ____ Bags of Sand (____ lb. bags)
  Sand Size: ____ Brand: ____
- ____ Bags of Bentonite (____ lb. bags)
  Brand: ____
- ____ ft. of ____ well screen
- ____ ft. of ____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags)
  Brand: ____

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

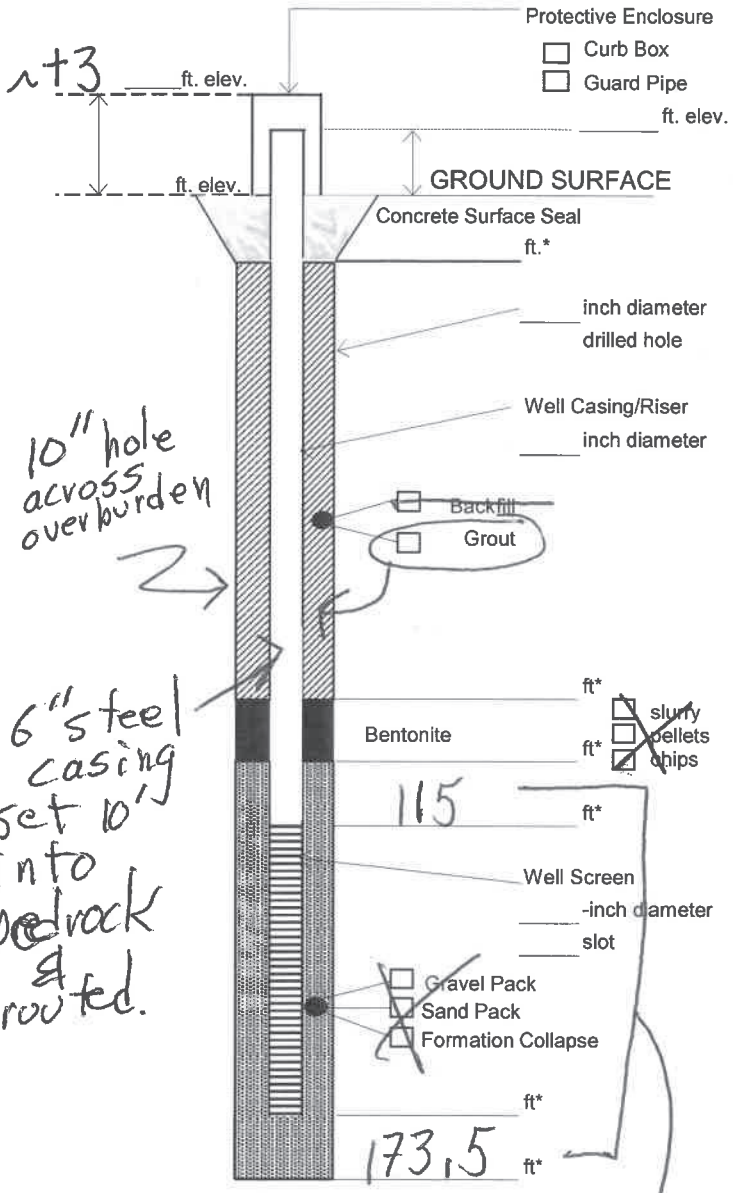
Notes:

MWBR-2 (Relocated) 10ft west of original boring because of broken casing. Original hole filled with grout.

Well No. MWBR-3

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG



* Depth below ground surface.

Project Name: Saint Gobain Bennington

Project Number: 16,6131

Well No.: MWBR-3 Boring No.: —

Town/City: Bennington

County: Bennington State: VT

Installation Date(s): 12/20-21/17

Drilling Contractor: Cascade

Drilling Method: Rota-Sonic / Air Hammer

Water Depth From Top of Riser: ____ ft ____ Date

C.T. Male Observer: RAK

Materials Used:

- ____ Bags of Sand (____ lb. bags)
  Sand Size: ____ Brand: ____
- ____ Bags of Bentonite (____ lb. bags)
  Brand: ____
- ____ ft. of ____ well screen
- ____ ft. of ____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags)
  Brand: ____

Grout Mixture:

- ____ Bags of Cement (____ lb. bags)
- ____ lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

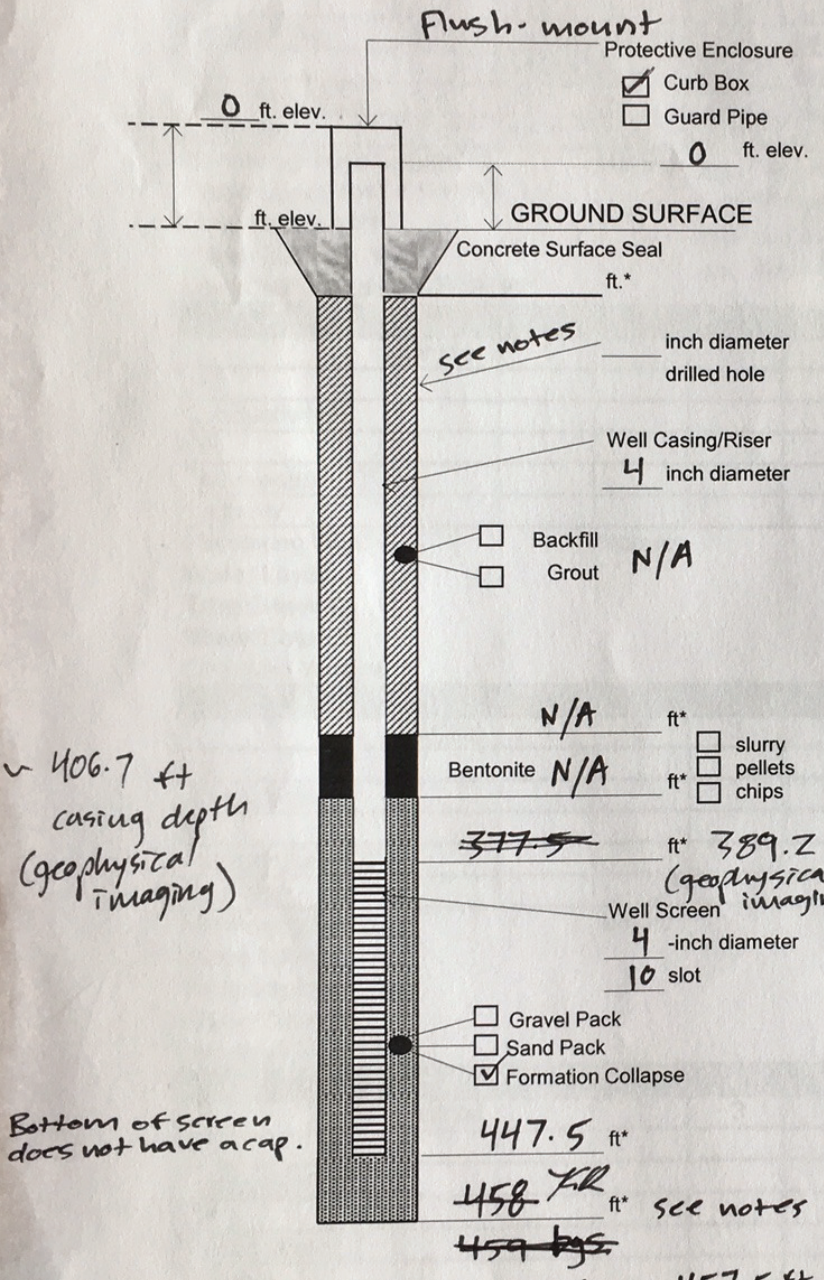
Notes:

C.T. MALE ASSOCIATES

Well No. MWBR-4

MONITORING WELL CONSTRUCTION LOG

A



* Depth below ground surface.

Project Name: SGPP - Bennington

Project Number: 16.6131

Well No.: MWBR-4 Boring No.:

Town/City: Bennington

County: Bennington Co. State: VT

Installation Date(s): 12/14/17

Drilling Contractor: Cascade

Drilling Method: See notes

Water Depth From Top of Riser: 105.7 ft 12/15/17 Date

C.T. Male Observer: KMD

Materials Used: N/A

- ____ Bags of Sand (____ lb. bags)
  Sand Size: ____ Brand: ____
- ____ Bags of Bentonite (____ lb. bags)
  Brand: ____
- ____ ft. of ____ well screen
- ____ ft. of ____ well riser
- ____ Bags of Cement/Concrete (____ lb. bags)
  Brand: ____

Grout Mixture: N/A

- ____ Bags of Cement (____ lb. bags)
- ____ Lbs. of Bentonite
- ____ Gallons of Water
- ____ Grout Batches

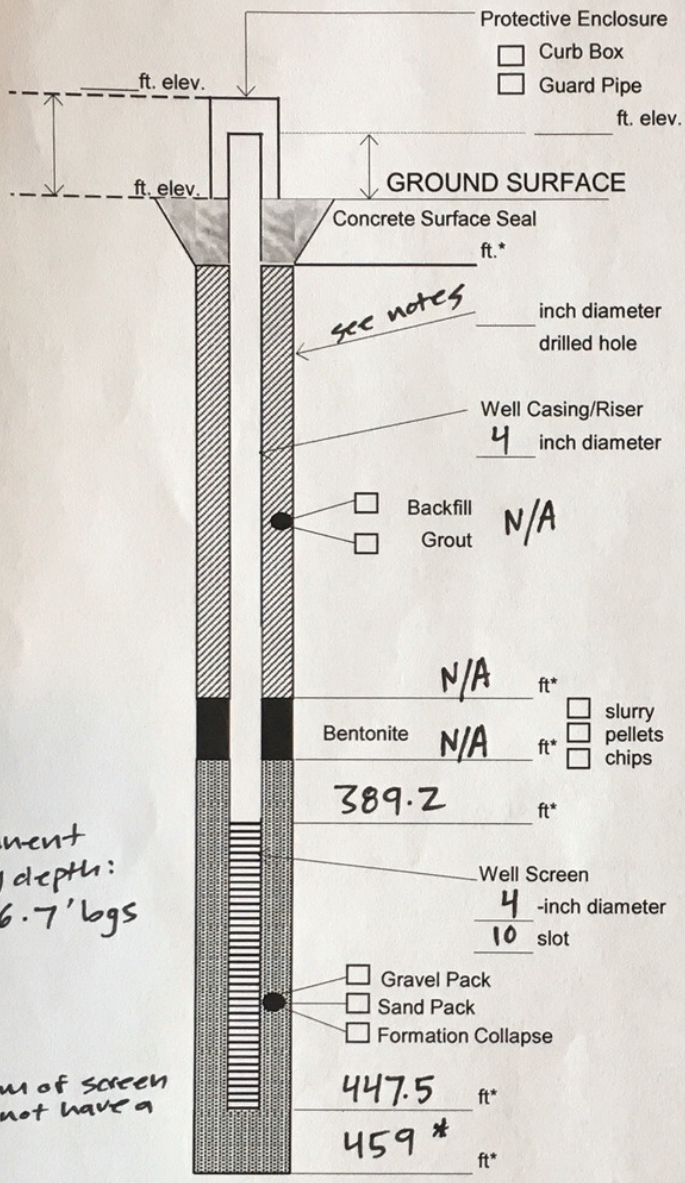
Notes: Sonic coring (4x6) for 1st run - 397'-407' below ground surface.
PQ coring after 407' below ground surface.
10" open hole to 407 bgs.
5" open hole 407' - ~~458 bgs~~ Tkd. 459 bgs
Drilled to 459 bgs, but rubble from core barrel of final run fell out causing bottom of hole to be @ 458' ~~bgs~~.

Well No. MW BR-4

C.T. MALE ASSOCIATES

MONITORING WELL CONSTRUCTION LOG

B



permanent casing depth: 406.7' bgs

Bottom of screen does not have a cap.

* Depth below ground surface.

Project Name: SGPP-Bennington

Project Number: 16.6131

Well No.: MWBR-4 Boring No.: _____

Town/City: Bennington,

County: Bennington, State: VT

Installation Date(s): 12/14/17

Drilling Contractor: CASCADE

Drilling Method: see notes

Water Depth From Top of Riser: 105.7 ft 12/15/17 Date

C.T. Male Observer: KMD

Materials Used:

_____ Bags of Sand (_____ lb. bags)
Sand Size: _____ Brand: _____

_____ Bags of Bentonite (_____ lb. bags)
Brand: _____

_____ ft. of _____ well screen

_____ ft. of _____ well riser

_____ Bags of Cement/Concrete (_____ lb. bags)
Brand: _____

Grout Mixture:

_____ Bags of Cement (_____ lb. bags)

_____ Lbs. of Bentonite

_____ Gallons of Water

_____ Grout Batches

Notes:

Sonic coring (4x6) for 1st run, 397'-407' bgs.
PQ coring: 407'-459' bgs.
10" open hole to 407' bgs.
5" open hole from 407'-459' bgs.
Drilled to 459' bgs, open to ~457.5' bgs from rubble (from core barrel) and mud blockage.

* original data were incorrect on "Log A"
↳ depths on diagram are based on OBI geophysical imaging
CONTACT: Bill Pedler, RAS

MWconstlog.xls

Appendix A.6

Photo Log

Appendix A
Photolog
CSM Site Investigation

Bennington, Vermont
August 2017 to January 2017

Photo #	Caption
1	The “mini sonic” sonic rig used during the CSM Investigation (at D03).
2	The “mini crawler” sonic rig used during the CSM Investigation (at SG3-MW17-BR1).
3	The “full size crawler” used during the CSM Investigation (at SG3-MW17-BR2).
4	The Geoprobe® rig used during the CSM Investigation (at S16).
5	Soil core samples collected with 9” diameter core barrel (at SG3-MW17-BR1).
6	Soil screening work area (at S26).
7	Macro-core samples collected with the Geoprobe® rig (at S35).
8	Soil core samples collected with 4” diameter core barrel (at D10).
9	PQ rock core of Cheshire Formation with steeply dipping fracture (at SG3-MW17-BR1).
10	Till representative of unconsolidated material across the investigation area (at SG3-MW17-BR1).
11	Ocher and Kaolin, hydrothermally altered Dunham Formation (at SG3-MW17-BR1).
12	Kaolin, hydrothermally altered Dunham Formation (at SG3-MW17-BR4).
13	Ocher, note quartz inclusions shown by arrows (at SG3-MW17-BR4).
14	Examples of angular and irregularly-shaped quartz inclusions found in ocher (at D24).
15	A 45-foot interval of mostly kaolin material (at D07, 155-200 feet bgs).
16	A sample of marble from the Bascom Formation (at D14).
17	A sample of quartzite from the Dunham Formation (at D16).
18	A sample of quartzite from the Cheshire Formation (at SG3-MW17-BR3).
19	A sample of slate bedrock from the Bascom Formation (at D22).
20	A sample of dolomitic quartzite bedrock (at D12).
21	Typical set up for of geophysical logging (shown at SG3-MW17-BR2).
22	The POET filtration system used to filter City of Troy water for drilling use.
23	The water tank area south of the Water Street facility.
24	A roll-off bin used to store excess soil cuttings produced during drilling of deep borings and monitoring wells located outside the of the Bennington Landfill.
25	Water sample collection from SG3-MW17-BR2 at the Bennington Landfill after completion of geophysical testing.

Photo 1: The “mini sonic” sonic rig used during the CSM Investigation (at D03).

Photo 2: The “mini crawler” sonic rig used during the CSM Investigation (at SG3-MW17-BR1).

Photo 3: The “full size crawler” used during the CSM Investigation (at SG3-MW17-BR2).

Photo 4: The Geoprobe® rig used during the CSM Investigation (at S16).

Photo 5: Soil core samples collected with 9” diameter core barrel (at SG3-MW17-BR1).

Photo 6: Soil screening work area (at S26).

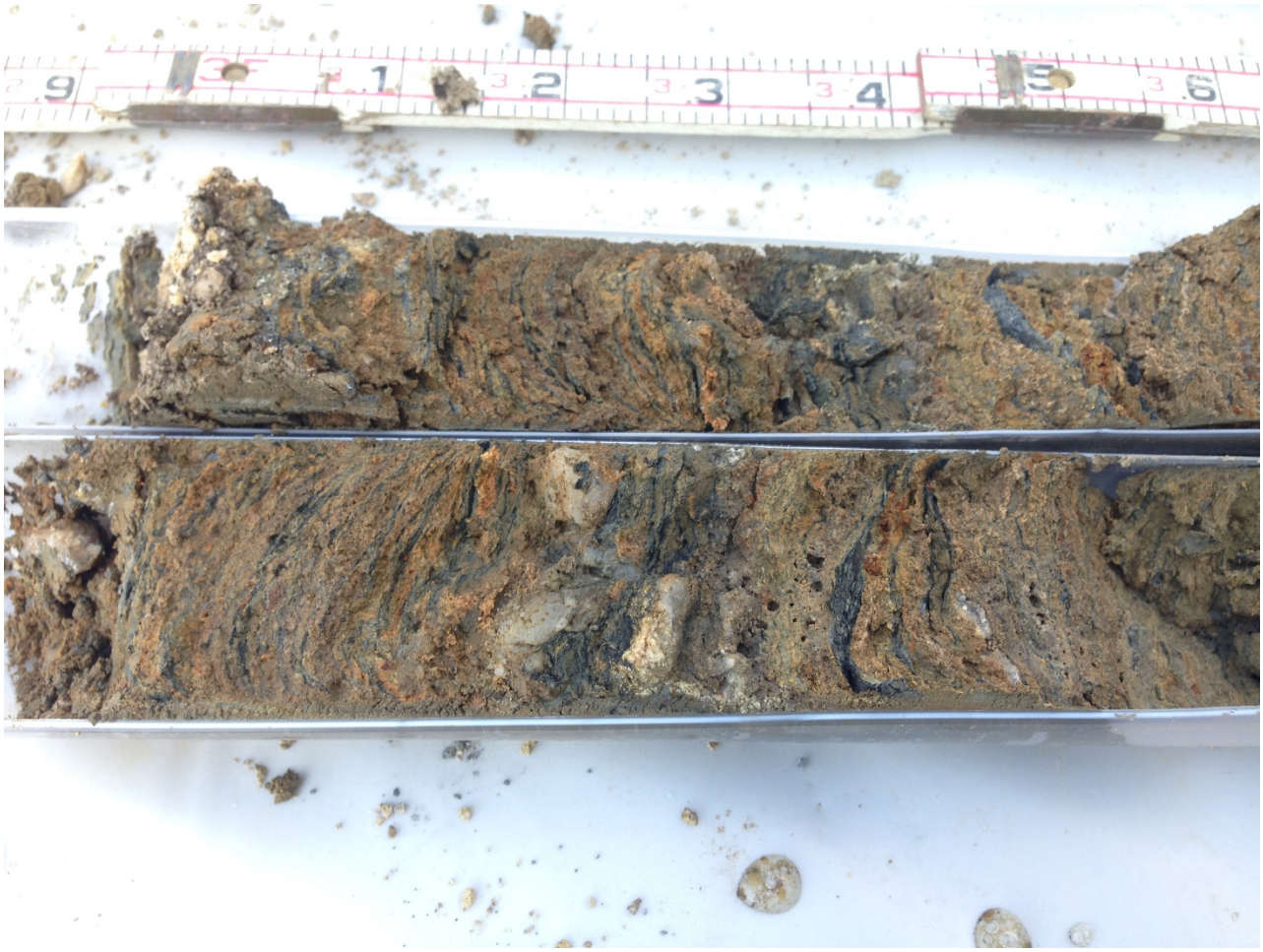


Photo 7: Macro-core samples collected with the Geoprobe® rig (at S35).

Photo 8: Soil core samples collected with 4” diameter core barrel (at D10).

Photo 9: PQ rock core of Cheshire Formation with steeply dipping fracture (at SG3-MW17-BR1).

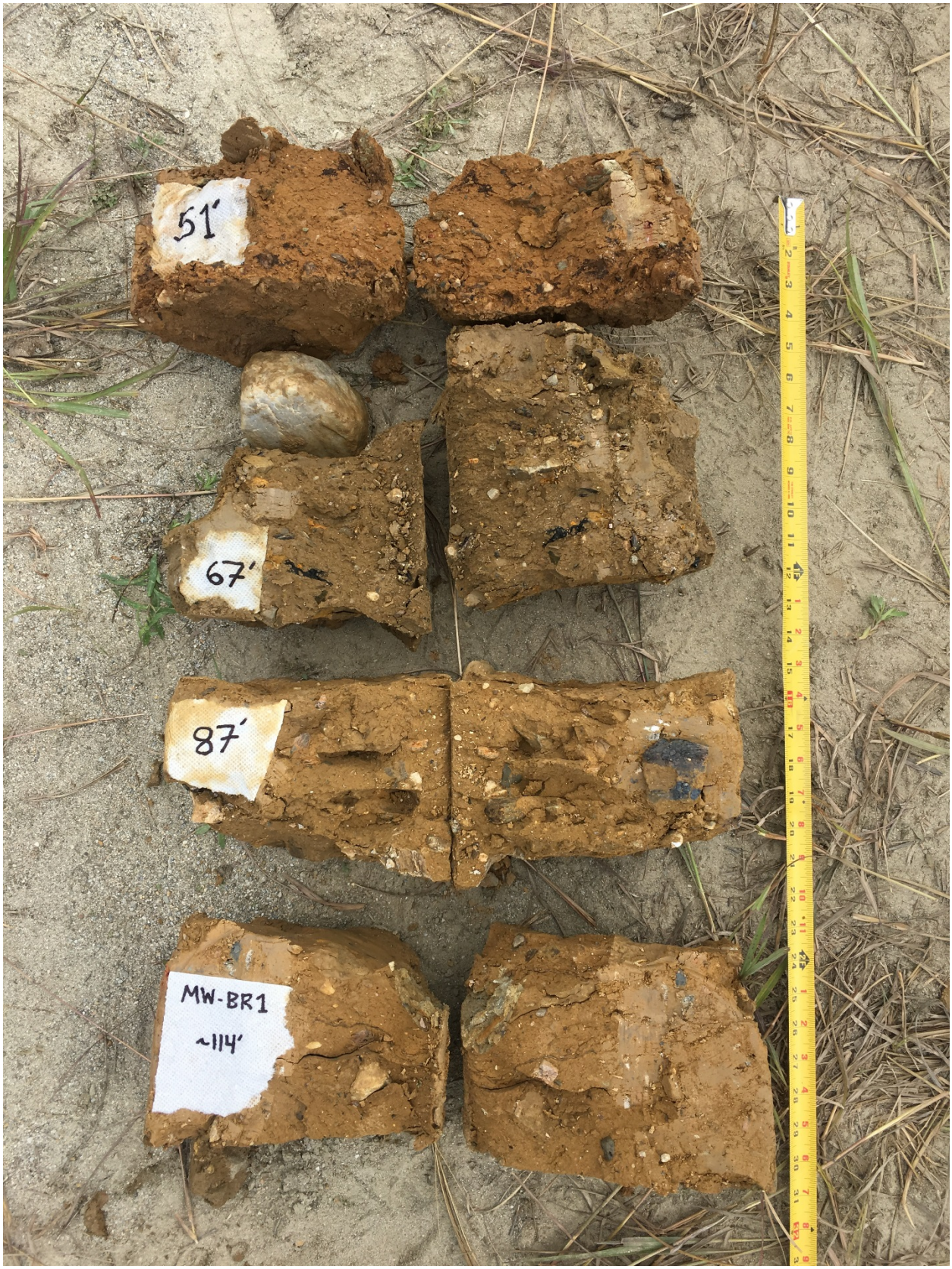


Photo 10: Till representative of unconsolidated material across the investigation area (at SG3-MW17-BR1).

Photo 11: Ocher and Kaolin, hydrothermally altered Dunham Formation (at SG3-MW17-BR1).

Photo 12: Kaolin, hydrothermally altered Dunham Formation (at SG3-MW17-BR4).

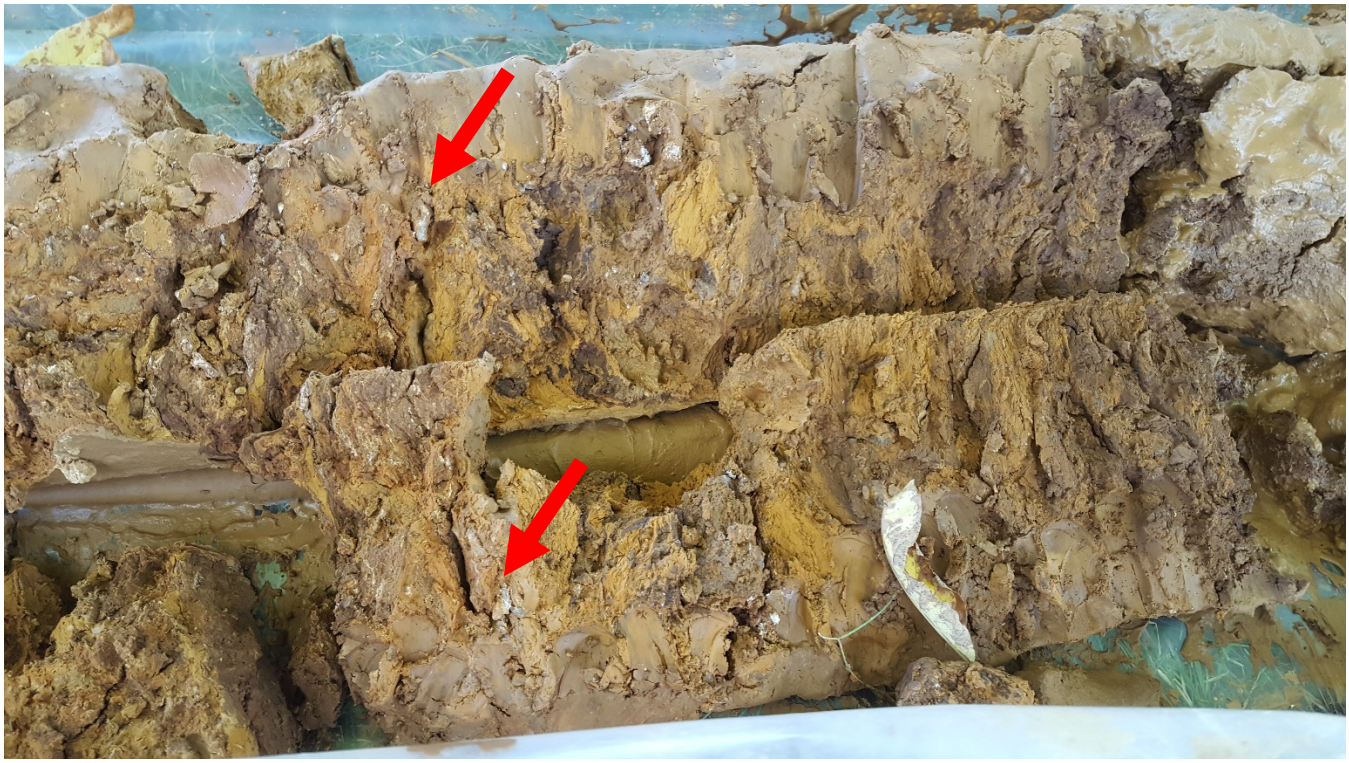


Photo 13: Ocher, note quartz inclusions shown by arrows (at SG3-MW17-BR4).

Photo 14: Examples of angular and irregularly-shaped quartz inclusions found in ocher (at D24).

Photo 15: A 45-foot interval of mostly kaolin material (at D07, 155-200 feet below ground surface). Cores are laid out from right to left (shallow to deep), with the top of the cores situated at the top of the page.

Photo 16: A sample of marble from the Bascom Formation (at D14).

Photo 17: A sample of quartzite from the Dunham Formation (at D16).

Photo 18: A sample of quartzite from the Cheshire Formation (at SG3-MW17-BR3).

Photo 19: A sample of slate bedrock from the Bascom Formation (at D22).

Photo 20: A sample of dolomitic quartzite bedrock (at D12).

Photo 21: Typical set up for of geophysical logging (shown at SG3-MW17-BR2).

Photo 22: The POET filtration system used to filter City of Troy water for drilling use.

Photo 23: The water tank area south of the Water Street facility. Tank set up shown from left to right; City Water Tank 2, IDW Tank, City Water Tank 1 which was later converted to Filtered Tank E, Filtered Tank A, Filtered Tank B, Filtered Tank C, and Filtered Tank D.

Photo 24: A roll-off bin used to store excess soil cuttings produced during drilling of deep borings and monitoring wells located outside the of the Bennington Landfill.

Photo 25: Water sample collection from SG3-MW17-BR2 at the Bennington Landfill after completion of geophysical testing.

Appendix A.7

Minor Modifications/Deviations from the Work Plan

Appendix A - Minor Modifications/Deviations from the Work Plan

Fieldwork and laboratory analysis was conducted in accordance with the Revised CSM Site Investigation Work Plan for Bennington, VT (Barr, 2017a), except for the minor deviations listed below:

Field Work Category	Description of Deviation	Rationale for Deviation	Results
Groundwater Sampling and Analysis	Temporary wells were installed in direct-push and rotasonic boring when the groundwater was encountered, but groundwater samples were not collected at each location.	Groundwater samples could not be collected at all locations where temporary wells were installed due to insufficient groundwater volume.	This deviation did not negatively affect the investigation. Groundwater samples were collected from temporary wells installed in 14 direct-push borings and two rotosonic borings. Results are discussed in the report.
	Slug testing of the permanent monitoring wells was added to the investigation scope of work.	This deviation was completed at the request of the VTDEC in an August 12, 2017 comment letter. The VTDEC requested this data to calculate the hydraulic conductivity across the investigation area and compare the calculated value to the assumed value used in the CSM Model.	This deviation did not negatively affect the investigation. The results of the slug testing are included in Appendix G.
	Mercury was analyzed in the sample collected from SG3-MW17-05 even though mercury was not a parameter identified for analysis.	The laboratory mistakenly analyzed this sample for mercury.	This deviation did not negatively affect the investigation.
	Only PFAS was reported for the sample taken from boring S42.	There was a limited volume of water available for analysis from boring S42 due to very slow water-level recovery.	This deviation did not negatively affect the investigation.
Investigation Locations and Sample Collection	Actual locations varied slightly from proposed locations.	To ensure that each location could be completed safely, boring locations were adjusted in the field to account for site conditions including access and utilities.	This deviation did not negatively affect the investigation. All investigation locations were completed and the results are discussed in the report.
	A hand auger was used to collect samples from the top 1.5 feet at each direct-push boring location.	Hand augers were used to ensure that the soil samples within the top 1.5 feet were collected from the correct depth intervals and that there was enough soil volume to complete the analysis.	This deviation did not negatively affect the investigation. Soil samples from the 0-0.5, 0.5-1, and 1-1.5 feet sampling intervals were collected from each investigation location. Results are discussed in the report.

Field Work Category	Description of Deviation	Rationale for Deviation	Results
Investigation Locations and Sample Collection	Additional borings were installed adjacent to the original investigation when there was low recovery in a sample interval.	These borings provided additional soil volume for the required soil laboratory analysis.	This deviation did not negatively affect the investigation. Soil samples were analyzed in general accordance with the Work Plan and the associated QAPP. The soil analytical results are discussed in the report.
	Organic soil vapor headspace readings were not measured when the soil was consumed during soil analytical sample collection.	Organic soil vapor headspace readings are not a good indicator of the presence of PFAS in soil and were not used to direct soil sample collection.	This deviation did not negatively affect the investigation. Organic soil vapor headspace readings collected during this investigation are presented on boring logs in Appendix A and summarized in Table 3.2.
	Boring S11 was drilled, logged, and sampled on August 28, 2017 and again on September 7, 2017.	This deviation was due to miscommunication.	This deviation did not negatively affect the investigation. The logs for both borings are included in Appendix A and the results are discussed in the report.
	Two shallow profile borings (S15, S23) were moved and completed as deep profile borings (D25, D26) at Bennington Landfill.	This deviation was completed to provide better spatial coverage and additional deep soil sampling at Bennington Landfill. Boring D25 was later completed as a permanent monitoring well.	This deviation did not negatively affect the investigation. The results from these locations are discussed in the report.
	Grain size analysis was completed at select locations across the site.	This deviation was completed at the request of the VTDEC in an August 12, 2017 comment letter. The VTDEC stated that these data could provide a better understanding of the adsorption and attenuation of PFAS compounds in the vadose zone and further validate the hydraulic conductivity values used in the CSM model.	This deviation did not negatively affect the investigation. Over 130 grain size analysis samples were collected during this investigation and the results are included in Appendix G.

Field Work Category	Description of Deviation	Rationale for Deviation	Results
Investigation Locations and Sample Collection	Select soil samples from deep profile borings were also analyzed for target-analyte-list (TAL) metals.	This deviation was completed at the request of the VTDEC in an August 12, 2017 comment letter. The VTDEC stated that these data could provide a better understanding of the adsorption and attenuation of PFAS compounds in the vadose zone.	This deviation did not negatively affect the investigation. Over 250 TAL metals samples were collected during this investigation and the results are discussed in the report.
	Permanent monitoring well SG3-MW17-WWTP was completed in fractured bedrock, rather than the clay and clayey till overlying bedrock.	Based on field observations, it was unlikely that the clay and clayey till would be productive for groundwater sampling.	This deviation did not negatively affect the investigation. This well has been sampled and the results are discussed in the report.
Bedrock Monitoring Well Installation and Sampling	Existing Bennington Landfill bedrock monitoring well B-4-3 was re-developed and sampled.	The well was not located on a previous sampling round performed in 2016, but was located on a subsequent site visit.	This deviation did not negatively affect the investigation. The sampling results are discussed in the report.
	Existing Bennington Landfill bedrock monitoring wells B-2-3, B-4-3, and B-6-3 were surveyed.	Transducers were deployed in the monitoring wells, which were not explicitly mentioned in the Work Plan as candidates for surveying.	This deviation did not negatively affect the investigation. Survey results are provided in Appendix A.
	Bedrock wells could not be completed with rotasonic drilling methods. Diamond core and air rotary drilling methods were also utilized to complete the bedrock wells.	Refusal in the bedrock was encountered at the bedrock borings using rotasonic drilling methods and alternate drilling methods were required to meet the objectives of the Work Plan.	This deviation did not negatively affect the investigation. Well installation and construction met the objectives of the Work Plan.
	Wells SG3-MW17-BR2 and SG3-MW17-BR3 were completed with air rotary with downhole hammer. A complete rock core could not be produced and fracturing could not be observed at these locations.	Refusal in the bedrock was encountered at the bedrock borings using rotasonic drilling methods and alternate drilling methods were required to meet the objectives of the Work Plan.	This deviation did not negatively affect the investigation. Areas of fracturing were identified using geophysical logs.

Field Work Category	Description of Deviation	Rationale for Deviation	Results
Bedrock Monitoring Well Installation and Sampling	A PVC riser was installed in bedrock wells SG3-MW17-BR1, SG3-MW17-BR4 during well construction and in SG3-MW17-BR3 during the first discrete-interval sampling.	An open borehole could not be maintained at these locations and a PVC well riser was required to construct the wells.	This deviation did not negatively affect the investigation. Discrete interval sampling and the full suite of geophysical logging was not completed at wells SG3-MW17-BR1 and SG3-MW17-BR4 and discrete interval sampling could not be completed at well SG3-MW17-BR3.
	Additional geophysical logging was completed at existing wells at the landfill (B-2-3, B-4-3, B-6-3).	The geophysical logging was completed to obtain additional data regarding the geology at these wells.	This deviation did not negatively affect the investigation. Geophysical logs for these wells are included in Appendix A.
	Hydraulic conductivity testing was not completed at bedrock wells.	Based on the large screened interval, it was unlikely that	This deviation did not negatively affect the investigation.
	Transducers were deployed in bedrock wells, but the transducer installed at wells B-4-3 and B-6-3 were not installed below the groundwater table.	This deviation was due to improper installation.	This deviation did not negatively impact the investigation. Available transducer data is included in Appendix G.

Appendix A.8

Investigative Derived Waste Handling Summary

Appendix A
IDW Handling Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Investigation Source	Property	Type	Waste Management
Geoprobe Drilling	Landfill	Soil	Containerized in drums. Drums remain at landfill awaiting characterization and proper disposal.
		Water	Discharged onto ground.
	Non-landfill	Soil	Backfilled in boring or thin-spread in vicinity of boring.
		Water	Containerized and stored in IDW water frac tank at Water Street facility. Approximately 29,500 gallons has been treated and discharged in accordance with a VTDEC approved plan. The remaining containerized water will be treated and discharged in a similar manner at a future date.
Sonic Drilling	Landfill	Soil	Containerized in drums. Drums remain at landfill awaiting characterization and proper disposal.
		Water	Discharged onto ground.
	Non-landfill	Soil	Stored in roll-off bin at Water Street facility.
		Water	Containerized and stored in IDW water frac tank at Water Street facility. Approximately 29,500 gallons has been treated and discharged in accordance with a VTDEC approved plan. The remaining containerized water will be treated and discharged in a similar manner at a future date.

Appendix A.9

Survey Summary

Table A-1
Survey Results
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location	Coordinates (UTM 18N, meters)[1]		Coordinates (decimal degrees)[2]		Ground Elevation[3]	Top of Casing	Top of Riser
	Easting	Northing	Longitude	Latitude	(feet)	Elevation[1] (feet)	Elevation[1] (feet)
BG1	648265.91	4764644.73	-73.180404	43.020022	857.0	--	--
BG2	660426.47	4750073.42	-73.035423	42.886413	2380.7	--	--
BG3	678070.58	4750263.88	-72.819439	42.884216	1862.2	--	--
BG4	678434.54	4746680.23	-72.816122	42.851883	1883.6	--	--
D01	643172.20	4756135.40	-73.245067	42.944407	763.9	--	--
D02	647151.43	4755023.57	-73.196607	42.933642	960.2	--	--
D03	643077.79	4754776.42	-73.246571	42.932193	645.3	--	--
D05	643046.39	4753945.60	-73.247168	42.924720	633.4	--	--
D07	648590.40	4753820.21	-73.179300	42.922532	1012.8	--	--
D10	646918.05	4753598.13	-73.199840	42.920857	955.6	--	--
D12	646067.65	4753431.36	-73.210298	42.919519	822.2	--	--
D13	645410.00	4752879.49	-73.218496	42.914678	642.6	--	--
D14	644611.78	4753190.42	-73.228190	42.917628	647.5	--	--
D16	646971.10	4753034.59	-73.199338	42.915774	945.6	--	--
D17	640801.87	4752926.30	-73.274915	42.915963	674.7	--	--
D19	646756.85	4752463.42	-73.202111	42.910675	806.4	--	--
D20	643302.58	4752114.97	-73.244498	42.908195	606.3	--	--
D22	643303.46	4751685.29	-73.244597	42.904327	742.5	--	--
D23	643062.24	4750957.54	-73.247736	42.897822	757.3	--	--
D24	643291.00	4749718.85	-73.245252	42.886630	799.3	--	--
D26	646838.05	4753693.11	-73.200795	42.921727	1004.2	--	--
S01	643063.49	4756996.10	-73.246179	42.952175	717.4	--	--
S02	644972.91	4756117.61	-73.223010	42.943907	703.0	--	--
S03	645896.51	4755856.65	-73.211763	42.941382	732.8	--	--
S04	649013.86	4755749.57	-73.173601	42.939815	1086.9	--	--
S05	640837.46	4755644.60	-73.273796	42.940425	528.1	--	--
S06	641631.03	4754698.85	-73.264313	42.931765	535.5	--	--
S07	645127.53	4754342.47	-73.221576	42.927899	710.0	--	--
S08	646147.71	4754890.80	-73.208937	42.932640	776.2	--	--
S09	648628.17	4754481.47	-73.178662	42.928476	1044.2	--	--
S10	648175.31	4754303.25	-73.184256	42.926960	961.2	--	--
S11	644039.35	4754296.60	-73.234916	42.927693	698.3	--	--
S11-2	644039.35	4754296.60	-73.234916	42.927693	698.3	--	--
S12	646114.61	4753976.27	-73.209581	42.924415	812.7	--	--
S13	647200.31	4754101.42	-73.196251	42.925332	977.2	--	--
S14	642577.41	4754444.62	-73.252785	42.929300	684.8	--	--
S16	647395.12	4753800.11	-73.193944	42.922583	910.3	--	--
S18	647224.72	4753690.42	-73.196060	42.921628	920.5	--	--
S20	647477.31	4753645.00	-73.192978	42.921171	908.1	--	--
S21	647314.28	4753670.72	-73.194968	42.921434	915.9	--	--
S22	646989.41	4753631.99	-73.198957	42.921148	955.1	--	--
S24	647030.93	4753555.71	-73.198469	42.920453	948.0	--	--
S25	647235.03	4753504.33	-73.195983	42.919951	919.5	--	--
S26	647095.37	4753528.57	-73.197687	42.920197	940.4	--	--
S27	647050.77	4753539.86	-73.198230	42.920307	945.5	--	--
S28	647733.41	4753454.91	-73.189892	42.919410	894.1	--	--
S29	647435.13	4753465.07	-73.193542	42.919559	908.5	--	--
S30	647673.83	4752749.09	-73.190808	42.913069	871.9	--	--
S31	646051.41	4752859.78	-73.210646	42.914378	790.2	--	--
S32	648599.76	4752684.23	-73.179487	42.912305	911.8	--	--
S33	645883.52	4752395.55	-73.212823	42.910231	664.1	--	--
S34	644883.13	4752022.43	-73.225169	42.907064	573.0	--	--
S35	643939.65	4752311.58	-73.236647	42.909845	583.9	--	--
S36	642997.26	4752262.19	-73.248199	42.909577	577.3	--	--
S37	648567.72	4751900.60	-73.180087	42.905258	862.9	--	--
S38	640973.45	4751217.67	-73.273244	42.900552	692.6	--	--
S39	648561.22	4750890.26	-73.180434	42.896166	833.3	--	--
S40	643791.74	4750950.44	-73.238807	42.897621	816.9	--	--
S41	645769.29	4750988.60	-73.214587	42.897589	587.8	--	--
S42	648477.59	4750616.97	-73.181530	42.893722	779.1	--	--
S43	644291.92	4749827.50	-73.232972	42.887419	842.0	--	--
S44	642038.08	4749514.14	-73.260640	42.885021	871.9	--	--
S45	645201.09	4749219.09	-73.222001	42.881770	828.1	--	--
S46	646673.83	4749442.28	-73.203917	42.883498	669.8	--	--
S47	648399.33	4749381.94	-73.182814	42.882621	748.1	--	--

Table A-1
Survey Results
CSM Site Investigation Report
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Location	Coordinates (UTM 18N, meters)[1]		Coordinates (decimal degrees)[2]		Ground Elevation[3] (feet)	Top of Casing Elevation[1] (feet)	Top of Riser Elevation[1] (feet)
	Easting	Northing	Longitude	Latitude			
S48	643207.03	4748771.00	-73.246521	42.878114	913.5	--	--
S49	645406.04	4748598.06	-73.219653	42.876142	916.5	--	--
SG3-MW17-01/D06	647246.56	4753670.08	-73.195798	42.921441	914.8	917.91	917.79
SG3-MW17-02/D08	647312.12	4753643.75	-73.195002	42.921191	916.1	919.03	918.89
SG3-MW17-03/D25	647283.89	4754105.41	-73.195226	42.925352	978.1	980.92	980.54
SG3-MW17-04/D11	647007.68	4753592.28	-73.198744	42.920787	954.7	957.34	957.07
SG3-MW17-05/D21	646752.09	4751291.64	-73.202476	42.900129	649.7	649.55	649.15
SG3-MW17-06/D09	647254.69	4753608.02	-73.195715	42.920881	929.6	932.14	931.95
SG3-MW17-07/D15	644140.64	4753470.29	-73.233888	42.920236	680.9	683.14	682.89
SG3-MW17-BR1	647281.84	4754105.10	-73.195251	42.925350	977.9	981.07	980.77
SG3-MW17-BR2	646985.55	4753582.87	-73.199017	42.920707	956.8	959.01	--
SG3-MW17-BR3	646722.40	4753218.59	-73.202335	42.917478	945.9	947.85	947.61
SG3-MW17-BR4	647731.70	4753451.22	-73.189914	42.919377	894.3	897.49	896.46
SG3-MW17-WWTP/D18	642265.11	4752854.26	-73.257014	42.915043	565.1	567.70	567.45
1102 ROCKY LN	646955.85	4753995.69	-73.199273	42.924428	968.5	970.38	--
1152 HARWOOD HILL RD	645930.42	4753130.25	-73.212057	42.916835	790.9	793.02	--
1371 HARWOOD HILL RD	646095.74	4753499.37	-73.209937	42.920126	830.9	831.66	--
1400 BECKS RD	647433.36	4752955.21	-73.193698	42.914971	870.6	871.90	--
49 MICHAELS DR	646694.01	4753000.46	-73.202740	42.915520	912.9	914.57	--
901 ROCKY LN	647203.57	4754301.28	-73.196159	42.927131	1007.6	1009.54	--
54 CORTLAND LN	647031.19	4752629.94	-73.198708	42.912121	877.9	878.90	878.26
32 CORTLAND LN	646926.77	4752635.96	-73.199985	42.912195	866.3	868.00	867.66
B-2-1	647296.16	4753621.11	-73.195203	42.920991	915.3	917.80	--
B-2-2	647301.69	4753617.59	-73.195136	42.920958	915.5	917.24	--
B-2-3	647295.14	4753615.10	-73.195217	42.920937	915.2	917.28	917.14
B-4-3	646791.61	4753867.84	-73.201318	42.923309	990.0	991.64	991.41
B-6-1	647086.99	4753581.29	-73.197775	42.920673	954.2	957.07	--
B-6-3	647094.46	4753579.02	-73.197685	42.920651	953.5	956.64	956.47
B-12	646963.99	4753621.22	-73.199271	42.921056	960.4	962.97	--

Notes:

-- Not applicable or available

1 - Northing and easting in UTM Zone 18N NAD83, meters

2 - Latitude and longitude in NAD83, decimal degrees

3 - Elevations in NAVD88, feet

Appendix B

Lab Reports

Appendix B.1 Sample Directory
Appendix B.2 Laboratory Reports

Appendix B.1

Sample Directory

Appendix B
Analytical Sample Directory by Laboratory Report
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
10" CASING	9/26/2017		Lancaster	SGB54
6" CASING	9/26/2017		Lancaster	SGB54
9" CASING	10/12/2017		Lancaster	SGB84
AIR-DISCHARGE-RAS	11/16/2017		Lancaster	SNB41
B-12	5/24/2017		Lancaster	SPQ24
B-2-1	5/25/2017		Lancaster	SPQ24
B-2-2	5/25/2017		Lancaster	SPQ24
B-2-2	5/25/2017		Lancaster	SPQ24
B-4-3	10/27/2017		Lancaster	SNB20
BENTONITE	12/6/2017		Lancaster	SGL83
BG1	8/18/2017	0.5-1 ft	Lancaster	SGB08
BG1	8/18/2017	0-0.5 ft	Lancaster	SGB08
BG1	8/18/2017	1-1.5 ft	Lancaster	SGB08
BG1	8/18/2017	3-4 ft	Lancaster	SGB08
BG1	8/18/2017	8-9 ft	Lancaster	SGB08
BG2	8/23/2017	0.5-1 ft	Lancaster	SGB11
BG2	8/23/2017	0-0.5 ft	Lancaster	SGB11
BG2	8/23/2017	0-0.5 ft	Lancaster	SGB11
BG2	8/23/2017	1-1.5 ft	Lancaster	SGB11
BG2	8/23/2017	3-4 ft	Lancaster	SGB11
BG2	8/23/2017	8-9 ft	Lancaster	SGB11
BG3	8/17/2017	0.5-1 ft	Lancaster	SGB06
BG3	8/17/2017	0-0.5 ft	Lancaster	SGB06
BG3	8/17/2017	1-1.5 ft	Lancaster	SGB06
BG3	8/17/2017	3-4 ft	Lancaster	SGB06
BG3	8/17/2017	3-4 ft	Lancaster	SGB07
BG4	8/17/2017	0.5-1 ft	Lancaster	SGB06
BG4	8/17/2017	0-0.5 ft	Lancaster	SGB06
BG4	8/17/2017	1-1.5 ft	Lancaster	SGB06
BG4	8/17/2017	3-4 ft	Lancaster	SGB06
BG4	8/17/2017		Lancaster	SGB06
BLADDERINSERT-RAS	11/16/2017		Lancaster	SNB41
CAMERA	11/27/2017		Lancaster	SNB43
CANOPY1	9/6/2017		Lancaster	SGB27
CANOPY2	9/6/2017		Lancaster	SGB27
CITY-WTR-FRAC-TANK-1	8/24/2017		Lancaster	SGB12
CITY-WTR-FRAC-TANK-1	8/31/2017		Lancaster	SGB22
CITY-WTR-FRAC-TANK-1	9/28/2017		Lancaster	SGB58
CITY-WTR-FRAC-TANK-1	10/2/2017		Lancaster	SGB65
CITY-WTR-FRAC-TANK-1	10/3/2017		Lancaster	SGB66
CITY-WTR-FRAC-TANK-1	10/5/2017		Lancaster	SGB72
CITY-WTR-FRAC-TANK-1	10/10/2017		Lancaster	SGB79
CITY-WTR-FRAC-TANK-1	10/17/2017		Lancaster	SGB91
CITY-WTR-FRAC-TANK-1	10/21/2017		Lancaster	SNB10
CITY-WTR-FRAC-TANK-1	11/7/2017		Lancaster	SNB32
CITY-WTR-FRAC-TANK-1	11/13/2017		Lancaster	SNB38
CITY-WTR-FRAC-TANK-1	11/14/2017		Lancaster	SNB38
CITY-WTR-FRAC-TANK-1	11/17/2017		Lancaster	SNB42
CITY-WTR-FRAC-TANK-1	11/28/2017		Lancaster	SNB43
CITY-WTR-FRAC-TANK-2	10/17/2017		Lancaster	SGB91
CITY-WTR-FRAC-TANK-2	10/20/2017		Lancaster	SNB04
CITY-WTR-FRAC-TANK-2	10/26/2017		Lancaster	SNB19
CITY-WTR-FRAC-TANK-2	11/3/2017		Lancaster	SNB28

Appendix B
Analytical Sample Directory by Laboratory Report
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Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
CITY-WTR-FRAC-TANK-2	11/17/2017		Lancaster	SNB42
CITY-WTR-FRAC-TANK-2	11/30/2017		Lancaster	SNB45
CITY-WTR-FRAC-TANK-2	12/4/2017		Lancaster	SNB55
CITY-WTR-FRAC-TANK-2	12/7/2017		Lancaster	SNB57
CITY-WTR-HOSE-1	8/24/2017		Lancaster	SGB12
CITY-WTR-HOSE-1	8/31/2017		Lancaster	SGB22
CITY-WTR-HOSE-1	9/28/2017		Lancaster	SGB58
CITY-WTR-HOSE-1	10/2/2017		Lancaster	SGB65
CITY-WTR-HOSE-1	10/3/2017		Lancaster	SGB66
CITY-WTR-HOSE-1	10/5/2017		Lancaster	SGB72
CITY-WTR-HOSE-1	10/10/2017		Lancaster	SGB79
CITY-WTR-HOSE-1	10/17/2017		Lancaster	SGB91
CITY-WTR-HOSE-1	10/20/2017		Lancaster	SNB04
CITY-WTR-HOSE-1	10/26/2017		Lancaster	SNB19
CITY-WTR-HOSE-1	11/7/2017		Lancaster	SNB32
CITY-WTR-HOSE-1	11/10/2017		Lancaster	SNB36
CITY-WTR-HOSE-1	11/14/2017		Lancaster	SNB38
CITY-WTR-HOSE-1	11/17/2017		Lancaster	SNB42
CITY-WTR-HOSE-1	11/28/2017		Lancaster	SNB43
CITY-WTR-HOSE-1	11/30/2017		Lancaster	SNB45
CITY-WTR-HOSE-1	12/4/2017		Lancaster	SNB55
CITY-WTR-HOSE-1	12/7/2017		Lancaster	SNB57
CITY-WTR-HOSE-2	10/17/2017		Lancaster	SGB91
CITY-WTR-HOSE-2	10/20/2017		Lancaster	SNB10
CITY-WTR-HOSE-2	11/3/2017		Lancaster	SNB28
CITY-WTR-TRUCK-1	8/24/2017		Lancaster	SGB12
CITY-WTR-TRUCK-1	8/31/2017		Lancaster	SGB22
CITY-WTR-TRUCK-1	9/28/2017		Lancaster	SGB58
CITY-WTR-TRUCK-1	10/2/2017		Lancaster	SGB65
CITY-WTR-TRUCK-1	10/3/2017		Lancaster	SGB66
CITY-WTR-TRUCK-1	10/5/2017		Lancaster	SGB72
CITY-WTR-TRUCK-1	10/10/2017		Lancaster	SGB79
CITY-WTR-TRUCK-1	10/17/2017		Lancaster	SGB91
CITY-WTR-TRUCK-1	10/20/2017		Lancaster	SNB04
CITY-WTR-TRUCK-1	10/26/2017		Lancaster	SNB19
CITY-WTR-TRUCK-1	11/7/2017		Lancaster	SNB32
CITY-WTR-TRUCK-1	11/10/2017		Lancaster	SNB36
CITY-WTR-TRUCK-1	11/14/2017		Lancaster	SNB38
CITY-WTR-TRUCK-1	11/17/2017		Lancaster	SNB42
CITY-WTR-TRUCK-1	11/28/2017		Lancaster	SNB43
CITY-WTR-TRUCK-1	11/30/2017		Lancaster	SNB45
CITY-WTR-TRUCK-1	12/4/2017		Lancaster	SNB55
CITY-WTR-TRUCK-1	12/7/2017		Lancaster	SNB57
CITY-WTR-TRUCK-2	10/17/2017		Lancaster	SGB91
CITY-WTR-TRUCK-2	10/20/2017		Lancaster	SNB10
CITY-WTR-TRUCK-2	11/3/2017		Lancaster	SNB28
COMPRESSOR OIL	11/7/2017		Lancaster	SNB31
COMPRESSORTESTH20	11/9/2017		Lancaster	SNB34
COOLER/BAGH20	11/9/2017		Lancaster	SNB34
CWTR-FRAC-TNK-SHEEN	9/11/2017		Lancaster	SGB32
D01	9/13/2017	0.5-1 ft	Lancaster	SGB37
D01	9/13/2017	0-0.5 ft	Lancaster	SGB37
D01	9/13/2017	0-5 ft	Lancaster	SGB39

Appendix B
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Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
D01	9/13/2017	1-1.5 ft	Lancaster	SGB37
D01	9/13/2017	11-14 ft	Lancaster	SGB39
D01	9/13/2017	12-13 ft	Lancaster	SGB37
D01	9/13/2017	14-20 ft	Lancaster	SGB39
D01	9/13/2017	18-19 ft	Lancaster	SGB37
D01	9/13/2017	20-29 ft	Lancaster	SGB39
D01	9/13/2017	28-29 ft	Lancaster	SGB37
D01	9/13/2017	3-4 ft	Lancaster	SGB37
D01	9/13/2017	5-11 ft	Lancaster	SGB39
D01	9/13/2017	8-9 ft	Lancaster	SGB37
D02	9/20/2017	0.5-1 ft	Lancaster	SGB47
D02	9/20/2017	0.5-2 ft	Lancaster	SGB62
D02	9/20/2017	0-0.5 ft	Lancaster	SGB47
D02	9/20/2017	0-0.5 ft	Lancaster	SGB62
D02	9/20/2017	1-1.5 ft	Lancaster	SGB47
D02	9/20/2017	2-5 ft	Lancaster	SGB62
D02	9/20/2017	3-4 ft	Lancaster	SGB47
D03	8/28/2017	0.5-1 ft	Lancaster	SGB16
D03	8/28/2017	0-0.5 ft	Lancaster	SGB16
D03	8/28/2017	0-10 ft	Lancaster	SGB21
D03	8/28/2017	10-20 ft	Lancaster	SGB21
D03	8/28/2017	1-1.5 ft	Lancaster	SGB16
D03	8/28/2017	12-13 ft	Lancaster	SGB16
D03	8/28/2017	15-16 ft	Lancaster	SGB16
D03	8/28/2017	3-4 ft	Lancaster	SGB16
D03	8/28/2017	8-9 ft	Lancaster	SGB16
D03	8/29/2017		Lancaster	SGB17
D05	8/28/2017	0.5-1 ft	Lancaster	SGB16
D05	8/28/2017	0-0.5 ft	Lancaster	SGB16
D05	8/28/2017	0-1.5 ft	Lancaster	SGB21
D05	8/28/2017	1.5-15 ft	Lancaster	SGB21
D05	8/28/2017	1-1.5 ft	Lancaster	SGB16
D05	8/28/2017	15-20 ft	Lancaster	SGB21
D05	8/28/2017	16-17 ft	Lancaster	SGB16
D05	8/28/2017	20-27 ft	Lancaster	SGB21
D05	8/28/2017	26-27 ft	Lancaster	SGB16
D05	8/28/2017	3-4 ft	Lancaster	SGB16
D05	8/28/2017	8-9 ft	Lancaster	SGB16
D06	9/22/2017	0.1-2.5 ft	Lancaster	SGB63
D06	9/22/2017	0.5-1 ft	Lancaster	SGB50
D06	9/22/2017	0-0.5 ft	Lancaster	SGB50
D06	9/22/2017	1-1.5 ft	Lancaster	SGB50
D06	9/22/2017	2.5-10 ft	Lancaster	SGB63
D06	9/22/2017	3-4 ft	Lancaster	SGB50
D06	9/22/2017	8-9 ft	Lancaster	SGB50
D07	9/8/2017	0.5-1 ft	Lancaster	SGB29
D07	9/8/2017	0-0.5 ft	Lancaster	SGB29
D07	9/8/2017	0-1 ft	Lancaster	SGB38
D07	9/8/2017	10-20 ft	Lancaster	SGB38
D07	9/8/2017	1-1.5 ft	Lancaster	SGB29
D07	9/8/2017	1-10 ft	Lancaster	SGB38
D07	9/8/2017	18-19 ft	Lancaster	SGB29
D07	9/8/2017	20-28 ft	Lancaster	SGB38

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D07	9/8/2017	28-29 ft	Lancaster	SGB29
D07	9/8/2017	28-31 ft	Lancaster	SGB38
D07	9/8/2017	33-40 ft	Lancaster	SGB38
D07	9/8/2017	3-4 ft	Lancaster	SGB29
D07	9/8/2017	38-39 ft	Lancaster	SGB29
D07	9/8/2017	40-50 ft	Lancaster	SGB38
D07	9/8/2017	48-49 ft	Lancaster	SGB29
D07	9/8/2017	50-60 ft	Lancaster	SGB38
D07	9/8/2017	58-59 ft	Lancaster	SGB30
D07	9/8/2017	8-9 ft	Lancaster	SGB29
D07	9/9/2017	100-110 ft	Lancaster	SGB39
D07	9/9/2017	107-108 ft	Lancaster	SGB33
D07	9/9/2017	60-75 ft	Lancaster	SGB38
D07	9/9/2017	68-69 ft	Lancaster	SGB33
D07	9/9/2017	75-78 ft	Lancaster	SGB38
D07	9/9/2017	77-78 ft	Lancaster	SGB33
D07	9/9/2017	80-85 ft	Lancaster	SGB39
D07	9/9/2017	85-87 ft	Lancaster	SGB39
D07	9/9/2017	86-87 ft	Lancaster	SGB33
D07	9/9/2017	90-92 ft	Lancaster	SGB39
D07	9/9/2017	95-100 ft	Lancaster	SGB39
D07	9/9/2017	98-99 ft	Lancaster	SGB33
D07	9/10/2017	110-123 ft	Lancaster	SGB39
D07	9/10/2017	118-119 ft	Lancaster	SGB33
D07	9/10/2017	125-132 ft	Lancaster	SGB39
D07	9/10/2017	128-129 ft	Lancaster	SGB33
D07	9/10/2017	132-144 ft	Lancaster	SGB39
D07	9/10/2017	138-139 ft	Lancaster	SGB33
D07	9/10/2017	144-157 ft	Lancaster	SGB39
D07	9/10/2017	148-149 ft	Lancaster	SGB33
D07	9/11/2017	158-159 ft	Lancaster	SGB33
D07	9/11/2017	159-163 ft	Lancaster	SGB39
D07	9/11/2017	163-170 ft	Lancaster	SGB39
D07	9/11/2017	168-169 ft	Lancaster	SGB33
D07	9/11/2017	170-190 ft	Lancaster	SGB39
D07	9/11/2017	178-179 ft	Lancaster	SGB33
D07	9/11/2017	188-189 ft	Lancaster	SGB33
D07	9/11/2017	190-200 ft	Lancaster	SGB39
D07	9/11/2017	198-199 ft	Lancaster	SGB33
D08	9/22/2017	0.5-1 ft	Lancaster	SGB49
D08	9/22/2017	0-0.5 ft	Lancaster	SGB49
D08	9/22/2017	10-11 ft	Lancaster	SGB49
D08	9/22/2017	1-1.5 ft	Lancaster	SGB49
D08	9/22/2017	1-1.5 ft	Lancaster	SGB49
D08	9/22/2017	3-5 ft	Lancaster	SGB49
D08	9/22/2017	7-8 ft	Lancaster	SGB49
D09	10/16/2017	0.5-1 ft	Lancaster	SGB90
D09	10/16/2017	0-0.5 ft	Lancaster	SGB90
D09	10/16/2017	0-15 ft	Lancaster	SNB08
D09	10/16/2017	1-1.5 ft	Lancaster	SGB90
D09	10/16/2017	14-15 ft	Lancaster	SGB90
D09	10/16/2017	15-26 ft	Lancaster	SNB08
D09	10/16/2017	26-34 ft	Lancaster	SNB08

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D09	10/16/2017	28-29 ft	Lancaster	SGB90
D09	10/16/2017	3-4 ft	Lancaster	SGB90
D09	10/16/2017	34-70 ft	Lancaster	SNB08
D09	10/16/2017	38-39 ft	Lancaster	SGB90
D09	10/16/2017	48-49 ft	Lancaster	SGB90
D09	10/16/2017	8-9 ft	Lancaster	SGB90
D09	10/17/2017	58-59 ft	Lancaster	SGB94
D09	10/17/2017	68-69 ft	Lancaster	SGB94
D10	10/7/2017	0.5-1 ft	Lancaster	SGB78
D10	10/7/2017	0-0.5 ft	Lancaster	SGB78
D10	10/7/2017	1-1.5 ft	Lancaster	SGB78
D10	10/7/2017	1-1.5 ft	Lancaster	SGB78
D10	10/7/2017	18-19 ft	Lancaster	SGB78
D10	10/7/2017	28-29 ft	Lancaster	SGB78
D10	10/7/2017	3-4 ft	Lancaster	SGB78
D10	10/7/2017	8-9 ft	Lancaster	SGB78
D10	10/8/2017	0-20 ft	Lancaster	SNB07
D10	10/8/2017	20-30 ft	Lancaster	SNB07
D10	10/8/2017	30-60 ft	Lancaster	SNB07
D10	10/8/2017	38-39 ft	Lancaster	SGB78
D10	10/8/2017	48-49 ft	Lancaster	SGB78
D10	10/8/2017	58-59 ft	Lancaster	SGB78
D10	10/8/2017	68-69 ft	Lancaster	SGB78
D10	10/9/2017	78-79 ft	Lancaster	SGB78
D10	10/9/2017	88-89 ft	Lancaster	SGB78
D10	10/9/2017	98-99 ft	Lancaster	SGB78
D10	10/10/2017	101-105 ft	Lancaster	SNB07
D10	10/10/2017	103-104 ft	Lancaster	SGB80
D10	10/10/2017	105-107 ft	Lancaster	SNB07
D10	10/10/2017	60-90 ft	Lancaster	SNB07
D10	10/10/2017	90-93 ft	Lancaster	SNB07
D10	10/10/2017	93-101 ft	Lancaster	SNB07
D11	9/25/2017	0.5-1 ft	Lancaster	SGB52
D11	9/25/2017	0-0.5 ft	Lancaster	SGB52
D11	9/25/2017	1-1.5 ft	Lancaster	SGB52
D11	9/25/2017	18-19 ft	Lancaster	SGB52
D11	9/25/2017	18-19 ft	Lancaster	SGB52
D11	9/25/2017	28-29 ft	Lancaster	SGB52
D11	9/25/2017	3-4 ft	Lancaster	SGB52
D11	9/25/2017	38-39 ft	Lancaster	SGB52
D11	9/25/2017	48-49 ft	Lancaster	SGB52
D11	9/25/2017	58-59 ft	Lancaster	SGB52
D11	9/25/2017	68-69 ft	Lancaster	SGB52
D11	9/25/2017	8-9 ft	Lancaster	SGB52
D11	9/26/2017	102-104 ft	Lancaster	SGB64
D11	9/26/2017	104-121 ft	Lancaster	SGB64
D11	9/26/2017	113-114 ft	Lancaster	SGB55
D11	9/26/2017	118-119 ft	Lancaster	SGB55
D11	9/26/2017	1-20 ft	Lancaster	SGB64
D11	9/26/2017	23-50 ft	Lancaster	SGB64
D11	9/26/2017	50-80 ft	Lancaster	SGB64
D11	9/26/2017	78-79 ft	Lancaster	SGB55
D11	9/26/2017	80-89 ft	Lancaster	SGB64

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Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
D11	9/26/2017	88-89 ft	Lancaster	SGB55
D11	9/26/2017	89-96 ft	Lancaster	SGB64
D11	9/26/2017	99-100 ft	Lancaster	SGB55
D11	9/27/2017	121-123 ft	Lancaster	SGB64
D11	9/27/2017	123-144 ft	Lancaster	SGB64
D11	9/27/2017	128-129 ft	Lancaster	SGB56
D11	9/27/2017	138-139 ft	Lancaster	SGB56
D11	9/27/2017	144-145 ft	Lancaster	SGB56
D11	9/27/2017	144-145 ft	Lancaster	SGB64
D12	10/3/2017	0.5-1 ft	Lancaster	SGB67
D12	10/3/2017	0-0.5 ft	Lancaster	SGB67
D12	10/3/2017	0-7.5 ft	Lancaster	SNB07
D12	10/3/2017	1-1.5 ft	Lancaster	SGB67
D12	10/3/2017	12-30 ft	Lancaster	SNB07
D12	10/3/2017	18-19 ft	Lancaster	SGB67
D12	10/3/2017	28-29 ft	Lancaster	SGB67
D12	10/3/2017	3-4 ft	Lancaster	SGB67
D12	10/3/2017	7.5-12 ft	Lancaster	SNB07
D12	10/3/2017	8-9 ft	Lancaster	SGB67
D12	10/4/2017	30-37 ft	Lancaster	SNB07
D12	10/4/2017	36-37 ft	Lancaster	SGB69
D13	9/6/2017	0.5-1 ft	Lancaster	SGB26
D13	9/6/2017	0-0.5 ft	Lancaster	SGB26
D13	9/6/2017	0-1 ft	Lancaster	SGB38
D13	9/6/2017	10-15 ft	Lancaster	SGB38
D13	9/6/2017	1-1.5 ft	Lancaster	SGB26
D13	9/6/2017	1-10 ft	Lancaster	SGB38
D13	9/6/2017	15-16 ft	Lancaster	SGB26
D13	9/6/2017	15-25 ft	Lancaster	SGB38
D13	9/6/2017	18-19 ft	Lancaster	SGB26
D13	9/6/2017	24-25 ft	Lancaster	SGB26
D13	9/6/2017	3-4 ft	Lancaster	SGB26
D13	9/6/2017	8-9 ft	Lancaster	SGB26
D13	9/6/2017		Lancaster	SGB25
D14	8/29/2017	0.5-1 ft	Lancaster	SGB17
D14	8/29/2017	0-0.5 ft	Lancaster	SGB17
D14	8/29/2017	0-1.3 ft	Lancaster	SGB21
D14	8/29/2017	1.5-3 ft	Lancaster	SGB21
D14	8/29/2017	1-1.5 ft	Lancaster	SGB17
D14	8/29/2017	2-3 ft	Lancaster	SGB17
D14	8/29/2017	3-4 ft	Lancaster	SGB17
D14	8/29/2017	3-4 ft	Lancaster	SGB17
D14	8/29/2017	3-9 ft	Lancaster	SGB21
D14	8/29/2017	8-9 ft	Lancaster	SGB17
D14	8/29/2017	9.5-10.5 ft	Lancaster	SGB17
D14	8/29/2017	9-12 ft	Lancaster	SGB21
D14	8/30/2017	9.5-10.5 ft	Lancaster	SGB17
D15	10/18/2017	0.5-1 ft	Lancaster	SGB95
D15	10/18/2017	0.5-15 ft	Lancaster	SNB08
D15	10/18/2017	0-0.5 ft	Lancaster	SGB95
D15	10/18/2017	1-1.5 ft	Lancaster	SGB95
D15	10/18/2017	15-75 ft	Lancaster	SNB08
D15	10/18/2017	18-19 ft	Lancaster	SGB95

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D15	10/18/2017	28-29 ft	Lancaster	SGB95
D15	10/18/2017	3-4 ft	Lancaster	SGB95
D15	10/18/2017	38-39 ft	Lancaster	SGB95
D15	10/18/2017	38-39 ft	Lancaster	SGB95
D15	10/18/2017	8-9 ft	Lancaster	SGB95
D15	10/19/2017	48-49 ft	Lancaster	SGB99
D15	10/19/2017	73-74 ft	Lancaster	SGB99
D16	9/20/2017	0.5-1 ft	Lancaster	SGB47
D16	9/20/2017	0-0.5 ft	Lancaster	SGB47
D16	9/20/2017	1.1-8 ft	Lancaster	SGB62
D16	9/20/2017	10-23 ft	Lancaster	SGB62
D16	9/20/2017	1-1.5 ft	Lancaster	SGB47
D16	9/20/2017	18-19 ft	Lancaster	SGB47
D16	9/20/2017	23-27 ft	Lancaster	SGB62
D16	9/20/2017	27-28.5 ft	Lancaster	SGB63
D16	9/20/2017	28.5-30 ft	Lancaster	SGB63
D16	9/20/2017	28-29 ft	Lancaster	SGB47
D16	9/20/2017	3-4 ft	Lancaster	SGB47
D16	9/20/2017	8-10 ft	Lancaster	SGB62
D16	9/20/2017	8-9 ft	Lancaster	SGB47
D16	9/20/2017	8-9 ft	Lancaster	SGB47
D16	9/21/2017	30-37 ft	Lancaster	SGB63
D16	9/21/2017	36-37 ft	Lancaster	SGB48
D17	10/6/2017	0.5-1 ft	Lancaster	SGB76
D17	10/6/2017	0-0.5 ft	Lancaster	SGB76
D17	10/6/2017	0-9 ft	Lancaster	SNB07
D17	10/6/2017	1-1.5 ft	Lancaster	SGB76
D17	10/6/2017	3-4 ft	Lancaster	SGB76
D17	10/6/2017	8-9 ft	Lancaster	SGB76
D17	10/6/2017	9-10 ft	Lancaster	SGB76
D17	10/6/2017	9-10 ft	Lancaster	SNB07
D18	8/25/2017	0.5-1 ft	Lancaster	SGB14
D18	8/25/2017	0-0.5 ft	Lancaster	SGB14
D18	8/25/2017	0-1.7 ft	Lancaster	SGB21
D18	8/25/2017	1.7-7.5 ft	Lancaster	SGB21
D18	8/25/2017	1-1.5 ft	Lancaster	SGB14
D18	8/25/2017	18-19 ft	Lancaster	SGB14
D18	8/25/2017	3-4 ft	Lancaster	SGB14
D18	8/25/2017	7.5-8.7 ft	Lancaster	SGB21
D18	8/25/2017	8.7-19 ft	Lancaster	SGB21
D18	8/25/2017	8-9 ft	Lancaster	SGB14
D18	8/27/2017	15-16 ft	Lancaster	SGB15
D18	8/27/2017	19-25 ft	Lancaster	SGB21
D18	8/27/2017	24-25 ft	Lancaster	SGB15
D18	8/27/2017	24-25 ft	Lancaster	SGB15
D19	8/30/2017	0.5-1 ft	Lancaster	SGB20
D19	8/30/2017	0-0.5 ft	Lancaster	SGB20
D19	8/30/2017	0-1.5 ft	Lancaster	SGB21
D19	8/30/2017	1.5-3 ft	Lancaster	SGB21
D19	8/30/2017	1-1.5 ft	Lancaster	SGB20
D19	8/30/2017	1-1.5 ft	Lancaster	SGB20
D19	8/30/2017	2-3 ft	Lancaster	SGB20
D20	9/18/2017	0.5-1 ft	Lancaster	SGB45

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D20	9/18/2017	0-0.5 ft	Lancaster	SGB45
D20	9/18/2017	1-1.5 ft	Lancaster	SGB45
D20	9/18/2017	18-19 ft	Lancaster	SGB45
D20	9/18/2017	20-24 ft	Lancaster	SGB62
D20	9/18/2017	24-40 ft	Lancaster	SGB62
D20	9/18/2017	28-29 ft	Lancaster	SGB45
D20	9/18/2017	3-4 ft	Lancaster	SGB45
D20	9/18/2017	38-39 ft	Lancaster	SGB45
D20	9/18/2017	48-49 ft	Lancaster	SGB45
D20	9/18/2017	48-50 ft	Lancaster	SGB62
D20	9/18/2017	6.5-7.5 ft	Lancaster	SGB45
D20	9/18/2017	8-9 ft	Lancaster	SGB45
D20	9/19/2017	50-60 ft	Lancaster	SGB62
D20	9/19/2017	58-59 ft	Lancaster	SGB45
D20	9/19/2017	60-61 ft	Lancaster	SGB62
D20	9/19/2017	63-68 ft	Lancaster	SGB62
D20	9/19/2017	68.5-69.5 ft	Lancaster	SGB45
D20	9/19/2017	68.5-70 ft	Lancaster	SGB62
D20	9/19/2017	70-74 ft	Lancaster	SGB62
D20	9/19/2017	75-77 ft	Lancaster	SGB45
D20	9/19/2017	75-77 ft	Lancaster	SGB62
D20	9/19/2017	78-79 ft	Lancaster	SGB42
D20	9/19/2017	78-79 ft	Lancaster	SGB43
D20	9/19/2017	78-79 ft	Lancaster	SGB45
D21	10/5/2017	0.5-1 ft	Lancaster	SGB73
D21	10/5/2017	0-0.5 ft	Lancaster	SGB73
D21	10/5/2017	0-3.5 ft	Lancaster	SNB07
D21	10/5/2017	1-1.5 ft	Lancaster	SGB73
D21	10/5/2017	14-15 ft	Lancaster	SGB73
D21	10/5/2017	3.5-17 ft	Lancaster	SNB07
D21	10/5/2017	3-4 ft	Lancaster	SGB73
D21	10/5/2017	8-9 ft	Lancaster	SGB73
D22	10/6/2017	0.5-1 ft	Lancaster	SGB76
D22	10/6/2017	0-0.5 ft	Lancaster	SGB76
D22	10/6/2017	0-1 ft	Lancaster	SNB07
D22	10/6/2017	1-1.5 ft	Lancaster	SGB76
D22	10/6/2017	1-11 ft	Lancaster	SNB07
D22	10/6/2017	12.5-15 ft	Lancaster	SNB07
D22	10/6/2017	14-15 ft	Lancaster	SGB76
D22	10/6/2017	3-4 ft	Lancaster	SGB76
D22	10/6/2017	8-9 ft	Lancaster	SGB76
D23	9/7/2017	0.5-1 ft	Lancaster	SGB31
D23	9/7/2017	0-0.5 ft	Lancaster	SGB31
D23	9/7/2017	0-2 ft	Lancaster	SGB38
D23	9/7/2017	10-15 ft	Lancaster	SGB38
D23	9/7/2017	1-1.5 ft	Lancaster	SGB31
D23	9/7/2017	12-13 ft	Lancaster	SGB31
D23	9/7/2017	15-38 ft	Lancaster	SGB38
D23	9/7/2017	18-19 ft	Lancaster	SGB31
D23	9/7/2017	28-29 ft	Lancaster	SGB31
D23	9/7/2017	36-37 ft	Lancaster	SGB31
D23	9/7/2017	38-43 ft	Lancaster	SGB38
D23	9/7/2017	41-42 ft	Lancaster	SGB31

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D23	9/7/2017	43-50 ft	Lancaster	SGB38
D23	9/7/2017	48-49 ft	Lancaster	SGB31
D23	9/7/2017	5-10 ft	Lancaster	SGB38
D23	9/7/2017	6-7 ft	Lancaster	SGB31
D23	9/7/2017	6-7 ft	Lancaster	SGB31
D24	9/23/2017	0.5-1 ft	Lancaster	SGB51
D24	9/23/2017	0-0.5 ft	Lancaster	SGB51
D24	9/23/2017	0-8 ft	Lancaster	SGB64
D24	9/23/2017	1-1.5 ft	Lancaster	SGB51
D24	9/23/2017	18-19 ft	Lancaster	SGB51
D24	9/23/2017	28-29 ft	Lancaster	SGB51
D24	9/23/2017	3-4 ft	Lancaster	SGB51
D24	9/23/2017	38-39 ft	Lancaster	SGB51
D24	9/23/2017	9-10 ft	Lancaster	SGB51
D24	9/23/2017	9-45 ft	Lancaster	SGB64
D24	9/24/2017	45-48 ft	Lancaster	SGB64
D24	9/24/2017	48-49 ft	Lancaster	SGB51
D24	9/24/2017	48-51 ft	Lancaster	SGB64
D24	9/24/2017	51-70 ft	Lancaster	SGB64
D24	9/24/2017	58-59 ft	Lancaster	SGB51
D24	9/24/2017	68-69 ft	Lancaster	SGB51
D25	9/22/2017	0.5-1 ft	Lancaster	SGB51
D25	9/22/2017	0-0.5 ft	Lancaster	SGB51
D25	9/22/2017	1.1-5 ft	Lancaster	SGB63
D25	9/22/2017	1-1.5 ft	Lancaster	SGB51
D25	9/22/2017	15-20 ft	Lancaster	SGB63
D25	9/22/2017	18-19 ft	Lancaster	SGB51
D25	9/22/2017	3-4 ft	Lancaster	SGB51
D25	9/22/2017	5-9.5 ft	Lancaster	SGB63
D25	9/22/2017	8-9 ft	Lancaster	SGB51
D25	9/22/2017	9.5-13 ft	Lancaster	SGB63
D25	9/23/2017	6.5-7.5 ft	Lancaster	SGB51
D26	10/10/2017	0.5-1 ft	Lancaster	SGB80
D26	10/10/2017	0-0.5 ft	Lancaster	SGB80
D26	10/10/2017	0-3.5 ft	Lancaster	SNB08
D26	10/10/2017	1-1.5 ft	Lancaster	SGB80
D26	10/10/2017	3.5-10 ft	Lancaster	SNB08
D26	10/10/2017	3-4 ft	Lancaster	SGB80
D26	10/10/2017	8-9 ft	Lancaster	SGB80
D26	10/11/2017	10-40 ft	Lancaster	SNB08
D26	10/11/2017	18-19 ft	Lancaster	SGB82
D26	10/11/2017	28-29 ft	Lancaster	SGB82
D26	10/11/2017	38-39 ft	Lancaster	SGB82
EB01	5/25/2017		Lancaster	SPQ24
FB01	8/15/2017		Lancaster	SGB04
FB01	1/19/2018		Lancaster	SNB78
FB01	1/20/2018		Lancaster	SNB81
FB02	8/18/2017		Lancaster	SGB08
FB03	8/21/2017		Lancaster	SGB09
FB04	8/22/2017		Lancaster	SGB10
FB05	8/23/2017		Lancaster	SGB11
FB06	8/24/2017		Lancaster	SGB13
FB07	8/25/2017		Lancaster	SGB14

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FB08	8/25/2017		Lancaster	SGB14
FB09	8/28/2017		Lancaster	SGB15
FB10	8/28/2017		Lancaster	SGB15
FB11	9/5/2017		Lancaster	SGB24
FB12	9/11/2017		Lancaster	SGB33
FB13	9/21/2017		Lancaster	SGB48
FB14	9/27/2017		Lancaster	SGB57
FBS01	8/27/2017		Lancaster	SGB15
FBS02	8/28/2017		Lancaster	SGB16
FBS03	8/29/2017		Lancaster	SGB17
FBS04	8/30/2017		Lancaster	SGB20
FBS05	9/7/2017		Lancaster	SGB31
FBS06	9/20/2017		Lancaster	SGB47
FBS07	9/26/2017		Lancaster	SGB55
FBS08	9/28/2017		Lancaster	SGB59
FBS09	9/29/2017		Lancaster	SGB61
FBS10	10/4/2017		Lancaster	SGB69
FBS11	10/7/2017		Lancaster	SGB78
FBS12	10/11/2017		Lancaster	SGB81
FBS13	10/13/2017		Lancaster	SGB88
FBS14	10/18/2017		Lancaster	SGB95
FBS15	10/20/2017		Lancaster	SNB04
FBS16	10/25/2017		Lancaster	SNB16
FBS17	10/25/2017		Lancaster	SNB16
FILT-WTR-FRAC-TANK-A	8/29/2017		Lancaster	SGB18
FILT-WTR-FRAC-TANK-A	9/8/2017		Lancaster	SGB28
FILT-WTR-FRAC-TANK-A	10/3/2017		Lancaster	SGB66
FILT-WTR-FRAC-TANK-A	10/6/2017		Lancaster	SGB75
FILT-WTR-FRAC-TANK-A	10/17/2017		Lancaster	SGB92
FILT-WTR-FRAC-TANK-A	11/1/2017		Lancaster	SNB24
FILT-WTR-FRAC-TANK-A	11/8/2017		Lancaster	SNB33
FILT-WTR-FRAC-TANK-A	11/16/2017		Lancaster	SNB40
FILT-WTR-FRAC-TANK-A	12/2/2017		Lancaster	SNB46
FILT-WTR-FRAC-TANK-A	12/8/2017		Lancaster	SNB49
FILT-WTR-FRAC-TANK-A	12/16/2017		Lancaster	SNB60
FILT-WTR-FRAC-TANK-B	8/30/2017		Lancaster	SGB19
FILT-WTR-FRAC-TANK-B	9/29/2017		Lancaster	SGB60
FILT-WTR-FRAC-TANK-B	10/7/2017		Lancaster	SGB77
FILT-WTR-FRAC-TANK-B	10/16/2017		Lancaster	SGB89
FILT-WTR-FRAC-TANK-B	10/23/2017		Lancaster	SNB05
FILT-WTR-FRAC-TANK-B	11/3/2017		Lancaster	SNB27
FILT-WTR-FRAC-TANK-B	11/10/2017		Lancaster	SNB35
FILT-WTR-FRAC-TANK-B	11/21/2017		Lancaster	SNB42
FILT-WTR-FRAC-TANK-B	12/2/2017		Lancaster	SNB46
FILT-WTR-FRAC-TANK-B	12/10/2017		Lancaster	SNB51
FILT-WTR-FRAC-TANK-C	10/5/2017		Lancaster	SGB70
FILT-WTR-FRAC-TANK-C	10/13/2017		Lancaster	SGB86
FILT-WTR-FRAC-TANK-C	10/19/2017		Lancaster	SGB98
FILT-WTR-FRAC-TANK-C	10/27/2017		Lancaster	SNB18
FILT-WTR-FRAC-TANK-D	10/12/2017		Lancaster	SGB83
FILT-WTR-FRAC-TANK-D	10/19/2017		Lancaster	SGB98
FILT-WTR-FRAC-TANK-D	10/26/2017		Lancaster	SNB18
FILT-WTR-FRAC-TANK-D	11/7/2017		Lancaster	SNB30

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FILT-WTR-FRAC-TANK-D	11/14/2017		Lancaster	SNB39
FILT-WTR-FRAC-TANK-D	11/28/2017		Lancaster	SNB43
FILT-WTR-FRAC-TANK-D	12/3/2017		Lancaster	SNB46
FILT-WTR-FRAC-TANK-D	12/11/2017		Lancaster	SNB51
FILT-WTR-FRAC-TANK-E	12/5/2017		Lancaster	SNB47
FILT-WTR-FRAC-TANK-E	12/9/2017		Lancaster	SNB51
FLATWATER	9/26/2017		Lancaster	SGB54
FTB01	5/24/2017		Lancaster	SPQ24
FTB01	10/5/2017		Lancaster	SGB71
FTB01	10/5/2017		Lancaster	SGB74
FTB01	10/17/2017		Lancaster	SGB93
FTB01	10/19/2017		Lancaster	SGB97
FTB01	10/23/2017		Lancaster	SNB06
FTB01	10/24/2017		Lancaster	SNB13
FTB01	10/25/2017		Lancaster	SNB15
FTB01	10/26/2017		Lancaster	SNB17
FTB01	10/27/2017		Lancaster	SNB20
FTB88	10/20/2017		Lancaster	SNB01
HAMMER	12/7/2017		Lancaster	SGL82
HAMMER-EZ	11/7/2017		Lancaster	SNB31
LTB01	5/24/2017		Lancaster	SPQ24
LTB01	8/14/2017		Lancaster	SGB04
LTB01	10/5/2017		Lancaster	SGB71
LTB01	10/5/2017		Lancaster	SGB74
LTB01	10/17/2017		Lancaster	SGB93
LTB01	10/19/2017		Lancaster	SGB97
LTB01	10/23/2017		Lancaster	SNB06
LTB01	10/24/2017		Lancaster	SNB13
LTB01	10/25/2017		Lancaster	SNB15
LTB01	10/26/2017		Lancaster	SNB17
LTB01	10/27/2017		Lancaster	SNB20
LTB01	11/7/2017		Lancaster	SNB32
LTB01	11/16/2017		Lancaster	SNB41
LTB01	11/28/2017		Lancaster	SNB43
LTB01	11/30/2017		Lancaster	SNB45
LTB01	12/5/2017		Lancaster	SNB47
LTB01	12/8/2017		Lancaster	SNB49
LTB01	12/16/2017		Lancaster	SNB61
LTB01	12/17/2017		Lancaster	SNB62
LTB02	8/14/2017		Lancaster	SGB04
LTB02	11/28/2017		Lancaster	SNB43
LTB02	11/30/2017		Lancaster	SNB45
LTB02	12/5/2017		Lancaster	SNB47
LTB02	12/8/2017		Lancaster	SNB49
LTB02	12/16/2017		Lancaster	SNB61
LTB02	12/17/2017		Lancaster	SNB62
LTB03	8/16/2017		Lancaster	SGB06
LTB03	12/17/2017		Lancaster	SNB62
LTB04	8/16/2017		Lancaster	SGB06
LTB04	12/17/2017		Lancaster	SNB62
LTB05	8/18/2017		Lancaster	SGB08
LTB05	12/17/2017		Lancaster	SNB62
LTB06	8/18/2017		Lancaster	SGB08

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LTB06	12/17/2017		Lancaster	SNB62
LTB07	8/21/2017		Lancaster	SGB09
LTB08	8/21/2017		Lancaster	SGB09
LTB09	8/23/2017		Lancaster	SGB11
LTB10	8/29/2017		Lancaster	SGB17
LTB100	10/31/2017		Lancaster	SNB23
LTB101	11/1/2017		Lancaster	SNB25
LTB102	11/1/2017		Lancaster	SNB25
LTB103	11/2/2017		Lancaster	SNB26
LTB104	11/2/2017		Lancaster	SNB26
LTB105	11/3/2017		Lancaster	SNB28
LTB107	11/29/2017		Lancaster	SNB44
LTB108	11/29/2017		Lancaster	SNB44
LTB109	12/1/2017		Lancaster	SNB46
LTB11	8/29/2017		Lancaster	SGB17
LTB110	12/6/2017		Lancaster	SNB48
LTB111	12/6/2017		Lancaster	SNB48
LTB112	12/9/2017		Lancaster	SNB51
LTB113	12/10/2017		Lancaster	SNB52
LTB12	8/29/2017		Lancaster	SGB17
LTB120	12/21/2017		Lancaster	SNB63
LTB121	12/21/2017		Lancaster	SNB64
LTB122	1/4/2018		Lancaster	SNB66
LTB123	1/4/2018		Lancaster	SNB67
LTB124	1/10/2018		Lancaster	SNB69
LTB125	1/10/2018		Lancaster	SNB69
LTB126	1/16/2018		Lancaster	SNB72
LTB127	1/16/2018		Lancaster	SNB73
LTB128	1/17/2018		Lancaster	SNB75
LTB13	8/30/2017		Lancaster	SGB20
LTB130	1/19/2018		Lancaster	SNB78
LTB131	1/19/2018		Lancaster	SNB76
LTB-132	1/20/2018		Lancaster	SNB81
LTB133	1/20/2018		Lancaster	SNB79
LTB133	1/22/2018		Lancaster	SNB83
LTB134	1/24/2018		Lancaster	SNB86
LTB136	1/26/2018		Lancaster	SNB89
LTB14	8/30/2017		Lancaster	SGB20
LTB15	9/5/2017		Lancaster	SGB24
LTB16	9/5/2017		Lancaster	SGB24
LTB17	9/6/2017		Lancaster	SGB26
LTB18	9/6/2017		Lancaster	SGB26
LTB19	9/6/2017		Lancaster	SGB25
LTB19	9/7/2017		Lancaster	SGB31
LTB20	9/7/2017		Lancaster	SGB31
LTB21	9/8/2017		Lancaster	SGB30
LTB22	9/8/2017		Lancaster	SGB30
LTB23	9/8/2017		Lancaster	SGB30
LTB24	9/8/2017		Lancaster	SGB30
LTB25	9/11/2017		Lancaster	SGB33
LTB26	9/11/2017		Lancaster	SGB33
LTB27	9/11/2017		Lancaster	SGB33
LTB28	9/11/2017		Lancaster	SGB32

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LTB29	9/12/2017		Lancaster	SGB34
LTB30	9/12/2017		Lancaster	SGB34
LTB31	9/12/2017		Lancaster	SGB34
LTB32	9/13/2017		Lancaster	SGB37
LTB33	9/13/2017		Lancaster	SGB37
LTB34	9/13/2017		Lancaster	SGB36
LTB35	9/18/2017		Lancaster	SGB44
LTB36	9/18/2017		Lancaster	SGB44
LTB37	9/19/2017		Lancaster	SGB41
LTB38	9/19/2017		Lancaster	SGB41
LTB39	9/19/2017		Lancaster	SGB45
LTB40	9/20/2017		Lancaster	SGB46
LTB41	9/20/2017		Lancaster	SGB46
LTB42	9/21/2017		Lancaster	SGB48
LTB43	9/21/2017		Lancaster	SGB48
LTB44	9/21/2017		Lancaster	SGB48
LTB45	9/21/2017		Lancaster	SGB48
LTB47	9/22/2017		Lancaster	SGB49
LTB48	9/22/2017		Lancaster	SGB49
LTB49	9/23/2017		Lancaster	SGB51
LTB49	9/25/2017		Lancaster	SGB53
LTB50	9/23/2017		Lancaster	SGB51
LTB50	9/25/2017		Lancaster	SGB53
LTB51	9/26/2017		Lancaster	SGB55
LTB52	9/26/2017		Lancaster	SGB55
LTB53	9/27/2017		Lancaster	SGB56
LTB54	9/27/2017		Lancaster	SGB56
LTB55	9/28/2017		Lancaster	SGB59
LTB56	9/28/2017		Lancaster	SGB59
LTB57	9/29/2017		Lancaster	SGB61
LTB58	9/29/2017		Lancaster	SGB61
LTB59	10/3/2017		Lancaster	SGB67
LTB60	10/3/2017		Lancaster	SGB67
LTB61	10/4/2017		Lancaster	SGB69
LTB62	10/4/2017		Lancaster	SGB69
LTB63	10/5/2017		Lancaster	SGB73
LTB64	10/5/2017		Lancaster	SGB73
LTB65	10/5/2017		Lancaster	SGB76
LTB66	10/5/2017		Lancaster	SGB76
LTB67	10/9/2017		Lancaster	SGB78
LTB68	10/9/2017		Lancaster	SGB78
LTB69	10/10/2017		Lancaster	SGB80
LTB70	10/10/2017		Lancaster	SGB80
LTB71	10/11/2017		Lancaster	SGB81
LTB72	10/11/2017		Lancaster	SGB81
LTB73	10/12/2017		Lancaster	SGB85
LTB74	10/12/2017		Lancaster	SGB85
LTB75	10/13/2017		Lancaster	SGB87
LTB76	10/13/2017		Lancaster	SGB87
LTB77	10/16/2017		Lancaster	SGB90
LTB78	10/16/2017		Lancaster	SGB90
LTB79	10/17/2017		Lancaster	SGB94
LTB80	10/17/2017		Lancaster	SGB94

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LTB81	10/18/2017		Lancaster	SGB95
LTB82	10/18/2017		Lancaster	SGB95
LTB83	10/19/2017		Lancaster	SGB99
LTB84	10/19/2017		Lancaster	SGB99
LTB85	10/20/2017		Lancaster	SNB03
LTB86	10/20/2017		Lancaster	SNB03
LTB87	10/20/2017		Lancaster	SNB01
LTB89	10/21/2017		Lancaster	SNB09
LTB90	10/21/2017		Lancaster	SNB09
LTB91	10/23/2017		Lancaster	SNB11
LTB92	10/23/2017		Lancaster	SNB11
LTB93	10/24/2017		Lancaster	SNB14
LTB94	10/24/2017		Lancaster	SNB14
LTB95	10/25/2017		Lancaster	SNB19
LTB96	10/25/2017		Lancaster	SNB19
LTB97	10/30/2017		Lancaster	SNB21
LTB98	10/30/2017		Lancaster	SNB21
LTB99	10/31/2017		Lancaster	SNB23
MW07	5/24/2017		Lancaster	SPQ24
MW100S	5/24/2017		Lancaster	SPQ24
PIPE	12/3/2017		Lancaster	SNB46
PIPE	1/17/2018		Lancaster	SNB74
POET-OUTPUT-HOSE-A	8/29/2017		Lancaster	SGB18
POET-OUTPUT-HOSE-A	9/8/2017		Lancaster	SGB28
POET-OUTPUT-HOSE-A	10/2/2017		Lancaster	SGB65
POET-OUTPUT-HOSE-A	10/5/2017		Lancaster	SGB75
POET-OUTPUT-HOSE-A	10/16/2017		Lancaster	SGB89
POET-OUTPUT-HOSE-A	10/31/2017		Lancaster	SNB23
POET-OUTPUT-HOSE-A	11/16/2017		Lancaster	SNB41
POET-OUTPUT-HOSE-A	11/30/2017		Lancaster	SNB45
POET-OUTPUT-HOSE-A	12/8/2017		Lancaster	SNB58
POET-OUTPUT-HOSE-A	12/16/2017		Lancaster	SNB61
POET-OUTPUT-HOSE-B	9/28/2017		Lancaster	SGB58
POET-OUTPUT-HOSE-B	10/6/2017		Lancaster	SGB77
POET-OUTPUT-HOSE-B	10/13/2017		Lancaster	SGB88
POET-OUTPUT-HOSE-B	10/22/2017		Lancaster	SNB10
POET-OUTPUT-HOSE-B	11/2/2017		Lancaster	SNB26
POET-OUTPUT-HOSE-B	11/21/2017		Lancaster	SNB42
POET-OUTPUT-HOSE-B	12/2/2017		Lancaster	SNB55
POET-OUTPUT-HOSE-B	12/10/2017		Lancaster	SNB59
POET-OUTPUT-HOSE-C	10/4/2017		Lancaster	SGB68
POET-OUTPUT-HOSE-C	10/12/2017		Lancaster	SGB84
POET-OUTPUT-HOSE-C	10/17/2017		Lancaster	SGB95
POET-OUTPUT-HOSE-C	10/26/2017		Lancaster	SNB19
POET-OUTPUT-HOSE-D	10/11/2017		Lancaster	SGB84
POET-OUTPUT-HOSE-D	10/12/2017		Lancaster	SGB84
POET-OUTPUT-HOSE-D	10/17/2017		Lancaster	SGB95
POET-OUTPUT-HOSE-D	10/25/2017		Lancaster	SNB16
POET-OUTPUT-HOSE-D	11/7/2017		Lancaster	SNB32
POET-OUTPUT-HOSE-D	11/13/2017		Lancaster	SNB38
POET-OUTPUT-HOSE-D	12/2/2017		Lancaster	SNB55
POET-OUTPUT-HOSE-D	12/11/2017		Lancaster	SNB59
POET-OUTPUT-HOSE-E	12/5/2017		Lancaster	SNB56

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POET-OUTPUT-HOSE-E	12/9/2017		Lancaster	SNB59
PUMP	11/28/2017		Lancaster	SNB43
PUMP	1/10/2018		Lancaster	SNB68
PUMP	1/19/2018		Lancaster	SNB78
PUMP06J18	12/3/2017		Lancaster	SNB46
PUMP14E14	12/3/2017		Lancaster	SNB46
PUMP300	10/25/2017		Lancaster	SNB16
PVC	11/21/2017		Lancaster	SNB42
PVC	1/24/2018		Lancaster	SNB86
RAS BL WINCH	11/7/2017		Lancaster	SNB32
RAS GRN WINCH	11/7/2017		Lancaster	SNB32
RAS-EQPIECE#10-PACKERPART#23	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#1-Nosecone	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#2-SENSOR	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#3-DELRINPIECE	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#4-PACKER#1	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#5-AcousticCup	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#6-Packer #2	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#7-CALIPERTIP	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#8-PACKERPART#18	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#9-CAP	10/3/2017		Lancaster	SGN01
RAS-EQPIECE#9-InsituCABLETERM	9/15/2017		Lancaster	SGB40
RAS-EQPIECE#9-TIP	10/3/2017		Lancaster	SGN01
RAS-EQPIECE9-INSITUCABLE	10/3/2017		Lancaster	SGN01
RASSEM PACK	11/7/2017		Lancaster	SNB32
RB01	5/25/2017		Lancaster	SPQ24
RB01	10/5/2017		Lancaster	SGB71
RB01	10/5/2017		Lancaster	SGB74
RB01	10/19/2017		Lancaster	SGB97
RB01	10/20/2017		Lancaster	SNB02
RB01	11/11/2017		Lancaster	SNB37
RB01A	10/17/2017		Lancaster	SGB93
RB02	5/25/2017		Lancaster	SPQ24
RB02	10/5/2017		Lancaster	SGB71
RB02	10/5/2017		Lancaster	SGB74
RB02	10/19/2017		Lancaster	SGB97
RB02	10/20/2017		Lancaster	SNB02
RB02	11/11/2017		Lancaster	SNB37
RB03	10/5/2017		Lancaster	SGB71
RB03	10/5/2017		Lancaster	SGB74
RB03	10/19/2017		Lancaster	SGB97
RB04	10/5/2017		Lancaster	SGB71
RB04	10/5/2017		Lancaster	SGB74
RB04	10/19/2017		Lancaster	SGB97
RB05	10/5/2017		Lancaster	SGB71
RB05	10/6/2017		Lancaster	SGB74
RB05	10/19/2017		Lancaster	SGB97
RB06	10/5/2017		Lancaster	SGB71
RB06	10/6/2017		Lancaster	SGB74
RB06	10/19/2017		Lancaster	SGB97
RB06A	10/17/2017		Lancaster	SGB93
RB07	10/5/2017		Lancaster	SGB71
RB07	10/6/2017		Lancaster	SGB74

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RB07	10/19/2017		Lancaster	SGB97
RB08	10/5/2017		Lancaster	SGB71
RB08	10/6/2017		Lancaster	SGB74
RB08	10/19/2017		Lancaster	SGB97
RB09	10/6/2017		Lancaster	SGB74
RB09	10/19/2017		Lancaster	SGB97
RB10	10/6/2017		Lancaster	SGB74
RB11	10/6/2017		Lancaster	SGB74
RB11A	10/17/2017		Lancaster	SGB96
RB12	10/6/2017		Lancaster	SGB74
RB12A	10/17/2017		Lancaster	SGB96
RB13	10/6/2017		Lancaster	SGB74
RB13A	10/17/2017		Lancaster	SGB96
RB14	10/6/2017		Lancaster	SGB74
RB14A	10/17/2017		Lancaster	SGB96
RB15	10/6/2017		Lancaster	SGB74
RB15A	10/17/2017		Lancaster	SGB96
RB16	10/6/2017		Lancaster	SGB74
RB16A	10/17/2017		Lancaster	SGB96
RB17	10/17/2017		Lancaster	SGB93
RB18	10/17/2017		Lancaster	SGB93
RB19	10/17/2017		Lancaster	SGB93
RB-BLADDERPUMP-RAS	11/16/2017		Lancaster	SNB41
RBCASING	10/11/2017		Lancaster	SGB81
RBCORE	10/11/2017		Lancaster	SGB81
RBIBC1	10/12/2017		Lancaster	SGB85
RBIBC2	10/12/2017		Lancaster	SGB85
RB-INDUCTIONTOOL	11/21/2017		Lancaster	SNB42
RBPLASTIC	10/11/2017		Lancaster	SGB81
RBRIGTANK	10/11/2017		Lancaster	SGB81
RBROD	10/11/2017		Lancaster	SGB81
REDI-FLOW	1/16/2018		Lancaster	SNB72
RIG4	12/1/2017		Lancaster	SNB46
RIG4CLNH2OPUMP	12/5/2017		Lancaster	SNB47
S01	9/5/2017	0.5-1 ft	Lancaster	SGB24
S01	9/5/2017	0-0.5 ft	Lancaster	SGB24
S01	9/5/2017	1-1.5 ft	Lancaster	SGB24
S01	9/5/2017	3-4 ft	Lancaster	SGB24
S01	9/5/2017	6.5-7.5 ft	Lancaster	SGB24
S01	9/5/2017		Lancaster	SGB23
S02	9/7/2017	0.5-1 ft	Lancaster	SGB31
S02	9/7/2017	0-0.5 ft	Lancaster	SGB31
S02	9/7/2017	1-1.5 ft	Lancaster	SGB31
S02	9/7/2017	3-4 ft	Lancaster	SGB31
S02	9/7/2017	8-9 ft	Lancaster	SGB31
S02	9/12/2017	0.5-1 ft	Lancaster	SGB34
S02	9/12/2017	0.5-1 ft	Lancaster	SGB35
S02	9/12/2017	1-1.5 ft	Lancaster	SGB34
S02	9/12/2017	1-1.5 ft	Lancaster	SGB35
S03	9/7/2017	0.5-1 ft	Lancaster	SGB30
S03	9/7/2017	0-0.5 ft	Lancaster	SGB30
S03	9/7/2017	1-1.5 ft	Lancaster	SGB30
S03	9/7/2017	3-4 ft	Lancaster	SGB30

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S03	9/7/2017	6.6-7.6 ft	Lancaster	SGB30
S03	9/8/2017		Lancaster	SGB30
S04	9/6/2017	0.5-1 ft	Lancaster	SGB26
S04	9/6/2017	0-0.5 ft	Lancaster	SGB26
S04	9/6/2017	1-1.5 ft	Lancaster	SGB26
S04	9/6/2017	3-4 ft	Lancaster	SGB26
S04	9/6/2017	7-8 ft	Lancaster	SGB26
S04	9/6/2017		Lancaster	SGB25
S05	9/5/2017	0.5-1 ft	Lancaster	SGB24
S05	9/5/2017	0.5-1 ft	Lancaster	SGB24
S05	9/5/2017	0-0.5 ft	Lancaster	SGB24
S05	9/5/2017	1-1.5 ft	Lancaster	SGB24
S05	9/5/2017	3-4 ft	Lancaster	SGB24
S05	9/5/2017	8-9 ft	Lancaster	SGB24
S06	8/14/2017	0.5-1 ft	Lancaster	SGB04
S06	8/14/2017	0-0.5 ft	Lancaster	SGB04
S06	8/14/2017	1-1.5 ft	Lancaster	SGB04
S06	8/14/2017	3-4 ft	Lancaster	SGB04
S06	8/14/2017	8-9 ft	Lancaster	SGB04
S07	8/18/2017	0.5-1 ft	Lancaster	SGB08
S07	8/18/2017	0-0.5 ft	Lancaster	SGB08
S07	8/18/2017	1-1.5 ft	Lancaster	SGB08
S07	8/18/2017	3-4 ft	Lancaster	SGB08
S07	8/18/2017	8-9 ft	Lancaster	SGB08
S08	9/8/2017	0.5-1 ft	Lancaster	SGB30
S08	9/8/2017	0-0.5 ft	Lancaster	SGB30
S08	9/8/2017	1.5-2.2 ft	Lancaster	SGB30
S08	9/8/2017	1-1.5 ft	Lancaster	SGB30
S08	9/8/2017		Lancaster	SGB30
S09	8/22/2017	0.5-1 ft	Lancaster	SGB11
S09	8/22/2017	0-0.5 ft	Lancaster	SGB11
S09	8/22/2017	1-1.5 ft	Lancaster	SGB11
S09	8/22/2017	3-4 ft	Lancaster	SGB11
S09	8/22/2017	8-9 ft	Lancaster	SGB11
S10	8/23/2017	0.5-1 ft	Lancaster	SGB11
S10	8/23/2017	0-0.5 ft	Lancaster	SGB11
S10	8/23/2017	1-1.5 ft	Lancaster	SGB11
S10	8/23/2017	3-4 ft	Lancaster	SGB11
S10	8/23/2017	4.1-5.1 ft	Lancaster	SGB11
S10	8/23/2017		Lancaster	SGB11
S10	8/24/2017		Lancaster	SGB11
S11	8/28/2017	1-1.5 ft	Lancaster	SGB15
S11	8/28/2017	8-9 ft	Lancaster	SGB15
S11	9/7/2017	0.5-1 ft	Lancaster	SGB31
S11	9/7/2017	0-0.5 ft	Lancaster	SGB31
S11	9/7/2017	1-1.5 ft	Lancaster	SGB31
S11	9/7/2017	3-4 ft	Lancaster	SGB31
S11	9/7/2017	7.4-8.4 ft	Lancaster	SGB31
S12	8/25/2017	0.5-1 ft	Lancaster	SGB14
S12	8/25/2017	0-0.5 ft	Lancaster	SGB14
S12	8/25/2017	0-0.5 ft	Lancaster	SGB14
S12	8/25/2017	1-1.5 ft	Lancaster	SGB14
S12	8/25/2017	3-4 ft	Lancaster	SGB14

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S12	8/25/2017	4.5-4.9 ft	Lancaster	SGB14
S12	8/25/2017	8-9 ft	Lancaster	SGB14
S13	9/18/2017	0.5-1 ft	Lancaster	SGB44
S13	9/18/2017	0-0.5 ft	Lancaster	SGB44
S13	9/18/2017	1-1.5 ft	Lancaster	SGB44
S13	9/18/2017	3-4 ft	Lancaster	SGB44
S13	9/18/2017	8-9 ft	Lancaster	SGB44
S14	8/28/2017	0.5-1 ft	Lancaster	SGB15
S14	8/28/2017	0-0.5 ft	Lancaster	SGB15
S14	8/28/2017	1-1.5 ft	Lancaster	SGB15
S14	8/28/2017	3-4 ft	Lancaster	SGB15
S14	8/28/2017	8-9 ft	Lancaster	SGB15
S16	9/20/2017	0.5-1 ft	Lancaster	SGB46
S16	9/20/2017	0-0.5 ft	Lancaster	SGB46
S16	9/20/2017	1-1.5 ft	Lancaster	SGB46
S16	9/21/2017		Lancaster	SGB48
S18	9/13/2017	0.5-1 ft	Lancaster	SGB37
S18	9/13/2017	0-0.5 ft	Lancaster	SGB37
S18	9/13/2017	1-1.5 ft	Lancaster	SGB37
S18	9/13/2017	3-4 ft	Lancaster	SGB37
S18	9/13/2017	5.3-6.3 ft	Lancaster	SGB37
S20	9/22/2017	0.5-1 ft	Lancaster	SGB49
S20	9/22/2017	0-0.5 ft	Lancaster	SGB49
S20	9/22/2017	1-1.5 ft	Lancaster	SGB49
S21	9/13/2017	0.5-1 ft	Lancaster	SGB37
S21	9/13/2017	0-0.5 ft	Lancaster	SGB37
S21	9/13/2017	1-1.5 ft	Lancaster	SGB37
S21	9/13/2017	3-4 ft	Lancaster	SGB37
S21	9/13/2017	6.3-7.3 ft	Lancaster	SGB37
S21	9/13/2017		Lancaster	SGB36
S22	9/18/2017	0.5-1 ft	Lancaster	SGB44
S22	9/18/2017	0-0.5 ft	Lancaster	SGB44
S22	9/18/2017	1-1.5 ft	Lancaster	SGB44
S22	9/18/2017	3-4 ft	Lancaster	SGB44
S22	9/18/2017	9-10 ft	Lancaster	SGB44
S24	9/19/2017	0.5-1 ft	Lancaster	SGB44
S24	9/19/2017	0-0.5 ft	Lancaster	SGB44
S24	9/19/2017	1-1.5 ft	Lancaster	SGB44
S24	9/19/2017	2.7-3.7 ft	Lancaster	SGB44
S24	9/19/2017		Lancaster	SGB41
S25	9/21/2017	0.5-1 ft	Lancaster	SGB48
S25	9/21/2017	0-0.5 ft	Lancaster	SGB48
S25	9/21/2017	1-1.5 ft	Lancaster	SGB48
S25	9/21/2017	3-4 ft	Lancaster	SGB48
S25	9/21/2017	4.6-5.6 ft	Lancaster	SGB48
S26	9/20/2017	0.5-1 ft	Lancaster	SGB46
S26	9/20/2017	0-0.5 ft	Lancaster	SGB46
S26	9/20/2017	1-1.5 ft	Lancaster	SGB46
S26	9/20/2017	3-4 ft	Lancaster	SGB46
S26	9/20/2017	8-9 ft	Lancaster	SGB46
S27	9/20/2017	0.5-1 ft	Lancaster	SGB46
S27	9/20/2017	0-0.5 ft	Lancaster	SGB46
S27	9/20/2017	0-0.5 ft	Lancaster	SGB46

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S27	9/20/2017	1-1.5 ft	Lancaster	SGB46
S27	9/20/2017	3-4 ft	Lancaster	SGB46
S27	9/20/2017	7-8 ft	Lancaster	SGB46
S28	9/28/2017	0.5-1 ft	Lancaster	SGB59
S28	9/28/2017	0-0.5 ft	Lancaster	SGB59
S28	9/28/2017	1-1.5 ft	Lancaster	SGB59
S28	9/28/2017	2.7-3.7 ft	Lancaster	SGB59
S28	9/28/2017		Lancaster	SGB59
S29	9/22/2017	0.5-1 ft	Lancaster	SGB49
S29	9/22/2017	0-0.5 ft	Lancaster	SGB49
S29	9/22/2017	1-1.5 ft	Lancaster	SGB49
S30	8/18/2017	0.5-1 ft	Lancaster	SGB08
S30	8/18/2017	0-0.5 ft	Lancaster	SGB08
S30	8/18/2017	1-1.5 ft	Lancaster	SGB08
S30	8/18/2017	3-4 ft	Lancaster	SGB08
S30	8/18/2017	8-9 ft	Lancaster	SGB08
S31	8/25/2017	0.5-1 ft	Lancaster	SGB14
S31	8/25/2017	0-0.5 ft	Lancaster	SGB14
S31	8/25/2017	1-1.5 ft	Lancaster	SGB14
S31	8/25/2017	3-4 ft	Lancaster	SGB14
S31	8/25/2017	8-9 ft	Lancaster	SGB14
S32	8/24/2017	0.5-1 ft	Lancaster	SGB13
S32	8/24/2017	0-0.5 ft	Lancaster	SGB13
S32	8/24/2017	0-0.5 ft	Lancaster	SGB13
S32	8/24/2017	1-1.5 ft	Lancaster	SGB13
S32	8/24/2017	3-4 ft	Lancaster	SGB13
S32	8/24/2017	8-9 ft	Lancaster	SGB13
S33	9/27/2017	0.5-1 ft	Lancaster	SGB57
S33	9/27/2017	0-0.5 ft	Lancaster	SGB57
S33	9/27/2017	1-1.5 ft	Lancaster	SGB57
S33	9/27/2017	3-4 ft	Lancaster	SGB57
S33	9/27/2017	8-9 ft	Lancaster	SGB57
S34	9/11/2017	0.5-1 ft	Lancaster	SGB33
S34	9/11/2017	0-0.5 ft	Lancaster	SGB33
S34	9/11/2017	1-1.5 ft	Lancaster	SGB33
S34	9/11/2017	2.2-3.2 ft	Lancaster	SGB33
S34	9/11/2017		Lancaster	SGB33
S35	8/22/2017	0.5-1 ft	Lancaster	SGB10
S35	8/22/2017	0-0.5 ft	Lancaster	SGB10
S35	8/22/2017	1-1.5 ft	Lancaster	SGB10
S35	8/22/2017	3-4 ft	Lancaster	SGB10
S35	8/22/2017	8-9 ft	Lancaster	SGB10
S35	8/23/2017	0-0.5 ft	Lancaster	SGB10
S36	8/22/2017	0.5-1 ft	Lancaster	SGB10
S36	8/22/2017	0-0.5 ft	Lancaster	SGB10
S36	8/22/2017	1-1.5 ft	Lancaster	SGB10
S36	8/22/2017	3-4 ft	Lancaster	SGB10
S36	8/22/2017	8-9 ft	Lancaster	SGB10
S37	8/24/2017	0.5-1 ft	Lancaster	SGB13
S37	8/24/2017	0-0.5 ft	Lancaster	SGB13
S37	8/24/2017	1-1.5 ft	Lancaster	SGB13
S37	8/24/2017		Lancaster	SGB13
S38	8/22/2017	0.5-1 ft	Lancaster	SGB10

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S38	8/22/2017	0-0.5 ft	Lancaster	SGB10
S38	8/22/2017	1-1.5 ft	Lancaster	SGB10
S38	8/22/2017	3-4 ft	Lancaster	SGB10
S38	8/22/2017	8-9 ft	Lancaster	SGB10
S39	8/24/2017	0.5-1 ft	Lancaster	SGB13
S39	8/24/2017	0-0.5 ft	Lancaster	SGB13
S39	8/24/2017	1-1.5 ft	Lancaster	SGB13
S39	8/24/2017	3-4 ft	Lancaster	SGB13
S39	8/24/2017	8-9 ft	Lancaster	SGB13
S40	9/27/2017	0.5-1 ft	Lancaster	SGB57
S40	9/27/2017	0.5-1 ft	Lancaster	SGB57
S40	9/27/2017	0-0.5 ft	Lancaster	SGB57
S40	9/27/2017	1-1.5 ft	Lancaster	SGB57
S40	9/27/2017	3-4 ft	Lancaster	SGB57
S40	9/27/2017	8-9 ft	Lancaster	SGB57
S41	8/15/2017	0.5-1 ft	Lancaster	SGB04
S41	8/15/2017	0-0.5 ft	Lancaster	SGB04
S41	8/15/2017	1-1.5 ft	Lancaster	SGB04
S41	8/15/2017		Lancaster	SGB05
S42	8/16/2017	0.5-1 ft	Lancaster	SGB07
S42	8/16/2017	0-0.5 ft	Lancaster	SGB07
S42	8/16/2017	1-1.5 ft	Lancaster	SGB07
S42	8/16/2017	3-4 ft	Lancaster	SGB07
S42	8/16/2017	8-9 ft	Lancaster	SGB07
S42	8/16/2017		Lancaster	SGB06
S43	8/21/2017	0.5-1 ft	Lancaster	SGB09
S43	8/21/2017	0-0.5 ft	Lancaster	SGB09
S43	8/21/2017	0-0.5 ft	Lancaster	SGB09
S43	8/21/2017	1-1.5 ft	Lancaster	SGB09
S43	8/21/2017	3-4 ft	Lancaster	SGB09
S43	8/21/2017	8-9 ft	Lancaster	SGB09
S44	8/21/2017	0.5-1 ft	Lancaster	SGB09
S44	8/21/2017	0-0.5 ft	Lancaster	SGB09
S44	8/21/2017	1-1.5 ft	Lancaster	SGB09
S44	8/21/2017	3-4 ft	Lancaster	SGB09
S44	8/21/2017	8-9 ft	Lancaster	SGB09
S45	9/12/2017	0.5-1 ft	Lancaster	SGB34
S45	9/12/2017	0-0.5 ft	Lancaster	SGB34
S45	9/12/2017	1-1.5 ft	Lancaster	SGB34
S45	9/12/2017	3-4 ft	Lancaster	SGB34
S45	9/12/2017	8-9 ft	Lancaster	SGB34
S46	8/16/2017	0.5-1 ft	Lancaster	SGB06
S46	8/16/2017	0-0.5 ft	Lancaster	SGB06
S46	8/16/2017	1-1.5 ft	Lancaster	SGB06
S46	8/16/2017	3-4 ft	Lancaster	SGB06
S46	8/16/2017	6-7 ft	Lancaster	SGB06
S47	8/16/2017	0.5-1 ft	Lancaster	SGB06
S47	8/16/2017	0-0.5 ft	Lancaster	SGB06
S47	8/16/2017	0-0.5 ft	Lancaster	SGB06
S47	8/16/2017	1-1.5 ft	Lancaster	SGB06
S47	8/16/2017	3-5.3 ft	Lancaster	SGB06
S48	8/21/2017	0.5-1 ft	Lancaster	SGB09
S48	8/21/2017	0-0.5 ft	Lancaster	SGB09

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S48	8/21/2017	1-1.5 ft	Lancaster	SGB09
S48	8/21/2017	3-4 ft	Lancaster	SGB09
S48	8/21/2017	6.4-7.4 ft	Lancaster	SGB09
S49	9/12/2017	0.5-1 ft	Lancaster	SGB34
S49	9/12/2017	0-0.5 ft	Lancaster	SGB34
S49	9/12/2017	1-1.5 ft	Lancaster	SGB34
S49	9/12/2017	3-4 ft	Lancaster	SGB34
S49	9/12/2017	5.3-6.3 ft	Lancaster	SGB34
S49	9/12/2017	8-9 ft	Lancaster	SGB34
S49	9/12/2017		Lancaster	SGB34
SAMPLE SLEEVE	9/26/2017		Lancaster	SGB54
SG3-MW17-01	10/20/2017		Lancaster	SNB01
SG3-MW17-02	10/24/2017		Lancaster	SNB13
SG3-MW17-03	10/24/2017		Lancaster	SNB13
SG3-MW17-04	10/26/2017		Lancaster	SNB17
SG3-MW17-04	10/26/2017		Lancaster	SNB17
SG3-MW17-05	10/27/2017		Lancaster	SNB20
SG3-MW17-05	10/31/2017		Lancaster	SNB22
SG3-MW17-06	10/24/2017		Lancaster	SNB13
SG3-MW17-07	10/25/2017		Lancaster	SNB15
SG3-MW17-BR1	9/27/2017	21-30.5 ft	Lancaster	SGB63
SG3-MW17-BR1	9/27/2017	28-29 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	30.5-33 ft	Lancaster	SGB63
SG3-MW17-BR1	9/27/2017	31-32 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	33-130 ft	Lancaster	SGB63
SG3-MW17-BR1	9/27/2017	38-39 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	48-49 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	58-59 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	68-69 ft	Lancaster	SGB56
SG3-MW17-BR1	9/27/2017	78-79 ft	Lancaster	SGB61
SG3-MW17-BR1	9/27/2017	88-89 ft	Lancaster	SGB59
SG3-MW17-BR1	9/27/2017	88-89 ft	Lancaster	SGB59
SG3-MW17-BR1	9/28/2017	108-109 ft	Lancaster	SGB59
SG3-MW17-BR1	9/28/2017	118-119 ft	Lancaster	SGB59
SG3-MW17-BR1	9/28/2017	98-99 ft	Lancaster	SGB59
SG3-MW17-BR1	9/29/2017	128-129 ft	Lancaster	SGB61
SG3-MW17-BR1	9/29/2017	130-137 ft	Lancaster	SGB63
SG3-MW17-BR1	9/29/2017	138-139 ft	Lancaster	SGB61
SG3-MW17-BR1	9/29/2017	148-149 ft	Lancaster	SGB67
SG3-MW17-BR1	10/3/2017	158-159 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	168-169 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	178-179 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	188-189 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	198-199 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	208-209 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	218-219 ft	Lancaster	SGB69
SG3-MW17-BR1	10/4/2017	228-229 ft	Lancaster	SGB69
SG3-MW17-BR1	10/5/2017	238-239 ft	Lancaster	SGB73
SG3-MW17-BR1	10/5/2017	248-249 ft	Lancaster	SGB73
SG3-MW17-BR1	10/5/2017	258-259 ft	Lancaster	SGB73
SG3-MW17-BR1	10/5/2017	268-269 ft	Lancaster	SGB73
SG3-MW17-BR1	10/5/2017	278-279 ft	Lancaster	SGB73
SG3-MW17-BR1	10/5/2017	288-289 ft	Lancaster	SGB73

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SG3-MW17-BR1	10/6/2017	298-299 ft	Lancaster	SGB76
SG3-MW17-BR1	10/9/2017	170-180 ft	Lancaster	SNB08
SG3-MW17-BR1	10/9/2017	193-195 ft	Lancaster	SNB08
SG3-MW17-BR1	10/9/2017	223-260 ft	Lancaster	SNB08
SG3-MW17-BR1	10/9/2017	260-285 ft	Lancaster	SNB08
SG3-MW17-BR1	10/9/2017	290-299 ft	Lancaster	SNB08
SG3-MW17-BR1	11/29/2017		Lancaster	SNB44
SG3-MW17-BR1	12/6/2017		Lancaster	SNB48
SG3-MW17-BR2	10/12/2017	0.5-1 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	0-0.5 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	1-1.5 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	134-135 ft	Lancaster	SNB08
SG3-MW17-BR2	10/12/2017	18-19 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	28-29 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	3-4 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	38-39 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	48-49 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	58-59 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	68-69 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	78-79 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	88-89 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	88-89 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	8-9 ft	Lancaster	SGB85
SG3-MW17-BR2	10/12/2017	98-99 ft	Lancaster	SGB85
SG3-MW17-BR2	10/13/2017	108-109 ft	Lancaster	SGB87
SG3-MW17-BR2	10/13/2017	118-119 ft	Lancaster	SGB87
SG3-MW17-BR2	10/13/2017	118-119 ft	Lancaster	SGB88
SG3-MW17-BR2	10/13/2017	128-129 ft	Lancaster	SGB87
SG3-MW17-BR2	10/13/2017	133-134 ft	Lancaster	SGB88
SG3-MW17-BR2	10/13/2017	137-138 ft	Lancaster	SGB88
SG3-MW17-BR2	12/10/2017		Lancaster	SNB52
SG3-MW17-BR2	1/16/2018	165-175 ft	Lancaster	SNB71
SG3-MW17-BR2	1/16/2018	165-175 ft	Lancaster	SNB73
SG3-MW17-BR2	1/19/2018	243-265 ft	Lancaster	SNB76
SG3-MW17-BR2	1/19/2018	243-265 ft	Lancaster	SNB77
SG3-MW17-BR2	1/20/2018	119-219 ft	Lancaster	SNB80
SG3-MW17-BR2	1/20/2018	199-219 ft	Lancaster	SNB79
SG3-MW17-BR2	1/26/2018		Lancaster	SNB88
SG3-MW17-BR2	1/26/2018		Lancaster	SNB90
SG3-MW17-BR3	10/23/2017	0.5-1 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	0-0.5 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	0-7.5 ft	Lancaster	SNB29
SG3-MW17-BR3	10/23/2017	1-1.5 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	18-19 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	28-29 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	3-4 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	38-39 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	40-83 ft	Lancaster	SNB29
SG3-MW17-BR3	10/23/2017	48-49 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	58-59 ft	Lancaster	SNB11
SG3-MW17-BR3	10/23/2017	6.5-7.5 ft	Lancaster	SNB12
SG3-MW17-BR3	10/23/2017	7.5-40 ft	Lancaster	SNB29
SG3-MW17-BR3	10/23/2017	8-9 ft	Lancaster	SNB12

Appendix B
Analytical Sample Directory by Laboratory Report
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
SG3-MW17-BR3	10/24/2017	104-105 ft	Lancaster	SNB14
SG3-MW17-BR3	10/24/2017	68-69 ft	Lancaster	SNB14
SG3-MW17-BR3	10/24/2017	78-79 ft	Lancaster	SNB14
SG3-MW17-BR3	10/24/2017	83-90 ft	Lancaster	SNB29
SG3-MW17-BR3	10/24/2017	88-89 ft	Lancaster	SNB14
SG3-MW17-BR3	10/24/2017	90-96 ft	Lancaster	SNB29
SG3-MW17-BR3	10/24/2017	96-106 ft	Lancaster	SNB29
SG3-MW17-BR3	10/24/2017	98-99 ft	Lancaster	SNB14
SG3-MW17-BR3	1/4/2018		Lancaster	SNB66
SG3-MW17-BR3	1/4/2018		Lancaster	SNB67
SG3-MW17-BR3	1/10/2018		Lancaster	SNB69
SG3-MW17-BR3	1/10/2018		Lancaster	SNB70
SG3-MW17-BR3	1/22/2018	131.27-161 ft	Lancaster	SNB82
SG3-MW17-BR3	1/22/2018	131.27-161 ft	Lancaster	SNB84
SG3-MW17-BR3	1/25/2018		Lancaster	SNB85
SG3-MW17-BR3	1/25/2018		Lancaster	SNB87
SG3-MW17-BR4	10/20/2017	0.5-1 ft	Lancaster	SNB03
SG3-MW17-BR4	10/20/2017	0-0.5 ft	Lancaster	SNB03
SG3-MW17-BR4	10/20/2017	1-1.5 ft	Lancaster	SNB03
SG3-MW17-BR4	10/20/2017	19-20 ft	Lancaster	SNB03
SG3-MW17-BR4	10/20/2017	3-4 ft	Lancaster	SNB03
SG3-MW17-BR4	10/20/2017	8-9 ft	Lancaster	SNB03
SG3-MW17-BR4	10/21/2017	28-29 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	38-39 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	38-39 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	48-49 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	58-59 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	68-69 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	78-79 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	88-89 ft	Lancaster	SNB09
SG3-MW17-BR4	10/21/2017	98-99 ft	Lancaster	SNB11
SG3-MW17-BR4	10/21/2017	0.3-22 ft	Lancaster	SNB29
SG3-MW17-BR4	10/21/2017	29-67 ft	Lancaster	SNB29
SG3-MW17-BR4	10/21/2017	67-80 ft	Lancaster	SNB29
SG3-MW17-BR4	10/21/2017	84-92 ft	Lancaster	SNB29
SG3-MW17-BR4	10/22/2017	108-109 ft	Lancaster	SNB11
SG3-MW17-BR4	10/22/2017	118-119 ft	Lancaster	SNB11
SG3-MW17-BR4	10/22/2017	128-129 ft	Lancaster	SNB11
SG3-MW17-BR4	10/22/2017	138-139 ft	Lancaster	SNB11
SG3-MW17-BR4	10/22/2017	148-149 ft	Lancaster	SNB11
SG3-MW17-BR4	10/22/2017	92-97 ft	Lancaster	SNB29
SG3-MW17-BR4	10/23/2017	158-159 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	168-169 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	178-179 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	188-189 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	198-199 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	208-209 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	216.5-217 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	225-226 ft	Lancaster	SNB11
SG3-MW17-BR4	10/23/2017	235-236 ft	Lancaster	SNB11
SG3-MW17-BR4	10/25/2017	245-246 ft	Lancaster	SNB16
SG3-MW17-BR4	10/25/2017	251-252 ft	Lancaster	SNB16
SG3-MW17-BR4	10/25/2017	251-252 ft	Lancaster	SNB16

Appendix B
Analytical Sample Directory by Laboratory Report
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
SG3-MW17-BR4	10/30/2017	261-262 ft	Lancaster	SNB21
SG3-MW17-BR4	10/30/2017	271-272 ft	Lancaster	SNB21
SG3-MW17-BR4	10/30/2017	271-272 ft	Lancaster	SNB21
SG3-MW17-BR4	10/30/2017	281-282 ft	Lancaster	SNB21
SG3-MW17-BR4	10/30/2017	291-292 ft	Lancaster	SNB21
SG3-MW17-BR4	10/30/2017	97-167 ft	Lancaster	SNB29
SG3-MW17-BR4	10/30/2017	167-207 ft	Lancaster	SNB29
SG3-MW17-BR4	10/30/2017	207-287 ft	Lancaster	SNB29
SG3-MW17-BR4	10/31/2017	301-302 ft	Lancaster	SNB23
SG3-MW17-BR4	10/31/2017	311-312 ft	Lancaster	SNB23
SG3-MW17-BR4	10/31/2017	321-322 ft	Lancaster	SNB23
SG3-MW17-BR4	10/31/2017	331-332 ft	Lancaster	SNB23
SG3-MW17-BR4	10/31/2017	341-342 ft	Lancaster	SNB23
SG3-MW17-BR4	10/31/2017	351-352 ft	Lancaster	SNB23
SG3-MW17-BR4	11/1/2017	334-335 ft	Lancaster	SNB29
SG3-MW17-BR4	11/1/2017	353-354 ft	Lancaster	SNB29
SG3-MW17-BR4	11/1/2017	361-362 ft	Lancaster	SNB25
SG3-MW17-BR4	11/1/2017	371-372 ft	Lancaster	SNB25
SG3-MW17-BR4	11/1/2017	374-375 ft	Lancaster	SNB29
SG3-MW17-BR4	11/1/2017	381-382 ft	Lancaster	SNB25
SG3-MW17-BR4	11/1/2017	391-392 ft	Lancaster	SNB25
SG3-MW17-BR4	11/2/2017	394-395 ft	Lancaster	SNB29
SG3-MW17-BR4	11/2/2017	395-396 ft	Lancaster	SNB26
SG3-MW17-BR4	12/17/2017		Lancaster	SNB62
SG3-MW17-BR4	12/17/2017		Lancaster	SNB62
SG3-MW17-BR4	12/21/2017		Lancaster	SNB63
SG3-MW17-BR4	12/21/2017		Lancaster	SNB64
SG3-MW17-WWTP	10/23/2017		Lancaster	SNB06
SONIC BARREL	11/7/2017		Lancaster	SNB32
Sonic_Pump_1	10/3/2017		Lancaster	SGB67
SONIC2PUMP1	10/6/2017		Lancaster	SGB75
SONIC2PUMP2	10/6/2017		Lancaster	SGB75
STANDPIPE-RAS	11/16/2017		Lancaster	SNB41
TOTE1	9/26/2017		Lancaster	SGB54
TOTE1	12/5/2017		Lancaster	SNB47
TOTE2	9/26/2017		Lancaster	SGB54
TOTE2	12/5/2017		Lancaster	SNB47
TRILENE	11/29/2017		Lancaster	SNB44
TRIP BLANK	8/24/2017		Lancaster	SGB13
TRIP BLANK	8/30/2017		Lancaster	SGB19
TRIP BLANK	9/5/2017		Lancaster	SGB23
TRIP BLANK	9/5/2017		Lancaster	SGB65
TRIP BLANK	9/28/2017		Lancaster	SGB58
TRIP BLANK	9/29/2017		Lancaster	SGB60
TRIP BLANK	10/3/2017		Lancaster	SGB66
TRIP BLANK	10/4/2017		Lancaster	SGB68
TRIP BLANK	10/5/2017		Lancaster	SGB72
TRIP BLANK	10/5/2017		Lancaster	SGB75
TRIP BLANK	10/10/2017		Lancaster	SGB79
TRIP BLANK	10/12/2017		Lancaster	SGB83
TRIP BLANK	10/13/2017		Lancaster	SGB86
TRIP BLANK	10/16/2017		Lancaster	SGB89
TRIP BLANK	10/17/2017		Lancaster	SGB91

Appendix B
Analytical Sample Directory by Laboratory Report
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location / Sample Name	Sample Date	Sample Depth	Laboratory	Report
TRIP BLANK	10/19/2017		Lancaster	SGB98
TRIP BLANK	10/20/2017		Lancaster	SNB04
TRIP BLANK	10/20/2017		Lancaster	SNB10
TRIP BLANK	10/25/2017		Lancaster	SNB16
TRIP BLANK	10/26/2017		Lancaster	SNB19
TRIP BLANK	11/8/2017		Lancaster	SNB33
TRIP BLANK	11/9/2017		Lancaster	SNB34
TROLL	11/29/2017		Lancaster	SNB44
TROLL/CABLE-RB1	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB2	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB3	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB4	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB5	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB6	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB7	9/25/2017		Lancaster	SGB53
TROLL/CABLE-RB8	9/25/2017		Lancaster	SGB53
VLT-01	5/25/2017		Lancaster	SPQ24
WINDSHIELDFLUID	11/13/2017		Lancaster	SNB38
WIRE	12/3/2017		Lancaster	SNB46

Appendix B.2

Laboratory Reports

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 01, 2017

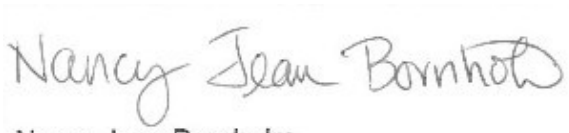
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1838476
SDG: SGB04
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S06-0-0.5' Soil	08/14/2017 15:35	9158380
SG3-S06-0.5-1' Soil	08/14/2017 15:40	9158381
SG3-S06-1-1.5' Soil	08/14/2017 16:30	9158382
SG3-S06-3-4' Soil	08/14/2017 16:35	9158383
SG3-S06-8-9' Soil	08/14/2017 17:10	9158384
SG3-S41-0-0.5' Soil	08/15/2017 11:20	9158385
SG3-S41-0-0.5' MS Soil	08/15/2017 11:20	9158386
SG3-S41-0-0.5' MSD Soil	08/15/2017 11:20	9158387
SG3-S41-0-0.5' Dupl Soil	08/15/2017 11:20	9158388
SG3-S41-0.5-1' Soil	08/15/2017 11:30	9158389
SG3-S41-1-1.5' Soil	08/15/2017 12:20	9158390
SG3-LTB01-170814 Blank Water	08/14/2017	9158391
SG3-LTB02-170814 Blank Water	08/14/2017	9158392
SG3-FB01-170815 Blank Water	08/15/2017 13:15	9158393

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1838476

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 17235007 (Sample number(s): 9158380-9158387, 9158389-9158390 UNSPK: 9158385)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid, Perfluoroheptanoic acid

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17229667632B (Sample number(s): 9158380-9158383 UNSPK: 9158380 BKG: 9158380)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17233667631A (Sample number(s): 9158384-9158386, 9158388-9158389 UNSPK: 9158385 BKG: 9158385)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9158385, 9158388

The pH was measured in water at 19.7 C.

Sample #s: 9158383

The pH was measured in water at 19.8 C.

Sample #s: 9158380, 9158381, 9158382, 9158384, 9158389

The pH was measured in water at 19.9 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17229820002A (Sample number(s): 9158381 BKG: P156795)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: SG3-S06-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158380
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 15:35 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB061 SDG#: SGB04-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,050**		201	602	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.42**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 02:08	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158380
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 15:35 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB061 SDG#: SGB04-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17229667632B	08/18/2017 12:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9158381
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 15:40 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB062 SDG#: SGB04-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,320**		622	1,860	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.53**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 02:29	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9158381
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 15:40 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB062 SDG#: SGB04-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17229667632B	08/21/2017 10:01	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17229820002A	08/17/2017 23:29	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158382
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 16:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB063 SDG#: SGB04-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.34**	**J**	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.78**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,570**		297	890	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 02:49	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158382
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 16:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB063 SDG#: SGB04-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17229667632B	08/21/2017 10:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401B	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9158383
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 16:35 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB064 SDG#: SGB04-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.2**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,520**		328	984	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 03:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9158383
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 16:35 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB064 SDG#: SGB04-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17229667632B	08/21/2017 10:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401B	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9158384
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 17:10 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB065 SDG#: SGB04-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.41**	**J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,950**		298	894	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.86**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 03:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S06-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9158384
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017 17:10 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB065 SDG#: SGB04-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631A	08/22/2017 11:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401B	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158385
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB411 SDG#: SGB04-06BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.24**	**J**	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.19**	**J**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.65**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.24**	**J**	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,200**		604	1,810	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.65**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 03:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158385
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB411 SDG#: SGB04-06BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631A	08/21/2017 15:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9158386
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB411 SDG#: SGB04-06MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.6**	0.24	0.72	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.1**	0.24	0.72	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.0**	0.24	0.72	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.1**	0.24	0.72	1
14027	**Perfluoroheptanoic acid**	375-85-9	**2.2**	0.24	0.72	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.24	0.72	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.9**	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**2.4**	0.12	0.48	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.3**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.4**	0.24	0.72	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.9**	0.24	0.72	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.0**	0.24	0.72	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.2**	0.24	0.72	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1**	0.24	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**41,900**	1,070	3,220	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 00:46	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17233667631A	08/21/2017 15:14	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9158387
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB411 SDG#: SGB04-06MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.23	0.70	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.0**	0.23	0.70	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.23	0.70	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.0**	0.23	0.70	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.23	0.70	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.8**	0.23	0.70	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.6**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**	0.23	0.70	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.9**	0.23	0.70	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.9**	0.23	0.70	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.0**	0.23	0.70	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.0**	0.23	0.70	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 01:06	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1
00118	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9158388
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB411 SDG#: SGB04-06DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**18,300**	582	1,750	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.71**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**17.9**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631A	08/21/2017 15:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00118	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9158389
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB412 SDG#: SGB04-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25**	**J**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.65**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.43**	**J**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,180**		598	1,790	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.28**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 04:52	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9158389
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 11:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB412 SDG#: SGB04-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631A	08/21/2017 15:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9158390
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 12:20 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB413 SDG#: SGB04-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**3.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17235007	08/26/2017 05:13	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17235007	08/24/2017 08:00	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997	1	17228820004B	08/16/2017 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-170814 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9158391
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB4T1 SDG#: SGB04-09TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17233002	08/26/2017 16:46	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233002	08/21/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB02-170814 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9158392
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/14/2017

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB4T2 SDG#: SGB04-10TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17233002	08/26/2017 17:06	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233002	08/21/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB01-170815 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9158393
ELLE Group # 1838476
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 13:15 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/01/2017 15:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB4F1 SDG#: SGB04-11FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17233002	08/26/2017 17:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233002	08/21/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1838476
Reported: 09/01/2017 15:50

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17235007	Sample number(s): 9158380-9158387,9158389-9158390			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17233002	Sample number(s): 9158391-9158393			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17229667632B	Sample number(s): 9158380-9158383			
TOC	100	U	100	300
Batch number: 17233667631A	Sample number(s): 9158384-9158386,9158388-9158389			
TOC	100	U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/01/2017 15:50

Group Number: 1838476

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17235007	Sample number(s): 9158380-9158387,9158389-9158390								
Perfluorobutanesulfonate	1.24	1.40			113		70-130		
Perfluorobutanoic acid	1.40	1.59			113		70-130		
Perfluorodecanoic acid	1.40	1.50			107		70-130		
Perfluorododecanoic acid	1.40	1.57			112		70-130		
Perfluoroheptanoic acid	1.40	1.58			113		70-130		
Perfluorohexanesulfonate	1.32	1.37			104		70-130		
Perfluorohexanoic acid	1.40	1.57			112		70-130		
Perfluorononanoic acid	1.40	1.61			115		70-130		
Perfluoro-octanesulfonate	1.34	1.32			99		70-130		
Perfluorooctanoic acid	1.40	1.52			109		70-130		
Perfluoropentanoic acid	1.40	1.47			105		70-130		
Perfluorotetradecanoic acid	1.40	1.50			107		70-130		
Perfluorotridecanoic acid	1.40	1.76			125		70-130		
Perfluoroundecanoic acid	1.40	1.56			111		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17233002	Sample number(s): 9158391-9158393								
Perfluorobutanesulfonate	176.9	162.57	176.9	172.59	92	98	70-130	6	30
Perfluorobutanoic Acid	200	191.96	200	199.53	96	100	70-130	4	30
Perfluorodecanoic acid	200	188.85	200	216.16	94	108	70-130	13	30
Perfluorododecanoic acid	200	193.73	200	202.45	97	101	70-130	4	30
Perfluoroheptanoic acid	200	212.64	200	220.2	106	110	70-130	3	30
Perfluorohexanesulfonate	189.1	170.15	189.1	164.87	90	87	70-130	3	30
Perfluorohexanoic acid	200	197.35	200	212.45	99	106	70-130	7	30
Perfluorononanoic acid	200	228.93	200	207.85	114	104	70-130	10	30
Perfluoro-octanesulfonate	191.2	172.16	191.2	182.7	90	96	70-130	6	30
Perfluorooctanoic acid	200	196.89	200	206.36	98	103	70-130	5	30
Perfluoropentanoic Acid	200	196.43	200	208.63	98	104	70-130	6	30
Perfluorotetradecanoic acid	200	198.04	200	215.73	99	108	70-130	9	30
Perfluorotridecanoic acid	200	176.65	200	218.62	88	109	70-130	21	30
Perfluoroundecanoic acid	200	217.45	200	197.46	109	99	70-130	10	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17229667632B	Sample number(s): 9158380-9158383								
TOC	7150	6477.9			91		47-143		
Batch number: 17233667631A	Sample number(s): 9158384-9158386,9158388-9158389								
TOC	7150	4773.41			67		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17235039401A	Sample number(s): 9158380-9158381,9158385,9158388-9158389								
pH	7.00	6.97			100		95-105		
Batch number: 17235039401B	Sample number(s): 9158382-9158384								
pH	7.00	6.97			100		95-105		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/01/2017 15:50

Group Number: 1838476

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	%	%	%	%					
Batch number: 17228820004B	Sample number(s): 9158380,9158382-9158390								
Moisture	89.5	89.38			100		99-101		
Moisture	89.5	89.38			100		99-101		
Moisture Duplicate	89.5	89.38			100		99-101		
Batch number: 17229820002A	Sample number(s): 9158381								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17235007	Sample number(s): 9158380-9158387,9158389-9158390 UNSPK: 9158385									
Perfluorobutanesulfonate	0.19 U	1.23	1.31	1.19	1.20	107	101	70-130	9	30
Perfluorobutanoic acid	0.19 U	1.39	1.73	1.35	1.62	125	120	70-130	7	30
Perfluorodecanoic acid	0.200	1.39	1.67	1.35	1.46	106	94	70-130	13	30
Perfluorododecanoic acid	0.19 U	1.39	1.75	1.35	1.61	126	120	70-130	8	30
Perfluoroheptanoic acid	0.19 U	1.39	1.84	1.35	1.50	132*	112	70-130	20	30
Perfluorohexanesulfonate	0.19 U	1.31	1.36	1.27	1.50	104	118	70-130	10	30
Perfluorohexanoic acid	0.095 U	1.39	1.59	1.35	1.37	115	102	70-130	15	30
Perfluorononanoic acid	0.155	1.39	1.95	1.35	1.60	129	107	70-130	20	30
Perfluoro-octanesulfonate	0.630	1.33	1.91	1.29	2.12	96	116	70-130	11	30
Perfluorooctanoic acid	0.533	1.39	1.98	1.35	1.91	104	102	70-130	4	30
Perfluoropentanoic acid	0.19 U	1.39	1.56	1.35	1.53	113	114	70-130	2	30
Perfluorotetradecanoic acid	0.19 U	1.39	1.61	1.35	1.53	116	114	70-130	5	30
Perfluorotridecanoic acid	0.19 U	1.39	1.81	1.35	1.68	131*	125	70-130	7	30
Perfluoroundecanoic acid	0.202	1.39	1.71	1.35	1.67	109	109	70-130	3	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17229667632B	Sample number(s): 9158380-9158383 UNSPK: 9158380									
TOC	2809.49	11700	12793.14			85		47-143		
Batch number: 17233667631A	Sample number(s): 9158384-9158386,9158388-9158389 UNSPK: 9158385									
TOC	17476.31	26580	34588.13			64		47-143		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/01/2017 15:50

Group Number: 1838476

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17229667632B	Sample number(s): 9158380-9158383 BKG: 9158380			
TOC	2809.49	3407.35	19*	7
Batch number: 17233667631A	Sample number(s): 9158384-9158386,9158388-9158389 BKG: 9158385			
TOC	17476.31	15103.51	15*	7
	Std. Units	Std. Units		
Batch number: 17235039401A	Sample number(s): 9158380-9158381,9158385,9158388-9158389 BKG: 9158385			
pH	7.65	7.71	1	3
Batch number: 17235039401B	Sample number(s): 9158382-9158384 BKG: 9158383			
pH	7.84	7.93	1	3
	%	%		
Batch number: 17228820004B	Sample number(s): 9158380,9158382-9158390 BKG: 9158385, P158385			
Moisture	17.43	17.87	3	5
Moisture	17.43	17.87	3	5
Moisture Duplicate	17.43	17.87	3	5
Batch number: 17229820002A	Sample number(s): 9158381 BKG: P156795			
Moisture	23.06	21.67	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17233002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9158391	84	89	76	90	96	87
9158392	82	92	81	90	96	87
9158393	88	97	81	89	90	89
Blank	83	93	77	95	98	92
LCS	99	101	97	98	102	98
LCSD	83	85	77	81	87	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1838476
Reported: 09/01/2017 15:50

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17233002

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9158391	90	84	90	82	85	95
9158392	95	80	87	85	94	100
9158393	87	82	90	95	84	97
Blank	90	77	82	88	88	93
LCS	102	98	98	93	87	94
LCSD	80	77	81	78	98	98
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9158391	105
9158392	106
9158393	111
Blank	108
LCS	92
LCSD	119
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17235007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9158380	74	77	78	83	77	73
9158381	82	83	87	74	75	76
9158382	76	79	77	84	84	84
9158383	71	71	77	71	73	69
9158384	69	73	76	74	81	67
9158385	73	80	79	72	80	73
9158386	76	81	80	74	73	74
9158387	69	75	76	72	65	70
9158389	71	70	75	72	72	71
9158390	68	73	80	71	78	75
Blank	87	94	83	84	74	80
LCS	80	81	76	77	87	83
MS	76	81	80	74	73	74
MSD	69	75	76	72	65	70
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1838476
Reported: 09/01/2017 15:50

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17235007

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9158380	73	87	88	81	84	80
9158381	77	81	87	81	83	78
9158382	81	79	73	80	86	80
9158383	74	85	80	82	87	82
9158384	66	83	59	70	74	72
9158385	71	77	72	75	78	69
9158386	76	78	72	83	85	77
9158387	75	75	74	73	63	65
9158389	66	74	71	74	67	65
9158390	70	85	78	78	71	70
Blank	82	85	78	88	91	88
LCS	81	78	73	82	90	86
MS	76	78	72	83	85	77
MSD	75	75	74	73	63	65
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9158380	85
9158381	84
9158382	84
9158383	84
9158384	70
9158385	76
9158386	80
9158387	66
9158389	66
9158390	69
Blank	90
LCS	84
MS	80
MSD	66
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1838476/91583 80-93

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 51364

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market pt. Dr.	Address: 50 Century Hill drive
Name: Michael Dupay	Name: Latham, N.Y.
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 3242w01.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 ml Trip blank	Soil: 250 ml plastic PFC	Soil: 4oz glass TOC, pH, moist.	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
										A	A				
										1	1				
1. SG3-SO6-0-0.5	0	0.5	ft	08/14/2017	15:35	S	N	2		1	1				(14) PFCs (See attached list for soil & water)
2. SG3-SO6-0.5-1	0.5	1	ft	08/14/2017	15:40	S	N	2		1	1				Moist. content, TOC, pH
3. SG3-SO6-1-1.5'	1	1.5	ft	08/14/2017	16:30	S	N	2		1	1				
4. SG3-SO6-3-4'	3	4	ft	08/14/2017	16:35	S	N	2		1	1				
5. SG3-SO6-8-9'	8	9	ft	08/14/2017	17:10	S	N	2		1	1				
6. SG3-S41-0-0.5'	0	0.5	ft	08/15/2017	11:20	S	Y	6		3	3				MS/MSD Here
7. SG3-S41-0.5-1'	0.5	1	ft	08/15/2017	11:30	S	N	2		1	1				
8. SG3-S41-1-1.5'	1	1.5	ft	08/15/2017	12:20	S	N	2		1	1				
9. SG3-LTB01-170814				8/14/2017	PM	water	W	1	1						Samples in 2 coolers
10. SG3-LTB02-170814				8/14/2017	PM	water	N	1	1						

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: Kam		☒ N	8/15/17	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y ☐ N ☐	Date	Time	Received by:	Date 8/16/17	Time 09:30
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 0.1			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 / 1838476 / 9158380-93

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **51369**

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT MALE
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr
Name: Michael Dupuy	Name: Latham NY
email: Mdupuy@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 324/2001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic PFC's	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-FB01-170815				08/15/2017	13:15	water	N	1	1				Run PFC's (See included list)
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													Samples in 2 coolers
10.													

BARR USE ONLY

Sampled by: KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? Y N Date 8/15/17 Time 17:00 Received by: Date Time

Relinquished by: On Ice? Y N Date Time Received by: Date 8/16/17 Time 0930

Samples Shipped VIA: ☒ Courier ☑ Federal Express ☐ Sampler ☐ Other: Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.5 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

1838476

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

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Sample Administration Receipt Documentation Log

Doc Log ID: 191681

Group Number(s): 1838476

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/16/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Ruth Shank (12390) at 10:31 on 08/16/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.1	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-S41-1-1.5	1	2	

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-S06-0.5-1	8/14/2017 15:35	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 06, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1838494
SDG: SGB05
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S41-170815 Groundwater	08/15/2017 14:30	9158456

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1838494

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9158456

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17241011 (Sample number(s): 9158456 UNSPK: 9158456)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid, Perfluorohexanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9158456, Blank, LCS, LCSD, MS

SW-846 6010C, Metals

Batch #: 172291063501 (Sample number(s): 9158456 UNSPK: P159054 BKG: P159054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Magnesium

SW-846 6020A, Metals

Batch #: 172291063901A (Sample number(s): 9158456 UNSPK: 9158456 BKG: 9158456)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Cadmium, Chromium, Nickel

EPA 300.0, Wet Chemistry

Batch #: 17228249117B (Sample number(s): 9158456 UNSPK: P158649 BKG: P158649)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Nitrite Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 17235107102A (Sample number(s): 9158456 UNSPK: P158159 BKG: P158159)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17229002101B (Sample number(s): 9158456 UNSPK: P152205 BKG: P152205, P9158456)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Total Alkalinity to pH 4.5. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: SG3-S41-170815 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9158456
ELLE Group # 1838494
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 14:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/06/2017 11:21

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB-41 SDG#: SGB05-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**12**		3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**5**		0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**12**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**21**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**10**		0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**14**		2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**160**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**32**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.934**		0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0157 J**		0.0101	0.100	1
01750	**Calcium**	7440-70-2	**36.2**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**2.26**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**11.5**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.00**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.77**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**30.5**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0020**	**J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.135**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00023**	**J**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0019**	**J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0032**		0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-170815 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9158456
ELLE Group # 1838494
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 14:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/06/2017 11:21

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB-41 SDG#: SGB05-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06033	**Copper**	7440-50-8	**0.0017 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00092 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0022 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00022 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0013**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**47.8**	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**9.9**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.085 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**135**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**135**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17241011	08/30/2017 19:30	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17241011	08/29/2017 20:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S41-170815 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9158456
ELLE Group # 1838494
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/15/2017 14:30 by KAM

Submitted: 08/16/2017 09:30
Reported: 09/06/2017 11:21

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

NB-41 SDG#: SGB05-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
08014	Boron	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	172291063501	08/18/2017 13:17	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172291063901D	08/18/2017 09:28	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172291063901B	08/18/2017 09:28	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172291063901A	08/18/2017 09:28	Choon Y Tian	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172291063501	08/17/2017 22:00	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172291063901	08/17/2017 22:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17228249117B	08/17/2017 02:52	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17228249117B	08/17/2017 03:09	Zachary W Enck	50
00368	Nitrate Nitrogen	EPA 300.0	1	17228249117B	08/17/2017 02:52	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17228249117B	08/17/2017 02:52	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17228249117B	08/17/2017 02:52	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17235107102A	08/23/2017 13:29	Brianna A White	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17229108101B	08/18/2017 13:58	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17229108101B	08/17/2017 09:30	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17229002101B	08/17/2017 14:18	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17229002101B	08/17/2017 14:18	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17229002101B	08/17/2017 14:18	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17228022601A	08/16/2017 23:20	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17241011	Sample number(s): 9158456			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172291063501	Sample number(s): 9158456			
Aluminum	0.0994	J	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0382	J	0.0374	0.200
Manganese	0.0016	U	0.0016	0.0100
Potassium	0.179	U	0.179	1.00
Sodium	0.321	U	0.321	2.00
Zinc	0.0065	U	0.0065	0.0400
Batch number: 172291063901A	Sample number(s): 9158456			
Antimony	0.00045	U	0.00045	0.0020
Arsenic	0.00072	U	0.00072	0.0040
Beryllium	0.000071	U	0.000071	0.0010
Cadmium	0.00015	U	0.00015	0.0010
Chromium	0.00087	U	0.00087	0.0040
Cobalt	0.00016	U	0.00016	0.0010
Copper	0.00054	U	0.00054	0.0040
Lead	0.00011	U	0.00011	0.0020

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172291063901B	Sample number(s): 9158456		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172291063901D	Sample number(s): 9158456		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17228249117B	Sample number(s): 9158456		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17229108101B	Sample number(s): 9158456		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17235107102A	Sample number(s): 9158456		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17228022601A	Sample number(s): 9158456		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17229002101B	Sample number(s): 9158456		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17241011	Sample number(s): 9158456								
6:2 fluorotelomersulfonate	13.27	11.56	13.27	13.56	87	102	70-130	16	30
8:2 fluorotelomersulfonate	13.4	13.28	13.4	13.24	99	99	70-130	0	30
NEtFOSAA	14	13.54	14	14.22	97	102	70-130	5	30
NMeFOSAA	14	14.55	14	13.17	104	94	70-130	10	30
Perfluorobutanesulfonate	12.38	10.76	12.38	12.66	87	102	70-130	16	30
Perfluorobutanoic Acid	14	14.59	14	14.1	104	101	70-130	3	30
Perfluorodecanoic acid	14	13.85	14	13.96	99	100	70-130	1	30
Perfluorododecanoic acid	14	13.44	14	13.37	96	96	70-130	1	30
Perfluoroheptanoic acid	14	14.25	14	15.79	102	113	70-130	10	30
Perfluorohexanesulfonate	13.24	12.4	13.24	14.06	94	106	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorohexanoic acid	14	13.95	14	14.45	100	103	70-130	3	30
Perfluorononanoic acid	14	12.27	14	15.06	88	108	70-130	20	30
Perfluoro-octanesulfonate	13.38	12.56	13.38	11.93	94	89	70-130	5	30
Perfluorooctanoic acid	14	13.65	14	13.58	97	97	70-130	0	30
Perfluoropentanoic Acid	14	12.26	14	13.57	88	97	70-130	10	30
Perfluorotetradecanoic acid	14	12.99	14	13.02	93	93	70-130	0	30
Perfluorotridecanoic acid	14	14.19	14	15.63	101	112	70-130	10	30
Perfluoroundecanoic acid	14	13.34	14	15.27	95	109	70-130	13	30
PFOSA	14	12.79	14	15.19	91	108	70-130	17	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172291063501	Sample number(s): 9158456								
Aluminum	2.00	2.21			111		80-120		
Boron	2.00	1.88			94		80-120		
Calcium	4.00	3.99			100		80-120		
Iron	1.00	1.01			101		80-120		
Magnesium	2.00	2.04			102		80-120		
Manganese	0.500	0.515			103		80-120		
Potassium	10	9.97			100		80-120		
Sodium	10	9.96			100		80-120		
Zinc	0.500	0.504			101		80-120		
Batch number: 172291063901A	Sample number(s): 9158456								
Antimony	0.00600	0.00637			106		80-120		
Arsenic	0.0100	0.0106			106		80-120		
Beryllium	0.00400	0.00422			106		80-120		
Cadmium	0.00500	0.00463			93		80-120		
Chromium	0.0500	0.0505			101		80-120		
Cobalt	0.250	0.252			101		80-120		
Copper	0.0500	0.0526			105		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0522			104		80-120		
Silver	0.0500	0.0508			102		80-120		
Thallium	0.00200	0.00209			104		80-120		
Vanadium	0.0500	0.0504			101		80-120		
Batch number: 172291063901B	Sample number(s): 9158456								
Selenium	0.0100	0.0105			105		80-120		
Batch number: 172291063901D	Sample number(s): 9158456								
Barium	0.0500	0.0486			97		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17228249117B	Sample number(s): 9158456								
Bromide	7.50	7.24			97		90-110		
Chloride	3.00	2.84			95		90-110		
Nitrate Nitrogen	0.750	0.729			97		90-110		
Nitrite Nitrogen	0.750	0.723			96		90-110		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Sulfate	7.50	7.22			96		90-110		
Batch number: 17229108101B	Sample number(s): 9158456								
Kjeldahl Nitrogen	5.00	4.79			96		90-110		
Batch number: 17235107102A	Sample number(s): 9158456								
Ammonia Nitrogen	1.50	1.57			105		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17228022601A	Sample number(s): 9158456								
Ortho-Phosphate as P	0.400	0.408			102		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17229002101B	Sample number(s): 9158456								
Total Alkalinity to pH 4.5	188	158.64	188	169.35	84	90	77-114	7*	5

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17241011	Sample number(s): 9158456 UNSPK: 9158456										
6:2 fluorotelomersulfonate	3	U	13.29	15.77			119		70-130		
8:2 fluorotelomersulfonate	4	U	13.42	18.11			135*		70-130		
NEtFOSAA	1	U	14.02	15.81			113		70-130		
NMeFOSAA	1	U	14.02	15.93			114		70-130		
Perfluorobutanesulfonate	0.8	U	12.4	13.98			113		70-130		
Perfluorobutanoic Acid	12.29		14.02	25.02			91		70-130		
Perfluorodecanoic acid	5.06		14.02	18.25			94		70-130		
Perfluorododecanoic acid	0.5	U	14.02	14.58			104		70-130		
Perfluoroheptanoic acid	12.44		14.02	24.45			86		70-130		
Perfluorohexanesulfonate	1	U	13.26	14.57			110		70-130		
Perfluorohexanoic acid	21.29		14.02	30.05			62*		70-130		
Perfluorononanoic acid	10.22		14.02	23.13			92		70-130		
Perfluoro-octanesulfonate	13.56		13.4	24.35			81		70-130		
Perfluorooctanoic acid	157.78		14.02	143.4			-102 (2)		70-130		
Perfluoropentanoic Acid	31.73		14.02	42.69			78		70-130		
Perfluorotetradecanoic acid	0.5	U	14.02	14.97			107		70-130		
Perfluorotridecanoic acid	0.5	U	14.02	18.03			129		70-130		
Perfluoroundecanoic acid	1	U	14.02	15.64			112		70-130		
PFOSA	3	U	14.02	15.99			114		70-130		

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l	ng/l					
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 172291063501	Sample number(s): 9158456 UNSPK: P159054									
Aluminum	0.0894 U	2.00	2.17	2.00	2.19	109	110	75-125	1	20
Boron	0.0816	2.00	1.97	2.00	2.00	94	96	75-125	1	20
Calcium	54.42	4.00	55.86	4.00	56.96	36 (2)	64 (2)	75-125	2	20
Iron	1.31	1.00	2.01	1.00	2.23	71*	92	75-125	10	20
Magnesium	17.62	2.00	18.74	2.00	19.13	56 (2)	75 (2)	75-125	2	20
Manganese	0.897	0.500	1.46	0.500	1.39	112	98	75-125	5	20
Potassium	2.27	10	12.16	10	12.33	99	101	75-125	1	20
Sodium	13.03	10	22.23	10	22.65	92	96	75-125	2	20
Zinc	0.0065 U	0.500	0.493	0.500	0.497	99	99	75-125	1	20
Batch number: 172291063901A	Sample number(s): 9158456 UNSPK: 9158456									
Antimony	0.00045 U	0.00600	0.00629	0.00600	0.00584	105	97	75-125	7	20
Arsenic	0.00199	0.0100	0.0116	0.0100	0.0122	96	103	75-125	5	20
Beryllium	0.000071 U	0.00400	0.00432	0.00400	0.00439	108	110	75-125	2	20
Cadmium	0.000233	0.00500	0.00496	0.00500	0.00497	95	95	75-125	0	20
Chromium	0.00189	0.0500	0.0519	0.0500	0.0537	100	104	75-125	3	20
Cobalt	0.00324	0.250	0.252	0.250	0.245	99	97	75-125	3	20
Copper	0.00173	0.0500	0.0519	0.0500	0.0504	100	97	75-125	3	20
Lead	0.000924	0.0150	0.0161	0.0150	0.0162	101	102	75-125	1	20
Nickel	0.00222	0.0500	0.0502	0.0500	0.0523	96	100	75-125	4	20
Silver	0.00015 U	0.0500	0.0491	0.0500	0.0492	98	98	75-125	0	20
Thallium	0.000220	0.00200	0.00250	0.00200	0.00223	114	101	75-125	11	20
Vanadium	0.00130	0.0500	0.0527	0.0500	0.0526	103	103	75-125	0	20
Batch number: 172291063901B	Sample number(s): 9158456 UNSPK: 9158456									
Selenium	0.00050 U	0.0100	0.00981	0.0100	0.0101	98	101	75-125	3	20
Batch number: 172291063901D	Sample number(s): 9158456 UNSPK: 9158456									
Barium	0.135	0.0500	0.186	0.0500	0.184	101	97	75-125	1	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17228249117B	Sample number(s): 9158456 UNSPK: P158649									
Bromide	1.66	25	26.31			99		90-110		
Chloride	48.71	40	94.67			115*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.48			99		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.13			85*		90-110		
Sulfate	5.68	25	31.29			102		90-110		
Batch number: 17229108101B	Sample number(s): 9158456 UNSPK: P157906									
Kjeldahl Nitrogen	1.58	5.00	6.83			105		90-110		
Batch number: 17235107102A	Sample number(s): 9158456 UNSPK: P158159									
Ammonia Nitrogen	0.050 U	1.00	1.15			115*		90-110		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17228022601A	Sample number(s): 9158456 UNSPK: P159008									
Ortho-Phosphate as P	0.343	0.400	0.742	0.400	0.744	100	100	69-131	0	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17229002101B	Sample number(s): 9158456 UNSPK: P152205									
Total Alkalinity to pH 4.5	312.56	188	349.39			20*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172291063501	Sample number(s): 9158456 BKG: P159054			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0816	0.0755	8 (1)	20
Calcium	54.42	54	1	20
Iron	1.31	1.30	1 (1)	20
Magnesium	17.62	17.51	1	20
Manganese	0.897	0.886	1	20
Potassium	2.27	2.29	1 (1)	20
Sodium	13.03	12.95	1	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172291063901A	Sample number(s): 9158456 BKG: 9158456			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00199	0.00154	26* (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.000233	0.000176	28* (1)	20
Chromium	0.00189	0.00239	23* (1)	20
Cobalt	0.00324	0.00320	2 (1)	20
Copper	0.00173	0.00144	18 (1)	20
Lead	0.000924	0.000975	5 (1)	20
Nickel	0.00222	0.00179	21* (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.000220	0.000201	9 (1)	20
Vanadium	0.00130	0.00136	4 (1)	20
Batch number: 172291063901B	Sample number(s): 9158456 BKG: 9158456			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172291063901D	Sample number(s): 9158456 BKG: 9158456			
Barium	0.135	0.138	2	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 11:21

Group Number: 1838494

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
	mg/l	mg/l		
Batch number: 17228249117B	Sample number(s): 9158456 BKG: P158649			
Bromide	1.66	1.79	8 (1)	15
Chloride	48.71	48.5	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	5.68	5.77	1 (1)	15
Batch number: 17229108101B	Sample number(s): 9158456 BKG: P157906			
Kjeldahl Nitrogen	1.58	1.55	2 (1)	20
Batch number: 17235107102A	Sample number(s): 9158456 BKG: P158159			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17228022601A	Sample number(s): 9158456 BKG: P159008			
Ortho-Phosphate as P	0.343	0.352	3 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17229002101B	Sample number(s): 9158456 BKG: 9158456			
Total Alkalinity to pH 4.5	134.7	135.99	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17241011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9158456	64	69	78	61	64	65
Blank	70	76	71	66	68	68
LCS	66	72	70	64	65	63
LCSD	72	71	76	59	71	62
MS	70	73	77	67	66	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1838494
Reported: 09/06/2017 11:21

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17241011

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9158456	82	64	63	67	69	80
Blank	81	72	73	70	71	61
LCS	80	66	69	70	67	66
LCSD	86	58	79	62	64	71
MS	100	68	67	70	69	68
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9158456	69	66	71	68	70	15*
Blank	73	71	78	68	68	11*
LCS	85	70	88	69	75	17*
LCSD	66	62	70	66	72	8*
MS	71	69	68	62	67	13*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1838494 / 9158456

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51370

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Lake
Address: 4300 Market Pointe dr,	Address: 50 Century Hill drive
Name: Michael Dupay	Name: Latham NY
email: MDupay@Barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 3242 1001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL	40 mL glass	250 mL	500 mL	250 mL	250 mL / TCLP MA	Soil	% Solids	Preservative Code	Field Filtered Y/N
										C	A	A	D	A	O				
										N	N	N	N	N	N				
1.	SG3-SL1-170815	/	/	/	08/15/2017	14:30	GW	N	8	1	2	1	1	1	2			PFC's (19) (see list)	
2.																		Metals/cations (Excluding CN & Hg), Anions, Ammonia, Orthophosphate, TKN.	
3.																			
4.																			
5.																			
6.																			
7.																			
8.																			
9.																		Samples in 2 coolers	
10.																			

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KAM		Y N	8/15/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						8/16/17	0930
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster PA	Lab WO:	Temperature on Receipt (°C): 1.1 0.5			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

1838494

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 191681

Group Number(s): 1838494

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/16/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Ruth Shank (12390) at 10:31 on 08/16/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.1	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-S41-1-1.5	1	2	

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-S06-0.5-1	8/14/2017 15:35	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 28, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1839780
SDG: SGB06
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

REVISED

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S46-0-0.5' Soil	08/16/2017 09:10	9164304
SG3-S46-0.5-1' Soil	08/16/2017 09:25	9164305
SG3-S46-1-1.5' Soil	08/16/2017 09:40	9164306
SG3-S46-3-4' Soil	08/16/2017 10:15	9164307
SG3-S46-6-7' Soil	08/16/2017 11:00	9164308
SG3-LTB03-170816 Water	08/16/2017 09:00	9164309
SG3-LTB04-170816 Water	08/16/2017 09:00	9164310
SG3-S47-0-0.5' Soil	08/16/2017 13:15	9164311
SG3-S47-0.5-1' Soil	08/16/2017 13:20	9164312
SG3-S47-1-1.5' Soil	08/16/2017 13:30	9164313
SG3-FD01-170816 Soil	08/16/2017	9164314
SG3-S47-3-5.3' Soil	08/16/2017 14:20	9164315
SG3-BG4-0-0.5' Soil	08/17/2017 09:15	9164316
SG3-BG4-0.5-1' Soil	08/17/2017 09:25	9164317
SG3-BG4-1-1.5' Soil	08/17/2017 09:35	9164318
SG3-BG4-3-4' Soil	08/17/2017 09:50	9164319
SG3-BG3-0-0.5' Soil	08/17/2017 13:10	9164320
SG3-BG3-0.5-1' Soil	08/17/2017 13:25	9164321
SG3-BG3-1-1.5' Soil	08/17/2017 13:30	9164322
SG3-BG3-3-4' Soil	08/17/2017 13:45	9164323
SG3-S42-170816 Groundwater	08/16/2017 18:00	9164324
SG3-BG4-170817 Groundwater	08/17/2017 11:30	9164325

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1839780

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9164310

The recovery for sample extraction standards 13C8-PFOA and 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of:
Perfluorotetradecanoic acid (PFTeDA) was not detected in the re-extracted second trial.

Sample #s: 9164316, 9164317, 9164319, 9164320, 9164321, 9164322, 9164323

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9164324

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted and no reportable hits were detected in the method blank. This sample has a matrix effect and limited volume was available for the re-extraction. The reportable hits observed in the re-extraction were not comparable to the

initial extraction. The data is reported from the initial extraction. Both sets of data are included in the data package.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary for the Laboratory Control Sample.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9164325

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.

Batch #: 17233002 (Sample number(s): 9164309-9164310)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9164310

Batch #: 17233003 (Sample number(s): 9164324-9164325)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9164325, LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9164324, 9164325, Blank, LCSD

Batch #: 17237020 (Sample number(s): 9164304-9164308, 9164311-9164315 UNSPK: 9164304)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid

Batch #: 17238004 (Sample number(s): 9164316-9164323 UNSPK: P165789)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9164316, 9164317, 9164319, 9164320, 9164321, 9164322, 9164323, MS

SW-846 6020A, Metals

Batch #: 172361063901A (Sample number(s): 9164325 UNSPK: 9164325 BKG: 9164325)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

EPA 351.2, Wet Chemistry

Batch #: 17235108102A (Sample number(s): 9164325 UNSPK: P165452 BKG: P165452)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17233667631B (Sample number(s): 9164304-9164305 UNSPK: P158744 BKG: P158744)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17236667631B (Sample number(s): 9164318-9164323 UNSPK: 9164322 BKG: 9164322)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9164316, 9164317, 9164318, 9164319, 9164320, 9164322

The pH was measured in water at 19.5 C.

Sample #s: 9164308, 9164315, 9164321

The pH was measured in water at 19.6 C.

Sample #s: 9164314

The pH was measured in water at 19.7 C.

Sample #s: 9164304, 9164313, 9164323

The pH was measured in water at 19.8 C.

Sample #s: 9164305, 9164306, 9164307, 9164311, 9164312

The pH was measured in water at 19.9 C.

REVISED

Sample Description: SG3-S46-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164304
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:10 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-1 SDG#: SGB06-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.40**	**J**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.28**	**J**	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.27**	**J**	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.21**	**J**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**0.42**	**J**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.4**		0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**8.9**		0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**30,400**		1,040	3,110	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.73**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 20:14	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164304
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:10 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-1 SDG#: SGB06-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631B	08/22/2017 15:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401B	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164305
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-2 SDG#: SGB06-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20**	**J**	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098	U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098	U	0.098	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.97**		0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.1**		0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,650**		387	1,160	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.53**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 20:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164305
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-2 SDG#: SGB06-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17233667631B	08/22/2017 16:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164306
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:40 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-3 SDG#: SGB06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.10**	**J**	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.48**	**J**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**		0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,730**		500	1,500	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.58**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 20:56	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164306
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:40 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-3 SDG#: SGB06-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 16:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164307
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 10:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-4 SDG#: SGB06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37	U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.84**		0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**745**		228	684	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 21:16	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164307
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 10:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-4 SDG#: SGB06-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 17:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-6-7' Soil
SGPP - North Bennington

ELLE Sample # SW 9164308
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 11:00 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-5 SDG#: SGB06-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37	U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25	U	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**980**		211	633	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 21:37	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S46-6-7' Soil
SGPP - North Bennington

ELLE Sample # SW 9164308
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 11:00 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S46-5 SDG#: SGB06-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 17:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB03-170816 Water
SGPP - North Bennington

ELLE Sample # WW 9164309
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:00

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3T3 SDG#: SGB06-06TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17233002	08/26/2017 17:47	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233002	08/21/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB04-170816 Water
SGPP - North Bennington

ELLE Sample # WW 9164310
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 09:00

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3T4 SDG#: SGB06-07TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**0.8**	**J**	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

The recovery for sample extraction standards 13C8-PFOA and 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of:
Perfluorotetradecanoic acid (PFTeDA) was not detected in the re-extracted second trial.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17233002	08/26/2017 18:08	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233002	08/21/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164311
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-1 SDG#: SGB06-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.35**	**J**	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**		0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.25**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.35**	**J**	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.39**	**J**	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,800**		1,180	3,540	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.61**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 21:57	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164311
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-1 SDG#: SGB06-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 17:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-S47-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164312
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:20 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-2 SDG#: SGB06-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,660**		489	1,470	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.17**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 22:18	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164312
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:20 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-2 SDG#: SGB06-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 18:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401A	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164313
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-3 SDG#: SGB06-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.48**	**J**	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,780**		600	1,800	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.89**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 22:38	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164313
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 13:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-3 SDG#: SGB06-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 12:12	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17235039401B	08/23/2017 14:58	Ian D Toomey	1
00111	Moisture	SM 2540 G-1997	1	17234820006A	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD01-170816 Soil
SGPP - North Bennington

ELLE Sample # SW 9164314
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D1 SDG#: SGB06-11FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.22**	**J**	0.22	0.66	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.28**	**J**	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**		0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.22**	**J**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.30**	**J**	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,300**		743	2,230	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.60**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/27/2017 22:59	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD01-170816 Soil
SGPP - North Bennington

ELLE Sample # SW 9164314
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D1 SDG#: SGB06-11FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 12:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-3-5.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9164315
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 14:20 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-4 SDG#: SGB06-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.57**	**J**	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,850**		327	981	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.29**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 00:00	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S47-3-5.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9164315
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 14:20 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S47-4 SDG#: SGB06-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 12:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164316
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-1 SDG#: SGB06-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.34	U	0.34	1.0	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.65**	**J**	0.34	1.0	1
14027	Perfluorodecanoic acid	335-76-2	0.34	U	0.34	1.0	1
14027	Perfluorododecanoic acid	307-55-1	0.34	U	0.34	1.0	1
14027	Perfluoroheptanoic acid	375-85-9	0.34	U	0.34	1.0	1
14027	Perfluorohexanesulfonate	355-46-4	0.34	U	0.34	1.0	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.26**	**J**	0.17	0.68	1
14027	**Perfluorononanoic acid**	375-95-1	**0.40**	**J**	0.17	0.68	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	**J**	0.51	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.4**		0.34	1.0	1
14027	Perfluoropentanoic acid	2706-90-3	0.34	U	0.34	1.0	1
14027	Perfluorotetradecanoic acid	376-06-7	0.34	U	0.34	1.0	1
14027	Perfluorotridecanoic acid	72629-94-8	0.34	U	0.34	1.0	1
14027	Perfluoroundecanoic acid	2058-94-8	0.34	U	0.34	1.0	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,800**		1,290	3,880	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.42**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**43.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 20:13	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164316
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:15 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-1 SDG#: SGB06-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 13:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164317
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-2 SDG#: SGB06-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.28	U	0.28	0.84	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.38**	**J**	0.28	0.84	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.84	1
14027	Perfluorododecanoic acid	307-55-1	0.28	U	0.28	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.28	U	0.28	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.28	U	0.28	0.84	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.15**	**J**	0.14	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.14	U	0.14	0.56	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.42**	**J**	0.42	1.3	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**		0.28	0.84	1
14027	Perfluoropentanoic acid	2706-90-3	0.28	U	0.28	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28	U	0.28	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28	U	0.28	0.84	1
14027	Perfluoroundecanoic acid	2058-94-8	0.28	U	0.28	0.84	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,500**		567	1,700	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.59**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**31.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 20:33	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164317
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-2 SDG#: SGB06-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17236667631A	08/24/2017 13:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164318
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:35 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-3 SDG#: SGB06-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.73	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.73	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.73	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24	U	0.24	0.73	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,920**		346	1,040	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.05**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 20:54	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164318
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:35 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-3 SDG#: SGB06-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 13:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164319
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:50 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-4 SDG#: SGB06-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**825**		241	724	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.14**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 21:14	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164319
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 09:50 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4-4 SDG#: SGB06-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 13:47	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164320
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:10 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-1 SDG#: SGB06-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,790**		443	1,330	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.47**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 21:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164320
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:10 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-1 SDG#: SGB06-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 13:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164321
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-2 SDG#: SGB06-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,920**		398	1,190	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.36**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 16:46	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164321
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:25 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-2 SDG#: SGB06-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 14:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164322
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-3 SDG#: SGB06-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,970**		284	853	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.67**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 22:57	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164322
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-3 SDG#: SGB06-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 18:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402A	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164323
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:45 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-4 SDG#: SGB06-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.37**	**J**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,340**		508	1,520	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.68**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 17:06	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG3-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164323
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 13:45 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG3-4 SDG#: SGB06-20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 15:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820006B	08/22/2017 23:44	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-170816 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9164324
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 18:00 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42GW SDG#: SGB06-21

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	20	U	20	50	1
10954	8:2 fluorotelomersulfonate	39108-34-4	20	U	20	50	1
10954	NEtFOSAA	2991-50-6	5	U	5	20	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	5	U	5	20	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	4	U	4	20	1
10954	**Perfluorobutanoic Acid**	375-22-4	**280**		20	50	1
10954	**Perfluorodecanoic acid**	335-76-2	**5**	**JB**	3	10	1
10954	**Perfluorododecanoic acid**	307-55-1	**6**	**J**	3	10	1
10954	**Perfluoroheptanoic acid**	375-85-9	**57**		3	10	1
10954	Perfluorohexanesulfonate	355-46-4	5	U	5	20	1
10954	**Perfluorohexanoic acid**	307-24-4	**71**		3	10	1
10954	**Perfluorononanoic acid**	375-95-1	**12**		3	10	1
10954	Perfluoro-octanesulfonate	1763-23-1	10	U	10	30	1
10954	**Perfluorooctanoic acid**	335-67-1	**33**		3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**250**		3	10	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**10**		3	10	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**26**		3	10	1
10954	**Perfluoroundecanoic acid**	2058-94-8	**5**	**J**	5	20	1
10954	PFOSA	754-91-6	20	U	20	50	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted and no reportable hits were detected in the method blank. This sample has a matrix effect and limited volume was available for the re-extraction. The reportable hits observed in the re-extraction were not comparable to the initial extraction. The data is reported from the initial extraction. Both sets of data are included in the data package.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary for the Laboratory Control Sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-170816 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9164324
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 18:00 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42GW SDG#: SGB06-21

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17233003	08/28/2017 10:37	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233003	08/21/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-170817 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9164325
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 11:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4GW SDG#: SGB06-22

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**6**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
	The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**5.53**		0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0162**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**12.7**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**6.86**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**6.10**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.302**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**6.58**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**4.10**		0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0173**	**J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0014**	**J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0940**		0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00025**	**J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0075**		0.00087	0.0040	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-170817 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9164325
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 11:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4GW SDG#: SGB06-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06032	**Cobalt**	7440-48-4	**0.0058**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0090**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0022**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0070**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00015 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0134**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.8 J**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**1.1**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**9.1**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**43.4**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**43.4**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17233003	08/28/2017 10:58	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG4-170817 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9164325
ELLE Group # 1839780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017 11:30 by KAM

Submitted: 08/18/2017 09:35
Reported: 09/28/2017 08:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG4GW SDG#: SGB06-22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17233003	08/21/2017 08:30	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
08014	Boron	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
01750	Calcium	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
01754	Iron	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
01757	Magnesium	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
07058	Manganese	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
01762	Potassium	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
01767	Sodium	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
07072	Zinc	SW-846 6010C	1	172361063502	08/25/2017 07:09	Scott R Yanos	1
06024	Antimony	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172361063901D	08/25/2017 06:25	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172361063901B	08/25/2017 06:25	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172361063901A	08/25/2017 16:19	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	172361063901A	08/25/2017 06:25	Sarah L Burt	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172361063502	08/24/2017 22:00	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172361063901	08/24/2017 22:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17230987115B	08/19/2017 00:03	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17230987115B	08/19/2017 00:03	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17230987115B	08/19/2017 00:03	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17230987115B	08/19/2017 00:03	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17230987115B	08/19/2017 00:03	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17240107101B	08/28/2017 12:23	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17235108102A	08/24/2017 12:59	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17235108102A	08/23/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17234004202A	08/22/2017 18:43	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17234004202A	08/22/2017 18:43	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17234004202A	08/22/2017 18:43	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17230022602A	08/18/2017 19:50	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1839780
Reported: 09/28/2017 08:40

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17237020	Sample number(s): 9164304-9164308,9164311-9164315			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17238004	Sample number(s): 9164316-9164323			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17233002	Sample number(s): 9164309-9164310			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
Batch number: 17233003	Sample number(s): 9164324-9164325			
6:2 fluorotelomersulfonate	5	J	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	2	J	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172361063502	Sample number(s): 9164325			
Aluminum	0.134	J	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0792	J	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0753	J	0.0374	0.200
Manganese	0.0016	U	0.0016	0.0100
Potassium	0.179	U	0.179	1.00
Sodium	0.321	U	0.321	2.00
Zinc	0.0065	U	0.0065	0.0400
Batch number: 172361063901A	Sample number(s): 9164325			
Antimony	0.00045	U	0.00045	0.0020
Arsenic	0.00072	U	0.00072	0.0040
Beryllium	0.000071	U	0.000071	0.0010
Cadmium	0.00015	U	0.00015	0.0010
Chromium	0.00087	U	0.00087	0.0040
Cobalt	0.00016	U	0.00016	0.0010
Copper	0.00054	U	0.00054	0.0040
Lead	0.00011	U	0.00011	0.0020
Nickel	0.0010	U	0.0010	0.0040

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172361063901B	Sample number(s): 9164325		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172361063901D	Sample number(s): 9164325		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17233667631B	Sample number(s): 9164304-9164305		
TOC	100 U	100	300
Batch number: 17236667631A	Sample number(s): 9164306-9164308,9164311-9164317		
TOC	100 U	100	300
Batch number: 17236667631B	Sample number(s): 9164318-9164323		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17230987115B	Sample number(s): 9164325		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17235108102A	Sample number(s): 9164325		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17240107101B	Sample number(s): 9164325		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17230022602A	Sample number(s): 9164325		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17234004202A	Sample number(s): 9164325		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17237020	Sample number(s): 9164304-9164308,9164311-9164315								
Perfluorobutanesulfonate	1.24	1.16	1.24	1.14	94	92	70-130	2	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1839780
Reported: 09/28/2017 08:40

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	1.40	1.49	1.40	1.49	107	106	70-130	0	30
Perfluorodecanoic acid	1.40	1.41	1.40	1.45	101	104	70-130	3	30
Perfluorododecanoic acid	1.40	1.40	1.40	1.37	100	98	70-130	2	30
Perfluoroheptanoic acid	1.40	1.41	1.40	1.28	101	91	70-130	10	30
Perfluorohexanesulfonate	1.32	1.24	1.32	1.36	94	102	70-130	9	30
Perfluorohexanoic acid	1.40	1.25	1.40	1.34	89	96	70-130	7	30
Perfluorononanoic acid	1.40	1.25	1.40	1.42	89	102	70-130	13	30
Perfluoro-octanesulfonate	1.34	1.15	1.34	1.33	86	100	70-130	15	30
Perfluorooctanoic acid	1.40	1.40	1.40	1.50	100	107	70-130	7	30
Perfluoropentanoic acid	1.40	1.33	1.40	1.36	95	97	70-130	2	30
Perfluorotetradecanoic acid	1.40	1.35	1.40	1.34	97	95	70-130	1	30
Perfluorotridecanoic acid	1.40	1.70	1.40	1.61	122	115	70-130	6	30
Perfluoroundecanoic acid	1.40	1.31	1.40	1.37	94	98	70-130	4	30
Batch number: 17238004	Sample number(s): 9164316-9164323								
Perfluorobutanesulfonate	1.24	1.20			97		70-130		
Perfluorobutanoic acid	1.40	1.52			109		70-130		
Perfluorodecanoic acid	1.40	1.32			94		70-130		
Perfluorododecanoic acid	1.40	1.40			100		70-130		
Perfluoroheptanoic acid	1.40	1.54			110		70-130		
Perfluorohexanesulfonate	1.32	1.32			100		70-130		
Perfluorohexanoic acid	1.40	1.45			104		70-130		
Perfluorononanoic acid	1.40	1.51			108		70-130		
Perfluoro-octanesulfonate	1.34	1.19			89		70-130		
Perfluorooctanoic acid	1.40	1.46			104		70-130		
Perfluoropentanoic acid	1.40	1.33			95		70-130		
Perfluorotetradecanoic acid	1.40	1.35			96		70-130		
Perfluorotridecanoic acid	1.40	1.66			119		70-130		
Perfluoroundecanoic acid	1.40	1.34			96		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17233002	Sample number(s): 9164309-9164310								
Perfluorobutanesulfonate	176.9	162.57	176.9	172.59	92	98	70-130	6	30
Perfluorobutanoic Acid	200	191.96	200	199.53	96	100	70-130	4	30
Perfluorodecanoic acid	200	188.85	200	216.16	94	108	70-130	13	30
Perfluorododecanoic acid	200	193.73	200	202.45	97	101	70-130	4	30
Perfluoroheptanoic acid	200	212.64	200	220.2	106	110	70-130	3	30
Perfluorohexanesulfonate	189.1	170.15	189.1	164.87	90	87	70-130	3	30
Perfluorohexanoic acid	200	197.35	200	212.45	99	106	70-130	7	30
Perfluorononanoic acid	200	228.93	200	207.85	114	104	70-130	10	30
Perfluoro-octanesulfonate	191.2	172.16	191.2	182.7	90	96	70-130	6	30
Perfluorooctanoic acid	200	196.89	200	206.36	98	103	70-130	5	30
Perfluoropentanoic Acid	200	196.43	200	208.63	98	104	70-130	6	30
Perfluorotetradecanoic acid	200	198.04	200	215.73	99	108	70-130	9	30
Perfluorotridecanoic acid	200	176.65	200	218.62	88	109	70-130	21	30
Perfluoroundecanoic acid	200	217.45	200	197.46	109	99	70-130	10	30
Batch number: 17233003	Sample number(s): 9164324-9164325								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
6:2 fluorotelomersulfonate	189.6	189.96	189.6	190.18	100	100	70-130	0	30
8:2 fluorotelomersulfonate	191.6	195.9	191.6	221.71	102	116	70-130	12	30
NEtFOSAA	200	214.53	200	208.31	107	104	70-130	3	30
NMeFOSAA	200	202.65	200	212.91	101	106	70-130	5	30
Perfluorobutanesulfonate	176.9	160.59	176.9	173.54	91	98	70-130	8	30
Perfluorobutanoic Acid	200	203.25	200	216.34	102	108	70-130	6	30
Perfluorodecanoic acid	200	191.22	200	208.12	96	104	70-130	8	30
Perfluorododecanoic acid	200	209.71	200	214.56	105	107	70-130	2	30
Perfluoroheptanoic acid	200	205.37	200	224.92	103	112	70-130	9	30
Perfluorohexanesulfonate	189.1	166.25	189.1	170.3	88	90	70-130	2	30
Perfluorohexanoic acid	200	212.95	200	217.06	106	109	70-130	2	30
Perfluorononanoic acid	200	190.66	200	212.54	95	106	70-130	11	30
Perfluoro-octanesulfonate	191.2	185.34	191.2	202.18	97	106	70-130	9	30
Perfluorooctanoic acid	200	196.67	200	219.44	98	110	70-130	11	30
Perfluoropentanoic Acid	200	190.04	200	196.83	95	98	70-130	4	30
Perfluorotetradecanoic acid	200	196.89	200	209.33	98	105	70-130	6	30
Perfluorotridecanoic acid	200	203.75	200	229.31	102	115	70-130	12	30
Perfluoroundecanoic acid	200	171.8	200	197.86	86	99	70-130	14	30
PFOSA	200	180.03	200	205.64	90	103	70-130	13	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172361063502	Sample number(s): 9164325								
Aluminum	2.00	2.05			102		80-120		
Boron	2.00	1.75			87		80-120		
Calcium	4.00	3.99			100		80-120		
Iron	1.00	0.981			98		80-120		
Magnesium	2.00	2.06			103		80-120		
Manganese	0.500	0.510			102		80-120		
Potassium	10	10.54			105		80-120		
Sodium	10	10.37			104		80-120		
Zinc	0.500	0.499			100		80-120		
Batch number: 172361063901A	Sample number(s): 9164325								
Antimony	0.00600	0.00568			95		80-120		
Arsenic	0.0100	0.00995			100		80-120		
Beryllium	0.00400	0.00398			99		80-120		
Cadmium	0.00500	0.00482			96		80-120		
Chromium	0.0500	0.0470			94		80-120		
Cobalt	0.250	0.234			94		80-120		
Copper	0.0500	0.0486			97		80-120		
Lead	0.0150	0.0143			95		80-120		
Nickel	0.0500	0.0463			93		80-120		
Silver	0.0500	0.0489			98		80-120		
Thallium	0.00200	0.00189			94		80-120		
Vanadium	0.0500	0.0466			93		80-120		
Batch number: 172361063901B	Sample number(s): 9164325								
Selenium	0.0100	0.00993			99		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172361063901D	Sample number(s): 9164325								
Barium	0.0500	0.0477			95		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17233667631B	Sample number(s): 9164304-9164305								
TOC	7150	4773.41			67		47-143		
Batch number: 17236667631A	Sample number(s): 9164306-9164308,9164311-9164317								
TOC	7150	5632.12			79		47-143		
Batch number: 17236667631B	Sample number(s): 9164318-9164323								
TOC	7150	5632.12			79		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17230987115B	Sample number(s): 9164325								
Bromide	7.50	7.21			96		90-110		
Chloride	3.00	2.82			94		90-110		
Nitrate Nitrogen	0.750	0.739			99		90-110		
Nitrite Nitrogen	0.750	0.718			96		90-110		
Sulfate	7.50	7.21			96		90-110		
Batch number: 17235108102A	Sample number(s): 9164325								
Kjeldahl Nitrogen	5.00	5.34			107		90-110		
Batch number: 17240107101B	Sample number(s): 9164325								
Ammonia Nitrogen	1.50	1.38			92		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17230022602A	Sample number(s): 9164325								
Ortho-Phosphate as P	0.400	0.395	0.400	0.406	99	102	95-105	3	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17234004202A	Sample number(s): 9164325								
Total Alkalinity to pH 4.5	188	179.68			96		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17235039401A	Sample number(s): 9164305-9164308,9164311-9164312								
pH	7.00	6.97			100		95-105		
Batch number: 17235039401B	Sample number(s): 9164304,9164313								
pH	7.00	6.97			100		95-105		
Batch number: 17237039402A	Sample number(s): 9164314-9164322								
pH	7.00	6.98			100		95-105		
Batch number: 17237039402B	Sample number(s): 9164323								
pH	7.00	6.98			100		95-105		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	%	%	%	%					
Batch number: 17234820006A	Sample number(s): 9164304-9164308,9164311-9164313								
Moisture	89.5	89.42			100		99-101		
Batch number: 17234820006B	Sample number(s): 9164314-9164323								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17237020	Sample number(s): 9164304-9164308,9164311-9164315 UNSPK: 9164304									
Perfluorobutanesulfonate	0.20 U	1.24	1.21			98		70-130		
Perfluorobutanoic acid	0.343	1.40	1.74			100		70-130		
Perfluorodecanoic acid	0.240	1.40	1.66			102		70-130		
Perfluorododecanoic acid	0.20 U	1.40	1.46			105		70-130		
Perfluoroheptanoic acid	0.238	1.40	1.72			106		70-130		
Perfluorohexanesulfonate	0.20 U	1.32	1.42			108		70-130		
Perfluorohexanoic acid	0.185	1.40	1.73			111		70-130		
Perfluorononanoic acid	0.366	1.40	1.72			97		70-130		
Perfluoro-octanesulfonate	3.85	1.34	5.03			88		70-130		
Perfluorooctanoic acid	7.69	1.40	8.39			50 (2)		70-130		
Perfluoropentanoic acid	0.20 U	1.40	1.48			106		70-130		
Perfluorotetradecanoic acid	0.20 U	1.40	1.41			101		70-130		
Perfluorotridecanoic acid	0.20 U	1.40	1.60			115		70-130		
Perfluoroundecanoic acid	0.20 U	1.40	1.59			114		70-130		
Batch number: 17238004	Sample number(s): 9164316-9164323 UNSPK: P165789									
Perfluorobutanesulfonate	0.18 U	1.20	1.19	1.18	1.25	99	106	70-130	5	30
Perfluorobutanoic acid	0.201	1.36	1.59	1.33	1.48	102	96	70-130	7	30
Perfluorodecanoic acid	0.18 U	1.36	1.52	1.33	1.39	112	104	70-130	9	30
Perfluorododecanoic acid	0.18 U	1.36	1.46	1.33	1.43	107	107	70-130	2	30
Perfluoroheptanoic acid	0.18 U	1.36	1.59	1.33	1.40	117	105	70-130	13	30
Perfluorohexanesulfonate	0.18 U	1.29	1.40	1.26	1.23	108	97	70-130	13	30
Perfluorohexanoic acid	0.091 U	1.36	1.42	1.33	1.36	104	102	70-130	5	30
Perfluorononanoic acid	0.125	1.36	1.54	1.33	1.43	104	98	70-130	7	30
Perfluoro-octanesulfonate	0.416	1.30	1.72	1.27	1.56	100	90	70-130	10	30
Perfluorooctanoic acid	0.291	1.36	1.66	1.33	1.72	100	107	70-130	4	30
Perfluoropentanoic acid	0.18 U	1.36	1.58	1.33	1.32	116	99	70-130	19	30
Perfluorotetradecanoic acid	0.18 U	1.36	1.43	1.33	1.31	105	98	70-130	9	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	0.18 U	1.36	1.62	1.33	1.55	119	116	70-130	5	30
Perfluoroundecanoic acid	0.190	1.36	1.49	1.33	1.41	95	91	70-130	6	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172361063502	Sample number(s): 9164325 UNSPK: P165050									
Aluminum	0.0894 U	2.00	2.10	2.00	2.05	105	102	75-125	3	20
Boron	0.0101 U	2.00	1.81	2.00	1.79	91	90	75-125	1	20
Calcium	16.78	4.00	20.19	4.00	20.23	85 (2)	86 (2)	75-125	0	20
Iron	0.0805 U	1.00	1.03	1.00	1.04	103	104	75-125	1	20
Magnesium	13.67	2.00	15.24	2.00	15.38	79 (2)	86 (2)	75-125	1	20
Manganese	0.0263	0.500	0.533	0.500	0.527	101	100	75-125	1	20
Potassium	3.56	10	14.05	10	14.02	105	105	75-125	0	20
Sodium	15.04	10	24.46	10	24.54	94	95	75-125	0	20
Zinc	0.0065 U	0.500	0.498	0.500	0.492	100	98	75-125	1	20
Batch number: 172361063901A	Sample number(s): 9164325 UNSPK: 9164325									
Antimony	0.00045 U	0.00600	0.00516	0.00600	0.00536	86	89	75-125	4	20
Arsenic	0.00144	0.0100	0.0112	0.0100	0.0109	98	95	75-125	3	20
Beryllium	0.000245	0.00400	0.00427	0.00400	0.00431	101	102	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00492	0.00500	0.00477	98	95	75-125	3	20
Chromium	0.00748	0.0500	0.0545	0.0500	0.0538	94	93	75-125	1	20
Cobalt	0.00584	0.250	0.242	0.250	0.236	94	92	75-125	2	20
Copper	0.00895	0.0500	0.0571	0.0500	0.0562	96	94	75-125	2	20
Lead	0.00219	0.0150	0.0170	0.0150	0.0173	98	101	75-125	2	20
Nickel	0.00699	0.0500	0.0536	0.0500	0.0510	93	88	75-125	5	20
Silver	0.00015 U	0.0500	0.0495	0.0500	0.0478	99	96	75-125	3	20
Thallium	0.000149	0.00200	0.00221	0.00200	0.00210	103	97	75-125	5	20
Vanadium	0.0134	0.0500	0.0623	0.0500	0.0610	98	95	75-125	2	20
Batch number: 172361063901B	Sample number(s): 9164325 UNSPK: 9164325									
Selenium	0.00050 U	0.0100	0.00965	0.0100	0.00968	97	97	75-125	0	20
Batch number: 172361063901D	Sample number(s): 9164325 UNSPK: 9164325									
Barium	0.0940	0.0500	0.140	0.0500	0.138	93	87	75-125	2	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17233667631B	Sample number(s): 9164304-9164305 UNSPK: P158744									
TOC	146 U	12300	11077.43			90		47-143		
Batch number: 17236667631A	Sample number(s): 9164306-9164308,9164311-9164317 UNSPK: 9164306									
TOC	4414.37	31410	28764.4			78		47-143		
Batch number: 17236667631B	Sample number(s): 9164318-9164323 UNSPK: 9164322									
TOC	3731.62	17910	14367.54			59		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17230987115B	Sample number(s): 9164325 UNSPK: 9164325									
Bromide	1.3 U	25	27.44			110		90-110		
Chloride	1.82	10	11.99			102		90-110		
Nitrate Nitrogen	1.13	2.50	3.84			109		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.61			104		90-110		
Sulfate	9.06	25	35.53			106		90-110		
Batch number: 17235108102A	Sample number(s): 9164325 UNSPK: P165452									
Kjeldahl Nitrogen	4.00	5.00	10.29			126*		90-110		
Batch number: 17240107101B	Sample number(s): 9164325 UNSPK: P163455									
Ammonia Nitrogen	0.104	1.00	1.17			106		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17234004202A	Sample number(s): 9164325 UNSPK: P166709									
Total Alkalinity to pH 4.5	419.88	188	585.91	188	585.14	88	88	77-114	0	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172361063502	Sample number(s): 9164325 BKG: P165050			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	16.78	16.62	1	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	13.67	13.43	2	20
Manganese	0.0263	0.0265	1 (1)	20
Potassium	3.56	3.42	4 (1)	20
Sodium	15.04	14.68	2	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172361063901A	Sample number(s): 9164325 BKG: 9164325			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00144	0.00137	5 (1)	20
Beryllium	0.000245	0.000248	1 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00748	0.00775	4 (1)	20
Cobalt	0.00584	0.00597	2	20
Copper	0.00895	0.00894	0 (1)	20
Lead	0.00219	0.00214	2 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Nickel	0.00699	0.00692	1 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.000149	0.00012 U	200* (1)	20
Vanadium	0.0134	0.0134	0	20
Batch number: 172361063901B	Sample number(s): 9164325 BKG: 9164325			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172361063901D	Sample number(s): 9164325 BKG: 9164325			
Barium	0.0940	0.0965	3	20
	mg/kg	mg/kg		
Batch number: 17233667631B	Sample number(s): 9164304-9164305 BKG: P158744			
TOC	146 U	317.74	200* (1)	7
Batch number: 17236667631A	Sample number(s): 9164306-9164308,9164311-9164317 BKG: 9164306			
TOC	4414.37	4664.51	6 (1)	7
Batch number: 17236667631B	Sample number(s): 9164318-9164323 BKG: 9164322			
TOC	3731.62	3192.67	16* (1)	7
	mg/l	mg/l		
Batch number: 17230987115B	Sample number(s): 9164325 BKG: 9164325			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	1.82	1.78	2 (1)	15
Nitrate Nitrogen	1.13	1.12	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	9.06	8.96	1 (1)	15
Batch number: 17235108102A	Sample number(s): 9164325 BKG: P165452			
Kjeldahl Nitrogen	4.00	4.71	16 (1)	20
Batch number: 17240107101B	Sample number(s): 9164325 BKG: P163455			
Ammonia Nitrogen	0.104	0.104	0 (1)	20
	mg/l	mg/l		
Batch number: 17230022602A	Sample number(s): 9164325 BKG: 9164325			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17234004202A	Sample number(s): 9164325 BKG: P166709			
Total Alkalinity to pH 4.5	419.88	419.74	0	5
	Std. Units	Std. Units		
Batch number: 17235039401A	Sample number(s): 9164305-9164308,9164311-9164312 BKG: P158385			
pH	7.65	7.71	1	3
Batch number: 17235039401B	Sample number(s): 9164304,9164313 BKG: P158383			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	Std. Units	Std. Units		
pH	7.84	7.93	1	3
Batch number: 17237039402A	Sample number(s): 9164314-9164322 BKG: 9164314			
pH	8.60	8.72	1	3
Batch number: 17237039402B	Sample number(s): 9164323 BKG: P161567			
pH	4.75	4.67	2	3
	%	%		
Batch number: 17234820006A	Sample number(s): 9164304-9164308,9164311-9164313 BKG: 9164308			
Moisture	20.86	21.96	5	5
Batch number: 17234820006B	Sample number(s): 9164314-9164323 BKG: 9164319			
Moisture	12.23	12.71	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17233002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164309	94	104	85	102	105	104
9164310	46	49	60	42	71	45
Blank	83	93	77	95	98	92
LCS	99	101	97	98	102	98
LCSD	83	85	77	81	87	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9164309	96	91	99	99	106	112
9164310	41*	60	35	39*	41	47
Blank	90	77	82	88	88	93
LCS	102	98	98	93	87	94
LCSD	80	77	81	78	98	98
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 08:40

Group Number: 1839780

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17233002

	13C2-PFTeDA
9164309	118
9164310	46
Blank	108
LCS	92
LCSD	119
Limits:	26-119

Analysis Name: 19 PFCs
Batch number: 17233003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164324	77	103	100	81	96	81
9164325	98	129	134	108	116	103
Blank	86	100	94	87	105	95
LCS	94	111	104	102	115	107
LCSD	84	100	91	95	101	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9164324	96	78	85	92	82	89
9164325	133	110	107	110	102	115
Blank	95	93	85	93	92	73
LCS	109	99	95	103	107	102
LCSD	111	87	82	95	83	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9164324	74	49	31	28	73	51*
9164325	101	119	135	127	122*	65*
Blank	90	91	110	97	104	59*
LCS	125*	120	123	121	136*	81
LCSD	85	90	92	83	98	52*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17237020

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1839780
Reported: 09/28/2017 08:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17237020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164304	79	85	99	85	98	86
9164305	80	84	97	84	88	82
9164306	72	80	92	74	86	79
9164307	78	86	91	73	85	75
9164308	70	75	85	76	85	70
9164311	78	83	89	69	78	79
9164312	79	85	88	80	78	75
9164313	68	73	78	63	61	64
9164314	75	84	88	75	79	77
9164315	74	77	82	73	78	73
Blank	83	94	100	90	89	90
LCS	72	80	82	72	76	72
LCSD	78	84	91	82	87	85
MS	78	86	92	73	84	80
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9164304	85	90	82	81	72	60
9164305	84	88	73	82	76	67
9164306	79	79	70	82	72	64
9164307	73	79	69	80	67	63
9164308	69	80	59	72	60	55
9164311	77	70	71	74	58	58
9164312	84	77	62	81	67	68
9164313	65	74	68	63	51	47
9164314	72	75	73	73	63	58
9164315	69	74	61	77	62	56
Blank	88	88	81	101	83	72
LCS	67	72	69	81	76	72
LCSD	79	81	75	77	80	81
MS	80	87	85	78	74	74
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9164304	83
9164305	76
9164306	71
9164307	64
9164308	54
9164311	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1839780
Reported: 09/28/2017 08:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17237020

	13C2-PFTeDA
9164312	67
9164313	51
9164314	65
9164315	54
Blank	73
LCS	79
LCSD	83
MS	80
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17238004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164316	57	59*	66	51	59	48
9164317	59	61*	67	54	66	55
9164318	69	74	88	73	85	76
9164319	67	68*	75	59	69	63
9164320	55	53*	75	53	70	56
9164321	67	66*	76	64	71	70
9164322	59	63*	84	61	80	60
9164323	60	61*	66	57	75	58
Blank	81	82	82	85	79	81
LCS	88	90	87	78	82	80
MS	66	65*	67	61	60	62
MSD	77	80	75	84	81	84
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9164316	56	63	70	58	55	51
9164317	58	71	61	57	61	55
9164318	77	91	76	70	68	71
9164319	65	82	71	68	69	69
9164320	56	84	61	66	66	71
9164321	69	73	78	70	72	66
9164322	63	80	65	69	64	69
9164323	57	69	61	64	62	60
Blank	78	89	90	93	96	96
LCS	83	81	80	97	94	95
MS	64	65	74	64	71	62
MSD	81	75	79	73	79	70

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1839780
Reported: 09/28/2017 08:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17238004

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9164316	57
9164317	66
9164318	77
9164319	76
9164320	79
9164321	66
9164322	72
9164323	62
Blank	105
LCS	96
MS	68
MSD	78
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37141 1839780 9164304-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51371

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pt. Dr.	Address: 30 Century Hill Dr.
Name: Michael Dupuy	Name: Latham, NY
email: mdupuy@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 324210001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: 250ml Plastic PFC	Soil: 4oz glass/TOC, pH, Moist	% Solids	Preservative Code	Field Filtered Y/N
										A	A			
										N	N			
1. SG3-S46-0-0.5'	0	0.5	ft	08/16/2017	0910	S	N	2		1	1			
2. SG3-S46-0.5-1'	0.5	1.0	ft	08/16/2017	0925	S	N	2		1	1			
3. SG-3-S46-1-1.5'	1.0	1.5	ft	08/16/2017	0940	S	N	2		1	1			
4. SG-3-S46-3-4'	3.0	4.0	ft	08/16/2017	1015	S	N	2		1	1			
5. SG-3-S46-6-7'	60	7.0	ft	08/16/2017	1100	S	N	2		1	1			
6. SG-3-LTB03-170816	/	/	/	08/16/2017	0900	water	N	1	1					
7. SG-3-LTB04-170816	/	/	/	08/16/2017	0900	water	N	1	1					
8. SG3-S47-0-0.5'	0	0.5	ft	08/16/2017	13:15	S	N	2		1	1			
9. SG3-S47-0.5-1	0.5	1	ft	08/16/2017	13:20	S	N	2		1	1			
10. SG3-S47-1-1.5'	1	1.5	ft	08/16/2017	13:30	S	N	2		1	1			

PFC's (14) See attached list for soil + water) Moist content, TOC, pH.

Samples in 2 coolers

BARR USE ONLY	
Sampled by:	KAM / RAK
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Relinquished by: On Ice? Y N Date Time

Received by: Date 8/5/17 Time 9:30

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.1/1.6 Custody Seal Intact? ☑ Y ☐ N ☐ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1839780 9164304-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51372

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 60 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 3242001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic PFC's (14)	Soil: 4oz glass / Toc, pH, moist	Soil: % Solids	Preservative Code	Field Filtered Y/N
										A	A			
										1	1			
1. SG3-FD01-170816				08/16/2017		S	N	2		1	1			
2. SG3-SB7-3-5.3'	3	5.3	ft.	08/16/2017	14:20	S	N	2		1	1			
3. SG3-BG4-0-0.5'	0	0.5	ft	08/17/17	09:15	S	N	2		1	1			
4. SG3-BG4-0.5-1'	0.5	1	ft	08/17/17	09:25	S	N	2		1	1			
5. SG3-BG4-1-1.5'	1	1.5	ft.	08/17/17	09:35	S	N	2		1	1			
6. SG3-BG4-3-4'	3	4	ft.	08/17/17	09:50	S	N	2		1	1			
7. SG3-BG3-0-0.5'	0	0.5	ft.	08/17/17	13:10	S	N	2		1	1			
8. SG3-BG3-0.5-1'	0.5	1	ft.	08/17/17	13:25	S	N	2		1	1			
9. SG3-BG3-1-1.5'	1	1.5	ft.	08/17/17	13:30	S	N	2		1	1			
10. SG3-BG3-3-4'	3	4	ft.	08/17/17	13:45	S	N	2		1	1			

Preservative Code: PFC's (14) (see attached list for soil & water), ~~Moisture content~~, TOC, pH

Field Filtered Y/N:

Samples in 2 Coolers

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: KAM/RAK							
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						8/18/17	935
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:				Temperature on Receipt (°C): 1.1/1.1 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51374

COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Drive
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 23421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 mL plastic / PFCs (14)	Soil: 4 oz glass / TOC, pH, moist	Soil: % Solids
1. SG3-BG3-170817				8/17/2017		S	N	2		1	1	
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Preservative Code: A | A

Field Filtered Y/N: N | N

PFC's (14) (See included list for soil & water), Moisture Content, TOC, pH

Samples in 2 coolers

BARR USE ONLY								
Sampled by: KAM/RAK	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTL	Relinquished by:	On Ice? Y N	Date	Time	Received by:	8/18/17 Date	9:30 Time
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE								
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.1, 1.0			Custody Seal Intact? ☒ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1839760 916434-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51373

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co	Company: CT MALE
Address: 4300 Market Pointe Dr,	Address: 50 Century Hill Drive
Name: Michael Duppay	Name: Latham, NY
email: MDuppay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 3284/1001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL w/trizma	Water 250 mL	Water 4oz mL glass	Water 250 mL	Water 500 mL	Water 250 mL	Soil % Solids	Preservative Code	Field Filtered Y/N	Notes
1. SG3-SW2-170816				08/16/2017	18:00	GW	N	1	1							O	N	PFC's (19) (see list)
2. SG3-BG4-170817				08/17/2017	11:30	GW	N	8	2	1	2	1	1	1		C	N	Metals/cations (Excluding Cr & Hg) anions, Ammonia, Ortho phosphate, TKN
																A	N	
																A	N	
																D	N	
																A	N	
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

BARR USE ONLY

Sampled by: KAM/RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: | On Ice? Y N | Date | Time | Received by: | Date | Time

Relinquished by: | On Ice? Y N | Date | Time | Received by: | Date 8/18/17 | Time 9:30

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.1/1.0 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1839780 9164304-25

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

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Sample Administration Receipt Documentation Log

Doc Log ID: 191964

Group Number(s): 1839780

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/18/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	Yes		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpres.

Unpacked by Wendy Wakeley (1669) at 12:25 on 08/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.1	DT	Wet	Y	Bagged	N
2	DT42-01	1.6	DT	Wet	Y	Bagged	N

Missing Sample Details

Sample ID on COC	Comments
SG3-BG3-170817	2 CONTAINERS

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FD02-170816	2	8/16/2017 --	
SG3-S42-8-9'	2	8/16/2017 16:10	
SG3-S42-0-0.5'	2	8/16/2017 15:30	
SG3-S42-0.5-1'	2	8/16/2017 15:35	
SG3-S42-1-1.5'	2	8/16/2017 15:45	
SG3-S42-3-4'	2	8/16/2017 15:55	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Client: BARR ENGINEERING CO

2425 New Holland Pike
Lancaster, PA 17605-2425

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 22, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1839782
SDG: SGB07
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S42-0-0.5' Soil	08/16/2017 15:30	9164327
SG3-S42-0.5-1' Soil	08/16/2017 15:35	9164328
SG3-S42-1-1.5' Soil	08/16/2017 15:45	9164329
SG3-S42-3-4' Soil	08/16/2017 15:55	9164330
SG3-S42-8-9' Soil	08/16/2017 16:10	9164331
SG3-FD02-170817 Soil	08/17/2017	9164332

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1839782

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9164330

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9164332

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The data reported is from the iniital trial of the sample and comparable results were observed between the two extractions.

Batch #: 17237020 (Sample number(s): 9164327-9164332 UNSPK: P164304)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9164330, 9164332

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9164330, 9164331

Due to the nature of this sample matrix, the sample cup was filled

to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17236667631B (Sample number(s): 9164327-9164330 UNSPK: P164322 BKG: P164322)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9164332

The pH was measured in water at 19.7 C.

Sample #s: 9164329, 9164330, 9164331

The pH was measured in water at 19.8 C.

Sample #s: 9164327, 9164328

The pH was measured in water at 19.9 C.

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Analysis Report

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Sample Description: SG3-S42-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164327
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:30

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-1 SDG#: SGB07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,010**		218	655	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.90**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 00:21	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164327
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:30

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-1 SDG#: SGB07-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 15:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164328
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:35

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-2 SDG#: SGB07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,400**		223	670	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.34**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 00:42	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9164328
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:35

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-2 SDG#: SGB07-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 15:27	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164329
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:45

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-3 SDG#: SGB07-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15**	**J**	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.45**	**J**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,870**		484	1,450	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 01:02	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9164329
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:45

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-3 SDG#: SGB07-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 16:12	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164330
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:55

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-4 SDG#: SGB07-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	196	U	196	589	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9164330
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 15:55

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-4 SDG#: SGB07-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 01:23	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17236667631B	08/24/2017 18:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9164331
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 16:10

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-5 SDG#: SGB07-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	237	U	237	710	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.13**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 01:43	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S42-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9164331
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/16/2017 16:10

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S42-5 SDG#: SGB07-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17240667631A	08/28/2017 11:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD02-170817 Soil
SGPP - North Bennington

ELLE Sample # SW 9164332
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D2 SDG#: SGB07-06FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.29**	**J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.14**	**J**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.34**	**J**	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.73**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The data reported is from the iniital trial of the sample and comparable results were observed between the two extractions.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,580**		460	1,380	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.72**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD02-170817 Soil
SGPP - North Bennington

ELLE Sample # SW 9164332
ELLE Group # 1839782
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/17/2017

Submitted: 08/18/2017 09:35
Reported: 09/22/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D2 SDG#: SGB07-06FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17237020	08/28/2017 02:04	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17237020	08/25/2017 12:20	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17240667631A	08/28/2017 11:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17237039402B	08/25/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17234820005B	08/22/2017 22:00	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1839782
Reported: 09/22/2017 11:03

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17237020	Sample number(s): 9164327-9164332			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	mg/kg		mg/kg	mg/kg
Batch number: 17236667631B	Sample number(s): 9164327-9164330			
TOC	100	U	100	300
Batch number: 17240667631A	Sample number(s): 9164331-9164332			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17237020	Sample number(s): 9164327-9164332								
Perfluorobutanesulfonate	1.24	1.16	1.24	1.14	94	92	70-130	2	30
Perfluorobutanoic acid	1.40	1.49	1.40	1.49	107	106	70-130	0	30
Perfluorodecanoic acid	1.40	1.41	1.40	1.45	101	104	70-130	3	30
Perfluorododecanoic acid	1.40	1.40	1.40	1.37	100	98	70-130	2	30
Perfluoroheptanoic acid	1.40	1.41	1.40	1.28	101	91	70-130	10	30
Perfluorohexanesulfonate	1.32	1.24	1.32	1.36	94	102	70-130	9	30
Perfluorohexanoic acid	1.40	1.25	1.40	1.34	89	96	70-130	7	30
Perfluorononanoic acid	1.40	1.25	1.40	1.42	89	102	70-130	13	30
Perfluoro-octanesulfonate	1.34	1.15	1.34	1.33	86	100	70-130	15	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/22/2017 11:03

Group Number: 1839782

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	1.40	1.40	1.40	1.50	100	107	70-130	7	30
Perfluoropentanoic acid	1.40	1.33	1.40	1.36	95	97	70-130	2	30
Perfluorotetradecanoic acid	1.40	1.35	1.40	1.34	97	95	70-130	1	30
Perfluorotridecanoic acid	1.40	1.70	1.40	1.61	122	115	70-130	6	30
Perfluoroundecanoic acid	1.40	1.31	1.40	1.37	94	98	70-130	4	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17236667631B	Sample number(s): 9164327-9164330								
TOC	7150	5632.12			79		47-143		
Batch number: 17240667631A	Sample number(s): 9164331-9164332								
TOC	7150	5948.53			83		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17237039402B	Sample number(s): 9164327-9164332								
pH	7.00	6.98			100		95-105		
	%	%	%	%					
Batch number: 17234820005B	Sample number(s): 9164327-9164332								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17237020	Sample number(s): 9164327-9164332 UNSPK: P164304									
Perfluorobutanesulfonate	0.20 U	1.24	1.21			98		70-130		
Perfluorobutanoic acid	0.343	1.40	1.74			100		70-130		
Perfluorodecanoic acid	0.240	1.40	1.66			102		70-130		
Perfluorododecanoic acid	0.20 U	1.40	1.46			105		70-130		
Perfluoroheptanoic acid	0.238	1.40	1.72			106		70-130		
Perfluorohexanesulfonate	0.20 U	1.32	1.42			108		70-130		
Perfluorohexanoic acid	0.185	1.40	1.73			111		70-130		
Perfluorononanoic acid	0.366	1.40	1.72			97		70-130		
Perfluoro-octanesulfonate	3.85	1.34	5.03			88		70-130		
Perfluorooctanoic acid	7.69	1.40	8.39			50 (2)		70-130		
Perfluoropentanoic acid	0.20 U	1.40	1.48			106		70-130		
Perfluorotetradecanoic acid	0.20 U	1.40	1.41			101		70-130		
Perfluorotridecanoic acid	0.20 U	1.40	1.60			115		70-130		
Perfluoroundecanoic acid	0.20 U	1.40	1.59			114		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/22/2017 11:03

Group Number: 1839782

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17236667631B	Sample number(s): 9164327-9164330 UNSPK: P164322									
TOC	3731.62	17910	14367.54			59		47-143		
Batch number: 17240667631A	Sample number(s): 9164331-9164332 UNSPK: 9164331									
TOC	193 U	12900	12063.63			94		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 17236667631B	Sample number(s): 9164327-9164330 BKG: P164322			
TOC	3731.62	3192.67	16* (1)	7
Batch number: 17240667631A	Sample number(s): 9164331-9164332 BKG: 9164331			
TOC	193 U	184 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17237039402B	Sample number(s): 9164327-9164332 BKG: P161567			
pH	4.75	4.67	2	3
	%	%		
Batch number: 17234820005B	Sample number(s): 9164327-9164332 BKG: P164686			
Moisture	16.91	16.78	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17237020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164327	68	75	82	73	71	71
9164328	74	77	82	72	71	72
9164329	81	81	83	79	80	87

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1839782
Reported: 09/22/2017 11:03

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17237020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9164330	64	65*	69	63	65	61
9164331	69	73	71	66	69	64
9164332	47*	50*	84	51	74	55
Blank	83	94	100	90	89	90
LCS	72	80	82	72	76	72
LCSD	78	84	91	82	87	85
MS	78	86	92	73	84	80
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9164327	75	71	69	75	56	53
9164328	74	70	65	71	56	52
9164329	79	76	74	83	68	59
9164330	66	66	59	73	60	56
9164331	62	68	63	74	58	55
9164332	55	77	59	65	53	55
Blank	88	88	81	101	83	72
LCS	67	72	69	81	76	72
LCSD	79	81	75	77	80	81
MS	80	87	85	78	74	74
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9164327	55
9164328	52
9164329	61
9164330	52
9164331	56
9164332	50
Blank	73
LCS	79
LCSD	83
MS	80
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/18/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	Yes		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpres.

Unpacked by Wendy Wakeley (1669) at 12:25 on 08/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.1	DT	Wet	Y	Bagged	N
2	DT42-01	1.6	DT	Wet	Y	Bagged	N

Missing Sample Details

Sample ID on COC	Comments
SG3-BG3-170817	2 CONTAINERS

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FD02-170816	2	8/16/2017 --	
SG3-S42-8-9'	2	8/16/2017 16:10	
SG3-S42-0-0.5'	2	8/16/2017 15:30	
SG3-S42-0.5-1'	2	8/16/2017 15:35	
SG3-S42-1-1.5'	2	8/16/2017 15:45	
SG3-S42-3-4'	2	8/16/2017 15:55	

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Client: BARR ENGINEERING CO

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1840103
SDG: SGB08
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-LTB05-170818 Blank Water	08/18/2017 08:00	9165782
SG3-LTB06-170818 Blank Water	08/18/2017 08:00	9165783
SG3-S07-0-0.5' Soil	08/18/2017 08:20	9165784
SG3-S07-0.5-1' Soil	08/18/2017 08:30	9165785
SG3-S07-1-1.5' Soil	08/18/2017 08:40	9165786
SG3-S07-3-4' Soil	08/18/2017 09:00	9165787
SG3-S07-8-9' Soil	08/18/2017 09:25	9165788
SG3-S30-0-0.5' Soil	08/18/2017 11:00	9165789
SG3-S30-0-0.5' MS Soil	08/18/2017 11:00	9165790
SG3-S30-0-0.5' MSD Soil	08/18/2017 11:00	9165791
SG3-S30-0-0.5' Dupl Soil	08/18/2017 11:00	9165792
SG3-S30-0.5-1' Soil	08/18/2017 11:15	9165793
SG3-S30-1-1.5' Soil	08/18/2017 11:25	9165794
SG3-S30-3-4' Soil	08/18/2017 11:40	9165795
SG3-BG1-0-0.5' Soil	08/18/2017 14:10	9165796
SG3-S30-8-9' Soil	08/18/2017 12:05	9165797
SG3-BG1-0.5-1' Soil	08/18/2017 14:20	9165798
SG3-BG1-1-1.5' Soil	08/18/2017 14:25	9165799
SG3-BG1-3-4' Soil	08/18/2017 14:40	9165800
SG3-FB02-170818 Blank Water	08/18/2017 14:35	9165801
SG3-BG1-8-9' Soil	08/18/2017 15:15	9165802

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1840103

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9165790, 9165794, 9165795, 9165796, 9165797, 9165800, 9165802

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9165798, 9165799

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standards are again outside of QC accpetance limits. The data reported is from the initial trial of the sample; comparable results were observed between the two extractions.

Batch #: 17238004 (Sample number(s): 9165784-9165791, 9165793-9165794 UNSPK: 9165789)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9165790, 9165794, MS

Batch #: 17241003 (Sample number(s): 9165795-9165800, 9165802 UNSPK: P170321)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9165795, 9165796, 9165797, 9165798, 9165799, 9165800, 9165802, Blank, LCS, MS, MSD

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9165788, 9165795, 9165797, 9165800

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9165787

The pH was measured in water at 19.5 C.

Sample #s: 9165789

The pH was measured in water at 19.6 C.

Sample #s: 9165784, 9165785, 9165786, 9165788, 9165793, 9165796, 9165798, 9165799

The pH was measured in water at 19.7 C.

Sample #s: 9165795, 9165800

The pH was measured in water at 19.8 C.

Sample #s: 9165794, 9165797, 9165802

The pH was measured in water at 19.9 C.

Sample #s: 9165792

The pH was measured in water at 20 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17235820009A (Sample number(s): 9165784-9165795 BKG: 9165789)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-LTB05-170818 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9165782
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:00

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB05 SDG#: SGB08-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 00:42	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB06-170818 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9165783
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:00

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB06 SDG#: SGB08-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 01:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165784
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:20 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-1 SDG#: SGB08-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25**	**J**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.55**	**J**	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**		0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**23,400**		963	2,890	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 23:38	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165784
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:20 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-1 SDG#: SGB08-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 16:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402A	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165785
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:30 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-2 SDG#: SGB08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.73	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.73	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.36**	**J**	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.73	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.20**	**J**	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.5**		0.24	0.73	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,100**		1,040	3,110	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**21.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 23:59	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165785
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:30 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-2 SDG#: SGB08-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 11:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402A	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165786
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-3 SDG#: SGB08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.25**	**J**	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.18**	**J**	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.0**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,900**		793	2,380	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.24**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 00:19	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165786
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 08:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-3 SDG#: SGB08-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 12:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402A	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165787
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 09:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-4 SDG#: SGB08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55**	**J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,920**		451	1,350	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.84**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 00:40	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165787
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 09:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-4 SDG#: SGB08-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17244667631A	09/01/2017 18:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402A	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165788
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 09:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-5 SDG#: SGB08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,070**	**J**	365	1,090	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.74**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 01:00	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S07-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165788
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 09:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S07-5 SDG#: SGB08-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 16:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165789
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-1 SDG#: SGB08-08BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22**	**J**	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	**Perfluorononanoic acid**	375-95-1	**0.14**	**J**	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.46**	**J**	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.32**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.21**	**J**	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**23,800**		919	2,760	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 01:21	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165789
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-1 SDG#: SGB08-08BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 17:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9165790
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-1 SDG#: SGB08-08MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.22	0.65	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.22	0.65	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.22	0.65	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.22	0.65	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.9**	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.22	0.65	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.8**	0.22	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.22	0.65	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.8**	0.22	0.65	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**70,400**	1,750	5,240	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**9.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 18:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 17:20	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9165791
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-1 SDG#: SGB08-08MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.21	0.63	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.21	0.63	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.21	0.63	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.21	0.63	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.21	0.63	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.11	0.42	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.11	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.7**	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.9**	0.21	0.63	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.21	0.63	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.4**	0.21	0.63	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.21	0.63	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.21	0.63	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**9.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/29/2017 19:11	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
00118	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9165792
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:00 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-1 SDG#: SGB08-08DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**24,400**	843	2,530	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**9.8**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**11.3**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 17:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165793
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:15 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-2 SDG#: SGB08-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.33**	**J**	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,400**		662	1,980	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 01:42	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165793
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:15 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-2 SDG#: SGB08-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 18:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165794
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-3 SDG#: SGB08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.30**	**J**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,600**		719	2,160	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17238004	08/30/2017 17:27	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165794
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-3 SDG#: SGB08-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17238004	08/27/2017 08:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 13:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165795
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-4 SDG#: SGB08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	149	U	149	447	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165795
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 11:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-4 SDG#: SGB08-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 17:01	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 14:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009A	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165796
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:10 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-1 SDG#: SGB08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.35**	**J**	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25**	**J**	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.50**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.68**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,630**		544	1,630	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.15**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 17:22	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165796
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:10 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-1 SDG#: SGB08-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 14:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165797
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 12:05 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-5 SDG#: SGB08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	206	U	206	619	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.61**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S30-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165797
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 12:05 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S30-5 SDG#: SGB08-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 17:43	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17242667631B	08/31/2017 14:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165798
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:20 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-2 SDG#: SGB08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28**	**J**	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**		0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standards are again outside of QC accpetance limits. The data reported is from the initial trial of the sample; comparable results were observed between the two extractions.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,190**		329	986	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.45**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9165798
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:20 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-2 SDG#: SGB08-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 18:44	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17244667631A	09/01/2017 09:47	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165799
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-3 SDG#: SGB08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.30**	**J**	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.32**	**J**	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.14**	**J**	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.3**		0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standards are again outside of QC accpetance limits. The data reported is from the initial trial of the sample; comparable results were observed between the two extractions.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,980**		394	1,180	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.61**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9165799
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:25 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-3 SDG#: SGB08-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 19:05	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17244667631A	09/01/2017 10:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165800
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-4 SDG#: SGB08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**495**	**J**	341	1,020	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.03**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9165800
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:40 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-4 SDG#: SGB08-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 19:25	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17244667631A	09/01/2017 10:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB02-170818 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9165801
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 14:35 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB2 SDG#: SGB08-17FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 01:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165802
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 15:15 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-5 SDG#: SGB08-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.92**		0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,280**		434	1,300	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 19:46	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-BG1-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9165802
ELLE Group # 1840103
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/18/2017 15:15 by KAM

Submitted: 08/19/2017 09:45
Reported: 09/12/2017 20:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG1-5 SDG#: SGB08-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17244667631A	09/01/2017 17:37	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039402B	08/27/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17235820009B	08/24/2017 00:22	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1840103
Reported: 09/12/2017 20:52

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17238004	Sample number(s): 9165784-9165791,9165793-9165794			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17241003	Sample number(s): 9165795-9165800,9165802			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17239004	Sample number(s): 9165782-9165783,9165801			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 20:52

Group Number: 1840103

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17242667631B	Sample number(s): 9165784-9165786,9165788-9165790,9165792-9165797			
TOC	100	U	100	300
Batch number: 17244667631A	Sample number(s): 9165787,9165798-9165800,9165802			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17238004	Sample number(s): 9165784-9165791,9165793-9165794								
Perfluorobutanesulfonate	1.24	1.20			97		70-130		
Perfluorobutanoic acid	1.40	1.52			109		70-130		
Perfluorodecanoic acid	1.40	1.32			94		70-130		
Perfluorododecanoic acid	1.40	1.40			100		70-130		
Perfluoroheptanoic acid	1.40	1.54			110		70-130		
Perfluorohexanesulfonate	1.32	1.32			100		70-130		
Perfluorohexanoic acid	1.40	1.45			104		70-130		
Perfluorononanoic acid	1.40	1.51			108		70-130		
Perfluoro-octanesulfonate	1.34	1.19			89		70-130		
Perfluorooctanoic acid	1.40	1.46			104		70-130		
Perfluoropentanoic acid	1.40	1.33			95		70-130		
Perfluorotetradecanoic acid	1.40	1.35			96		70-130		
Perfluorotridecanoic acid	1.40	1.66			119		70-130		
Perfluoroundecanoic acid	1.40	1.34			96		70-130		
Batch number: 17241003	Sample number(s): 9165795-9165800,9165802								
Perfluorobutanesulfonate	1.20	1.22			101		70-130		
Perfluorobutanoic acid	1.36	1.65			121		70-130		
Perfluorodecanoic acid	1.36	1.42			105		70-130		
Perfluorododecanoic acid	1.36	1.51			111		70-130		
Perfluoroheptanoic acid	1.36	1.59			117		70-130		
Perfluorohexanesulfonate	1.29	1.24			97		70-130		
Perfluorohexanoic acid	1.36	1.51			111		70-130		
Perfluorononanoic acid	1.36	1.59			117		70-130		
Perfluoro-octanesulfonate	1.30	1.33			102		70-130		
Perfluorooctanoic acid	1.36	1.49			110		70-130		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 20:52

Group Number: 1840103

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoropentanoic acid	1.36	1.45			107		70-130		
Perfluorotetradecanoic acid	1.36	1.42			105		70-130		
Perfluorotridecanoic acid	1.36	1.45			107		70-130		
Perfluoroundecanoic acid	1.36	1.49			109		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17239004	Sample number(s): 9165782-9165783,9165801								
Perfluorobutanesulfonate	12.38	11.69	12.38	11.92	94	96	70-130	2	30
Perfluorobutanoic Acid	14	14.19	14	14.2	101	101	70-130	0	30
Perfluorodecanoic acid	14	13.78	14	13.45	98	96	70-130	2	30
Perfluorododecanoic acid	14	13.81	14	13.59	99	97	70-130	2	30
Perfluoroheptanoic acid	14	13.97	14	13.57	100	97	70-130	3	30
Perfluorohexanesulfonate	13.24	11.97	13.24	13.55	90	102	70-130	12	30
Perfluorohexanoic acid	14	13.51	14	13.01	96	93	70-130	4	30
Perfluorononanoic acid	14	14.57	14	13.39	104	96	70-130	8	30
Perfluoro-octanesulfonate	13.38	13.37	13.38	11.54	100	86	70-130	15	30
Perfluorooctanoic acid	14	14.75	14	13.04	105	93	70-130	12	30
Perfluoropentanoic Acid	14	12.93	14	13.99	92	100	70-130	8	30
Perfluorotetradecanoic acid	14	12.96	14	12.74	93	91	70-130	2	30
Perfluorotridecanoic acid	14	15.39	14	15.64	110	112	70-130	2	30
Perfluoroundecanoic acid	14	13.2	14	14.21	94	102	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17242667631B	Sample number(s): 9165784-9165786,9165788-9165790,9165792-9165797								
TOC	7150	6010.49			84		47-143		
Batch number: 17244667631A	Sample number(s): 9165787,9165798-9165800,9165802								
TOC	7150	6064.53			85		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17239039402A	Sample number(s): 9165784-9165787								
pH	7.00	6.99			100		95-105		
Batch number: 17239039402B	Sample number(s): 9165788-9165789,9165792-9165800,9165802								
pH	7.00	6.99			100		95-105		
	%	%	%	%					
Batch number: 17235820009A	Sample number(s): 9165784-9165795								
Moisture	89.5	89.37			100		99-101		
Moisture	89.5	89.37			100		99-101		
Moisture Duplicate	89.5	89.37			100		99-101		
Batch number: 17235820009B	Sample number(s): 9165796-9165800,9165802								
Moisture	89.5	89.37			100		99-101		

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 20:52

Group Number: 1840103

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17238004	Sample number(s): 9165784-9165791,9165793-9165794 UNSPK: 9165789									
Perfluorobutanesulfonate	0.18 U	1.20	1.19	1.18	1.25	99	106	70-130	5	30
Perfluorobutanoic acid	0.201	1.36	1.59	1.33	1.48	102	96	70-130	7	30
Perfluorodecanoic acid	0.18 U	1.36	1.52	1.33	1.39	112	104	70-130	9	30
Perfluorododecanoic acid	0.18 U	1.36	1.46	1.33	1.43	107	107	70-130	2	30
Perfluoroheptanoic acid	0.18 U	1.36	1.59	1.33	1.40	117	105	70-130	13	30
Perfluorohexanesulfonate	0.18 U	1.29	1.40	1.26	1.23	108	97	70-130	13	30
Perfluorohexanoic acid	0.091 U	1.36	1.42	1.33	1.36	104	102	70-130	5	30
Perfluorononanoic acid	0.125	1.36	1.54	1.33	1.43	104	98	70-130	7	30
Perfluoro-octanesulfonate	0.416	1.30	1.72	1.27	1.56	100	90	70-130	10	30
Perfluorooctanoic acid	0.291	1.36	1.66	1.33	1.72	100	107	70-130	4	30
Perfluoropentanoic acid	0.18 U	1.36	1.58	1.33	1.32	116	99	70-130	19	30
Perfluorotetradecanoic acid	0.18 U	1.36	1.43	1.33	1.31	105	98	70-130	9	30
Perfluorotridecanoic acid	0.18 U	1.36	1.62	1.33	1.55	119	116	70-130	5	30
Perfluoroundecanoic acid	0.190	1.36	1.49	1.33	1.41	95	91	70-130	6	30
Batch number: 17241003	Sample number(s): 9165795-9165800,9165802 UNSPK: P170321									
Perfluorobutanesulfonate	0.19 U	1.15	1.16	1.12	1.10	100	98	70-130	5	30
Perfluorobutanoic acid	0.233	1.31	1.69	1.26	1.70	112	116	70-130	0	30
Perfluorodecanoic acid	0.19 U	1.31	1.54	1.26	1.47	118	116	70-130	5	30
Perfluorododecanoic acid	0.19 U	1.31	1.59	1.26	1.52	122	120	70-130	5	30
Perfluoroheptanoic acid	0.19 U	1.31	1.44	1.26	1.58	110	125	70-130	10	30
Perfluorohexanesulfonate	0.19 U	1.23	1.37	1.20	1.37	111	114	70-130	0	30
Perfluorohexanoic acid	0.097 U	1.31	1.50	1.26	1.51	115	119	70-130	1	30
Perfluorononanoic acid	0.181	1.31	1.66	1.26	1.69	113	119	70-130	2	30
Perfluoro-octanesulfonate	0.529	1.25	1.56	1.21	1.62	83	90	70-130	3	30
Perfluorooctanoic acid	0.744	1.31	2.33	1.26	2.18	121	114	70-130	7	30
Perfluoropentanoic acid	0.19 U	1.31	1.42	1.26	1.33	109	105	70-130	7	30
Perfluorotetradecanoic acid	0.19 U	1.31	1.48	1.26	1.45	114	115	70-130	2	30
Perfluorotridecanoic acid	0.19 U	1.31	1.45	1.26	1.44	111	114	70-130	0	30
Perfluoroundecanoic acid	0.19 U	1.31	1.54	1.26	1.47	118	117	70-130	4	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17242667631B	Sample number(s): 9165784-9165786,9165788-9165790,9165792-9165797 UNSPK: 9165789									
TOC	21441.59	47250	63511.81			89		47-143		
Batch number: 17244667631A	Sample number(s): 9165787,9165798-9165800,9165802 UNSPK: 9165798									
TOC	3708.55	15060	15572.29			79		47-143		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 20:52

Group Number: 1840103

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17242667631B	Sample number(s): 9165784-9165786,9165788-9165790,9165792-9165797 BKG: 9165789			
TOC	21441.59	22038.02	3	7
Batch number: 17244667631A	Sample number(s): 9165787,9165798-9165800,9165802 BKG: 9165798			
TOC	3708.55	3618.42	2 (1)	7
	Std. Units	Std. Units		
Batch number: 17239039402A	Sample number(s): 9165784-9165787 BKG: P165611			
pH	5.85	5.89	1	3
Batch number: 17239039402B	Sample number(s): 9165788-9165789,9165792-9165800,9165802 BKG: 9165789			
pH	8.10	8.04	1	3
	%	%		
Batch number: 17235820009A	Sample number(s): 9165784-9165795 BKG: 9165789, P165789			
Moisture	9.85	11.31	14*	5
Moisture	9.85	11.31	14*	5
Moisture Duplicate	9.85	11.31	14*	5
Batch number: 17235820009B	Sample number(s): 9165796-9165800,9165802 BKG: 9165796			
Moisture	14.4	13.87	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17238004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9165784	76	73	72	65	63	66
9165785	83	89	87	85	83	86
9165786	83	85	86	77	80	81
9165787	82	85	79	82	82	79
9165788	78	81	78	70	77	68
9165789	74	78	78	69	64	75
9165790	66	65*	67	61	60	62
9165791	77	80	75	84	81	84
9165793	71	71	68	71	72	83
9165794	67	69*	68	61	63	71
Blank	81	82	82	85	79	81
LCS	88	90	87	78	82	80

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1840103
Reported: 09/12/2017 20:52

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17238004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MS	66	65*	67	61	60	62
MSD	77	80	75	84	81	84
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9165784	69	74	76	75	77	74
9165785	92	89	85	91	81	83
9165786	78	82	78	75	74	73
9165787	80	87	77	79	80	83
9165788	79	79	73	73	80	78
9165789	68	85	84	70	73	67
9165790	64	65	74	64	71	62
9165791	81	75	79	73	79	70
9165793	75	76	77	78	74	68
9165794	66	65	72	65	69	64
Blank	78	89	90	93	96	96
LCS	83	81	80	97	94	95
MS	64	65	74	64	71	62
MSD	81	75	79	73	79	70
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9165784	76
9165785	88
9165786	78
9165787	89
9165788	82
9165789	75
9165790	68
9165791	78
9165793	74
9165794	68
Blank	105
LCS	96
MS	68
MSD	78
Limits:	20-127

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 20:52

Group Number: 1840103

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9165782	76	87	86	75	72	71
9165783	78	87	86	72	68	68
9165801	83	88	91	91	84	92
Blank	78	86	89	73	66	81
LCS	86	94	91	90	83	87
LCSD	74	78	82	82	73	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	d5-NEtFOSAA
9165782	77	69	86	78	82	79
9165783	73	76	84	74	70	73
9165801	83	95	101	89	84	82
Blank	82	75	78	71	72	75
LCS	82	84	82	81	81	80
LCSD	76	72	67	68	67	68
Limits:	43-112	43-115	32-134	40-115	30-128	21-135

	13C2-PFDoDA	13C2-PFTeDA
9165782	72	73
9165783	66	69
9165801	79	80
Blank	72	76
LCS	74	74
LCSD	63	68
Limits:	28-127	26-119

Analysis Name: 14 PFCs
Batch number: 17241003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9165795	66	68*	69	65	66	63
9165796	56	61*	75	55	68	58
9165797	65	66*	71	71	72	67
9165798	37*	37*	63	40*	74	49
9165799	32*	32*	55	32*	56	34*
9165800	65	67*	68	71	78	71
9165802	57	59*	67	64	64	64
Blank	67	66*	67	64	76	72
LCS	65	65*	68	71	75	74
MS	65	62*	66	61	61	68

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1840103
Reported: 09/12/2017 20:52

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17241003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MSD	65	69*	70	61	70	67
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9165795	69	73	70	73	69	66
9165796	64	70	76	67	70	59
9165797	70	79	70	74	75	78
9165798	46	65	46	45	48	47
9165799	36*	60	33*	37	38	40
9165800	74	75	71	76	77	70
9165802	61	65	59	66	64	58
Blank	71	72	68	72	76	75
LCS	74	69	72	71	70	63
MS	63	69	73	67	73	64
MSD	72	68	75	66	73	62
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9165795	64
9165796	54
9165797	67
9165798	41
9165799	35
9165800	65
9165802	51
Blank	66
LCS	64
MS	60
MSD	59
Limits:	20-127

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37/91 184103 9165782-802

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51375

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Drive
Name: Michael Dupay	Name: Latham, NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Trip blank	Water: 250 ml plastic / PFC's (14)	Soil: 4oz glass / TOC, pH, moist	% Solids
									Z	A	A	
									2	1	1	
1. SG3-LTB05-170818				08/18/2017	08:00	water	N	1	1			
2. SG3-LTB06-170818				08/18/2017	08:00	water	N	1	1			
3. SG3-S07-0-0.5'	0	0.5	ft.	08/18/2017	08:20	S	N	2		1	1	
4. SG3-S07-0.5-1'	0.5	1	ft.	08/18/2017	08:30	S	N	2		1	1	
5. SG3-S07-1-1.5'	1	1.5'	ft.	08/18/2017	08:46	S	N	2		1	1	
6. SG3-S07-3-4'	3	4	ft	08/18/2017	09:00	S	N	2		1	1	
7. SG3-S07-8-9'	8	9	ft	08/18/2017	09:25	S	N	2		1	1	
8. SG3-S30-0-0.5	0	0.5	ft	08/18/2017	11:00	S	Y	6		3	3	
9. SG3-S30-0.5-1	0.5	1	ft	08/18/2017	11:15	S	N	2		1	1	
10. SG3-S30-1-1.5'	1	1.5	ft	08/18/2017	11:25	S	N	2		1	1	

Preservative Code

Field Filtered Y/N

PFC's (14) (See Attached list for soil & water), Moist. Content, TOC, pH

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KM/RAF		☒ N	8/18/17	18:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						8/19/17	9:45
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster PA	Lab WO:				Temperature on Receipt (°C): 1.8/2.8 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1440103 9165782-802

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51377

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr,	Address: 50 Century Hill Drive
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 3242 1001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: PFC's (14) Field Blank 250 ml plastic	Soil: PFC's (14) 250 ml plastic	Soil: TOC, pH, Moist 4oz glass	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-S30-3-4'	3	4	ft.	08/18/2017	11:40	S	N	2		1	1			
2. SG3-BG1-0-0.5'	0	0.5	ft	08/18/2017	14:10	S	N	2		1	1			
3. SG3-S30-8-9'	8	9	ft	08/18/2017	12:05	S	N	2		1	1			
4. SG3-BG1-0.5-1'	0.5	1	ft	08/18/2017	14:20	S	N	2		1	1			
5. SG3-BG1-1-1.5'	1	1.5	ft	08/18/2017	14:25	S	N	2		1	1			
6. SG3-BG1-3-4'	3	4	ft	08/18/2017	14:40	S	N	2		1	1			
7. SG3-FB02-170818	/	/	/	08/18/2017	14:35	water	N	1	1	~~1~~				
8. SG3-BG1-8-9'	8	9	ft	08/18/2017	15:15	S	N	1	1	1	1			
9.														
10.														

Preservative Code: PFC's (14) (See Attached List for soil & water), Moist, Content, TOC, pH

Field Filtered Y/N

BARR USE ONLY							
Sampled by: KAM/RAK	Relinquished by:	On Ice? ☒ N	Date 8/18/17	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/19/17	Time 9:45
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 18.2	Custody Seal Intact? ☐ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1840163 9165762-802

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192079

Group Number(s): 1840103

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/19/2017 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Trip Blank Type(s): PLASTIC UNPRESERVED

Unpacked by Nicole Reiff (25684) at 12:41 on 08/19/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.8	DT	Wet	Y	Bagged	N
2	DT146	2.0	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-BG1-8-9'	2	1	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1841288
SDG: SGB09
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S43-0-0.5' Soil	08/21/2017 09:35	9170321
SG3-S43-0-0.5' MS Soil	08/21/2017 09:35	9170322
SG3-S43-0-0.5' MSD Soil	08/21/2017 09:35	9170323
SG3-S43-0-0.5' Dupl Soil	08/21/2017 09:35	9170324
SG3-S43-0.5-1' Soil	08/21/2017 09:50	9170325
SG3-S43-1-1.5' Soil	08/21/2017 09:55	9170326
SG3-S43-3-4' Soil	08/21/2017 10:00	9170327
SG3-S43-8-9' Soil	08/21/2017 10:15	9170328
SG3-LTB07-170821 Blank Water	08/21/2017 08:00	9170329
SG3-LTB08-170821 Blank Water	08/21/2017 08:00	9170330
SG3-S44-0-0.5' Soil	08/21/2017 11:35	9170331
SG3-S44-0.5-1' Soil	08/21/2017 11:45	9170332
SG3-S44-1-1.5' Soil	08/21/2017 11:55	9170333
SG3-FD03-170821 Soil	08/21/2017	9170334
SG3-S44-3-4' Soil	08/21/2017 12:10	9170335
SG3-S44-8-9' Soil	08/21/2017 12:20	9170336
SG3-FB03-170821 Blank Water	08/21/2017 14:25	9170337
SG3-S48-0-0.5' Soil	08/21/2017 14:25	9170338
SG3-S48-0.5-1' Soil	08/21/2017 14:30	9170339
SG3-S48-1-1.5' Soil	08/21/2017 14:35	9170340
SG3-S48-3-4' Soil	08/21/2017 14:40	9170341
SG3-S48-6.4-7.4' Soil	08/21/2017 15:25	9170342

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1841288

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9170321, 9170322, 9170323, 9170325, 9170326, 9170327, 9170328, 9170331, 9170333, 9170334, 9170335, 9170336

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9170338, 9170339, 9170340, 9170341, 9170342

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Batch #: 17241003 (Sample number(s): 9170321-9170323, 9170325-9170328, 9170331, 9170333-9170336 UNSPK: 9170321)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9170322, 9170323, 9170325, 9170327, 9170328, 9170331, 9170333, 9170334, 9170335, 9170336, Blank, LCS, MS, MSD

Batch #: 17241008 (Sample number(s): 9170338-9170342 UNSPK: P170345)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9170338, 9170340, 9170342, Blank, LCS, MS, MSD

Batch #: 17243008 (Sample number(s): 9170332 UNSPK: P172777)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9170335, 9170336, 9170341, 9170342

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17247667631B (Sample number(s): 9170321-9170322, 9170324-9170328 UNSPK: 9170321 BKG: 9170321)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17248667631A (Sample number(s): 9170331-9170336, 9170338-9170341 UNSPK: 9170338 BKG: 9170338)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9170338

The pH was measured in water at 19.3 C.

Sample #s: 9170341

The pH was measured in water at 19.4 C.

Sample #s: 9170339

The pH was measured in water at 19.5 C.

Sample #s: 9170324, 9170336, 9170340, 9170342

The pH was measured in water at 19.7 C.

Sample #s: 9170325, 9170326, 9170327, 9170328

The pH was measured in water at 19.8 C.

Sample #s: 9170321, 9170333

The pH was measured in water at 19.9 C.

Sample #s: 9170331, 9170335

The pH was measured in water at 20 C.

Sample #s: 9170332, 9170334

The pH was measured in water at 20.1 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17237820005B (Sample number(s): 9170342 BKG: 9170342)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Moisture

Sample Description: SG3-S43-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170321
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-1 SDG#: SGB09-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27**	**J**	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.21**	**J**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.61**	**J**	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.85**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,000**		720	2,160	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.54**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 20:06	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170321
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-1 SDG#: SGB09-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/04/2017 17:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403A	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9170322
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-1 SDG#: SGB09-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.9**	0.22	0.66	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.22	0.66	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.22	0.66	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.22	0.66	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.8**	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.7**	0.22	0.66	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.22	0.66	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.22	0.66	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.22	0.66	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**46,700**	1,430	4,300	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**13.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 10:27	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/04/2017 17:38	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9170323
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-1 SDG#: SGB09-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.0**	0.21	0.64	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.21	0.64	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.21	0.64	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.21	0.64	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.21	0.64	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.9**	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.5**	0.21	0.64	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.21	0.64	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.21	0.64	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.21	0.64	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**13.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 10:48	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9170324
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-1 SDG#: SGB09-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**18,100**	780	2,340	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.50**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**13.0**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**13.2**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/04/2017 17:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403A	08/27/2017 15:50	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170325
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:50 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-2 SDG#: SGB09-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28**	**J**	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.4**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,000**		616	1,850	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.90**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 20:27	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170325
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:50 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-2 SDG#: SGB09-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/04/2017 18:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170326
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:55 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-3 SDG#: SGB09-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.29**	**J**	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.5**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,700**		539	1,620	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.84**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 20:47	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170326
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 09:55 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-3 SDG#: SGB09-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/04/2017 18:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170327
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 10:00 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-4 SDG#: SGB09-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.84**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**876**		217	652	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.56**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 21:08	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170327
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 10:00 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-4 SDG#: SGB09-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/05/2017 10:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170328
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 10:15 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-5 SDG#: SGB09-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.21**	**J**	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,610**		205	614	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.59**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 21:28	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S43-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170328
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 10:15 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S43-5 SDG#: SGB09-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17247667631B	09/05/2017 12:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB07-170821 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9170329
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 08:00

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3TB7 SDG#: SGB09-06TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 02:25	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB08-170821 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9170330
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 08:00

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3TB8 SDG#: SGB09-07TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 02:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170331
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-1 SDG#: SGB09-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27	U	0.27	0.80	1
14027	Perfluorobutanoic acid	375-22-4	0.27	U	0.27	0.80	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.80	1
14027	Perfluorododecanoic acid	307-55-1	0.27	U	0.27	0.80	1
14027	Perfluoroheptanoic acid	375-85-9	0.27	U	0.27	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.27	U	0.27	0.80	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.53	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.40	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.27	0.80	1
14027	Perfluoropentanoic acid	2706-90-3	0.27	U	0.27	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27	U	0.27	0.80	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27	U	0.27	0.80	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.35**	**J**	0.27	0.80	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,800**		959	2,880	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**29.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 22:30	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170331
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-1 SDG#: SGB09-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 17:20	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170332
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:45 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-2 SDG#: SGB09-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.56**	**J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,700**		529	1,590	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 04:26	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170332
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:45 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-2 SDG#: SGB09-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 17:37	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170333
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:55 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-3 SDG#: SGB09-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.44**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**		0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,930**		471	1,410	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 22:51	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170333
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 11:55 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-3 SDG#: SGB09-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 17:53	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD03-170821 Soil
SGPP - North Bennington

ELLE Sample # SW 9170334
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD3 SDG#: SGB09-11FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.28	U	0.28	0.83	1
14027	Perfluorobutanoic acid	375-22-4	0.28	U	0.28	0.83	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.83	1
14027	Perfluorododecanoic acid	307-55-1	0.28	U	0.28	0.83	1
14027	Perfluoroheptanoic acid	375-85-9	0.28	U	0.28	0.83	1
14027	Perfluorohexanesulfonate	355-46-4	0.28	U	0.28	0.83	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.56	1
14027	**Perfluorononanoic acid**	375-95-1	**0.16**	**J**	0.14	0.56	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.75**	**J**	0.42	1.3	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.28	0.83	1
14027	Perfluoropentanoic acid	2706-90-3	0.28	U	0.28	0.83	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28	U	0.28	0.83	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28	U	0.28	0.83	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.32**	**J**	0.28	0.83	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**14,300**		776	2,330	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**30.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 23:11	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD03-170821 Soil
SGPP - North Bennington

ELLE Sample # SW 9170334
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD3 SDG#: SGB09-11FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 18:11	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170335
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 12:10 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-4 SDG#: SGB09-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.32**	**J**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**454**	**J**	232	697	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170335
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 12:10 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-4 SDG#: SGB09-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 23:32	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/06/2017 10:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170336
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 12:20 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-5 SDG#: SGB09-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	191	U	191	574	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S44-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170336
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 12:20 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S44-5 SDG#: SGB09-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241003	08/31/2017 23:52	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241003	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/06/2017 10:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17239039403B	08/27/2017 15:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB03-170821 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9170337
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:25 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB3 SDG#: SGB09-14FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 03:06	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170338
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:25 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-1 SDG#: SGB09-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.78**	**J**	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**14,300**		933	2,800	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**		0.0100	0.0100	1

The pH was measured in water at 19.3 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170338
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:25 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-1 SDG#: SGB09-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 18:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/06/2017 10:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170339
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:30 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-2 SDG#: SGB09-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.63**	**J**	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,000**		694	2,080	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**		0.0100	0.0100	1

The pH was measured in water at 19.5 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170339
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:30 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-2 SDG#: SGB09-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 18:32	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 20:27	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170340
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-3 SDG#: SGB09-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.98**	**J**	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,800**		603	1,810	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.06**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170340
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:35 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-3 SDG#: SGB09-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 18:53	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 20:45	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170341
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:40 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-4 SDG#: SGB09-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.29	U	0.29	0.88	1
14027	Perfluorobutanoic acid	375-22-4	0.29	U	0.29	0.88	1
14027	Perfluorodecanoic acid	335-76-2	0.29	U	0.29	0.88	1
14027	Perfluorododecanoic acid	307-55-1	0.29	U	0.29	0.88	1
14027	Perfluoroheptanoic acid	375-85-9	0.29	U	0.29	0.88	1
14027	Perfluorohexanesulfonate	355-46-4	0.29	U	0.29	0.88	1
14027	Perfluorohexanoic acid	307-24-4	0.15	U	0.15	0.58	1
14027	Perfluorononanoic acid	375-95-1	0.15	U	0.15	0.58	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.64**	**J**	0.44	1.3	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.62**	**J**	0.29	0.88	1
14027	Perfluoropentanoic acid	2706-90-3	0.29	U	0.29	0.88	1
14027	Perfluorotetradecanoic acid	376-06-7	0.29	U	0.29	0.88	1
14027	Perfluorotridecanoic acid	72629-94-8	0.29	U	0.29	0.88	1
14027	Perfluoroundecanoic acid	2058-94-8	0.29	U	0.29	0.88	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	317	U	317	952	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.35**		0.0100	0.0100	1

The pH was measured in water at 19.4 C.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**31.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170341
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 14:40 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-4 SDG#: SGB09-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 19:13	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631A	09/05/2017 20:59	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820008A	08/25/2017 00:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-6.4-7.4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170342
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 15:25 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-5 SDG#: SGB09-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**414**	**J**	183	550	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.3**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S48-6.4-7.4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170342
ELLE Group # 1841288
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/21/2017 15:25 by KAM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:12

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S48-5 SDG#: SGB09-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 19:34	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 16:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	2	17237820005B	08/25/2017 23:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841288
Reported: 09/12/2017 23:12

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17241003	Sample number(s): 9170321-9170323,9170325-9170328,9170331,9170333-9170336			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17241008	Sample number(s): 9170338-9170342			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17243008	Sample number(s): 9170332			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841288
Reported: 09/12/2017 23:12

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17239004	Sample number(s): 9170329-9170330,9170337			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17247667631B	Sample number(s): 9170321-9170322,9170324-9170328			
TOC	100	U	100	300
Batch number: 17248667631A	Sample number(s): 9170331-9170336,9170338-9170341			
TOC	100	U	100	300
Batch number: 17248667631B	Sample number(s): 9170342			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17241003	Sample number(s): 9170321-9170323,9170325-9170328,9170331,9170333-9170336								
Perfluorobutanesulfonate	1.20	1.22			101		70-130		
Perfluorobutanoic acid	1.36	1.65			121		70-130		
Perfluorodecanoic acid	1.36	1.42			105		70-130		
Perfluorododecanoic acid	1.36	1.51			111		70-130		
Perfluoroheptanoic acid	1.36	1.59			117		70-130		
Perfluorohexanesulfonate	1.29	1.24			97		70-130		
Perfluorohexanoic acid	1.36	1.51			111		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:12

Group Number: 1841288

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	1.36	1.59			117		70-130		
Perfluoro-octanesulfonate	1.30	1.33			102		70-130		
Perfluorooctanoic acid	1.36	1.49			110		70-130		
Perfluoropentanoic acid	1.36	1.45			107		70-130		
Perfluorotetradecanoic acid	1.36	1.42			105		70-130		
Perfluorotridecanoic acid	1.36	1.45			107		70-130		
Perfluoroundecanoic acid	1.36	1.49			109		70-130		
Batch number: 17241008	Sample number(s): 9170338-9170342								
Perfluorobutanesulfonate	1.24	1.15			93		70-130		
Perfluorobutanoic acid	1.40	1.56			112		70-130		
Perfluorodecanoic acid	1.40	1.16			83		70-130		
Perfluorododecanoic acid	1.40	1.43			102		70-130		
Perfluoroheptanoic acid	1.40	1.33			95		70-130		
Perfluorohexanesulfonate	1.32	1.20			91		70-130		
Perfluorohexanoic acid	1.40	1.38			99		70-130		
Perfluorononanoic acid	1.40	1.40			100		70-130		
Perfluoro-octanesulfonate	1.34	1.09			81		70-130		
Perfluorooctanoic acid	1.40	1.36			97		70-130		
Perfluoropentanoic acid	1.40	1.35			97		70-130		
Perfluorotetradecanoic acid	1.40	1.28			91		70-130		
Perfluorotridecanoic acid	1.40	1.66			118		70-130		
Perfluoroundecanoic acid	1.40	1.32			95		70-130		
Batch number: 17243008	Sample number(s): 9170332								
Perfluorobutanesulfonate	1.24	1.04			84		70-130		
Perfluorobutanoic acid	1.40	1.44			103		70-130		
Perfluorodecanoic acid	1.40	1.24			89		70-130		
Perfluorododecanoic acid	1.40	1.25			90		70-130		
Perfluoroheptanoic acid	1.40	1.35			96		70-130		
Perfluorohexanesulfonate	1.32	1.21			91		70-130		
Perfluorohexanoic acid	1.40	1.30			93		70-130		
Perfluorononanoic acid	1.40	1.49			106		70-130		
Perfluoro-octanesulfonate	1.34	1.00			75		70-130		
Perfluorooctanoic acid	1.40	1.26			90		70-130		
Perfluoropentanoic acid	1.40	1.22			87		70-130		
Perfluorotetradecanoic acid	1.40	1.30			93		70-130		
Perfluorotridecanoic acid	1.40	1.49			106		70-130		
Perfluoroundecanoic acid	1.40	1.40			100		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17239004	Sample number(s): 9170329-9170330,9170337								
Perfluorobutanesulfonate	12.38	11.69	12.38	11.92	94	96	70-130	2	30
Perfluorobutanoic Acid	14	14.19	14	14.2	101	101	70-130	0	30
Perfluorodecanoic acid	14	13.78	14	13.45	98	96	70-130	2	30
Perfluorododecanoic acid	14	13.81	14	13.59	99	97	70-130	2	30
Perfluoroheptanoic acid	14	13.97	14	13.57	100	97	70-130	3	30
Perfluorohexanesulfonate	13.24	11.97	13.24	13.55	90	102	70-130	12	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:12

Group Number: 1841288

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	14	13.51	14	13.01	96	93	70-130	4	30
Perfluorononanoic acid	14	14.57	14	13.39	104	96	70-130	8	30
Perfluoro-octanesulfonate	13.38	13.37	13.38	11.54	100	86	70-130	15	30
Perfluorooctanoic acid	14	14.75	14	13.04	105	93	70-130	12	30
Perfluoropentanoic Acid	14	12.93	14	13.99	92	100	70-130	8	30
Perfluorotetradecanoic acid	14	12.96	14	12.74	93	91	70-130	2	30
Perfluorotridecanoic acid	14	15.39	14	15.64	110	112	70-130	2	30
Perfluoroundecanoic acid	14	13.2	14	14.21	94	102	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17247667631B	Sample number(s): 9170321-9170322,9170324-9170328								
TOC	7150	5874.2			82		47-143		
Batch number: 17248667631A	Sample number(s): 9170331-9170336,9170338-9170341								
TOC	7150	5545.88			78		47-143		
Batch number: 17248667631B	Sample number(s): 9170342								
TOC	7150	5545.88			78		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17239039403A	Sample number(s): 9170321,9170324								
pH	7.00	7.01			100		95-105		
Batch number: 17239039403B	Sample number(s): 9170325-9170328,9170331-9170336								
pH	7.00	7.01			100		95-105		
Batch number: 17241039401B	Sample number(s): 9170338-9170342								
pH	7.00	6.74			96		95-105		
	%	%	%	%					
Batch number: 17236820008A	Sample number(s): 9170321-9170328,9170331-9170336,9170338-9170341								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		
Batch number: 17237820005B	Sample number(s): 9170342								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841288
Reported: 09/12/2017 23:12

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17241003	Sample number(s): 9170321-9170323,9170325-9170328,9170331,9170333-9170336 UNSPK: 9170321									
Perfluorobutanesulfonate	0.19 U	1.15	1.16	1.12	1.10	100	98	70-130	5	30
Perfluorobutanoic acid	0.233	1.31	1.69	1.26	1.70	112	116	70-130	0	30
Perfluorodecanoic acid	0.19 U	1.31	1.54	1.26	1.47	118	116	70-130	5	30
Perfluorododecanoic acid	0.19 U	1.31	1.59	1.26	1.52	122	120	70-130	5	30
Perfluoroheptanoic acid	0.19 U	1.31	1.44	1.26	1.58	110	125	70-130	10	30
Perfluorohexanesulfonate	0.19 U	1.23	1.37	1.20	1.37	111	114	70-130	0	30
Perfluorohexanoic acid	0.097 U	1.31	1.50	1.26	1.51	115	119	70-130	1	30
Perfluorononanoic acid	0.181	1.31	1.66	1.26	1.69	113	119	70-130	2	30
Perfluoro-octanesulfonate	0.529	1.25	1.56	1.21	1.62	83	90	70-130	3	30
Perfluorooctanoic acid	0.744	1.31	2.33	1.26	2.18	121	114	70-130	7	30
Perfluoropentanoic acid	0.19 U	1.31	1.42	1.26	1.33	109	105	70-130	7	30
Perfluorotetradecanoic acid	0.19 U	1.31	1.48	1.26	1.45	114	115	70-130	2	30
Perfluorotridecanoic acid	0.19 U	1.31	1.45	1.26	1.44	111	114	70-130	0	30
Perfluoroundecanoic acid	0.19 U	1.31	1.54	1.26	1.47	118	117	70-130	4	30
Batch number: 17241008	Sample number(s): 9170338-9170342 UNSPK: P170345									
Perfluorobutanesulfonate	0.19 U	1.16	1.12	1.21	1.04	96	86	70-130	7	30
Perfluorobutanoic acid	0.19 U	1.31	1.41	1.37	1.43	107	104	70-130	1	30
Perfluorodecanoic acid	0.247	1.31	1.48	1.37	1.55	94	96	70-130	5	30
Perfluorododecanoic acid	0.19 U	1.31	1.40	1.37	1.46	107	107	70-130	4	30
Perfluoroheptanoic acid	0.19 U	1.31	1.47	1.37	1.38	112	101	70-130	6	30
Perfluorohexanesulfonate	0.19 U	1.24	1.21	1.29	1.25	97	96	70-130	3	30
Perfluorohexanoic acid	0.096 U	1.31	1.34	1.37	1.34	102	98	70-130	0	30
Perfluorononanoic acid	0.142	1.31	1.35	1.37	1.36	92	89	70-130	1	30
Perfluoro-octanesulfonate	0.311	1.25	1.35	1.31	1.36	83	80	70-130	1	30
Perfluorooctanoic acid	0.410	1.31	1.61	1.37	1.63	92	90	70-130	1	30
Perfluoropentanoic acid	0.19 U	1.31	1.24	1.37	1.33	94	98	70-130	8	30
Perfluorotetradecanoic acid	0.19 U	1.31	1.33	1.37	1.34	101	98	70-130	1	30
Perfluorotridecanoic acid	0.19 U	1.31	1.41	1.37	1.52	108	111	70-130	7	30
Perfluoroundecanoic acid	0.19 U	1.31	1.48	1.37	1.55	113	114	70-130	5	30
Batch number: 17243008	Sample number(s): 9170332 UNSPK: P172777									
Perfluorobutanesulfonate	0.19 U	1.23	1.18	1.20	1.14	96	95	70-130	3	30
Perfluorobutanoic acid	0.417	1.39	1.68	1.35	1.60	91	87	70-130	5	30
Perfluorodecanoic acid	0.19 U	1.39	1.35	1.35	1.36	97	100	70-130	1	30
Perfluorododecanoic acid	0.19 U	1.39	1.23	1.35	1.41	89	104	70-130	14	30
Perfluoroheptanoic acid	0.389	1.39	1.47	1.35	1.50	78	82	70-130	2	30
Perfluorohexanesulfonate	0.19 U	1.31	1.12	1.28	1.23	85	96	70-130	9	30
Perfluorohexanoic acid	0.269	1.39	1.34	1.35	1.59	77	98	70-130	17	30
Perfluorononanoic acid	0.253	1.39	1.49	1.35	1.52	89	94	70-130	2	30
Perfluoro-octanesulfonate	0.582	1.33	1.83	1.29	1.76	94	91	70-130	4	30
Perfluorooctanoic acid	3.68	1.39	3.80	1.35	4.71	9*	76	70-130	21	30
Perfluoropentanoic acid	0.19 U	1.39	1.42	1.35	1.46	102	108	70-130	3	30
Perfluorotetradecanoic acid	0.19 U	1.39	1.25	1.35	1.26	90	93	70-130	1	30
Perfluorotridecanoic acid	0.19 U	1.39	1.64	1.35	1.66	118	123	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:12

Group Number: 1841288

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroundecanoic acid	0.19 U	1.39	1.16	1.35	1.37	84	101	70-130	16	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17247667631B	Sample number(s): 9170321-9170322,9170324-9170328 UNSPK: 9170321									
TOC	13091.36	37440	40599.25			73		47-143		
Batch number: 17248667631A	Sample number(s): 9170331-9170336,9170338-9170341 UNSPK: 9170338									
TOC	11918.88	36180	30639.32			52		47-143		
Batch number: 17248667631B	Sample number(s): 9170342 UNSPK: P170345									
TOC	15507.63	33270	45221.73			89		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 17247667631B	Sample number(s): 9170321-9170322,9170324-9170328 BKG: 9170321			
TOC	13091.36	15733.7	18*	7
Batch number: 17248667631A	Sample number(s): 9170331-9170336,9170338-9170341 BKG: 9170338			
TOC	11918.88	13652.35	14*	7
Batch number: 17248667631B	Sample number(s): 9170342 BKG: P170345			
TOC	15507.63	15390.07	1	7
	Std. Units	Std. Units		
Batch number: 17239039403A	Sample number(s): 9170321,9170324 BKG: 9170321			
pH	8.54	8.50	0	3
Batch number: 17239039403B	Sample number(s): 9170325-9170328,9170331-9170336 BKG: 9170336			
pH	8.27	8.31	0	3
Batch number: 17241039401B	Sample number(s): 9170338-9170342 BKG: P171249			
pH	7.64	7.62	0	3
	%	%		
Batch number: 17236820008A	Sample number(s): 9170321-9170328,9170331-9170336,9170338-9170341 BKG: 9170321, P170321			
Moisture	13.02	13.2	1	5
Moisture	13.02	13.2	1	5
Moisture Duplicate	13.02	13.2	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841288
Reported: 09/12/2017 23:12

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 17237820005B	Sample number(s): 9170342 BKG: 9170342			
Moisture	13.31	14.49	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170329	80	85	80	70	70	69
9170330	87	96	89	82	75	84
9170337	85	85	84	82	79	89
Blank	78	86	89	73	66	81
LCS	86	94	91	90	83	87
LCSD	74	78	82	82	73	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	d5-NEtFOSAA
9170329	78	81	82	80	76	77
9170330	84	87	101	82	76	73
9170337	86	92	87	82	78	77
Blank	82	75	78	71	72	75
LCS	82	84	82	81	81	80
LCSD	76	72	67	68	67	68
Limits:	43-112	43-115	32-134	40-115	30-128	21-135

	13C2-PFDoDA	13C2-PFTeDA
9170329	72	71
9170330	69	70
9170337	73	67
Blank	72	76
LCS	74	74
LCSD	63	68
Limits:	28-127	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841288
Reported: 09/12/2017 23:12

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17241003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170321	73	78	79	67	73	70
9170322	65	62*	66	61	61	68
9170323	65	69*	70	61	70	67
9170325	69	69*	74	68	78	76
9170326	69	75	73	62	71	74
9170327	67	65*	75	65	71	69
9170328	66	68*	75	72	72	77
9170331	61	63*	67	66	68	63
9170333	62	63*	71	55	65	63
9170334	62	60*	65	65	71	69
9170335	62	62*	72	59	69	64
9170336	58	59*	63	63	74	66
Blank	67	66*	67	64	76	72
LCS	65	65*	68	71	75	74
MS	65	62*	66	61	61	68
MSD	65	69*	70	61	70	67
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170321	77	75	79	77	83	68
9170322	63	69	73	67	73	64
9170323	72	68	75	66	73	62
9170325	69	77	78	75	80	74
9170326	72	75	73	80	76	77
9170327	71	70	69	74	71	73
9170328	75	81	77	75	76	78
9170331	67	69	67	67	69	65
9170333	63	63	63	66	67	60
9170334	67	67	68	63	62	59
9170335	64	67	57	68	66	70
9170336	63	66	56	65	65	69
Blank	71	72	68	72	76	75
LCS	74	69	72	71	70	63
MS	63	69	73	67	73	64
MSD	72	68	75	66	73	62
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9170321	63
9170322	60

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841288
Reported: 09/12/2017 23:12

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17241003

	13C2-PFTeDA
9170323	59
9170325	65
9170326	65
9170327	64
9170328	68
9170331	56
9170333	55
9170334	53
9170335	56
9170336	57
Blank	66
LCS	64
MS	60
MSD	59
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17241008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170338	66	66*	72	71	67	72
9170339	69	71	72	66	64	69
9170340	63	66*	68	63	73	72
9170341	72	73	76	71	68	74
9170342	56	60*	69	53	53	49
Blank	36*	49*	68	57	70	61
LCS	47*	61*	83	71	84	82
MS	66	62*	71	56	64	59
MSD	67	65*	71	66	71	73
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170338	69	68	83	69	71	71
9170339	68	78	87	70	75	62
9170340	69	79	71	73	74	69
9170341	70	70	65	78	79	72
9170342	59	69	60	62	63	66
Blank	66	69	60	77	72	67
LCS	84	94	83	95	88	89
MS	62	80	93	78	79	74
MSD	71	76	70	74	74	67

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:12

Group Number: 1841288

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17241008

	13C2-PFTeDA
9170338	70
9170339	64
9170340	72
9170341	75
9170342	67
Blank	67
LCS	94
MS	79
MSD	75
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17243008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170332	86	79	88	89	82	77
Blank	93	91	89	90	87	95
LCS	89	90	90	93	90	89
MS	74	77	79	71	75	71
MSD	76	78	76	67	72	76
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170332	83	91	104	94	101	101
Blank	91	92	88	94	105	96
LCS	99	80	82	95	92	93
MS	67	90	89	71	75	65
MSD	74	85	98	68	68	61
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9170332	104
Blank	105
LCS	99
MS	78
MSD	76

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841288
Reported: 09/12/2017 23:12

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243008

Limits: 20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1841288 917032(-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **51378**

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 Marketpointe Dr.	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 3242 1001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL Trip Blank (A)	Soil: 250 mL plastic (PFCs (14)) (A)	Soil: 4 oz. glass (Toc, pH, moist.) (A)	% Solids	Preservative Code	Field Filtered Y/N
1.	SG3-S43-0-0.5'	0	0.5	ft.	08/21/2017	09:35	S	Y	6		3	3			
2.	SG3-S43-0.5-1'	0.5	1	ft.	08/21/2017	09:50	S	N	2		1	1			
3.	SG3-S43-1-1.5'	1	1.5	ft.	08/21/2017	09:55	S	N	2		1	1			
4.	SG3-S43-3-4'	3	4	ft.	08/21/2017	10:00	S	N	2		1	1			
5.	SG3-S43-8-9'	8	9	ft.	08/21/2017	10:15	S	N	2		1	1			
6.	SG3-LTB07-170821				08/21/2017	08:00 Cooler1	Water	N	1	1					
7.	SG3-LTB08-170821				08/21/2017	08:00 Cooler2	Water	N	1	1					
8.	SG3-S44-0-0.5'	0	0.5	ft	08/21/2017	11:35	S	N	2		1	1			
9.	SG3-S44-0.5-1'	0.5	1	ft	08/21/2017	11:45	S	N	2		1	1			
10.	SG3-S44-1-1.5'	1	1.5	ft	08/21/2017	11:55	S	N	2		1	1			

PFC's (14) (See included list for soil & water), TOC, pH, Moist. Content

(MS/MSD at SG3-S43-0-0.5')

Samples in two coolers

BARR USE ONLY		Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	RAM/RAK		☒ N	8/22/17	12:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/23/17	Time 0935
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster PA	Lab WO:	Temperature on Receipt (°C): 3.8			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1841288 9170321-412

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51376

COC 2 of 4

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name: [redacted]
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml Field Blank	Soil: 250 ml plastics PFC's (1)	Soil: 4oz glass Metals, pH, Moist.	% Solids
Preservative Code								A		A	A	
Field Filtered Y/N								N		1	1	
1. SG3-FD03170821				08/21/2017		S	N	2		1	1	
2. SG3-S44-3-4'	3	4	ft.	08/21/2017	12:10	S	N	2		1	1	
3. SG3-S44-8-9'	8	9	ft.	08/21/2017	12:20	S	N	2		1	1	
4. SG3-FB03-170821				08/21/2017	14:25	Wat.	N	1	1			
5. SG3-S48-0-0.5'	0	0.5	ft.	08/21/2017	14:25	S	N	2		1	1	
6. SG3-S48-0.5-1'	0.5	1.0	ft.	08/21/2017	14:30	S	N	2		1	1	
7. SG3-S48-1-1.5'	1	1.5	ft.	08/21/2017	14:35	S	N	2		1	1	
8. SG3-S48-3-4'	3	4	ft.	08/21/2017	14:40	S	N	2		1	1	
9. SG3-S48-6.4-7.4'	6.4	7.4	ft.	08/21/2017	15:25	S	N	2		1	1	
10.												

Samples in two coolers

BARR USE ONLY

Sampled by: KAM/RAK/RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA.

Relinquished by: [signature] On Ice? ☒ Y ☐ N Date 8/22/17 Time 17:00

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 8/23/17 Time 0935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 3.0 4.2 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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(3) wm 8/23/17 1844 37191 1841288 9170321-42

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192325

Group Number(s): 1841288

Client: BARR ENGINEERNG

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/23/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:35 on 08/23/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.0	DT	Wet	Y	Bagged	N
2	DT42-02	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1841290
SDG: SGB10
PO Number: 16.6131
State of Sample Origin: VT

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Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S38-0-0.5' Soil	08/22/2017 08:50	9170345
SG3-S38-0-0.5' MS Soil	08/22/2017 08:50	9170346
SG3-S38-0-0.5' MSD Soil	08/22/2017 08:50	9170347
SG3-S38-0-0.5' Dupl Soil	08/22/2017 08:50	9170348
SG3-S38-0.5-1' Soil	08/22/2017 09:05	9170349
SG3-S38-1-1.5' Soil	08/22/2017 09:15	9170350
SG3-S38-3-4' Soil	08/22/2017 09:30	9170351
SG3-S38-8-9' Soil	08/22/2017 09:40	9170352
SG3-S36-0-0.5' Soil	08/22/2017 10:45	9170353
SG3-S36-0.5-1' Soil	08/22/2017 11:00	9170354
SG3-S36-1-1.5' Soil	08/22/2017 11:10	9170355
SG3-S36-3-4' Soil	08/22/2017 11:20	9170356
SG3-FB04-170822 Blank Water	08/22/2017 11:05	9170357
SG3-S36-8-9' Soil	08/22/2017 11:50	9170358
SG3-S35-0-0.5' Soil	08/22/2017 13:20	9170359
SG3-S35-0.5-1' Soil	08/22/2017 13:30	9170360
SG3-S35-1-1.5' Soil	08/22/2017 13:35	9170361
SG3-FD04-170822 Soil	08/22/2017	9170362
SG3-S35-3-4' Soil	08/22/2017 13:45	9170363
SG3-S35-8-9' Soil	08/22/2017 14:05	9170364

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1841290

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9170350, 9170351, 9170353, 9170354, 9170358, 9170359, 9170360, 9170361, 9170364

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9170345, 9170346, 9170347, 9170349

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Batch #: 17241008 (Sample number(s): 9170345-9170347, 9170349 UNSPK: 9170345)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9170345, 9170346, 9170347, 9170349, Blank, LCS, MS, MSD

Batch #: 17242011 (Sample number(s): 9170350-9170356, 9170358-9170364 UNSPK: 9170350)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) MS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9170350, 9170351, 9170353, 9170354, 9170358, 9170359, 9170360,

9170361, 9170364

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17248837931A (Sample number(s): 9170358-9170364 UNSPK: 9170360 BKG: 9170360)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9170361

The pH was measured in water at 19.4 C.

Sample #s: 9170349, 9170350, 9170351, 9170362, 9170363

The pH was measured in water at 19.5 C.

Sample #s: 9170345, 9170352, 9170353, 9170360, 9170364

The pH was measured in water at 19.6 C.

Sample #s: 9170354, 9170355, 9170356, 9170359

The pH was measured in water at 19.7 C.

Sample #s: 9170348, 9170358

The pH was measured in water at 19.8 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17236820009A (Sample number(s): 9170345-9170356, 9170358-9170364 BKG: 9170345)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-S38-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170345
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.30**	**J**	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17**	**J**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.49**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,700**		801	2,400	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.64**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170345
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 19:54	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/05/2017 22:11	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9170346
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.9**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.23	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**54,500**	1,340	4,010	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**17.1**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 15:22	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9170346
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/05/2017 22:29	Samuel J Weaver	1
00118	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9170347
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.24	0.71	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.9**	0.24	0.71	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.24	0.71	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.24	0.71	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.24	0.71	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**	0.24	0.71	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.24	0.71	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.24	0.71	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.8**	0.24	0.71	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**	0.24	0.71	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**17.1**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 15:43	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9170348
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 08:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-1 SDG#: SGB10-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**18,600**	855	2,570	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.77**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**17.1**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**18.6**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/05/2017 22:42	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170349
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:05 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-2 SDG#: SGB10-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.28	U	0.28	0.83	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.32**	**J**	0.28	0.83	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.31**	**J**	0.28	0.83	1
14027	Perfluorododecanoic acid	307-55-1	0.28	U	0.28	0.83	1
14027	Perfluoroheptanoic acid	375-85-9	0.28	U	0.28	0.83	1
14027	Perfluorohexanesulfonate	355-46-4	0.28	U	0.28	0.83	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.56	1
14027	**Perfluorononanoic acid**	375-95-1	**0.42**	**J**	0.14	0.56	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.80**	**J**	0.42	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**		0.28	0.83	1
14027	Perfluoropentanoic acid	2706-90-3	0.28	U	0.28	0.83	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28	U	0.28	0.83	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28	U	0.28	0.83	1
14027	Perfluoroundecanoic acid	2058-94-8	0.28	U	0.28	0.83	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary for the method blank and laboratoy control spike (LCS) associated with this sample. The data quality is not impacted by these results.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**25,200**		1,100	3,300	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.80**		0.0100	0.0100	1

The pH was measured in water at 19.5 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**28.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170349
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:05 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-2 SDG#: SGB10-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17241008	08/31/2017 20:15	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17241008	08/29/2017 18:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/05/2017 22:59	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170350
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:15 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-3 SDG#: SGB10-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.77	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27**	**J**	0.26	0.77	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	**Perfluorononanoic acid**	375-95-1	**0.31**	**J**	0.13	0.52	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.62**	**J**	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.5**		0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.77	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,500**		908	2,720	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.79**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**27.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 19:02	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170350
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:15 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-3 SDG#: SGB10-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/05/2017 23:26	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17241039401B	08/29/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170351
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:30 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-4 SDG#: SGB10-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.76	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.76	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.76	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.76	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.76	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.38	U	0.38	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25	U	0.25	0.76	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.76	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.76	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.76	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,070**		339	1,020	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.66**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 19:23	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170351
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:30 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-4 SDG#: SGB10-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 09:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170352
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:40 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-5 SDG#: SGB10-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,440**		348	1,040	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 19:43	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S38-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170352
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 09:40 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S38-5 SDG#: SGB10-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 09:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170353
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 10:45 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-1 SDG#: SGB10-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.23**	**J**	0.22	0.67	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.27**	**J**	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.38**	**J**	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,100**		745	2,230	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.91**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/06/2017 22:18	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170353
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 10:45 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-1 SDG#: SGB10-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 09:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170354
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:00 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-2 SDG#: SGB10-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.33**	**J**	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.11**	**J**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.41**	**J**	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.26**	**J**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,800**		581	1,740	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.99**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 20:25	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170354
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:00 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-2 SDG#: SGB10-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 11:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170355
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:10 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-3 SDG#: SGB10-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.77	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.77	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.31**	**J**	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15**	**J**	0.13	0.52	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.50**	**J**	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36**	**J**	0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,500**		725	2,180	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.78**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/06/2017 22:39	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170355
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:10 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-3 SDG#: SGB10-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 09:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170356
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:20 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-4 SDG#: SGB10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,040**		321	962	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 21:06	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170356
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:20 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-4 SDG#: SGB10-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248667631B	09/06/2017 09:53	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB04-170822 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9170357
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:05 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB4 SDG#: SGB10-10FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**0.7**	**J**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 03:26	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170358
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-5 SDG#: SGB10-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,100**		548	1,650	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 21:26	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S36-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170358
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 11:50 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S36-5 SDG#: SGB10-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 12:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170359
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:20 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-1 SDG#: SGB10-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.40**	**J**	0.23	0.69	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.26**	**J**	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25**	**J**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.52**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**		0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.34**	**J**	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		780	2,340	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 21:47	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170359
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:20 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-1 SDG#: SGB10-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 12:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170360
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:30 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-2 SDG#: SGB10-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,210**		427	1,280	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 22:48	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9170360
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:30 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-2 SDG#: SGB10-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 17:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402A	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170361
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:35 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-3 SDG#: SGB10-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,320**		406	1,220	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 23:09	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9170361
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:35 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-3 SDG#: SGB10-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 18:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402B	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD04-170822 Soil
SGPP - North Bennington

ELLE Sample # SW 9170362
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD4 SDG#: SGB10-15FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28**	**J**	0.24	0.71	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.31**	**J**	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20**	**J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.40**	**J**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.74**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.25**	**J**	0.24	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		748	2,240	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/06/2017 23:00	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD04-170822 Soil
SGPP - North Bennington

ELLE Sample # SW 9170362
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD4 SDG#: SGB10-15FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 14:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402B	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170363
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:45 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-4 SDG#: SGB10-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**		0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,560**		370	1,110	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/01/2017 23:50	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9170363
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 13:45 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-4 SDG#: SGB10-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 14:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402B	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170364
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 14:05 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-5 SDG#: SGB10-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.47**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,420**		189	568	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242011	09/02/2017 00:10	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S35-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9170364
ELLE Group # 1841290
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 14:05 by RQM

Submitted: 08/23/2017 09:35
Reported: 09/12/2017 23:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S35-5 SDG#: SGB10-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242011	08/30/2017 13:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17248837931A	09/06/2017 18:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17241039402B	08/29/2017 20:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17236820009A	08/25/2017 01:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841290
Reported: 09/12/2017 23:13

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17241008	Sample number(s): 9170345-9170347,9170349			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17242011	Sample number(s): 9170350-9170356,9170358-9170364			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17239004	Sample number(s): 9170357			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841290
Reported: 09/12/2017 23:13

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17248667631B	Sample number(s): 9170345-9170346,9170348-9170356			
TOC	100	U	100	300
Batch number: 17248837931A	Sample number(s): 9170358-9170364			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17241008	Sample number(s): 9170345-9170347,9170349								
Perfluorobutanesulfonate	1.24	1.15			93		70-130		
Perfluorobutanoic acid	1.40	1.56			112		70-130		
Perfluorodecanoic acid	1.40	1.16			83		70-130		
Perfluorododecanoic acid	1.40	1.43			102		70-130		
Perfluoroheptanoic acid	1.40	1.33			95		70-130		
Perfluorohexanesulfonate	1.32	1.20			91		70-130		
Perfluorohexanoic acid	1.40	1.38			99		70-130		
Perfluorononanoic acid	1.40	1.40			100		70-130		
Perfluoro-octanesulfonate	1.34	1.09			81		70-130		
Perfluorooctanoic acid	1.40	1.36			97		70-130		
Perfluoropentanoic acid	1.40	1.35			97		70-130		
Perfluorotetradecanoic acid	1.40	1.28			91		70-130		
Perfluorotridecanoic acid	1.40	1.66			118		70-130		
Perfluoroundecanoic acid	1.40	1.32			95		70-130		
Batch number: 17242011	Sample number(s): 9170350-9170356,9170358-9170364								
Perfluorobutanesulfonate	1.20	1.14	1.20	1.20	95	100	70-130	5	30
Perfluorobutanoic acid	1.36	1.68	1.36	1.60	123	118	70-130	5	30
Perfluorodecanoic acid	1.36	1.32	1.36	1.48	97	109	70-130	11	30
Perfluorododecanoic acid	1.36	1.44	1.36	1.50	106	111	70-130	4	30
Perfluoroheptanoic acid	1.36	1.67	1.36	1.46	123	107	70-130	14	30
Perfluorohexanesulfonate	1.29	1.27	1.29	1.25	99	97	70-130	1	30
Perfluorohexanoic acid	1.36	1.39	1.36	1.49	103	110	70-130	7	30
Perfluorononanoic acid	1.36	1.60	1.36	1.66	118	122	70-130	4	30
Perfluoro-octanesulfonate	1.30	1.21	1.30	1.20	93	92	70-130	1	30
Perfluorooctanoic acid	1.36	1.48	1.36	1.48	109	109	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:13

Group Number: 1841290

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoropentanoic acid	1.36	1.41	1.36	1.34	104	99	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.60	1.36	1.51	117	111	70-130	6	30
Perfluorotridecanoic acid	1.36	1.42	1.36	1.37	104	101	70-130	4	30
Perfluoroundecanoic acid	1.36	1.74	1.36	1.69	128	124	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17239004	Sample number(s): 9170357								
Perfluorobutanesulfonate	12.38	11.69	12.38	11.92	94	96	70-130	2	30
Perfluorobutanoic Acid	14	14.19	14	14.2	101	101	70-130	0	30
Perfluorodecanoic acid	14	13.78	14	13.45	98	96	70-130	2	30
Perfluorododecanoic acid	14	13.81	14	13.59	99	97	70-130	2	30
Perfluoroheptanoic acid	14	13.97	14	13.57	100	97	70-130	3	30
Perfluorohexanesulfonate	13.24	11.97	13.24	13.55	90	102	70-130	12	30
Perfluorohexanoic acid	14	13.51	14	13.01	96	93	70-130	4	30
Perfluorononanoic acid	14	14.57	14	13.39	104	96	70-130	8	30
Perfluoro-octanesulfonate	13.38	13.37	13.38	11.54	100	86	70-130	15	30
Perfluorooctanoic acid	14	14.75	14	13.04	105	93	70-130	12	30
Perfluoropentanoic Acid	14	12.93	14	13.99	92	100	70-130	8	30
Perfluorotetradecanoic acid	14	12.96	14	12.74	93	91	70-130	2	30
Perfluorotridecanoic acid	14	15.39	14	15.64	110	112	70-130	2	30
Perfluoroundecanoic acid	14	13.2	14	14.21	94	102	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17248667631B	Sample number(s): 9170345-9170346,9170348-9170356								
TOC	7150	5545.88			78		47-143		
Batch number: 17248837931A	Sample number(s): 9170358-9170364								
TOC	7150	3768.35			53		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17241039401B	Sample number(s): 9170349-9170350								
pH	7.00	6.74			96		95-105		
Batch number: 17241039402A	Sample number(s): 9170345,9170348,9170351-9170356,9170358-9170360								
pH	7.00	6.93			99		95-105		
Batch number: 17241039402B	Sample number(s): 9170361-9170364								
pH	7.00	6.93			99		95-105		
	%	%	%	%					
Batch number: 17236820009A	Sample number(s): 9170345-9170356,9170358-9170364								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:13

Group Number: 1841290

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17241008	Sample number(s): 9170345-9170347,9170349 UNSPK: 9170345										
Perfluorobutanesulfonate	0.19	U	1.16	1.12	1.21	1.04	96	86	70-130	7	30
Perfluorobutanoic acid	0.19	U	1.31	1.41	1.37	1.43	107	104	70-130	1	30
Perfluorodecanoic acid	0.247		1.31	1.48	1.37	1.55	94	96	70-130	5	30
Perfluorododecanoic acid	0.19	U	1.31	1.40	1.37	1.46	107	107	70-130	4	30
Perfluoroheptanoic acid	0.19	U	1.31	1.47	1.37	1.38	112	101	70-130	6	30
Perfluorohexanesulfonate	0.19	U	1.24	1.21	1.29	1.25	97	96	70-130	3	30
Perfluorohexanoic acid	0.096	U	1.31	1.34	1.37	1.34	102	98	70-130	0	30
Perfluorononanoic acid	0.142		1.31	1.35	1.37	1.36	92	89	70-130	1	30
Perfluoro-octanesulfonate	0.311		1.25	1.35	1.31	1.36	83	80	70-130	1	30
Perfluorooctanoic acid	0.410		1.31	1.61	1.37	1.63	92	90	70-130	1	30
Perfluoropentanoic acid	0.19	U	1.31	1.24	1.37	1.33	94	98	70-130	8	30
Perfluorotetradecanoic acid	0.19	U	1.31	1.33	1.37	1.34	101	98	70-130	1	30
Perfluorotridecanoic acid	0.19	U	1.31	1.41	1.37	1.52	108	111	70-130	7	30
Perfluoroundecanoic acid	0.19	U	1.31	1.48	1.37	1.55	113	114	70-130	5	30
Batch number: 17242011	Sample number(s): 9170350-9170356,9170358-9170364 UNSPK: 9170350										
Perfluorobutanesulfonate	0.19	U	1.16	1.20			103		70-130		
Perfluorobutanoic acid	0.194		1.32	1.52			100		70-130		
Perfluorodecanoic acid	0.19	U	1.32	1.60			122		70-130		
Perfluorododecanoic acid	0.19	U	1.32	1.55			118		70-130		
Perfluoroheptanoic acid	0.19	U	1.32	1.59			121		70-130		
Perfluorohexanesulfonate	0.19	U	1.25	1.28			102		70-130		
Perfluorohexanoic acid	0.094	U	1.32	1.48			112		70-130		
Perfluorononanoic acid	0.223		1.32	1.74			115		70-130		
Perfluoro-octanesulfonate	0.451		1.26	1.62			93		70-130		
Perfluorooctanoic acid	2.51		1.32	4.19			127		70-130		
Perfluoropentanoic acid	0.19	U	1.32	1.50			114		70-130		
Perfluorotetradecanoic acid	0.19	U	1.32	1.47			112		70-130		
Perfluorotridecanoic acid	0.19	U	1.32	1.35			102		70-130		
Perfluoroundecanoic acid	0.19	U	1.32	1.63			123		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17248667631B	Sample number(s): 9170345-9170346,9170348-9170356 UNSPK: 9170345										
TOC	15507.63		33270	45221.73			89		47-143		
Batch number: 17248837931A	Sample number(s): 9170358-9170364 UNSPK: 9170360										
TOC	8529.64		25200	26112.51			70		47-143		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:13

Group Number: 1841290

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17248667631B	Sample number(s): 9170345-9170346,9170348-9170356 BKG: 9170345			
TOC	15507.63	15390.07	1	7
Batch number: 17248837931A	Sample number(s): 9170358-9170364 BKG: 9170360			
TOC	8529.64	5073.93	51* (1)	7
	Std. Units	Std. Units		
Batch number: 17241039401B	Sample number(s): 9170349-9170350 BKG: P171249			
pH	7.64	7.62	0	3
Batch number: 17241039402A	Sample number(s): 9170345,9170348,9170351-9170356,9170358-9170360 BKG: 9170345			
pH	7.64	7.77	2	3
Batch number: 17241039402B	Sample number(s): 9170361-9170364 BKG: 9170361			
pH	8.41	8.39	0	3
	%	%		
Batch number: 17236820009A	Sample number(s): 9170345-9170356,9170358-9170364 BKG: 9170345, P170345			
Moisture	17.15	18.57	8*	5
Moisture	17.15	18.57	8*	5
Moisture Duplicate	17.15	18.57	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170357	80	82	83	76	71	68
Blank	78	86	89	73	66	81
LCS	86	94	91	90	83	87
LCSD	74	78	82	82	73	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	d5-NEtFOSAA
9170357	73	77	83	75	72	74
Blank	82	75	78	71	72	75
LCS	82	84	82	81	81	80

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841290
Reported: 09/12/2017 23:13

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	d5-NEtFOSAA
LCSD	76	72	67	68	67	68
Limits:	43-112	43-115	32-134	40-115	30-128	21-135

	13C2-PFDoDA	13C2-PFTeDA
9170357	69	70
Blank	72	76
LCS	74	74
LCSD	63	68
Limits:	28-127	26-119

Analysis Name: 14 PFCs
Batch number: 17241008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170345	60	58*	71	58	70	74
9170346	66	62*	71	56	64	59
9170347	67	65*	71	66	71	73
9170349	58	65*	68	61	59	63
Blank	36*	49*	68	57	70	61
LCS	47*	61*	83	71	84	82
MS	66	62*	71	56	64	59
MSD	67	65*	71	66	71	73
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170345	71	70	68	68	69	66
9170346	62	80	93	78	79	74
9170347	71	76	70	74	74	67
9170349	61	62	63	61	61	54
Blank	66	69	60	77	72	67
LCS	84	94	83	95	88	89
MS	62	80	93	78	79	74
MSD	71	76	70	74	74	67
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9170345	67
9170346	79

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/12/2017 23:13

Group Number: 1841290

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17241008

	13C2-PFTeDA
9170347	75
9170349	49
Blank	67
LCS	94
MS	79
MSD	75
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17242011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9170350	61	66*	70	61	68	61
9170351	56	56*	70	63	77	69
9170352	70	70	77	77	78	78
9170353	66	69*	74	63	65	72
9170354	60	58*	64	61	67	67
9170355	80	82	94	73	76	91
9170356	76	80	84	70	76	75
9170358	65	62*	73	70	71	66
9170359	63	61*	64	62	69	64
9170360	58	60*	68	58	66	65
9170361	58	61*	80	62	72	67
9170362	84	84	99	82	91	93
9170363	72	71	76	81	84	81
9170364	65	65*	70	63	67	63
Blank	80	77	84	92	88	87
LCS	68	73	75	70	77	72
LCSD	78	85	89	81	89	94
MS	97*	95	102	84	91	94
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170350	64	67	69	65	62	55
9170351	75	70	65	69	65	68
9170352	81	76	74	78	71	74
9170353	70	69	75	64	68	60
9170354	68	64	69	65	66	66
9170355	85	90	94	83	81	82
9170356	78	79	81	83	81	79
9170358	66	66	62	69	64	68

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841290
Reported: 09/12/2017 23:13

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17242011

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9170359	67	67	69	69	68	61
9170360	73	73	65	71	65	65
9170361	73	74	75	76	77	79
9170362	89	89	91	82	85	79
9170363	78	73	66	80	80	81
9170364	67	66	60	71	67	68
Blank	90	85	79	88	88	89
LCS	80	75	71	83	75	77
LCSD	89	88	85	88	79	84
MS	92	96	100	82	91	87
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9170350	53
9170351	61
9170352	64
9170353	53
9170354	55
9170355	69
9170356	68
9170358	60
9170359	55
9170360	53
9170361	67
9170362	77
9170363	65
9170364	61
Blank	80
LCS	70
LCSD	74
MS	79
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1841290 9170345-64

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 52267

COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd. (NY)
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	Soil: 250ml plastics, PFCs (14)	Soil: 4 oz. glass jars/Toc, pH, moist	Soil: % Solids
									A	A	A	
							N		2	1	1	
1. SG3-S38-0-0.5'	0	0.5	ft.	08/22/2017	08:50	S	Y	6		3	3	
2. SG3-S38-0.5-1'	0.5	1	ft.	08/22/2017	09:05	S	N	2		1	1	
3. SG3-S38-1-1.5'	1	1.5	ft.	08/22/2017	09:15	S	N	2		1	1	
4. SG3-S38-3-4'	3	4	ft.	08/22/2017	09:30	S	N	2		1	1	
5. SG3-S38-8-9'	8	9	ft.	08/22/2017	09:40	S	N	2		1	1	
6. SG3-S36-0-0.5'	0	0.5	ft.	08/22/2017	10:45	S	N	2		1	1	
7. SG3-S36-0.5-1'	0.5	1	ft.	08/22/2017	11:00	S	N	2		1	1	
8. SG3-S36-1-1.5'	1	1.5	ft.	08/22/2017	11:10	S	N	2		1	1	
9. SG3-S36-3-4'	3	4	ft.	08/22/2017	11:20	S	N	2		1	1	
10. SG3-FB04-170822	/	/	/	08/22/2017	11:05	Water	N	1	1			

Preservative Code

Field Filtered Y/N

Samples in two coolers

BARR USE ONLY							
Sampled by: RQM/RAK	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	8/22/17 Date	17:00 Time	Received by:	8/23/17 Date	0935 Time
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 3.0 1.2			Custody Seal Intact? ☒ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

37191 1841290 9170345-04

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52265

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Mule
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd. (NY)
Name: Michael Dupay	Name:
email: MDP@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250ml plastics, PFCs (4)	Soil: 4 oz. glass jars/TOC, pH, moist.	Soil: % Solids
Preservative Code										A	A	
Field Filtered Y/N										1	1	
1. SG3-S36-8-9'	8	9	ft.	08/22/2017	11:50	S	N	2		1	1	
2. SG3-S35-0-0.5'	0	0.5	ft.	08/22/2017	13:20	S	N	2		1	1	
3. SG3-S35-0.5-1'	0.5	1	ft.	08/22/2017	13:30	S	N	2		1	1	
4. SG3-S35-1-1.5'	1	1.5	ft.	08/22/2017	13:35	S	N	2		1	1	
5. SG3-FD04-170822	/	/	/	08/22/2017	/	S	N	2		1	1	
6. SG3-S35-3-4'	3	4	ft.	08/22/2017	13:45	S	N	2		1	1	
7. SG3-S35-8-9'	8	9	ft.	08/22/2017	14:05	S	N	2		1	1	
8.												
9.												
10.												

Samples in two Coolers

BARR USE ONLY							
Sampled by: RAM/RAK	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/23/17	Time 0935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 2.9 2.2			Custody Seal Intact? ☒ Y ☐ N ☐ None		

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1841290 9170345-64

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192325

Group Number(s): 1841290

Client: BARR ENGINEERNG

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/23/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:35 on 08/23/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.0	DT	Wet	Y	Bagged	N
2	DT42-02	4.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 15, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1841879
SDG: SGB11
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

REVISED

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S09-0-0.5' Soil	08/22/2017 15:25	9172771
SG3-S09-0.5-1' Soil	08/22/2017 15:35	9172772
SG3-S09-1-1.5' Soil	08/22/2017 15:40	9172773
SG3-S09-3-4' Soil	08/22/2017 15:45	9172774
SG3-S09-8-9' Soil	08/22/2017 16:00	9172775
SG3-FD05-170823 Soil	08/23/2017	9172776
SG3-BG02-0-0.5' Soil	08/23/2017 11:05	9172777
SG3-BG02-0-0.5' MS Soil	08/23/2017 11:05	9172778
SG3-BG02-0-0.5' MSD Soil	08/23/2017 11:05	9172779
SG3-BG02-0-0.5' Dupl Soil	08/23/2017 11:05	9172780
SG3-FB05-170823 Blank Water	08/23/2017 10:45	9172781
SG3-BG02-0.5-1' Soil	08/23/2017 11:25	9172782
SG3-BG02-1-1.5' Soil	08/23/2017 11:35	9172783
SG3-BG02-3-4' Soil	08/23/2017 11:40	9172784
SG3-BG02-8-9' Soil	08/23/2017 12:00	9172785
SG3-S10-0-0.5' Soil	08/23/2017 14:30	9172786
SG3-S10-0.5-1' Soil	08/23/2017 14:35	9172787
SG3-S10-1-1.5' Soil	08/23/2017 14:40	9172788
SG3-S10-3-4' Soil	08/23/2017 15:15	9172789
SG3-S10-4.1-5.1' Soil	08/23/2017 15:30	9172790
SG3-S10-170823 Groundwater	08/23/2017 15:45	9172791
SG3-LTB09-170823 Blank Water	08/23/2017 15:40	9172792
SG3-FD06-170823 Groundwater	08/23/2017	9172793

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1841879

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9172783

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The results reported are from the initial extraction of the sample; comparable results were observed between the two extractions.

Sample #s: 9172776, 9172777, 9172781, 9172784, 9172785, 9172791, 9172792, 9172793

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9172782

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample extraction standard 13C4-PFBA is outside the QC acceptance limits. The recovery for the extraction standard is also outside the QC acceptance limits in the associated matrix spike, indicating a matrix effect.

Batch #: 17240020 (Sample number(s): 9172781, 9172791-9172793 UNSPK: 9172791)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9172781, 9172791, 9172792, 9172793, Blank, LCS, LCSD, MS

Batch #: 17243008 (Sample number(s): 9172771-9172773, 9172775-9172779 UNSPK: 9172777)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9172776, 9172777

Batch #: 17244003 (Sample number(s): 9172782-9172783, 9172786-9172790 UNSPK: 9172782)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9172782, 9172783, MS

Batch #: 17249010 (Sample number(s): 9172774 UNSPK: P176693)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid

Batch #: 17255003 (Sample number(s): 9172784-9172785 UNSPK: 9172782)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid, Perfluoroundecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9172784, MS

SW-846 6010C, Metals

Batch #: 172401063501 (Sample number(s): 9172791, 9172793 UNSPK: P170694 BKG: P170694)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium, Iron

EPA 351.2, Wet Chemistry

Batch #: 17240108101A (Sample number(s): 9172791, 9172793 UNSPK: 9172791 BKG: 9172791)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9172775, 9172785

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17250667631A (Sample number(s): 9172771-9172778, 9172780, 9172782-9172784 UNSPK: 9172777 BKG: 9172777)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17250667631B (Sample number(s): 9172785-9172790 UNSPK: 9172785 BKG: 9172785)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SM 2320 B-1997, Wet Chemistry

Batch #: 17241002203A (Sample number(s): 9172793 UNSPK: P163742 BKG: P163742, P172171)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Alkalinity to pH 4.5

SW-846 9045D modified, Wet Chemistry

Sample #s: 9172777

The pH was measured in water at 18.3 C.

Sample #s: 9172780

The pH was measured in water at 18.5 C.

Sample #s: 9172775, 9172776

The pH was measured in water at 18.7 C.

Sample #s: 9172773, 9172788

The pH was measured in water at 18.9 C.

Sample #s: 9172783, 9172786

The pH was measured in water at 19.1 C.

Sample #s: 9172774, 9172785, 9172789

The pH was measured in water at 19.2 C.

Sample #s: 9172772, 9172784, 9172787, 9172790

The pH was measured in water at 19.4 C.

Sample #s: 9172771

The pH was measured in water at 19.5 C.

Sample #s: 9172782

The pH was measured in water at 20 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17242820004A (Sample number(s): 9172771-9172780, 9172782-9172790 BKG: 9172777)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

REVISED

Sample Description: SG3-S09-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172771
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:25 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-1 SDG#: SGB11-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20**	**J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.49**	**J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.26**	**J**	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**23,200**		1,620	4,870	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.24**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 04:47	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172771
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:25 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-1 SDG#: SGB11-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 16:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172772
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-2 SDG#: SGB11-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20**	**J**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.40**	**J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.45**	**J**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,100**		1,010	3,030	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 05:07	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172772
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-2 SDG#: SGB11-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 16:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172773
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-3 SDG#: SGB11-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,580**		349	1,050	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.95**		0.0100	0.0100	1
	The pH was measured in water at 18.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 05:28	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172773
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-3 SDG#: SGB11-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 11:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172774
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-4 SDG#: SGB11-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.24**	**J**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,360**		160	481	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.58**		0.0100	0.0100	1
	The pH was measured in water at 19.2 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 09:12	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172774
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 15:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-4 SDG#: SGB11-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 11:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9172775
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 16:00 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-5 SDG#: SGB11-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	241	U	241	723	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**		0.0100	0.0100	1
	The pH was measured in water at 18.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 06:50	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S09-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9172775
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/22/2017 16:00 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S09-5 SDG#: SGB11-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 11:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD05-170823 Soil
SGPP - North Bennington

ELLE Sample # SW 9172776
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D5 SDG#: SGB11-06FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.33	U	0.33	0.99	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.75**	**J**	0.33	0.99	1
14027	Perfluorodecanoic acid	335-76-2	0.33	U	0.33	0.99	1
14027	Perfluorododecanoic acid	307-55-1	0.33	U	0.33	0.99	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.55**	**J**	0.33	0.99	1
14027	Perfluorohexanesulfonate	355-46-4	0.33	U	0.33	0.99	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.43**	**J**	0.16	0.66	1
14027	**Perfluorononanoic acid**	375-95-1	**0.46**	**J**	0.16	0.66	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	**J**	0.49	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.5**		0.33	0.99	1
14027	Perfluoropentanoic acid	2706-90-3	0.33	U	0.33	0.99	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.99	1
14027	Perfluorotridecanoic acid	72629-94-8	0.33	U	0.33	0.99	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.99	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**48,200**		2,230	6,680	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.08**		0.0100	0.0100	1
	The pH was measured in water at 18.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**40.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/06/2017 03:48	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD05-170823 Soil
SGPP - North Bennington

ELLE Sample # SW 9172776
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3D5 SDG#: SGB11-06FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 17:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039401B	08/31/2017 12:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172777
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:05 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-1 SDG#: SGB11-07BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.37	U	0.37	1.1	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.81**	**J**	0.37	1.1	1
14027	Perfluorodecanoic acid	335-76-2	0.37	U	0.37	1.1	1
14027	Perfluorododecanoic acid	307-55-1	0.37	U	0.37	1.1	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.76**	**J**	0.37	1.1	1
14027	Perfluorohexanesulfonate	355-46-4	0.37	U	0.37	1.1	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.52**	**J**	0.18	0.74	1
14027	**Perfluorononanoic acid**	375-95-1	**0.49**	**J**	0.18	0.74	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	**J**	0.55	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**7.2**		0.37	1.1	1
14027	Perfluoropentanoic acid	2706-90-3	0.37	U	0.37	1.1	1
14027	Perfluorotetradecanoic acid	376-06-7	0.37	U	0.37	1.1	1
14027	Perfluorotridecanoic acid	72629-94-8	0.37	U	0.37	1.1	1
14027	Perfluoroundecanoic acid	2058-94-8	0.37	U	0.37	1.1	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**58,000**		2,440	7,330	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.26**		0.0100	0.0100	1
	The pH was measured in water at 18.3 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**48.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/06/2017 04:08	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172777
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:05 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-1 SDG#: SGB11-07BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 17:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9172778
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:05 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-1 SDG#: SGB11-07MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**2.3**	0.39	1.2	1
14027	**Perfluorobutanoic acid**	375-22-4	**3.3**	0.39	1.2	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.6**	0.39	1.2	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.4**	0.39	1.2	1
14027	**Perfluoroheptanoic acid**	375-85-9	**2.9**	0.39	1.2	1
14027	**Perfluorohexanesulfonate**	355-46-4	**2.2**	0.39	1.2	1
14027	**Perfluorohexanoic acid**	307-24-4	**2.6**	0.19	0.77	1
14027	**Perfluorononanoic acid**	375-95-1	**2.9**	0.19	0.77	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**3.6**	0.58	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**7.4**	0.39	1.2	1
14027	**Perfluoropentanoic acid**	2706-90-3	**2.8**	0.39	1.2	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.4**	0.39	1.2	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**3.2**	0.39	1.2	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.3**	0.39	1.2	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**226,000**	5,770	17,300	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**48.6**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 03:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 17:41	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9172779
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:05 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-1 SDG#: SGB11-07MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**2.2**	0.38	1.1	1
14027	**Perfluorobutanoic acid**	375-22-4	**3.1**	0.38	1.1	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.6**	0.38	1.1	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.8**	0.38	1.1	1
14027	**Perfluoroheptanoic acid**	375-85-9	**2.9**	0.38	1.1	1
14027	**Perfluorohexanesulfonate**	355-46-4	**2.4**	0.38	1.1	1
14027	**Perfluorohexanoic acid**	307-24-4	**3.1**	0.19	0.75	1
14027	**Perfluorononanoic acid**	375-95-1	**3.0**	0.19	0.75	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**3.4**	0.56	1.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**9.2**	0.38	1.1	1
14027	**Perfluoropentanoic acid**	2706-90-3	**2.8**	0.38	1.1	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.5**	0.38	1.1	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**3.2**	0.38	1.1	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.7**	0.38	1.1	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**48.6**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17243008	09/02/2017 03:24	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17243008	08/31/2017 15:10	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9172780
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:05 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-1 SDG#: SGB11-07DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**68,600**	2,360	7,070	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**5.22**	0.0100	0.0100	1
	The pH was measured in water at 18.5 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**48.6**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**44.7**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 17:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FB05-170823 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9172781
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 10:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB5 SDG#: SGB11-08FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 14:36	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172782
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:25 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-2 SDG#: SGB11-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.33	U	0.33	0.98	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.46**	**J**	0.33	0.98	1
14027	Perfluorodecanoic acid	335-76-2	0.33	U	0.33	0.98	1
14027	Perfluorododecanoic acid	307-55-1	0.33	U	0.33	0.98	1
14027	Perfluoroheptanoic acid	375-85-9	0.33	U	0.33	0.98	1
14027	Perfluorohexanesulfonate	355-46-4	0.33	U	0.33	0.98	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.21**	**J**	0.16	0.65	1
14027	Perfluorononanoic acid	375-95-1	0.16	U	0.16	0.65	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.49	U	0.49	1.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.9**		0.33	0.98	1
14027	Perfluoropentanoic acid	2706-90-3	0.33	U	0.33	0.98	1
14027	Perfluorotetradecanoic acid	376-06-7	0.33	U	0.33	0.98	1
14027	Perfluorotridecanoic acid	72629-94-8	0.33	U	0.33	0.98	1
14027	Perfluoroundecanoic acid	2058-94-8	0.33	U	0.33	0.98	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample extraction standard 13C4-PFBA is outside the QC acceptance limits. The recovery for the extraction standard is also outside the QC acceptance limits in the associated matrix spike, indicating a matrix effect.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**52,900**		1,170	3,510	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**4.93**		0.0100	0.0100	1

The pH was measured in water at 20 C.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**41.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172782
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:25 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-2 SDG#: SGB11-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 15:46	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 13:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172783
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-3 SDG#: SGB11-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27	U	0.27	0.82	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.30**	**J**	0.27	0.82	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.82	1
14027	Perfluorododecanoic acid	307-55-1	0.27	U	0.27	0.82	1
14027	Perfluoroheptanoic acid	375-85-9	0.27	U	0.27	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.27	U	0.27	0.82	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.14	U	0.14	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.41	U	0.41	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**		0.27	0.82	1
14027	Perfluoropentanoic acid	2706-90-3	0.27	U	0.27	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27	U	0.27	0.82	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27	U	0.27	0.82	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27	U	0.27	0.82	1

The recovery for extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The results reported are from the initial extraction of the sample; comparable results were observed between the two extractions.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,500**		614	1,840	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**4.88**		0.0100	0.0100	1

The pH was measured in water at 19.1 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**31.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172783
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-3 SDG#: SGB11-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 16:07	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 13:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172784
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-4 SDG#: SGB11-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,210**		210	631	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.09**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255003	09/13/2017 03:59	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17255003	09/12/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172784
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 11:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-4 SDG#: SGB11-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631A	09/07/2017 13:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9172785
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 12:00 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-5 SDG#: SGB11-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**319**	**J**	275	824	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.30**		0.0100	0.0100	1
	The pH was measured in water at 19.2 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-BG02-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9172785
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 12:00 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BG2-5 SDG#: SGB11-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255003	09/13/2017 04:19	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17255003	09/12/2017 09:00	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/07/2017 13:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172786
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:30 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-1 SDG#: SGB11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,100**		1,210	3,620	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.38**		0.0100	0.0100	1
	The pH was measured in water at 19.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 17:50	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172786
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:30 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-1 SDG#: SGB11-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/08/2017 09:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172787
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-2 SDG#: SGB11-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,400**		1,120	3,350	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.45**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 18:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172787
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:35 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-2 SDG#: SGB11-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/08/2017 09:53	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172788
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-3 SDG#: SGB11-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.42**	**J**	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,100**		1,210	3,620	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.67**		0.0100	0.0100	1
	The pH was measured in water at 18.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 18:31	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9172788
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 14:40 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-3 SDG#: SGB11-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/08/2017 10:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172789
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:15 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-4 SDG#: SGB11-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.76	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.76	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.76	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.76	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.76	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.76	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**0.21**	**J**	0.13	0.51	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.0**	**J**	0.38	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.28**	**J**	0.25	0.76	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.76	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.76	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.76	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.76	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,980**		482	1,450	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.58**		0.0100	0.0100	1
	The pH was measured in water at 19.2 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**24.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 18:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9172789
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:15 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-4 SDG#: SGB11-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/07/2017 15:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402A	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-4.1-5.1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172790
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:30 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-5 SDG#: SGB11-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,100**		456	1,370	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.91**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17244003	09/07/2017 19:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17244003	09/03/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-4.1-5.1' Soil
SGPP - North Bennington

ELLE Sample # SW 9172790
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:30 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-5 SDG#: SGB11-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/07/2017 15:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820004A	08/30/2017 11:48	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172791
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-W SDG#: SGB11-18

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**1**	**J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**5**	**J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**3**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.7**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**3**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**88**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**3**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**1.25**		0.0894	0.400	1
08014	Boron	7440-42-8	0.0101	U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**52.2**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.37**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**19.9**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.213**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.21**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**77.7**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072	U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0288**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0019**	**J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00050**	**J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0013**	**J**	0.00054	0.0040	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-S10-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172791
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-W SDG#: SGB11-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06035	**Lead**	7439-92-1	**0.0012 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0012 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0016**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**65.9**	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**4.6 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.12**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**267**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**267**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 14:57	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S10-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172791
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:45 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S10-W SDG#: SGB11-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08014	Boron	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	172401063501	08/29/2017 01:40	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172401063902D	08/29/2017 03:00	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172401063902A	08/29/2017 11:05	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	172401063902B	08/29/2017 03:00	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172401063902A	08/29/2017 03:00	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172401063902A	08/29/2017 11:05	Scott P Cuff	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172401063501	08/28/2017 16:25	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172401063902	08/28/2017 16:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17236249109A	08/24/2017 23:38	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17236249109A	08/25/2017 00:28	Zachary W Enck	20
00368	Nitrate Nitrogen	EPA 300.0	1	17236249109A	08/24/2017 23:38	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17236249109A	08/24/2017 23:38	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17236249109A	08/24/2017 23:38	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17243107103A	09/01/2017 01:55	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17240108101A	08/29/2017 18:37	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17240108101A	08/28/2017 17:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17241002204A	08/29/2017 23:22	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17241002204A	08/29/2017 23:22	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17241002204A	08/29/2017 23:22	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17236022601A	08/24/2017 21:50	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-LTB09-170823 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9172792
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 15:40

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3TB9 SDG#: SGB11-19TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 15:17	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD06-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172793
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D6W SDG#: SGB11-20FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**1**	**J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**5**	**J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**3**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.8**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**3**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**87**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**2**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.525**		0.0894	0.400	1
08014	Boron	7440-42-8	0.0101	U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**51.6**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.504**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**19.5**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.185**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**0.806**	**J**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**75.5**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072	U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0225**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087	U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00017**	**J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.00070**	**J**	0.00054	0.0040	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-FD06-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172793
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D6W SDG#: SGB11-20FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06035	**Lead**	7439-92-1	**0.00041 J**	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00075 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**67.7**	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**4.2 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.13**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**265**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**265**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 15:38	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD06-170823 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9172793
ELLE Group # 1841879
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/23/2017 by RQM

Submitted: 08/24/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D6W SDG#: SGB11-20FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08014	Boron	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	172401063501	08/29/2017 01:43	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172401063902D	08/29/2017 03:03	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172401063902B	08/29/2017 03:03	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172401063902A	08/29/2017 03:03	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172401063902A	08/29/2017 11:07	Scott P Cuff	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172401063501	08/28/2017 16:25	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172401063902	08/28/2017 16:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17236249109A	08/24/2017 22:31	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17236249109A	08/24/2017 22:48	Zachary W Enck	20
00368	Nitrate Nitrogen	EPA 300.0	1	17236249109A	08/24/2017 22:31	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17236249109A	08/24/2017 22:31	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17236249109A	08/24/2017 22:31	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17243107103A	09/01/2017 01:47	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17240108101A	08/29/2017 18:42	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17240108101A	08/28/2017 17:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17241002203A	08/29/2017 21:39	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17241002203A	08/29/2017 21:39	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17241002203A	08/29/2017 21:39	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17236022601A	08/24/2017 21:50	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17243008	Sample number(s): 9172771-9172773,9172775-9172779			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17244003	Sample number(s): 9172782-9172783,9172786-9172790			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17249010	Sample number(s): 9172774			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841879
Reported: 09/15/2017 12:58

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17255003	Sample number(s): 9172784-9172785			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17240020	Sample number(s): 9172781,9172791-9172793			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172401063501	Sample number(s): 9172791,9172793			
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172401063902A	Sample number(s): 9172791,9172793		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.0011 J	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172401063902B	Sample number(s): 9172791,9172793		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172401063902D	Sample number(s): 9172791,9172793		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17250667631A	Sample number(s): 9172771-9172778,9172780,9172782-9172784		
TOC	100 U	100	300
Batch number: 17250667631B	Sample number(s): 9172785-9172790		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17236249109A	Sample number(s): 9172791,9172793		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17240108101A	Sample number(s): 9172791,9172793		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17243107103A	Sample number(s): 9172791,9172793		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17236022601A	Sample number(s): 9172791,9172793		
Ortho-Phosphate as P	0.030 U	0.030	0.090

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

Method Blank (continued)

Analysis Name	Result mg/l as CaCO3		MDL** mg/l as CaCO3	LOQ mg/l as CaCO3
Batch number: 17241002203A	Sample number(s): 9172793			
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0
Batch number: 17241002204A	Sample number(s): 9172791			
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17243008	Sample number(s): 9172771-9172773,9172775-9172779								
Perfluorobutanesulfonate	1.24	1.04			84		70-130		
Perfluorobutanoic acid	1.40	1.44			103		70-130		
Perfluorodecanoic acid	1.40	1.24			89		70-130		
Perfluorododecanoic acid	1.40	1.25			90		70-130		
Perfluoroheptanoic acid	1.40	1.35			96		70-130		
Perfluorohexanesulfonate	1.32	1.21			91		70-130		
Perfluorohexanoic acid	1.40	1.30			93		70-130		
Perfluorononanoic acid	1.40	1.49			106		70-130		
Perfluoro-octanesulfonate	1.34	1.00			75		70-130		
Perfluorooctanoic acid	1.40	1.26			90		70-130		
Perfluoropentanoic acid	1.40	1.22			87		70-130		
Perfluorotetradecanoic acid	1.40	1.30			93		70-130		
Perfluorotridecanoic acid	1.40	1.49			106		70-130		
Perfluoroundecanoic acid	1.40	1.40			100		70-130		
Batch number: 17244003	Sample number(s): 9172782-9172783,9172786-9172790								
Perfluorobutanesulfonate	1.20	1.11	1.20	1.05	92	87	70-130	5	30
Perfluorobutanoic acid	1.36	1.53	1.36	1.55	113	114	70-130	1	30
Perfluorodecanoic acid	1.36	1.42	1.36	1.40	104	103	70-130	1	30
Perfluorododecanoic acid	1.36	1.42	1.36	1.46	104	107	70-130	3	30
Perfluoroheptanoic acid	1.36	1.48	1.36	1.35	109	99	70-130	9	30
Perfluorohexanesulfonate	1.29	1.13	1.29	1.30	88	101	70-130	15	30
Perfluorohexanoic acid	1.36	1.45	1.36	1.43	107	105	70-130	2	30
Perfluorononanoic acid	1.36	1.59	1.36	1.55	117	114	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.15	1.30	1.06	88	82	70-130	8	30
Perfluorooctanoic acid	1.36	1.33	1.36	1.37	98	101	70-130	3	30
Perfluoropentanoic acid	1.36	1.28	1.36	1.32	94	97	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.34	1.36	1.53	98	112	70-130	14	30
Perfluorotridecanoic acid	1.36	1.32	1.36	1.40	97	103	70-130	6	30
Perfluoroundecanoic acid	1.36	1.52	1.36	1.60	111	118	70-130	6	30
Batch number: 17249010	Sample number(s): 9172774								
Perfluorobutanesulfonate	1.20	1.06			88		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
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Group Number: 1841879

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanoic acid	1.36	1.53			113		70-130		
Perfluorodecanoic acid	1.36	1.44			106		70-130		
Perfluorododecanoic acid	1.36	1.30			95		70-130		
Perfluoroheptanoic acid	1.36	1.26			93		70-130		
Perfluorohexanesulfonate	1.29	1.12			87		70-130		
Perfluorohexanoic acid	1.36	1.37			101		70-130		
Perfluorononanoic acid	1.36	1.30			96		70-130		
Perfluoro-octanesulfonate	1.30	1.12			86		70-130		
Perfluorooctanoic acid	1.36	1.39			102		70-130		
Perfluoropentanoic acid	1.36	1.23			90		70-130		
Perfluorotetradecanoic acid	1.36	1.26			93		70-130		
Perfluorotridecanoic acid	1.36	1.20			88		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
Batch number: 17255003	Sample number(s): 9172784-9172785								
Perfluorobutanesulfonate	1.20	1.25	1.20	1.28	104	106	70-130	2	30
Perfluorobutanoic acid	1.36	1.57	1.36	1.58	116	116	70-130	0	30
Perfluorodecanoic acid	1.36	1.58	1.36	1.59	116	117	70-130	0	30
Perfluorododecanoic acid	1.36	1.70	1.36	1.56	125	114	70-130	9	30
Perfluoroheptanoic acid	1.36	1.66	1.36	1.58	122	116	70-130	5	30
Perfluorohexanesulfonate	1.29	1.50	1.29	1.41	116	109	70-130	6	30
Perfluorohexanoic acid	1.36	1.57	1.36	1.52	116	112	70-130	3	30
Perfluorononanoic acid	1.36	1.75	1.36	1.79	129	132*	70-130	2	30
Perfluoro-octanesulfonate	1.30	1.19	1.30	1.20	92	93	70-130	1	30
Perfluorooctanoic acid	1.36	1.65	1.36	1.60	121	118	70-130	3	30
Perfluoropentanoic acid	1.36	1.52	1.36	1.52	111	111	70-130	0	30
Perfluorotetradecanoic acid	1.36	1.70	1.36	1.53	125	113	70-130	10	30
Perfluorotridecanoic acid	1.36	1.31	1.36	1.46	96	107	70-130	11	30
Perfluoroundecanoic acid	1.36	1.85	1.36	1.83	136*	134*	70-130	1	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17240020	Sample number(s): 9172781,9172791-9172793								
6:2 fluorotelomersulfonate	12.9	16.26	12.9	14.6	126	113	70-130	11	30
8:2 fluorotelomersulfonate	13	15.27	13	15.01	117	115	70-130	2	30
NEtFOSAA	13.6	15.05	13.6	14.88	111	109	70-130	1	30
NMeFOSAA	13.6	17.18	13.6	16.9	126	124	70-130	2	30
Perfluorobutanesulfonate	12	13.09	12	11.26	109	94	70-130	15	30
Perfluorobutanoic Acid	13.6	15.89	13.6	14.7	117	108	70-130	8	30
Perfluorodecanoic acid	13.6	14.68	13.6	15.32	108	113	70-130	4	30
Perfluorododecanoic acid	13.6	15.22	13.6	14.27	112	105	70-130	6	30
Perfluoroheptanoic acid	13.6	15	13.6	14.17	110	104	70-130	6	30
Perfluorohexanesulfonate	12.9	13.48	12.9	12.99	105	101	70-130	4	30
Perfluorohexanoic acid	13.6	15.76	13.6	15.81	116	116	70-130	0	30
Perfluorononanoic acid	13.6	14.55	13.6	16.2	107	119	70-130	11	30
Perfluoro-octanesulfonate	13	13.15	13	11.8	101	91	70-130	11	30
Perfluorooctanoic acid	13.6	15.42	13.6	15.23	113	112	70-130	1	30
Perfluoropentanoic Acid	13.6	14.19	13.6	13.65	104	100	70-130	4	30
Perfluorotetradecanoic acid	13.6	15.5	13.6	14.28	114	105	70-130	8	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorotridecanoic acid	13.6	14.01	13.6	12.68	103	93	70-130	10	30
Perfluoroundecanoic acid	13.6	15.19	13.6	16.22	112	119	70-130	7	30
PFOSA	13.6	13.84	13.6	14.67	102	108	70-130	6	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172401063501	Sample number(s): 9172791,9172793								
Aluminum	2.00	2.24			112		80-120		
Boron	2.00	1.86			93		80-120		
Calcium	4.00	4.00			100		80-120		
Iron	1.00	1.01			101		80-120		
Magnesium	2.00	2.03			102		80-120		
Manganese	0.500	0.507			101		80-120		
Potassium	10	10.02			100		80-120		
Sodium	10	10.01			100		80-120		
Zinc	0.500	0.497			99		80-120		
Batch number: 172401063902A	Sample number(s): 9172791,9172793								
Antimony	0.00600	0.00587			98		80-120		
Arsenic	0.0100	0.0101			101		80-120		
Beryllium	0.00400	0.00382			96		80-120		
Cadmium	0.00500	0.00468			94		80-120		
Chromium	0.0500	0.0464			93		80-120		
Cobalt	0.250	0.234			93		80-120		
Copper	0.0500	0.0492			98		80-120		
Lead	0.0150	0.0147			98		80-120		
Nickel	0.0500	0.0492			98		80-120		
Silver	0.0500	0.0503			101		80-120		
Thallium	0.00200	0.00198			99		80-120		
Vanadium	0.0500	0.0458			92		80-120		
Batch number: 172401063902B	Sample number(s): 9172791,9172793								
Selenium	0.0100	0.00996			100		80-120		
Batch number: 172401063902D	Sample number(s): 9172791,9172793								
Barium	0.0500	0.0493			99		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17250667631A	Sample number(s): 9172771-9172778,9172780,9172782-9172784								
TOC	7150	5430.84			76		47-143		
Batch number: 17250667631B	Sample number(s): 9172785-9172790								
TOC	7150	5430.84			76		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17236249109A	Sample number(s): 9172791,9172793								
Bromide	7.50	7.07			94		90-110		
Chloride	3.00	2.78			93		90-110		
Nitrate Nitrogen	0.750	0.698			93		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Nitrite Nitrogen	0.750	0.718			96		90-110		
Sulfate	7.50	7.30			97		90-110		
Batch number: 17240108101A	Sample number(s): 9172791,9172793								
Kjeldahl Nitrogen	5.00	5.41			108		90-110		
Batch number: 17243107103A	Sample number(s): 9172791,9172793								
Ammonia Nitrogen	1.50	1.47			98		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17236022601A	Sample number(s): 9172791,9172793								
Ortho-Phosphate as P	0.400	0.400			100		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17241002203A	Sample number(s): 9172793								
Total Alkalinity to pH 4.5	188	182.27			97		77-114		
Batch number: 17241002204A	Sample number(s): 9172791								
Total Alkalinity to pH 4.5	188	183.3			98		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17243039401B	Sample number(s): 9172771-9172776								
pH	7.00	6.98			100		95-105		
Batch number: 17243039402A	Sample number(s): 9172777,9172780,9172782-9172789								
pH	7.00	7.02			100		95-105		
Batch number: 17243039402B	Sample number(s): 9172790								
pH	7.00	7.02			100		95-105		
	%	%	%	%					
Batch number: 17242820004A	Sample number(s): 9172771-9172780,9172782-9172790								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g	ng/g					
Batch number: 17243008	Sample number(s): 9172771-9172773,9172775-9172779 UNSPK: 9172777									

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanesulfonate	0.19 U	1.23	1.18	1.20	1.14	96	95	70-130	3	30
Perfluorobutanoic acid	0.417	1.39	1.68	1.35	1.60	91	87	70-130	5	30
Perfluorodecanoic acid	0.19 U	1.39	1.35	1.35	1.36	97	100	70-130	1	30
Perfluorododecanoic acid	0.19 U	1.39	1.23	1.35	1.41	89	104	70-130	14	30
Perfluoroheptanoic acid	0.389	1.39	1.47	1.35	1.50	78	82	70-130	2	30
Perfluorohexanesulfonate	0.19 U	1.31	1.12	1.28	1.23	85	96	70-130	9	30
Perfluorohexanoic acid	0.269	1.39	1.34	1.35	1.59	77	98	70-130	17	30
Perfluorononanoic acid	0.253	1.39	1.49	1.35	1.52	89	94	70-130	2	30
Perfluoro-octanesulfonate	0.582	1.33	1.83	1.29	1.76	94	91	70-130	4	30
Perfluorooctanoic acid	3.68	1.39	3.80	1.35	4.71	9*	76	70-130	21	30
Perfluoropentanoic acid	0.19 U	1.39	1.42	1.35	1.46	102	108	70-130	3	30
Perfluorotetradecanoic acid	0.19 U	1.39	1.25	1.35	1.26	90	93	70-130	1	30
Perfluorotridecanoic acid	0.19 U	1.39	1.64	1.35	1.66	118	123	70-130	1	30
Perfluoroundecanoic acid	0.19 U	1.39	1.16	1.35	1.37	84	101	70-130	16	30
Batch number: 17244003	Sample number(s): 9172782-9172783,9172786-9172790 UNSPK: 9172782									
Perfluorobutanesulfonate	0.19 U	1.10	1.03			94		70-130		
Perfluorobutanoic acid	0.270	1.24	1.52			101		70-130		
Perfluorodecanoic acid	0.19 U	1.24	1.26			102		70-130		
Perfluorododecanoic acid	0.19 U	1.24	1.32			106		70-130		
Perfluoroheptanoic acid	0.19 U	1.24	1.38			111		70-130		
Perfluorohexanesulfonate	0.19 U	1.17	1.09			93		70-130		
Perfluorohexanoic acid	0.120	1.24	1.38			101		70-130		
Perfluorononanoic acid	0.095 U	1.24	1.40			113		70-130		
Perfluoro-octanesulfonate	0.28 U	1.19	1.25			106		70-130		
Perfluorooctanoic acid	1.69	1.24	2.88			97		70-130		
Perfluoropentanoic acid	0.19 U	1.24	1.24			100		70-130		
Perfluorotetradecanoic acid	0.19 U	1.24	1.19			96		70-130		
Perfluorotridecanoic acid	0.19 U	1.24	1.30			105		70-130		
Perfluoroundecanoic acid	0.19 U	1.24	1.45			117		70-130		
Batch number: 17249010	Sample number(s): 9172774 UNSPK: P176693									
Perfluorobutanesulfonate	0.18 U	1.13	0.995	1.15	0.989	88	86	70-130	1	30
Perfluorobutanoic acid	0.18 U	1.28	1.45	1.31	1.47	113	112	70-130	1	30
Perfluorodecanoic acid	0.18 U	1.28	1.46	1.31	1.40	114	108	70-130	4	30
Perfluorododecanoic acid	0.18 U	1.28	1.38	1.31	1.31	108	100	70-130	6	30
Perfluoroheptanoic acid	0.18 U	1.28	1.41	1.31	1.39	110	106	70-130	2	30
Perfluorohexanesulfonate	0.18 U	1.21	1.11	1.23	1.05	92	85	70-130	5	30
Perfluorohexanoic acid	0.092 U	1.28	1.26	1.31	1.28	98	98	70-130	1	30
Perfluorononanoic acid	0.127	1.28	1.61	1.31	1.51	116	106	70-130	7	30
Perfluoro-octanesulfonate	0.360	1.23	1.33	1.25	1.31	79	76	70-130	1	30
Perfluorooctanoic acid	0.593	1.28	3.66	1.31	2.68	239*	160*	70-130	31*	30
Perfluoropentanoic acid	0.18 U	1.28	1.22	1.31	1.30	95	100	70-130	6	30
Perfluorotetradecanoic acid	0.18 U	1.28	1.34	1.31	1.25	105	96	70-130	7	30
Perfluorotridecanoic acid	0.18 U	1.28	1.31	1.31	1.26	102	97	70-130	3	30
Perfluoroundecanoic acid	0.18 U	1.28	1.59	1.31	1.51	124	116	70-130	5	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17255003	Sample number(s): 9172784-9172785 UNSPK: P172782										
Perfluorobutanesulfonate	0.20	U	1.19	1.23			103		70-130		
Perfluorobutanoic acid	0.218		1.35	1.76			114		70-130		
Perfluorodecanoic acid	0.20	U	1.35	1.67			124		70-130		
Perfluorododecanoic acid	0.20	U	1.35	1.61			120		70-130		
Perfluoroheptanoic acid	0.20	U	1.35	1.81			134*		70-130		
Perfluorohexanesulfonate	0.20	U	1.27	1.57			124		70-130		
Perfluorohexanoic acid	0.113		1.35	1.70			118		70-130		
Perfluorononanoic acid	0.099	U	1.35	1.76			130		70-130		
Perfluoro-octanesulfonate	0.30	U	1.29	1.35			105		70-130		
Perfluorooctanoic acid	1.89		1.35	3.02			84		70-130		
Perfluoropentanoic acid	0.20	U	1.35	1.53			114		70-130		
Perfluorotetradecanoic acid	0.20	U	1.35	1.54			114		70-130		
Perfluorotridecanoic acid	0.20	U	1.35	1.56			116		70-130		
Perfluoroundecanoic acid	0.20	U	1.35	1.63			121		70-130		
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17240020	Sample number(s): 9172781,9172791-9172793 UNSPK: 9172791										
6:2 fluorotelomersulfonate	3	U	12.96	16.36			126		70-130		
8:2 fluorotelomersulfonate	4	U	13.06	14.78			113		70-130		
NEtFOSAA	1	U	13.67	13.28			97		70-130		
NMeFOSAA	1	U	13.67	16.5			121		70-130		
Perfluorobutanesulfonate	1.17		12.06	12.36			93		70-130		
Perfluorobutanoic Acid	5.12		13.67	19.18			103		70-130		
Perfluorodecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluorododecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluoroheptanoic acid	3.53		13.67	16.88			98		70-130		
Perfluorohexanesulfonate	1	U	12.96	12.2			94		70-130		
Perfluorohexanoic acid	2.83		13.67	17.04			104		70-130		
Perfluorononanoic acid	0.666		13.67	14.88			104		70-130		
Perfluoro-octanesulfonate	3.25		13.06	15.58			94		70-130		
Perfluorooctanoic acid	87.71		13.67	104.3			121 (2)		70-130		
Perfluoropentanoic Acid	2.56		13.67	15.28			93		70-130		
Perfluorotetradecanoic acid	0.5	U	13.67	14			102		70-130		
Perfluorotridecanoic acid	0.5	U	13.67	11.65			85		70-130		
Perfluoroundecanoic acid	1	U	13.67	14.98			110		70-130		
PFOSA	3	U	13.67	13.55			99		70-130		
	mg/l		mg/l	mg/l	mg/l	mg/l					
Batch number: 172401063501	Sample number(s): 9172791,9172793 UNSPK: P170694										
Aluminum	3.07		2.00	5.58	2.00	5.88	126*	140*	75-125	5	20
Boron	0.0101	U	2.00	1.91	2.00	1.93	96	96	75-125	1	20
Calcium	161.92		4.00	166.03	4.00	163.1	103 (2)	30 (2)	75-125	2	20
Iron	3.74		1.00	4.45	1.00	4.64	71*	90	75-125	4	20
Magnesium	48.74		2.00	50.86	2.00	50.08	106 (2)	67 (2)	75-125	2	20
Manganese	1.24		0.500	1.74	0.500	1.72	100	96	75-125	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Potassium	2.42	10	12.72	10	12.7	103	103	75-125	0	20
Sodium	23.29	10	33.24	10	32.91	100	96	75-125	1	20
Zinc	0.0931	0.500	0.585	0.500	0.586	98	98	75-125	0	20
Batch number: 172401063902A	Sample number(s): 9172791,9172793 UNSPK: P170694									
Antimony	0.00045 U	0.00600	0.00629	0.00600	0.00672	105	112	75-125	7	20
Arsenic	0.00210	0.0100	0.0129	0.0100	0.0121	108	100	75-125	6	20
Beryllium	0.0000820	0.00400	0.00386	0.00400	0.00400	94	98	75-125	4	20
Cadmium	0.00015 U	0.00500	0.00479	0.00500	0.00495	96	99	75-125	3	20
Chromium	0.00590	0.0500	0.0537	0.0500	0.0545	96	97	75-125	2	20
Cobalt	0.00208	0.250	0.234	0.250	0.240	93	95	75-125	3	20
Copper	0.00335	0.0500	0.0495	0.0500	0.0515	92	96	75-125	4	20
Lead	0.00259	0.0150	0.0177	0.0150	0.0175	101	100	75-125	1	20
Nickel	0.00323	0.0500	0.0495	0.0500	0.0504	92	94	75-125	2	20
Silver	0.00015 U	0.0500	0.0493	0.0500	0.0494	99	99	75-125	0	20
Thallium	0.00012 U	0.00200	0.00219	0.00200	0.00197	110	98	75-125	11	20
Vanadium	0.00320	0.0500	0.0506	0.0500	0.0508	95	95	75-125	0	20
Batch number: 172401063902B	Sample number(s): 9172791,9172793 UNSPK: P170694									
Selenium	0.00050 U	0.0100	0.00967	0.0100	0.00974	97	97	75-125	1	20
Batch number: 172401063902D	Sample number(s): 9172791,9172793 UNSPK: P170694									
Barium	0.123	0.0500	0.165	0.0500	0.165	85	84	75-125	0	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17250667631A	Sample number(s): 9172771-9172778,9172780,9172782-9172784 UNSPK: 9172777									
TOC	29798.99	89010	116083.09			97		47-143		
Batch number: 17250667631B	Sample number(s): 9172785-9172790 UNSPK: 9172785									
TOC	292.41	16740	17166.76			101		47-143		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17236249109A	Sample number(s): 9172791,9172793 UNSPK: 9172791									
Bromide	1.3 U	25	23.77			95		90-110		
Chloride	65.92	40	107.77			105		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.52			101		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.39			96		90-110		
Sulfate	4.56	25	31.03			106		90-110		
Batch number: 17240108101A	Sample number(s): 9172791,9172793 UNSPK: 9172791									
Kjeldahl Nitrogen	0.50 U	5.00	5.92			118*		90-110		
Batch number: 17243107103A	Sample number(s): 9172791,9172793 UNSPK: P173410									
Ammonia Nitrogen	0.0527	1.00	1.09			103		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1841879

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17236022601A	Sample number(s): 9172791,9172793 UNSPK: P170528									
Ortho-Phosphate as P	0.460	0.400	0.838	0.400	0.839	95	95	69-131	0	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17241002203A	Sample number(s): 9172793 UNSPK: P163742									
Total Alkalinity to pH 4.5	4.72	188	183.15	188	177.78	95	92	77-114	3	10
Batch number: 17241002204A	Sample number(s): 9172791 UNSPK: P175149									
Total Alkalinity to pH 4.5	503.44	188	669.97			89		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172401063501	Sample number(s): 9172791,9172793 BKG: P170694			
Aluminum	3.07	3.07	0	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	161.92	162.07	0	20
Iron	3.74	3.74	0	20
Magnesium	48.74	48.83	0	20
Manganese	1.24	1.24	0	20
Potassium	2.42	2.45	1 (1)	20
Sodium	23.29	23.29	0	20
Zinc	0.0931	0.0989	6 (1)	20
Batch number: 172401063902A	Sample number(s): 9172791,9172793 BKG: P170694			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00210	0.00187	12 (1)	20
Beryllium	0.0000820	0.0000850	4 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00590	0.00603	2 (1)	20
Cobalt	0.00208	0.00210	1 (1)	20
Copper	0.00335	0.00361	8 (1)	20
Lead	0.00259	0.00247	5 (1)	20
Nickel	0.00323	0.00317	2 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00320	0.00338	6 (1)	20
Batch number: 172401063902B	Sample number(s): 9172791,9172793 BKG: P170694			
Selenium	0.00050 U	0.00050 U	0 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1841879
Reported: 09/15/2017 12:58

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172401063902D	Sample number(s): 9172791,9172793 BKG: P170694			
Barium	0.123	0.118	4	20
	mg/kg	mg/kg		
Batch number: 17250667631A	Sample number(s): 9172771-9172778,9172780,9172782-9172784 BKG: 9172777			
TOC	29798.99	35278.45	17*	7
Batch number: 17250667631B	Sample number(s): 9172785-9172790 BKG: 9172785			
TOC	292.41	495.69	52* (1)	7
	mg/l	mg/l		
Batch number: 17236249109A	Sample number(s): 9172791,9172793 BKG: 9172791			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	65.92	65.55	1	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	4.56	4.59	1 (1)	15
Batch number: 17240108101A	Sample number(s): 9172791,9172793 BKG: 9172791			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17243107103A	Sample number(s): 9172791,9172793 BKG: P173410			
Ammonia Nitrogen	0.0527	0.0557	6 (1)	20
	mg/l	mg/l		
Batch number: 17236022601A	Sample number(s): 9172791,9172793 BKG: P170528			
Ortho-Phosphate as P	0.460	0.462	0	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17241002203A	Sample number(s): 9172793 BKG: P163742			
Total Alkalinity to pH 4.5	4.72	4.32	9* (1)	5
Batch number: 17241002204A	Sample number(s): 9172791 BKG: P175149			
Total Alkalinity to pH 4.5	503.44	502.43	0	5
	Std. Units	Std. Units		
Batch number: 17243039401B	Sample number(s): 9172771-9172776 BKG: P179576			
pH	7.26	7.24	0	3
Batch number: 17243039402A	Sample number(s): 9172777,9172780,9172782-9172789 BKG: 9172777			
pH	5.26	5.22	1	3
Batch number: 17243039402B	Sample number(s): 9172790 BKG: P174358			
pH	7.94	7.91	0	3
	%	%		
Batch number: 17242820004A	Sample number(s): 9172771-9172780,9172782-9172790 BKG: 9172777, P172777			

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture	48.62	44.69	8*	5
Moisture	48.62	44.69	8*	5
Moisture Duplicate	48.62	44.69	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17240020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9172781	94	99	96	97	102	95
9172791	78	92	104	72	77	77
9172792	86	93	101	88	91	93
9172793	92	113	127	96	109	98
Blank	89	92	94	83	89	90
LCS	71	77	79	67	73	77
LCSD	85	87	85	82	83	90
MS	84	102	126	81	89	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9172781	115	105	100	100	100	93
9172791	80	72	73	76	78	83
9172792	105	92	87	90	96	95
9172793	132	99	86	92	93	108
Blank	124	89	90	105	86	133
LCS	99	75	80	89	74	89
LCSD	101	83	78	80	79	83
MS	96	83	88	95	98	102
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9172781	74	100	93	88	83	53*
9172791	55	79	70	77	66	55*
9172792	58	95	74	87	77	21*
9172793	63	93	80	91	80	13*
Blank	62	90	91	80	71	44*

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17240020

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	58	75	73	68	64	34*
LCSD	59	78	74	81	75	38*
MS	62	97	95	96	81	9*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17243008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9172771	93	96	92	80	74	84
9172772	95	99	89	90	87	93
9172773	83	82	77	83	79	74
9172775	68	73	88	79	84	80
9172776	66	65*	69	64	64	63
9172777	64	66*	69	61	57	65
9172778	74	77	79	71	75	71
9172779	76	78	76	67	72	76
Blank	93	91	89	90	87	95
LCS	89	90	90	93	90	89
MS	74	77	79	71	75	71
MSD	76	78	76	67	72	76
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9172771	88	99	104	84	81	76
9172772	91	95	111	92	100	88
9172773	76	73	83	89	83	78
9172775	82	92	83	92	97	95
9172776	64	72	81	61	70	68
9172777	63	83	87	69	83	73
9172778	67	90	89	71	75	65
9172779	74	85	98	68	68	61
Blank	91	92	88	94	105	96
LCS	99	80	82	95	92	93
MS	67	90	89	71	75	65
MSD	74	85	98	68	68	61
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243008

	13C2-PFTeDA
9172771	87
9172772	98
9172773	88
9172775	108
9172776	69
9172777	80
9172778	78
9172779	76
Blank	105
LCS	99
MS	78
MSD	76
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17244003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9172782	51*	51*	69	47	61	56
9172783	53*	55*	90	54	76	59
9172786	85	96	101	83	81	90
9172787	85	89	103	75	80	80
9172788	74	80	85	68	72	76
9172789	88	93	94	87	83	96
9172790	75	81	85	75	82	87
Blank	94	98	98	94	98	101
LCS	91	93	97	87	99	94
LCSD	86	90	92	86	91	97
MS	51*	53*	76	53	74	63
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9172782	62	70	69	58	64	55
9172783	65	83	71	71	67	64
9172786	87	98	107	94	86	84
9172787	95	100	108	91	93	81
9172788	80	84	90	81	81	77
9172789	100	95	103	100	89	90
9172790	92	83	89	84	84	76
Blank	102	100	100	103	90	102
LCS	99	97	91	99	91	95

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17244003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCSD	98	90	85	96	86	87
MS	64	77	65	64	67	63
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9172782	54
9172783	64
9172786	72
9172787	76
9172788	66
9172789	79
9172790	73
Blank	93
LCS	101
LCSD	87
MS	66
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17249010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9172774	73	77	77	71	75	82
Blank	81	83	89	72	75	77
LCS	74	78	85	74	77	83
MS	80	82	86	77	78	79
MSD	79	81	87	80	87	85
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9172774	78	76	80	77	76	80
Blank	86	85	82	81	76	91
LCS	78	77	72	76	71	77
MS	84	86	79	77	80	77
MSD	91	82	86	78	79	79
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1841879
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17249010

	13C2-PFTeDA
9172774	72
Blank	85
LCS	77
MS	75
MSD	74
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17255003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9172784	61	62*	77	60	67	69
9172785	71	70	71	71	74	84
Blank	77	77	75	71	78	76
LCS	76	74	74	73	80	78
LCSD	83	78	84	87	81	89
MS	38*	38*	58	37*	53	41*
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9172784	70	82	68	81	76	85
9172785	75	79	70	78	74	78
Blank	83	79	76	82	75	73
LCS	80	79	76	82	66	76
LCSD	88	79	79	82	69	77
MS	44	61	50	48	53	51
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9172784	81
9172785	78
Blank	81
LCS	75
LCSD	81
MS	50
Limits:	20-127

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37191 184(879 9172721-93

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52264

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT MwE
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd. (NY)
Name: Michael Dupay	Name:
email: MDP@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml field blank	Soil: 250ml plastics, PFCs (14)	Soil: 4 oz. glass/ TOC, pH, moist.	Soil: % Solids
								A		A	A	
								N		1	1	
1. SG3-S09-0-0.5'	0	0.5	ft.	08/22/2017	15:25	S	N	2		1	1	
2. SG3-S09-0.5-1'	0.5	1	ft.	08/22/2017	15:35	S	N	2		1	1	
3. SG3-S09-1-1.5'	1	1.5	ft.	08/22/2017	15:40	S	N	2		1	1	
4. SG3-S09-3-4'	3	4	ft.	08/22/2017	15:45	S	N	2		1	1	
5. SG3-S09-8-9'	8	9	ft.	08/22/2017	16:00	S	N	2		1	1	
6. SG3-FD05-170823	/	/	/	08/23/2017	/	S	N	2		1	1	
7. SG3-BG02-0-0.5'	0	0.5	ft.	08/23/2017	11:05	S	Y	6		3	3	
8. SG3-FB05-170823	/	/	/	08/23/2017	10:45	Water	N	1	1			
9. SG3-BG02-0.5-1'	0.5	1.0	ft.	08/23/2017	11:25	S	N	2		1	1	
10. SG3-BG02-1-1.5'	1.0	1.5	ft.	08/23/2017	11:35	S	N	2		1	1	

Preservative Code

Field Filtered Y/N

Samples split into two separate coolers

BARR USE ONLY

Sampled by: RQM/RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDP

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? (Y) N Date 08/23/2017 Time 17:30 Received by:

Relinquished by: On Ice? Y N Date Time Received by: Date 8/24/17 Time 0930

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.0 1.4 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1841879 9172771-93

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52263
COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd. (NW)
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: PFCs (19)	Metals/Cations (excluding CN + Hg)	Anions	Ammonia	Orthophosphate	TKN	Soil: 250ml plastics, PFCs (14)	4oz. glass / TOC, pH, moist.	250ml Trip Blank (water)	% Solids	Preservative Code	Field Filtered Y/N
									O	C	A	D	A	D	A	A	A			
									N	N	N	N	Y	N	-	-	N			
1. SG3-BG02-3-4'	3	4	ft.	08/23/2017	11:40	S	N	2							1	1			250ml plastic: Metals HNO_3 pres.	
2. SG3-BG02-8-9'	8	9	ft.	08/23/2017	12:00	S	N	2							1	1			40ml unpres. VOA: Bromide	
3. SG3-S10-0-0.5'	0	0.5	ft.	08/23/2017	14:30	S	N	2							1	1			Chloride Nitrate Nitrite Sulfate	
4. SG3-S10-0.5-1'	0.5	1	ft.	08/23/2017	14:35	S	N	2							1	1				
5. SG3-S10-1-1.5'	1	1.5	ft.	08/23/2017	14:40	S	N	2							1	1			250ml unpres. plastic: Bicarb. Alk. Carb. Alk. Tot. Alk	
6. SG3-S10-3-4'	3	4	ft	08/23/2017	15:15	S	N	2							1	1				
7. SG3-S10-4.1-5.1'	4.1	5.1	ft	08/23/2017	15:30	S	N	2							1	1			500ml H_2SO_4 pres plastic: Ammonia Kjeldahl	
8. SG3-S10-170823				08/23/2017	15:45	GW	N	8	X	X	X	X	X	X					250ml filtered plastic: o-PO4	
9. SG3-LTB09-170823				08/23/2017	15:40	Water	N	1									1			
10. SG3-FD06-170823				08/23/2017		GW	N	8	X	X	X	X	X	X						

BARR USE ONLY							
Sampled by: RQM/RAK	Relinquished by: (RQM)	On Ice? Y N	Date 08/23/2017	Time 17:30	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/24/17	Time 0930
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 1.0			Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 184/879 9/72771-93

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192433

Group Number(s): 1841879

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/24/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpres.

Unpacked by Ruth Shank (12390) at 12:30 on 08/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.0	DT	Wet	Y	Bagged	N
2	DT42-02	1.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 06, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1842306
SDG: SGB12
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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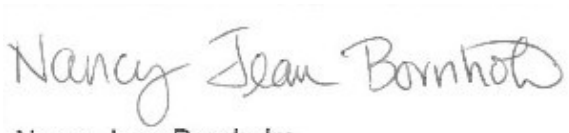
Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-CityWaterTruck-170824 Drinking Water	08/24/2017 10:00	9174304
SG3-CityWaterHose-170824 Drinking Water	08/24/2017 10:05	9174305
SG3-CityWaterFracTk-170824 Drinking Water	08/24/2017 15:00	9174306

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1842306

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9174304, 9174305

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9174306

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

Batch #: 17240020 (Sample number(s): 9174304-9174306 UNSPK: P172791)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9174306

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9174304, 9174305, 9174306, Blank, LCS, LCSD, MS

Sample Description: SG3-CityWaterTruck-170824 Drinking Water
SGPP - North Bennington

ELLE Sample # GW 9174304
ELLE Group # 1842306
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 10:00 by KAM

Submitted: 08/25/2017 09:30
Reported: 09/06/2017 12:53

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

TRUCK SDG#: SGB12-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.8**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 17:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterHose-170824 Drinking Water
SGPP - North Bennington

ELLE Sample # GW 9174305
ELLE Group # 1842306
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 10:05 by KAM

Submitted: 08/25/2017 09:30
Reported: 09/06/2017 12:53

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

WHOSE SDG#: SGB12-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 17:20	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterFracTk-170824 Drinking Water
SGPP - North Bennington

ELLE Sample # GW 9174306
ELLE Group # 1842306
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:00 by KAM

Submitted: 08/25/2017 09:30
Reported: 09/06/2017 12:53

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

TFRAC SDG#: SGB12-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 17:41	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 12:53

Group Number: 1842306

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17240020	Sample number(s): 9174304-9174306			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17240020	Sample number(s): 9174304-9174306								
6:2 fluorotelomersulfonate	12.9	16.26	12.9	14.6	126	113	70-130	11	30
8:2 fluorotelomersulfonate	13	15.27	13	15.01	117	115	70-130	2	30
NEtFOSAA	13.6	15.05	13.6	14.88	111	109	70-130	1	30
NMeFOSAA	13.6	17.18	13.6	16.9	126	124	70-130	2	30
Perfluorobutanesulfonate	12	13.09	12	11.26	109	94	70-130	15	30
Perfluorobutanoic Acid	13.6	15.89	13.6	14.7	117	108	70-130	8	30
Perfluorodecanoic acid	13.6	14.68	13.6	15.32	108	113	70-130	4	30
Perfluorododecanoic acid	13.6	15.22	13.6	14.27	112	105	70-130	6	30
Perfluoroheptanoic acid	13.6	15	13.6	14.17	110	104	70-130	6	30
Perfluorohexanesulfonate	12.9	13.48	12.9	12.99	105	101	70-130	4	30
Perfluorohexanoic acid	13.6	15.76	13.6	15.81	116	116	70-130	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/06/2017 12:53

Group Number: 1842306

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.55	13.6	16.2	107	119	70-130	11	30
Perfluoro-octanesulfonate	13	13.15	13	11.8	101	91	70-130	11	30
Perfluorooctanoic acid	13.6	15.42	13.6	15.23	113	112	70-130	1	30
Perfluoropentanoic Acid	13.6	14.19	13.6	13.65	104	100	70-130	4	30
Perfluorotetradecanoic acid	13.6	15.5	13.6	14.28	114	105	70-130	8	30
Perfluorotridecanoic acid	13.6	14.01	13.6	12.68	103	93	70-130	10	30
Perfluoroundecanoic acid	13.6	15.19	13.6	16.22	112	119	70-130	7	30
PFOSA	13.6	13.84	13.6	14.67	102	108	70-130	6	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17240020	Sample number(s): 9174304-9174306 UNSPK: P172791										
6:2 fluorotelomersulfonate	3	U	12.96	16.36			126		70-130		
8:2 fluorotelomersulfonate	4	U	13.06	14.78			113		70-130		
NEtFOSAA	1	U	13.67	13.28			97		70-130		
NMeFOSAA	1	U	13.67	16.5			121		70-130		
Perfluorobutanesulfonate	1.17		12.06	12.36			93		70-130		
Perfluorobutanoic Acid	5.12		13.67	19.18			103		70-130		
Perfluorodecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluorododecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluoroheptanoic acid	3.53		13.67	16.88			98		70-130		
Perfluorohexanesulfonate	1	U	12.96	12.2			94		70-130		
Perfluorohexanoic acid	2.83		13.67	17.04			104		70-130		
Perfluorononanoic acid	0.666		13.67	14.88			104		70-130		
Perfluoro-octanesulfonate	3.25		13.06	15.58			94		70-130		
Perfluorooctanoic acid	87.71		13.67	104.3			121 (2)		70-130		
Perfluoropentanoic Acid	2.56		13.67	15.28			93		70-130		
Perfluorotetradecanoic acid	0.5	U	13.67	14			102		70-130		
Perfluorotridecanoic acid	0.5	U	13.67	11.65			85		70-130		
Perfluoroundecanoic acid	1	U	13.67	14.98			110		70-130		
PFOSA	3	U	13.67	13.55			99		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842306
Reported: 09/06/2017 12:53

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17240020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9174304	100	125	147	100	107	101
9174305	89	112	132	78	94	87
9174306	91	109	135	64	79	68
Blank	89	92	94	83	89	90
LCS	71	77	79	67	73	77
LCSD	85	87	85	82	83	90
MS	84	102	126	81	89	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9174304	131	102	99	102	97	99
9174305	104	90	86	85	88	84
9174306	152*	82	90	103	87	106
Blank	124	89	90	105	86	133
LCS	99	75	80	89	74	89
LCSD	101	83	78	80	79	83
MS	96	83	88	95	98	102
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9174304	69	97	86	97	86	52*
9174305	64	84	69	87	74	30*
9174306	68	96	77	91	75	28*
Blank	62	90	91	80	71	44*
LCS	58	75	73	68	64	34*
LCSD	59	78	74	81	75	38*
MS	62	97	95	96	81	9*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1842306 9174304-06

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **51381**

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@bdm.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: Sappi	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250 ml plastic / Trizma	Analysis Requested: Soil — % Solids	Preservative Code	Field Filtered Y/N
1. SG3-City Water Truck-170824				08/24/2017	10:00	DW	N	2	2			
2. SG3-City water Hose-170824				08/24/2017	10:05	DW	N	2	2			
3. SG3-City Water Frac TK-170824				08/24/2017	15:00	DW						
4.												
5.												
6.												
7.												
8.												
9.												
10.												

PFC's (19) (See included list)

★ RUSH ★

3 day T.A.T.

BARR USE ONLY							
Sampled by: KAM	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/25/17	Time 0930
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 3.3			Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 192536

Group Number(s): 1842306

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/25/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:37 on 08/25/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.8	DT	Wet	Y	Bagged	N
2	DT42-02	3.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 15, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1842323
SDG: SGB13
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

REVISED

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FD07-170824 Grab Soil	08/24/2017	9174351
SG3-FB06-170824 Blank Water	08/24/2017 08:50	9174352
SG3-S32-0-0.5' Grab Soil	08/24/2017 09:00	9174353
SG3-S32-0.5-1' Grab Soil	08/24/2017 09:10	9174354
SG3-S32-1-1.5' Grab Soil	08/24/2017 09:15	9174355
SG3-S32-3-4' Grab Soil	08/24/2017 09:30	9174356
SG3-S32-8-9' Grab Soil	08/24/2017 10:25	9174357
SG3-S37-0-0.5' Grab Soil	08/24/2017 11:45	9174358
SG3-S37-0-0.5' MS Grab Soil	08/24/2017 11:45	9174359
SG3-S37-0-0.5' MSD Grab Soil	08/24/2017 11:45	9174360
SG3-S37-0-0.5' Dupl Grab Soil	08/24/2017 11:45	9174361
SG3-S37-0.5-1.0' Grab Soil	08/24/2017 12:00	9174362
SG3-S37-1-1.5' Grab Soil	08/24/2017 12:05	9174363
SG3-S37-170824 Grab Groundwater	08/24/2017 13:10	9174364
Trip Blank Water	08/24/2017 13:00	9174365
SG3-S39-0-0.5' Grab Soil	08/24/2017 15:00	9174366
SG3-S39-0.5-1' Grab Soil	08/24/2017 15:05	9174367
SG3-S39-1-1.5' Grab Soil	08/24/2017 15:10	9174368
SG3-S39-3-4' Grab Soil	08/24/2017 15:20	9174369
SG3-S39-8-9' Grab Soil	08/24/2017 15:30	9174370

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1842323

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9174351, 9174352, 9174353, 9174355, 9174362, 9174364, 9174365

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17239005 (Sample number(s): 9174352, 9174365)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9174352, 9174365, Blank, LCS, LCSD

Batch #: 17240020 (Sample number(s): 9174364 UNSPK: P172791)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9174364, Blank, LCS, LCSD, MS

Batch #: 17242015 (Sample number(s): 9174351 UNSPK: P169607)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9174351

Batch #: 17248005 (Sample number(s): 9174353-9174360, 9174362-9174363, 9174366-9174370 UNSPK: 9174358)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9174353, 9174355, 9174362

SW-846 6010C, Metals

Batch #: 172401063501 (Sample number(s): 9174364 UNSPK: P170694 BKG: P170694)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium, Iron

EPA 300.0, Wet Chemistry

Batch #: 17237987113A (Sample number(s): 9174364 UNSPK: P173170 BKG: P173170)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Nitrate Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9174357

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17250667631B (Sample number(s): 9174351, 9174353 UNSPK: P172785 BKG: P172785)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17254667631B (Sample number(s): 9174369-9174370 UNSPK: P174889 BKG: P174889)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9174353

The pH was measured in water at 19.3 C.

Sample #s: 9174351

The pH was measured in water at 19.4 C.

Sample #s: 9174369

The pH was measured in water at 19.5 C.

Sample #s: 9174357, 9174367

The pH was measured in water at 19.6 C.

Sample #s: 9174358, 9174366, 9174370

The pH was measured in water at 19.8 C.

Sample #s: 9174356, 9174362

The pH was measured in water at 19.9 C.

Sample #s: 9174355, 9174361, 9174368

The pH was measured in water at 20 C.

Sample #s: 9174354

The pH was measured in water at 20.2 C.

Sample #s: 9174363

The pH was measured in water at 20.4 C.

REVISED

Sample Description: SG3-FD07-170824 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174351
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BFD07 SDG#: SGB13-01FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,300**		1,200	3,610	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.75**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17242015	09/02/2017 16:16	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17242015	08/30/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD07-170824 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174351
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BFD07 SDG#: SGB13-01FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/08/2017 10:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FB06-170824 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9174352
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 08:50 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BFB06 SDG#: SGB13-02FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17239005	09/01/2017 03:47	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239005	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174353
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5320 SDG#: SGB13-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,300**		1,230	3,680	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.57**		0.0100	0.0100	1
	The pH was measured in water at 19.3 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 20:05	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174353
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5320 SDG#: SGB13-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17250667631B	09/08/2017 11:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174354
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5325 SDG#: SGB13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,380**		508	1,520	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 20:25	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174354
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5325 SDG#: SGB13-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/12/2017 09:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174355
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:15 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5321 SDG#: SGB13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,110**		580	1,740	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.16**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 20:46	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174355
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:15 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5321 SDG#: SGB13-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/12/2017 10:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174356
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:30 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5323 SDG#: SGB13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,680**		242	726	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 21:06	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174356
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 09:30 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5323 SDG#: SGB13-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 12:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174357
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 10:25 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5328 SDG#: SGB13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	137	U	137	411	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.75**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 21:27	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S32-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174357
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 10:25 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5328 SDG#: SGB13-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 12:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174358
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 11:45 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5370 SDG#: SGB13-08BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.50	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.45**	**J**	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25	U	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**28,200**		1,170	3,510	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 21:47	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174358
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 11:45 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5370 SDG#: SGB13-08BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 13:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0-0.5' MS Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174359
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 11:45 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5370 SDG#: SGB13-08MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.24	0.73	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.24	0.73	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.24	0.73	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.24	0.73	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.24	0.73	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.24	0.73	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.8**	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.0**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.24	0.73	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.24	0.73	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.24	0.73	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.0**	0.24	0.73	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**	0.24	0.73	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**90,500**	2,420	7,270	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**23.2**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 18:42	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 13:24	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0-0.5' MSD Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174360
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 11:45 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5370 SDG#: SGB13-08MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.25	0.76	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.9**	0.25	0.76	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.25	0.76	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.25	0.76	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.25	0.76	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.7**	0.25	0.76	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.13	0.50	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.13	0.50	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.9**	0.38	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.25	0.76	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.8**	0.25	0.76	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.25	0.76	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.9**	0.25	0.76	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**	0.25	0.76	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**23.2**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 19:03	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0-0.5' Dupl Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174361
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 11:45 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5370 SDG#: SGB13-08DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**30,000**	1,260	3,780	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.91**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**23.2**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**23.9**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 13:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0.5-1.0' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174362
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 12:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5375 SDG#: SGB13-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,780**		514	1,540	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.26**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 22:49	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-0.5-1.0' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174362
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 12:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5375 SDG#: SGB13-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/12/2017 10:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174363
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 12:05 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5371 SDG#: SGB13-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,830**		619	1,860	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 23:09	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174363
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 12:05 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5371 SDG#: SGB13-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/12/2017 10:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039402B	08/31/2017 13:50	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-170824 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9174364
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 13:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B537W SDG#: SGB13-11

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**5**	**J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**3**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**	**J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**2**		0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**4**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**85**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**2**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.576**		0.0894	0.400	1
08014	Boron	7440-42-8	0.0101	U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**79.5**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.31**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**20.4**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.147**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.05**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**41.0**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072	U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0153**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087	U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00081**	**J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0032**	**J**	0.00054	0.0040	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: SG3-S37-170824 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9174364
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 13:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B537W SDG#: SGB13-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06035	**Lead**	7439-92-1	**0.00087 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0015 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00062 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**7.5**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**5.8**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.26**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**0.75 J**	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**334**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**334**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17240020	08/30/2017 18:01	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17240020	08/28/2017 13:30	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S37-170824 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9174364
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 13:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B537W SDG#: SGB13-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08014	Boron	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	172401063501	08/29/2017 01:47	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172401063902D	08/29/2017 03:31	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172401063902A	08/29/2017 11:23	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	172401063902B	08/29/2017 03:31	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172401063902A	08/29/2017 03:31	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172401063902A	08/29/2017 11:23	Scott P Cuff	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172401063501	08/28/2017 16:25	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172401063902	08/28/2017 16:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17237987113A	08/26/2017 01:15	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17237987113A	08/26/2017 01:15	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17237987113A	08/26/2017 01:15	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17237987113A	08/26/2017 01:15	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17237987113A	08/26/2017 01:15	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17244107102A	09/01/2017 22:12	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17242108101A	08/31/2017 14:28	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17242108101A	08/30/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17241002204A	08/29/2017 23:41	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17241002204A	08/29/2017 23:41	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17241002204A	08/29/2017 23:41	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17237022601A	08/25/2017 22:35	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9174365
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 13:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B--TB SDG#: SGB13-12TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17239005	09/01/2017 04:07	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239005	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174366
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5390 SDG#: SGB13-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38**	**J**	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,100**		853	2,560	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.99**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 23:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174366
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:00 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5390 SDG#: SGB13-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 15:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039403A	08/31/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174367
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:05 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5395 SDG#: SGB13-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.50**	**J**	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,400**		576	1,730	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.14**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/06/2017 23:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174367
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:05 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5395 SDG#: SGB13-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/11/2017 16:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039403A	08/31/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174368
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5391 SDG#: SGB13-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.40**	**J**	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,700**		1,070	3,210	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.21**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/07/2017 00:11	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174368
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:10 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5391 SDG#: SGB13-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631A	09/12/2017 11:14	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039403A	08/31/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174369
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:20 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5393 SDG#: SGB13-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.32**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,000**		543	1,630	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/07/2017 00:32	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174369
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:20 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5393 SDG#: SGB13-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631B	09/11/2017 16:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039403A	08/31/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174370
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:30 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5398 SDG#: SGB13-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.37**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,870**		398	1,190	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.34**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17248005	09/07/2017 00:52	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17248005	09/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S39-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9174370
ELLE Group # 1842323
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/24/2017 15:30 by RQM

Submitted: 08/25/2017 09:30
Reported: 09/15/2017 12:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B5398 SDG#: SGB13-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17254667631B	09/11/2017 16:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17243039403A	08/31/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17242820007A	08/30/2017 15:31	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842323
Reported: 09/15/2017 12:58

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17242015	Sample number(s): 9174351			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17248005	Sample number(s): 9174353-9174360,9174362-9174363,9174366-9174370			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17239005	Sample number(s): 9174352,9174365			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
Batch number: 17240020	Sample number(s): 9174364			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172401063501	Sample number(s): 9174364			
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0374	U	0.0374	0.200
Manganese	0.0016	U	0.0016	0.0100
Potassium	0.179	U	0.179	1.00
Sodium	0.321	U	0.321	2.00
Zinc	0.0065	U	0.0065	0.0400
Batch number: 172401063902A	Sample number(s): 9174364			
Antimony	0.00045	U	0.00045	0.0020
Arsenic	0.00072	U	0.00072	0.0040
Beryllium	0.000071	U	0.000071	0.0010
Cadmium	0.00015	U	0.00015	0.0010

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Chromium	0.0011 J	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172401063902B	Sample number(s): 9174364		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172401063902D	Sample number(s): 9174364		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17250667631B	Sample number(s): 9174351,9174353		
TOC	100 U	100	300
Batch number: 17254667631A	Sample number(s): 9174354-9174359,9174361-9174363,9174366-9174368		
TOC	100 U	100	300
Batch number: 17254667631B	Sample number(s): 9174369-9174370		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17237987113A	Sample number(s): 9174364		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17242108101A	Sample number(s): 9174364		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17244107102A	Sample number(s): 9174364		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17237022601A	Sample number(s): 9174364		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17241002204A	Sample number(s): 9174364		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17242015	Sample number(s): 9174351								
Perfluorobutanesulfonate	1.20	1.07			89		70-130		
Perfluorobutanoic acid	1.36	1.51			111		70-130		
Perfluorodecanoic acid	1.36	1.37			101		70-130		
Perfluorododecanoic acid	1.36	1.47			108		70-130		
Perfluoroheptanoic acid	1.36	1.42			105		70-130		
Perfluorohexanesulfonate	1.29	1.22			95		70-130		
Perfluorohexanoic acid	1.36	1.35			99		70-130		
Perfluorononanoic acid	1.36	1.60			118		70-130		
Perfluoro-octanesulfonate	1.30	1.15			89		70-130		
Perfluorooctanoic acid	1.36	1.39			102		70-130		
Perfluoropentanoic acid	1.36	1.23			91		70-130		
Perfluorotetradecanoic acid	1.36	1.34			98		70-130		
Perfluorotridecanoic acid	1.36	1.26			93		70-130		
Perfluoroundecanoic acid	1.36	1.53			113		70-130		
Batch number: 17248005	Sample number(s): 9174353-9174360,9174362-9174363,9174366-9174370								
Perfluorobutanesulfonate	1.24	1.16			93		70-130		
Perfluorobutanoic acid	1.40	1.47			105		70-130		
Perfluorodecanoic acid	1.40	1.36			97		70-130		
Perfluorododecanoic acid	1.40	1.27			90		70-130		
Perfluoroheptanoic acid	1.40	1.30			93		70-130		
Perfluorohexanesulfonate	1.32	1.22			92		70-130		
Perfluorohexanoic acid	1.40	1.48			106		70-130		
Perfluorononanoic acid	1.40	1.43			102		70-130		
Perfluoro-octanesulfonate	1.34	1.20			90		70-130		
Perfluorooctanoic acid	1.40	1.29			92		70-130		
Perfluoropentanoic acid	1.40	1.23			88		70-130		
Perfluorotetradecanoic acid	1.40	1.32			94		70-130		
Perfluorotridecanoic acid	1.40	1.40			100		70-130		
Perfluoroundecanoic acid	1.40	1.32			94		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17239005	Sample number(s): 9174352,9174365								
6:2 fluorotelomersulfonate	13.27	14	13.27	12.82	105	97	70-130	9	30
8:2 fluorotelomersulfonate	13.4	13.9	13.4	16.12	104	120	70-130	15	30
NEtFOSAA	14	15.57	14	15.4	111	110	70-130	1	30
NMeFOSAA	14	15.07	14	13.22	108	94	70-130	13	30
Perfluorobutanesulfonate	12.38	11.69	12.38	11.92	94	96	70-130	2	30
Perfluorobutanoic Acid	14	14.19	14	14.2	101	101	70-130	0	30
Perfluorodecanoic acid	14	13.78	14	13.4	98	96	70-130	3	30
Perfluorododecanoic acid	14	13.81	14	13.59	99	97	70-130	2	30
Perfluoroheptanoic acid	14	13.97	14	13.57	100	97	70-130	3	30
Perfluorohexanesulfonate	13.24	11.97	13.24	13.34	90	101	70-130	11	30
Perfluorohexanoic acid	14	13.51	14	13.01	96	93	70-130	4	30
Perfluorononanoic acid	14	14.57	14	13.39	104	96	70-130	8	30
Perfluoro-octanesulfonate	13.38	13.37	13.38	11.54	100	86	70-130	15	30
Perfluorooctanoic acid	14	14.75	14	13.04	105	93	70-130	12	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoropentanoic Acid	14	13.01	14	13.93	93	99	70-130	7	30
Perfluorotetradecanoic acid	14	12.96	14	12.74	93	91	70-130	2	30
Perfluorotridecanoic acid	14	15.39	14	15.64	110	112	70-130	2	30
Perfluoroundecanoic acid	14	13.2	14	14.21	94	102	70-130	7	30
PFOSA	14	13.9	14	12.98	99	93	70-130	7	30
Batch number: 17240020	Sample number(s): 9174364								
6:2 fluorotelomersulfonate	12.9	16.26	12.9	14.6	126	113	70-130	11	30
8:2 fluorotelomersulfonate	13	15.27	13	15.01	117	115	70-130	2	30
NEtFOSAA	13.6	15.05	13.6	14.88	111	109	70-130	1	30
NMeFOSAA	13.6	17.18	13.6	16.9	126	124	70-130	2	30
Perfluorobutanesulfonate	12	13.09	12	11.26	109	94	70-130	15	30
Perfluorobutanoic Acid	13.6	15.89	13.6	14.7	117	108	70-130	8	30
Perfluorodecanoic acid	13.6	14.68	13.6	15.32	108	113	70-130	4	30
Perfluorododecanoic acid	13.6	15.22	13.6	14.27	112	105	70-130	6	30
Perfluoroheptanoic acid	13.6	15	13.6	14.17	110	104	70-130	6	30
Perfluorohexanesulfonate	12.9	13.48	12.9	12.99	105	101	70-130	4	30
Perfluorohexanoic acid	13.6	15.76	13.6	15.81	116	116	70-130	0	30
Perfluorononanoic acid	13.6	14.55	13.6	16.2	107	119	70-130	11	30
Perfluoro-octanesulfonate	13	13.15	13	11.8	101	91	70-130	11	30
Perfluorooctanoic acid	13.6	15.42	13.6	15.23	113	112	70-130	1	30
Perfluoropentanoic Acid	13.6	14.19	13.6	13.65	104	100	70-130	4	30
Perfluorotetradecanoic acid	13.6	15.5	13.6	14.28	114	105	70-130	8	30
Perfluorotridecanoic acid	13.6	14.01	13.6	12.68	103	93	70-130	10	30
Perfluoroundecanoic acid	13.6	15.19	13.6	16.22	112	119	70-130	7	30
PFOSA	13.6	13.84	13.6	14.67	102	108	70-130	6	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172401063501	Sample number(s): 9174364								
Aluminum	2.00	2.24			112		80-120		
Boron	2.00	1.86			93		80-120		
Calcium	4.00	4.00			100		80-120		
Iron	1.00	1.01			101		80-120		
Magnesium	2.00	2.03			102		80-120		
Manganese	0.500	0.507			101		80-120		
Potassium	10	10.02			100		80-120		
Sodium	10	10.01			100		80-120		
Zinc	0.500	0.497			99		80-120		
Batch number: 172401063902A	Sample number(s): 9174364								
Antimony	0.00600	0.00587			98		80-120		
Arsenic	0.0100	0.0101			101		80-120		
Beryllium	0.00400	0.00382			96		80-120		
Cadmium	0.00500	0.00468			94		80-120		
Chromium	0.0500	0.0464			93		80-120		
Cobalt	0.250	0.234			93		80-120		
Copper	0.0500	0.0492			98		80-120		
Lead	0.0150	0.0147			98		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Nickel	0.0500	0.0492			98		80-120		
Silver	0.0500	0.0503			101		80-120		
Thallium	0.00200	0.00198			99		80-120		
Vanadium	0.0500	0.0458			92		80-120		
Batch number: 172401063902B	Sample number(s): 9174364								
Selenium	0.0100	0.00996			100		80-120		
Batch number: 172401063902D	Sample number(s): 9174364								
Barium	0.0500	0.0493			99		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17250667631B	Sample number(s): 9174351,9174353								
TOC	7150	5430.84			76		47-143		
Batch number: 17254667631A	Sample number(s): 9174354-9174359,9174361-9174363,9174366-9174368								
TOC	7150	6493.75			91		47-143		
Batch number: 17254667631B	Sample number(s): 9174369-9174370								
TOC	7150	6493.75			91		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17237987113A	Sample number(s): 9174364								
Bromide	7.50	6.91			92		90-110		
Chloride	3.00	2.76			92		90-110		
Nitrate Nitrogen	0.750	0.725			97		90-110		
Nitrite Nitrogen	0.750	0.723			96		90-110		
Sulfate	7.50	6.96			93		90-110		
Batch number: 17242108101A	Sample number(s): 9174364								
Kjeldahl Nitrogen	5.00	5.51			110		90-110		
Batch number: 17244107102A	Sample number(s): 9174364								
Ammonia Nitrogen	1.50	1.52			102		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17237022601A	Sample number(s): 9174364								
Ortho-Phosphate as P	0.400	0.408	0.400	0.405	102	101	95-105	1	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17241002204A	Sample number(s): 9174364								
Total Alkalinity to pH 4.5	188	183.3			98		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17243039402B	Sample number(s): 9174351,9174353-9174358,9174361-9174363								
pH	7.00	7.02			100		95-105		
Batch number: 17243039403A	Sample number(s): 9174366-9174370								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
pH	7.00	7.00			100		95-105		
	%	%	%	%					
Batch number: 17242820007A	Sample number(s): 9174351,9174353-9174363,9174366-9174370								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17242015	Sample number(s): 9174351 UNSPK: P169607										
Perfluorobutanesulfonate	0.19	U	1.15	1.16	1.12	1.06	101	95	70-130	9	30
Perfluorobutanoic acid	0.19	U	1.30	1.49	1.27	1.42	115	112	70-130	5	30
Perfluorodecanoic acid	0.19	U	1.30	1.41	1.27	1.36	109	107	70-130	3	30
Perfluorododecanoic acid	0.19	U	1.30	1.47	1.27	1.43	113	112	70-130	3	30
Perfluoroheptanoic acid	0.19	U	1.30	1.34	1.27	1.35	103	106	70-130	1	30
Perfluorohexanesulfonate	0.19	U	1.23	1.21	1.20	1.24	99	103	70-130	2	30
Perfluorohexanoic acid	0.094	U	1.30	1.46	1.27	1.27	112	100	70-130	14	30
Perfluorononanoic acid	0.094	U	1.30	1.50	1.27	1.28	115	101	70-130	15	30
Perfluoro-octanesulfonate	0.356		1.24	1.54	1.22	1.44	95	89	70-130	7	30
Perfluorooctanoic acid	2.06		1.30	3.46	1.27	3.41	108	107	70-130	2	30
Perfluoropentanoic acid	0.19	U	1.30	1.34	1.27	1.32	103	104	70-130	1	30
Perfluorotetradecanoic acid	0.19	U	1.30	1.40	1.27	1.33	108	105	70-130	5	30
Perfluorotridecanoic acid	0.19	U	1.30	1.26	1.27	1.24	97	97	70-130	2	30
Perfluoroundecanoic acid	0.19	U	1.30	1.55	1.27	1.43	119	113	70-130	8	30
Batch number: 17248005	Sample number(s): 9174353-9174360,9174362-9174363,9174366-9174370 UNSPK: 9174358										
Perfluorobutanesulfonate	0.19	U	1.16	1.10	1.20	1.13	95	95	70-130	3	30
Perfluorobutanoic acid	0.19	U	1.31	1.39	1.35	1.46	106	108	70-130	5	30
Perfluorodecanoic acid	0.19	U	1.31	1.19	1.35	1.36	91	101	70-130	14	30
Perfluorododecanoic acid	0.19	U	1.31	1.35	1.35	1.34	103	99	70-130	0	30
Perfluoroheptanoic acid	0.19	U	1.31	1.30	1.35	1.32	99	98	70-130	2	30
Perfluorohexanesulfonate	0.19	U	1.24	1.24	1.28	1.31	100	102	70-130	5	30
Perfluorohexanoic acid	0.095	U	1.31	1.39	1.35	1.30	106	96	70-130	7	30
Perfluorononanoic acid	0.095	U	1.31	1.26	1.35	1.30	96	96	70-130	3	30
Perfluoro-octanesulfonate	0.345		1.25	1.52	1.29	1.46	94	86	70-130	4	30
Perfluorooctanoic acid	0.19	U	1.31	1.38	1.35	1.41	105	104	70-130	2	30
Perfluoropentanoic acid	0.19	U	1.31	1.28	1.35	1.36	98	100	70-130	6	30
Perfluorotetradecanoic acid	0.19	U	1.31	1.29	1.35	1.29	98	95	70-130	0	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluorotridecanoic acid	0.19	U	1.31	1.54	1.35	1.45	117	107	70-130	6	30
Perfluoroundecanoic acid	0.19	U	1.31	1.45	1.35	1.43	111	106	70-130	1	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17240020	Sample number(s): 9174364 UNSPK: P172791										
6:2 fluorotelomersulfonate	3	U	12.96	16.36			126		70-130		
8:2 fluorotelomersulfonate	4	U	13.06	14.78			113		70-130		
NEtFOSAA	1	U	13.67	13.28			97		70-130		
NMeFOSAA	1	U	13.67	16.5			121		70-130		
Perfluorobutanesulfonate	1.17		12.06	12.36			93		70-130		
Perfluorobutanoic Acid	5.12		13.67	19.18			103		70-130		
Perfluorodecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluorododecanoic acid	0.5	U	13.67	13.75			101		70-130		
Perfluoroheptanoic acid	3.53		13.67	16.88			98		70-130		
Perfluorohexanesulfonate	1	U	12.96	12.2			94		70-130		
Perfluorohexanoic acid	2.83		13.67	17.04			104		70-130		
Perfluorononanoic acid	0.666		13.67	14.88			104		70-130		
Perfluoro-octanesulfonate	3.25		13.06	15.58			94		70-130		
Perfluorooctanoic acid	87.71		13.67	104.3			121 (2)		70-130		
Perfluoropentanoic Acid	2.56		13.67	15.28			93		70-130		
Perfluorotetradecanoic acid	0.5	U	13.67	14			102		70-130		
Perfluorotridecanoic acid	0.5	U	13.67	11.65			85		70-130		
Perfluoroundecanoic acid	1	U	13.67	14.98			110		70-130		
PFOSA	3	U	13.67	13.55			99		70-130		
	mg/l		mg/l	mg/l	mg/l	mg/l					
Batch number: 172401063501	Sample number(s): 9174364 UNSPK: P170694										
Aluminum	3.07		2.00	5.58	2.00	5.88	126*	140*	75-125	5	20
Boron	0.0101	U	2.00	1.91	2.00	1.93	96	96	75-125	1	20
Calcium	161.92		4.00	166.03	4.00	163.1	103 (2)	30 (2)	75-125	2	20
Iron	3.74		1.00	4.45	1.00	4.64	71*	90	75-125	4	20
Magnesium	48.74		2.00	50.86	2.00	50.08	106 (2)	67 (2)	75-125	2	20
Manganese	1.24		0.500	1.74	0.500	1.72	100	96	75-125	1	20
Potassium	2.42		10	12.72	10	12.7	103	103	75-125	0	20
Sodium	23.29		10	33.24	10	32.91	100	96	75-125	1	20
Zinc	0.0931		0.500	0.585	0.500	0.586	98	98	75-125	0	20
Batch number: 172401063902A	Sample number(s): 9174364 UNSPK: P170694										
Antimony	0.00045	U	0.00600	0.00629	0.00600	0.00672	105	112	75-125	7	20
Arsenic	0.00210		0.0100	0.0129	0.0100	0.0121	108	100	75-125	6	20
Beryllium	0.0000820		0.00400	0.00386	0.00400	0.00400	94	98	75-125	4	20
Cadmium	0.00015	U	0.00500	0.00479	0.00500	0.00495	96	99	75-125	3	20
Chromium	0.00590		0.0500	0.0537	0.0500	0.0545	96	97	75-125	2	20
Cobalt	0.00208		0.250	0.234	0.250	0.240	93	95	75-125	3	20
Copper	0.00335		0.0500	0.0495	0.0500	0.0515	92	96	75-125	4	20
Lead	0.00259		0.0150	0.0177	0.0150	0.0175	101	100	75-125	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Nickel	0.00323	0.0500	0.0495	0.0500	0.0504	92	94	75-125	2	20
Silver	0.00015 U	0.0500	0.0493	0.0500	0.0494	99	99	75-125	0	20
Thallium	0.00012 U	0.00200	0.00219	0.00200	0.00197	110	98	75-125	11	20
Vanadium	0.00320	0.0500	0.0506	0.0500	0.0508	95	95	75-125	0	20
Batch number: 172401063902B	Sample number(s): 9174364 UNSPK: P170694									
Selenium	0.00050 U	0.0100	0.00967	0.0100	0.00974	97	97	75-125	1	20
Batch number: 172401063902D	Sample number(s): 9174364 UNSPK: P170694									
Barium	0.123	0.0500	0.165	0.0500	0.165	85	84	75-125	0	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17250667631B	Sample number(s): 9174351,9174353 UNSPK: P172785									
TOC	292.41	16740	17166.76			101		47-143		
Batch number: 17254667631A	Sample number(s): 9174354-9174359,9174361-9174363,9174366-9174368 UNSPK: 9174358									
TOC	21678.64	55860	69515.83			86		47-143		
Batch number: 17254667631B	Sample number(s): 9174369-9174370 UNSPK: P174889									
TOC	4821.11	16950	18999.43			84		47-143		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17237987113A	Sample number(s): 9174364 UNSPK: P173170									
Bromide	1.3 U	25	25.4			102		90-110		
Chloride	21.08	10	30.91			98		90-110		
Nitrate Nitrogen	12.31	2.50	14.38			83 (2)		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.39			96		90-110		
Sulfate	53.69	25	80.17			106		90-110		
Batch number: 17242108101A	Sample number(s): 9174364 UNSPK: P174163									
Kjeldahl Nitrogen	13.15	5.00	18.16			100		90-110		
Batch number: 17244107102A	Sample number(s): 9174364 UNSPK: P178033									
Ammonia Nitrogen	0.050 U	1.00	1.07			107		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17241002204A	Sample number(s): 9174364 UNSPK: P175149									
Total Alkalinity to pH 4.5	503.44	188	669.97			89		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172401063501	Sample number(s): 9174364 BKG: P170694			
Aluminum	3.07	3.07	0	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	161.92	162.07	0	20
Iron	3.74	3.74	0	20
Magnesium	48.74	48.83	0	20
Manganese	1.24	1.24	0	20
Potassium	2.42	2.45	1 (1)	20
Sodium	23.29	23.29	0	20
Zinc	0.0931	0.0989	6 (1)	20
Batch number: 172401063902A	Sample number(s): 9174364 BKG: P170694			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00210	0.00187	12 (1)	20
Beryllium	0.0000820	0.0000850	4 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00590	0.00603	2 (1)	20
Cobalt	0.00208	0.00210	1 (1)	20
Copper	0.00335	0.00361	8 (1)	20
Lead	0.00259	0.00247	5 (1)	20
Nickel	0.00323	0.00317	2 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00320	0.00338	6 (1)	20
Batch number: 172401063902B	Sample number(s): 9174364 BKG: P170694			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172401063902D	Sample number(s): 9174364 BKG: P170694			
Barium	0.123	0.118	4	20
	mg/kg	mg/kg		
Batch number: 17250667631B	Sample number(s): 9174351,9174353 BKG: P172785			
TOC	292.41	495.69	52* (1)	7
Batch number: 17254667631A	Sample number(s): 9174354-9174359,9174361-9174363,9174366-9174368 BKG: 9174358			
TOC	21678.64	23010.65	6	7
Batch number: 17254667631B	Sample number(s): 9174369-9174370 BKG: P174889			
TOC	4821.11	4467.43	8* (1)	7
	mg/l	mg/l		
Batch number: 17237987113A	Sample number(s): 9174364 BKG: P173170			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	21.08	19.87	6	15
Nitrate Nitrogen	12.31	11.54	6	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	53.69	51.49	4	15

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 12:58

Group Number: 1842323

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17242108101A	Sample number(s): 9174364 BKG: P174163			
Kjeldahl Nitrogen	13.15	12.86	2 (1)	20
Batch number: 17244107102A	Sample number(s): 9174364 BKG: P178033			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17237022601A	Sample number(s): 9174364 BKG: P173810			
Ortho-Phosphate as P	0.417	0.420	1 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17241002204A	Sample number(s): 9174364 BKG: P175149			
Total Alkalinity to pH 4.5	503.44	502.43	0	5
	Std. Units	Std. Units		
Batch number: 17243039402B	Sample number(s): 9174351,9174353-9174358,9174361-9174363 BKG: 9174358			
pH	7.94	7.91	0	3
Batch number: 17243039403A	Sample number(s): 9174366-9174370 BKG: P174844			
pH	8.56	8.59	0	3
	%	%		
Batch number: 17242820007A	Sample number(s): 9174351,9174353-9174363,9174366-9174370 BKG: 9174358, P174358			
Moisture	23.17	23.93	3	5
Moisture	23.17	23.93	3	5
Moisture Duplicate	23.17	23.93	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17239005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9174352	74	78	80	69	60	63
9174365	78	83	84	77	83	76
Blank	78	86	89	73	66	81
LCS	86	94	91	90	83	87
LCSD	74	78	82	82	73	81

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842323
Reported: 09/15/2017 12:58

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17239005

Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9174352	98	72	79	80	76	90
9174365	117	74	76	84	81	85
Blank	113	82	75	78	71	73
LCS	107	82	84	82	81	90
LCSD	106	76	72	67	68	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9174352	70	69	69	65	64	27*
9174365	68	83	79	77	75	17*
Blank	73	72	75	72	76	23*
LCS	79	81	80	74	74	28*
LCSD	69	67	68	63	68	22*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFCs
Batch number: 17240020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9174364	87	101	136	71	79	81
Blank	89	92	94	83	89	90
LCS	71	77	79	67	73	77
LCSD	85	87	85	82	83	90
MS	84	102	126	81	89	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9174364	123	88	96	103	82	90
Blank	124	89	90	105	86	133
LCS	99	75	80	89	74	89
LCSD	101	83	78	80	79	83
MS	96	83	88	95	98	102
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842323
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17240020

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9174364	51	84	71	76	62	30*
Blank	62	90	91	80	71	44*
LCS	58	75	73	68	64	34*
LCSD	59	78	74	81	75	38*
MS	62	97	95	96	81	9*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17242015

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9174351	59	65*	70	57	65	59
Blank	85	85	90	84	87	85
LCS	73	74	76	76	81	77
MS	70	77	70	69	73	77
MSD	78	82	90	71	67	81
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9174351	60	70	75	63	73	61
Blank	84	88	75	86	89	88
LCS	75	74	66	84	77	81
MS	74	80	88	69	75	69
MSD	79	84	103	76	77	75
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9174351	54
Blank	77
LCS	73
MS	62
MSD	62
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17248005

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842323
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17248005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9174353	69	68*	68	71	70	66
9174354	73	76	70	73	73	80
9174355	68	69*	68	76	74	79
9174356	75	74	66	84	74	81
9174357	75	75	72	77	76	85
9174358	75	73	71	69	70	70
9174359	71	71	70	62	66	73
9174360	70	70	71	76	71	78
9174362	69	66*	65	62	61	68
9174363	81	85	77	83	79	77
9174366	75	79	78	69	72	73
9174367	79	83	77	76	81	80
9174368	78	78	78	71	72	69
9174369	82	84	77	82	77	79
9174370	73	75	72	84	79	82
Blank	75	73	68	67	68	70
LCS	70	70	62	76	69	72
MS	71	71	70	62	66	73
MSD	70	70	71	76	71	78
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9174353	70	70	80	64	64	62
9174354	71	84	83	73	68	78
9174355	79	70	69	80	82	81
9174356	77	81	76	80	83	83
9174357	74	80	86	79	75	78
9174358	74	79	83	68	75	66
9174359	74	82	86	81	77	67
9174360	69	70	76	68	69	62
9174362	67	74	82	74	75	70
9174363	84	77	85	90	84	81
9174366	75	95	107	86	91	77
9174367	77	81	86	79	85	74
9174368	77	81	89	77	87	81
9174369	85	80	86	82	87	84
9174370	73	74	84	84	80	81
Blank	71	68	68	74	77	75
LCS	75	67	62	63	74	69
MS	74	82	86	81	77	67
MSD	69	70	76	68	69	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1842323
Reported: 09/15/2017 12:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17248005

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9174353	69
9174354	81
9174355	82
9174356	87
9174357	81
9174358	73
9174359	72
9174360	65
9174362	75
9174363	83
9174366	82
9174367	79
9174368	84
9174369	86
9174370	86
Blank	81
LCS	68
MS	72
MSD	65
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1842323 9174351-70

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52262

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Field Blank	Soil: 250 ml plastics, PFCs (4)	Soil: 4 oz. glass / TOC, pH, moist.	Soil: % Solids
										A	A	
										N	N	
1. SG3-FD07-170824				08/24/2017		S	N	2		1	1	
2. SG3-FB06-170824				08/24/2017	08:50	Water	N	1	1			
3. SG3-S32-0-0.5'	0	0.5	ft.	08/24/2017	09:00	S	N	2		1	1	
4. SG3-S32-0.5-1'	0.5	1	ft.	08/24/2017	09:10	S	N	2		1	1	
5. SG3-S32-1-1.5'	1	1.5	ft.	08/24/2017	09:15	S	N	2		1	1	
6. SG3-S32-3-4'	3	4	ft.	08/24/2017	09:30	S	N	2		1	1	
7. SG3-S32-8-9'	8	9	ft.	08/24/2017	10:25	S	N	2		1	1	
8. SG3-S37-0-0.5'	0	0.5	ft	08/24/2017	11:45	S	Y	6		3	3	
9. SG3-S37-0.5-1.0'	0.5	1	ft.	08/24/2017	12:00	S	N	2		1	1	
10. SG3-S37-1-1.5'	[illegible]1	1.5	ft.	08/24/2017	12:05	S	N	2		1	1	

Preservative Code

Field Filtered Y/N

Samples split into two coolers

BARR USE ONLY							
Sampled by: RQM/RAK	Relinquished by: (RQM)	On Ice? (Y) N	Date 08/24/2017	Time 16:20	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/25/17	Time 09:30
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.8, 3.3			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1842323 9174351-70

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52261
COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Road (NY)
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250ml WM plastic	40ml glass vial	250ml WM plastic	500ml WM plastic	250ml WM plastic	250ml WM plastic - Trizma pres.	Soil: 250ml plastics PFCs (19)	4 oz. glass / TOC, pH, Moist.		250ml Trip Blank	% Solids	
Analysis Requested																				
Preservative Code									C	A	A	D	A	O	A	A		A		
Field Filtered Y/N									N	N	N	N	Y	N	-	-		N		
1. SG3-S37-170824				08/24/2017	13:10	GW	N	8	1	2	1	1	1	2						
2. Trip Blank				08/24/2017	13:00	Water	N	1										1		
3. SG3-S39-[redacted]0-0.5'	0	0.5	ft.	08/24/2017	15:00	S	N	2							1	1				
4. SG3-S39-0.5-1'	0.5	1	ft.	08/24/2017	15:05	S	N	2							1	1				
5. SG3-S39-1-1.5'	1	1.5	ft.	08/24/2017	15:10	S	N	2							1	1				
6. SG3-S39-3-4'	3	4	ft.	08/24/2017	15:20	S	N	2							1	1				
7. SG3-S39-8-9'	8	9	ft.	08/24/2017	15:30	S	N	2							1	1				
8.																				
9.																				
10.																				

250ml WM plastic HNO_3 pres: Metals

40ml glass vial unpres: Bromide, Chloride, Nitrate Nitrogen, Nitrite Nitrogen, Sulfate

250ml unpres WM plastic: Bicarbonate Alkalinity, Carbonate Alkalinity, Total Alkalinity to pH 4.5

500ml H_2SO_4 pres plastic: Ammonia Nitrogen, Kjeldahl Nitrogen

250ml unpres. plastic: o-PO4

250ml Trizma pres. plastic: PFCs (19) - see enclosed list

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM/RAK	(RQM)	(Y) N	08/24/2017	16:20			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/25/17	Time 0930
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 0.8 3.3			Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 192536

Group Number(s): 1842323

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/25/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:37 on 08/25/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.8	DT	Wet	Y	Bagged	N
2	DT42-02	3.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 15, 2017

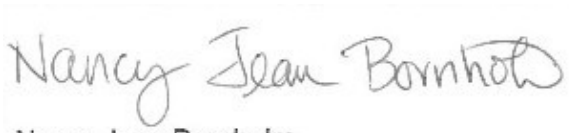
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1842820
SDG: SGB14
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FB07-170825 Blank Water	08/25/2017 08:30	9176692
SG3-S31-0-0.5' Soil	08/25/2017 08:40	9176693
SG3-S31-0-0.5' MS Soil	08/25/2017 08:40	9176694
SG3-S31-0-0.5' MSD Soil	08/25/2017 08:40	9176695
SG3-S31-0-0.5' Dupl Soil	08/25/2017 08:40	9176696
SG3-S31-0.5-1' Soil	08/25/2017 09:00	9176697
SG3-S31-1-1.5' Soil	08/25/2017 09:05	9176698
SG3-S31-3-4' Soil	08/25/2017 09:20	9176699
SG3-S31-8-9' Soil	08/25/2017 09:45	9176700
SG3-FD08-170825 Soil	08/25/2017	9176701
SG3-S12-0.0-0.5' Soil	08/25/2017 10:40	9176702
SG3-S12-0.5-1' Soil	08/25/2017 10:50	9176703
SG3-S12-1-1.5' Soil	08/25/2017 11:00	9176704
SG3-S12-3-4' Soil	08/25/2017 11:10	9176705
SG3-S12-4.5-4.9' Soil	08/25/2017 11:15	9176706
SG3-S12-8-9' Soil	08/25/2017 11:25	9176707
SG3-FB08-170825 Blank Water	08/25/2017 10:35	9176708
SG3-D18-0-0.5' Soil	08/25/2017 14:20	9176709
SG3-D18-0.5-1' Soil	08/25/2017 14:25	9176710
SG3-D18-1-1.5' Soil	08/25/2017 14:30	9176711
SG3-D18-3-4' Soil	08/25/2017 14:35	9176712
SG3-D18-8-9' Soil	08/25/2017 14:40	9176713
SG3-D18-18-19' Soil	08/25/2017 15:20	9176714

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1842820

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9176707, 9176712

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17249010 (Sample number(s): 9176693-9176695, 9176697-9176707, 9176709-9176714 UNSPK: 9176693)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9176707, 9176712

SW-846 6010C, Metals

Batch #: 172401063704 (Sample number(s): 9176709-9176714 UNSPK: 9176709 BKG: 9176709)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Potassium, Zinc

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium, Manganese

SW-846 6020A, Metals

Batch #: 172401063704A (Sample number(s): 9176709-9176714 UNSPK: 9176709 BKG: 9176709)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Copper, Lead, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Lead, Nickel, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Cobalt, Lead

Batch #: 172401063704D (Sample number(s): 9176709-9176714 UNSPK: 9176709 BKG: 9176709)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9176707

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17255837931A (Sample number(s): 9176707, 9176709-9176714 UNSPK: 9176711 BKG: 9176711)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9176707

The pH was measured in water at 19.4 C.

Sample #s: 9176713

The pH was measured in water at 19.5 C.

Sample #s: 9176697, 9176703, 9176704, 9176705, 9176709, 9176712, 9176714

The pH was measured in water at 19.6 C.

Sample #s: 9176693, 9176696, 9176699, 9176701, 9176710, 9176711

The pH was measured in water at 19.7 C.

Sample #s: 9176698, 9176700, 9176702

The pH was measured in water at 19.8 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17243820002B (Sample number(s): 9176705-9176707, 9176709-9176714 BKG: 9176705)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: SG3-FB07-170825 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9176692
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:30 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB7 SDG#: SGB14-01FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 04:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176693
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-1 SDG#: SGB14-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15**	**J**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.43**	**J**	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.71**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,900**		852	2,560	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.35**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 09:32	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176693
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-1 SDG#: SGB14-02BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 17:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9176694
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-1 SDG#: SGB14-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.4**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**63,700**	1,920	5,750	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**16.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 07:50	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 17:32	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9176695
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-1 SDG#: SGB14-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.23	0.69	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.23	0.69	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.23	0.69	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.23	0.69	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.23	0.69	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.11	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**1.8**	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.2**	0.23	0.69	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.23	0.69	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.23	0.69	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.5**	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.23	0.69	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**16.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 08:10	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9176696
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 08:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-1 SDG#: SGB14-02DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**21,000**	800	2,400	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.45**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**16.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**15.6**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 17:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176697
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:00 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-2 SDG#: SGB14-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**		0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,300**		550	1,650	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 09:53	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176697
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:00 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-2 SDG#: SGB14-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 18:34	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176698
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:05 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-3 SDG#: SGB14-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.23**	**J**	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17**	**J**	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.9**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,500**		772	2,320	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 10:13	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176698
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:05 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-3 SDG#: SGB14-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 18:54	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176699
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:20 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-4 SDG#: SGB14-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,770**		336	1,010	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.00**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 10:34	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176699
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:20 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-4 SDG#: SGB14-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 19:56	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176700
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:45 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-5 SDG#: SGB14-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,170**		313	939	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.90**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 10:55	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S31-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176700
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 09:45 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S31-5 SDG#: SGB14-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 20:36	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD08-170825 Soil
SGPP - North Bennington

ELLE Sample # SW 9176701
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD8 SDG#: SGB14-07FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.39**	**J**	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,460**		547	1,640	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.64**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 11:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD08-170825 Soil
SGPP - North Bennington

ELLE Sample # SW 9176701
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD8 SDG#: SGB14-07FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631A	09/13/2017 16:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-0.0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176702
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 10:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-1 SDG#: SGB14-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.33**	**J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,700**		779	2,340	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 12:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-0.0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176702
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 10:40 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-1 SDG#: SGB14-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 21:48	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176703
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 10:50 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-2 SDG#: SGB14-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.52**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,310**		673	2,020	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.88**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 12:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176703
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 10:50 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-2 SDG#: SGB14-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 22:08	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401A	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176704
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:00 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-3 SDG#: SGB14-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.21**	**J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,060**		467	1,400	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.96**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 12:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176704
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:00 by RAK

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-3 SDG#: SGB14-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 23:19	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002A	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176705
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:10 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-4 SDG#: SGB14-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,360**		250	749	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.54**		0.0100	0.0100	1
	The pH was measured in water at 19.6 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 13:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176705
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:10 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-4 SDG#: SGB14-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17255667631B	09/12/2017 23:59	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-4.5-4.9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176706
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:15 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-5 SDG#: SGB14-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.78	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.78	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.78	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.78	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.78	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.39	U	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.59**	**J**	0.26	0.78	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.78	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.78	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.78	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**25.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 13:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176707
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:25 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-6 SDG#: SGB14-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	312	U	312	937	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.25**		0.0100	0.0100	1
	The pH was measured in water at 19.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S12-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176707
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 11:25 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S12-6 SDG#: SGB14-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 13:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 17:27	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB08-170825 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9176708
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 10:35 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB8 SDG#: SGB14-14FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17239004	09/01/2017 04:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17239004	08/28/2017 07:10	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176709
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-1 SDG#: SGB14-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.24**	**J**	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**		0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.22**	**J**	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,900**		8.34	37.3	1
01650	**Calcium**	7440-70-2	**1,390**		3.11	37.3	1
01654	**Iron**	7439-89-6	**27,400**		37.6	187	5
01657	**Magnesium**	7439-95-4	**5,020**		2.27	18.7	1
06958	**Manganese**	7439-96-5	**602**		0.0774	0.933	1
01662	**Potassium**	7440-09-7	**1,320**		15.6	93.3	1
01667	**Sodium**	7440-23-5	**125**	**J**	15.6	187	1
06972	**Zinc**	7440-66-6	**66.3**		0.224	3.73	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.214**	**J**	0.0870	0.373	2
06125	**Arsenic**	7440-38-2	**7.14**		0.119	0.746	2
06126	**Barium**	7440-39-3	**47.7**		0.169	0.746	2
06127	**Beryllium**	7440-41-7	**0.364**		0.0098	0.187	2
06128	**Cadmium**	7440-43-9	**0.146**	**J**	0.0321	0.187	2
06131	**Chromium**	7440-47-3	**13.6**		0.162	0.746	2
06132	**Cobalt**	7440-48-4	**13.2**		0.0291	0.187	2
06133	**Copper**	7440-50-8	**18.3**		0.100	0.746	2
06135	**Lead**	7439-92-1	**16.3**		0.0207	0.373	2
06139	**Nickel**	7440-02-0	**20.9**		0.186	0.746	2
06141	**Selenium**	7782-49-2	**0.278**	**J**	0.0933	0.746	2
06142	**Silver**	7440-22-4	**0.0586**	**J**	0.0272	0.187	2
06145	**Thallium**	7440-28-0	**0.0827**	**J**	0.0233	0.187	2
06148	**Vanadium**	7440-62-2	**14.2**		0.0397	0.187	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176709
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-1 SDG#: SGB14-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**6,120**	586	1,760	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.18**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**6.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 14:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
01654	Iron	SW-846 6010C	1	172401063704	08/31/2017 08:39	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 05:37	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 19:42	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:18	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 19:42	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176709
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-1 SDG#: SGB14-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 19:42	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:18	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 10:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176710
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:25 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-2 SDG#: SGB14-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20**	**J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**		0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,800**		8.33	37.3	1
01650	**Calcium**	7440-70-2	**1,050**		3.10	37.3	1
01654	**Iron**	7439-89-6	**25,100**		7.50	37.3	1
01657	**Magnesium**	7439-95-4	**4,220**		2.26	18.6	1
06958	**Manganese**	7439-96-5	**439**		0.0773	0.931	1
01662	**Potassium**	7440-09-7	**1,470**		15.6	93.1	1
01667	**Sodium**	7440-23-5	**183**	**J**	15.6	186	1
06972	**Zinc**	7440-66-6	**52.3**		0.224	3.73	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.216**	**J**	0.0868	0.373	2
06125	**Arsenic**	7440-38-2	**8.32**		0.119	0.745	2
06126	**Barium**	7440-39-3	**53.5**		0.169	0.745	2
06127	**Beryllium**	7440-41-7	**0.444**		0.0098	0.186	2
06128	**Cadmium**	7440-43-9	**0.140**	**J**	0.0320	0.186	2
06131	**Chromium**	7440-47-3	**12.2**		0.162	0.745	2
06132	**Cobalt**	7440-48-4	**10.4**		0.0291	0.186	2
06133	**Copper**	7440-50-8	**18.7**		0.0998	0.745	2
06135	**Lead**	7439-92-1	**14.5**		0.0207	0.373	2
06139	**Nickel**	7440-02-0	**20.0**		0.186	0.745	2
06141	**Selenium**	7782-49-2	**0.289**	**J**	0.0931	0.745	2
06142	**Silver**	7440-22-4	**0.0473**	**J**	0.0272	0.186	2
06145	**Thallium**	7440-28-0	**0.113**	**J**	0.0233	0.186	2
06148	**Vanadium**	7440-62-2	**14.2**		0.0397	0.186	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176710
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:25 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-2 SDG#: SGB14-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,130**	533	1,600	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.45**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 16:02	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
01654	Iron	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 06:35	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 20:26	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:44	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 20:26	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9176710
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:25 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-2 SDG#: SGB14-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 20:26	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:44	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 10:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176711
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:30 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-3 SDG#: SGB14-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27**	**J**	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,300**		10.3	46.2	1
01650	**Calcium**	7440-70-2	**1,520**		3.85	46.2	1
01654	**Iron**	7439-89-6	**40,700**		46.5	231	5
01657	**Magnesium**	7439-95-4	**6,660**		2.81	23.1	1
06958	**Manganese**	7439-96-5	**733**		0.0960	1.16	1
01662	**Potassium**	7440-09-7	**2,630**		19.3	116	1
01667	**Sodium**	7440-23-5	**381**		19.3	231	1
06972	**Zinc**	7440-66-6	**88.1**		0.277	4.62	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.305**	**J**	0.108	0.462	2
06125	**Arsenic**	7440-38-2	**13.1**		0.148	0.925	2
06126	**Barium**	7440-39-3	**115**		0.210	0.925	2
06127	**Beryllium**	7440-41-7	**0.834**		0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.213**	**J**	0.0398	0.231	2
06131	**Chromium**	7440-47-3	**22.3**		0.201	0.925	2
06132	**Cobalt**	7440-48-4	**20.3**		0.0361	0.231	2
06133	**Copper**	7440-50-8	**32.8**		0.124	0.925	2
06135	**Lead**	7439-92-1	**20.8**		0.0257	0.462	2
06139	**Nickel**	7440-02-0	**35.1**		0.230	0.925	2
06141	**Selenium**	7782-49-2	**0.434**	**J**	0.116	0.925	2
06142	**Silver**	7440-22-4	**0.102**	**J**	0.0338	0.231	2
06145	**Thallium**	7440-28-0	**0.217**	**J**	0.0289	0.231	2
06148	**Vanadium**	7440-62-2	**25.9**		0.0493	0.231	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176711
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:30 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-3 SDG#: SGB14-17

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**2,210**	287	860	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.54**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**15.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 16:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
01654	Iron	SW-846 6010C	1	172401063704	08/31/2017 09:07	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 06:39	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 20:29	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:46	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 20:29	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9176711
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:30 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-3 SDG#: SGB14-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 20:29	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:46	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 17:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176712
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:35 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-4 SDG#: SGB14-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.97**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**18,600**		8.86	39.6	1
01650	**Calcium**	7440-70-2	**61,500**		16.5	198	5
01654	**Iron**	7439-89-6	**34,200**		39.9	198	5
01657	**Magnesium**	7439-95-4	**20,100**		2.41	19.8	1
06958	**Manganese**	7439-96-5	**691**		0.0823	0.991	1
01662	**Potassium**	7440-09-7	**2,610**		16.6	99.1	1
01667	**Sodium**	7440-23-5	**415**		16.6	198	1
06972	**Zinc**	7440-66-6	**81.4**		0.238	3.96	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.203**	**J**	0.0924	0.396	2
06125	**Arsenic**	7440-38-2	**10.7**		0.127	0.793	2
06126	**Barium**	7440-39-3	**137**		0.180	0.793	2
06127	**Beryllium**	7440-41-7	**0.746**		0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**0.226**		0.0341	0.198	2
06131	**Chromium**	7440-47-3	**21.9**		0.172	0.793	2
06132	**Cobalt**	7440-48-4	**16.0**		0.0309	0.198	2
06133	**Copper**	7440-50-8	**27.1**		0.106	0.793	2
06135	**Lead**	7439-92-1	**17.7**		0.0220	0.396	2
06139	**Nickel**	7440-02-0	**28.3**		0.197	0.793	2
06141	**Selenium**	7782-49-2	**0.257**	**J**	0.0991	0.793	2
06142	**Silver**	7440-22-4	**0.0751**	**J**	0.0289	0.198	2
06145	**Thallium**	7440-28-0	**0.223**		0.0248	0.198	2
06148	**Vanadium**	7440-62-2	**24.8**		0.0422	0.198	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176712
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:35 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-4 SDG#: SGB14-18

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,200**	258	773	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**17.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 16:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/31/2017 09:16	Patrick J Engle	5
01654	Iron	SW-846 6010C	1	172401063704	08/31/2017 09:16	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 06:43	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 20:32	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:47	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 20:32	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9176712
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:35 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-4 SDG#: SGB14-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 20:32	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:47	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 18:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176713
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:40 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-5 SDG#: SGB14-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.78	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.78	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.78	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.78	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.78	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.39	U	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.26	0.78	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.78	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.78	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.78	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**23,000**		8.70	38.9	1
01650	**Calcium**	7440-70-2	**20,200**		3.24	38.9	1
01654	**Iron**	7439-89-6	**37,000**		39.1	195	5
01657	**Magnesium**	7439-95-4	**15,500**		2.36	19.5	1
06958	**Manganese**	7439-96-5	**924**		0.0807	0.973	1
01662	**Potassium**	7440-09-7	**4,850**		16.2	97.3	1
01667	**Sodium**	7440-23-5	**241**		16.2	195	1
06972	**Zinc**	7440-66-6	**90.1**		0.233	3.89	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.280**	**J**	0.0906	0.389	2
06125	**Arsenic**	7440-38-2	**12.0**		0.124	0.778	2
06126	**Barium**	7440-39-3	**245**		0.177	0.778	2
06127	**Beryllium**	7440-41-7	**1.12**		0.0102	0.195	2
06128	**Cadmium**	7440-43-9	**0.178**	**J**	0.0335	0.195	2
06131	**Chromium**	7440-47-3	**27.2**		0.169	0.778	2
06132	**Cobalt**	7440-48-4	**19.1**		0.0303	0.195	2
06133	**Copper**	7440-50-8	**36.6**		0.104	0.778	2
06135	**Lead**	7439-92-1	**20.5**		0.0216	0.389	2
06139	**Nickel**	7440-02-0	**34.0**		0.194	0.778	2
06141	**Selenium**	7782-49-2	**0.245**	**J**	0.0973	0.778	2
06142	**Silver**	7440-22-4	**0.0726**	**J**	0.0284	0.195	2
06145	**Thallium**	7440-28-0	**0.268**		0.0243	0.195	2
06148	**Vanadium**	7440-62-2	**32.7**		0.0414	0.195	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176713
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:40 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-5 SDG#: SGB14-19

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**765**	248	743	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.62**	0.0100	0.0100	1
	The pH was measured in water at 19.5 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**28.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 17:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
01654	Iron	SW-846 6010C	1	172401063704	08/31/2017 09:19	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 06:47	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 20:35	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:49	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 20:35	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9176713
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:40 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-5 SDG#: SGB14-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 20:35	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:49	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 18:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9176714
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 15:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-6 SDG#: SGB14-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.28	U	0.28	0.84	1
14027	Perfluorobutanoic acid	375-22-4	0.28	U	0.28	0.84	1
14027	Perfluorodecanoic acid	335-76-2	0.28	U	0.28	0.84	1
14027	Perfluorododecanoic acid	307-55-1	0.28	U	0.28	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.28	U	0.28	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.28	U	0.28	0.84	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.14	U	0.14	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.42	U	0.42	1.3	1
14027	Perfluorooctanoic acid	335-67-1	0.28	U	0.28	0.84	1
14027	Perfluoropentanoic acid	2706-90-3	0.28	U	0.28	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28	U	0.28	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28	U	0.28	0.84	1
14027	Perfluoroundecanoic acid	2058-94-8	0.28	U	0.28	0.84	1
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**17,600**		10.0	44.9	1
01650	**Calcium**	7440-70-2	**15,800**		3.74	44.9	1
01654	**Iron**	7439-89-6	**35,900**		45.2	224	5
01657	**Magnesium**	7439-95-4	**11,200**		2.73	22.4	1
06958	**Manganese**	7439-96-5	**618**		0.0932	1.12	1
01662	**Potassium**	7440-09-7	**2,610**		18.7	112	1
01667	**Sodium**	7440-23-5	**81.9**	**J**	18.7	224	1
06972	**Zinc**	7440-66-6	**85.3**		0.269	4.49	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.195**	**J**	0.105	0.449	2
06125	**Arsenic**	7440-38-2	**8.93**		0.144	0.898	2
06126	**Barium**	7440-39-3	**89.7**		0.204	0.898	2
06127	**Beryllium**	7440-41-7	**0.555**		0.0118	0.224	2
06128	**Cadmium**	7440-43-9	**0.157**	**J**	0.0386	0.224	2
06131	**Chromium**	7440-47-3	**21.0**		0.195	0.898	2
06132	**Cobalt**	7440-48-4	**15.4**		0.0350	0.224	2
06133	**Copper**	7440-50-8	**26.4**		0.120	0.898	2
06135	**Lead**	7439-92-1	**14.4**		0.0249	0.449	2
06139	**Nickel**	7440-02-0	**30.9**		0.224	0.898	2
06141	**Selenium**	7782-49-2	**0.421**	**J**	0.112	0.898	2
06142	**Silver**	7440-22-4	**0.0552**	**J**	0.0328	0.224	2
06145	**Thallium**	7440-28-0	**0.108**	**J**	0.0281	0.224	2
06148	**Vanadium**	7440-62-2	**20.3**		0.0478	0.224	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9176714
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 15:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-6 SDG#: SGB14-20

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**816**	234	702	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**32.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17249010	09/08/2017 17:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17249010	09/06/2017 15:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
01650	Calcium	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
01654	Iron	SW-846 6010C	1	172401063704	08/31/2017 09:22	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
06958	Manganese	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
01662	Potassium	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
01667	Sodium	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
06972	Zinc	SW-846 6010C	1	172401063704	08/30/2017 06:51	Scott R Yanos	1
06124	Antimony	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172401063704D	08/30/2017 20:38	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172401063704A	09/01/2017 01:51	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172401063704B	08/30/2017 20:38	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9176714
ELLE Group # 1842820
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 15:20 by RQM

Submitted: 08/26/2017 09:45
Reported: 09/15/2017 07:48

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-6 SDG#: SGB14-20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172401063704A	08/30/2017 20:38	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172401063704A	09/01/2017 01:51	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172401063704	08/29/2017 17:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17255837931A	09/13/2017 18:40	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17244039401B	09/01/2017 18:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17243820002B	08/31/2017 11:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842820
Reported: 09/15/2017 07:48

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17249010	Sample number(s): 9176693-9176695,9176697-9176707,9176709-9176714			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17239004	Sample number(s): 9176692,9176708			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172401063704	Sample number(s): 9176709-9176714			
Aluminum	8.94	U	8.94	40.0
Calcium	3.33	U	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.43	U	2.43	20.0
Manganese	0.0830	U	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1842820
Reported: 09/15/2017 07:48

Method Blank (continued)

Analysis Name	Result mg/kg		MDL** mg/kg	LOQ mg/kg
Zinc	0.256	J	0.240	4.00
Batch number: 172401063704A	Sample number(s): 9176709-9176714			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172401063704B	Sample number(s): 9176709-9176714			
Selenium	0.100	U	0.100	0.800
Batch number: 172401063704D	Sample number(s): 9176709-9176714			
Barium	0.182	U	0.182	0.800
Batch number: 17255667631A	Sample number(s): 9176701			
TOC	100	U	100	300
Batch number: 17255667631B	Sample number(s): 9176693-9176694,9176696-9176700,9176702-9176705			
TOC	100	U	100	300
Batch number: 17255837931A	Sample number(s): 9176707,9176709-9176714			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17249010	Sample number(s): 9176693-9176695,9176697-9176707,9176709-9176714								
Perfluorobutanesulfonate	1.20	1.06			88		70-130		
Perfluorobutanoic acid	1.36	1.53			113		70-130		
Perfluorodecanoic acid	1.36	1.44			106		70-130		
Perfluorododecanoic acid	1.36	1.30			95		70-130		
Perfluoroheptanoic acid	1.36	1.26			93		70-130		
Perfluorohexanesulfonate	1.29	1.12			87		70-130		
Perfluorohexanoic acid	1.36	1.37			101		70-130		
Perfluorononanoic acid	1.36	1.30			96		70-130		
Perfluoro-octanesulfonate	1.30	1.12			86		70-130		
Perfluorooctanoic acid	1.36	1.39			102		70-130		
Perfluoropentanoic acid	1.36	1.23			90		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 07:48

Group Number: 1842820

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorotetradecanoic acid	1.36	1.26			93		70-130		
Perfluorotridecanoic acid	1.36	1.20			88		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17239004	Sample number(s): 9176692,9176708								
Perfluorobutanesulfonate	12.38	11.69	12.38	11.92	94	96	70-130	2	30
Perfluorobutanoic Acid	14	14.19	14	14.2	101	101	70-130	0	30
Perfluorodecanoic acid	14	13.78	14	13.45	98	96	70-130	2	30
Perfluorododecanoic acid	14	13.81	14	13.59	99	97	70-130	2	30
Perfluoroheptanoic acid	14	13.97	14	13.57	100	97	70-130	3	30
Perfluorohexanesulfonate	13.24	11.97	13.24	13.55	90	102	70-130	12	30
Perfluorohexanoic acid	14	13.51	14	13.01	96	93	70-130	4	30
Perfluorononanoic acid	14	14.57	14	13.39	104	96	70-130	8	30
Perfluoro-octanesulfonate	13.38	13.37	13.38	11.54	100	86	70-130	15	30
Perfluorooctanoic acid	14	14.75	14	13.04	105	93	70-130	12	30
Perfluoropentanoic Acid	14	12.93	14	13.99	92	100	70-130	8	30
Perfluorotetradecanoic acid	14	12.96	14	12.74	93	91	70-130	2	30
Perfluorotridecanoic acid	14	15.39	14	15.64	110	112	70-130	2	30
Perfluoroundecanoic acid	14	13.2	14	14.21	94	102	70-130	7	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172401063704	Sample number(s): 9176709-9176714								
Aluminum	200	197.4			99		80-120		
Calcium	400	398.82			100		80-120		
Iron	100	99.93			100		80-120		
Magnesium	200	202.66			101		80-120		
Manganese	50	51.01			102		80-120		
Potassium	1000	1007.82			101		80-120		
Sodium	1000	1003.51			100		80-120		
Zinc	50	50.2			100		80-120		
Batch number: 172401063704A	Sample number(s): 9176709-9176714								
Antimony	0.600	0.581			97		80-120		
Arsenic	1.00	0.989			99		80-120		
Beryllium	0.400	0.417			104		80-120		
Cadmium	0.500	0.502			100		80-120		
Chromium	5.00	4.96			99		80-120		
Cobalt	25	27.27			109		80-120		
Copper	5.00	5.65			113		80-120		
Lead	1.50	1.46			97		80-120		
Nickel	5.00	5.29			106		80-120		
Silver	5.00	5.21			104		80-120		
Thallium	0.200	0.191			96		80-120		
Vanadium	5.00	5.04			101		80-120		
Batch number: 172401063704B	Sample number(s): 9176709-9176714								
Selenium	1.00	1.05			105		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1842820
Reported: 09/15/2017 07:48

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172401063704D	Sample number(s): 9176709-9176714								
Barium	5.00	5.10			102		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17255667631A	Sample number(s): 9176701								
TOC	7150	5811.55			81		47-143		
Batch number: 17255667631B	Sample number(s): 9176693-9176694,9176696-9176700,9176702-9176705								
TOC	7150	5811.55			81		47-143		
Batch number: 17255837931A	Sample number(s): 9176707,9176709-9176714								
TOC	7150	3989.97			56		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17244039401A	Sample number(s): 9176697-9176703								
pH	7.00	6.96			99		95-105		
Batch number: 17244039401B	Sample number(s): 9176693,9176696,9176704-9176705,9176707,9176709-9176714								
pH	7.00	6.96			99		95-105		
	%	%	%	%					
Batch number: 17243820002A	Sample number(s): 9176693-9176704								
Moisture	89.5	89.4			100		99-101		
Moisture	89.5	89.4			100		99-101		
Moisture Duplicate	89.5	89.4			100		99-101		
Batch number: 17243820002B	Sample number(s): 9176705-9176707,9176709-9176714								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17249010	Sample number(s): 9176693-9176695,9176697-9176707,9176709-9176714 UNSPK: 9176693										
Perfluorobutanesulfonate	0.18	U	1.13	0.995	1.15	0.989	88	86	70-130	1	30
Perfluorobutanoic acid	0.18	U	1.28	1.45	1.31	1.47	113	112	70-130	1	30
Perfluorodecanoic acid	0.18	U	1.28	1.46	1.31	1.40	114	108	70-130	4	30
Perfluorododecanoic acid	0.18	U	1.28	1.38	1.31	1.31	108	100	70-130	6	30
Perfluoroheptanoic acid	0.18	U	1.28	1.41	1.31	1.39	110	106	70-130	2	30
Perfluorohexanesulfonate	0.18	U	1.21	1.11	1.23	1.05	92	85	70-130	5	30
Perfluorohexanoic acid	0.092	U	1.28	1.26	1.31	1.28	98	98	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 07:48

Group Number: 1842820

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorononanoic acid	0.127	1.28	1.61	1.31	1.51	116	106	70-130	7	30
Perfluoro-octanesulfonate	0.360	1.23	1.33	1.25	1.31	79	76	70-130	1	30
Perfluorooctanoic acid	0.593	1.28	3.66	1.31	2.68	239*	160*	70-130	31*	30
Perfluoropentanoic acid	0.18 U	1.28	1.22	1.31	1.30	95	100	70-130	6	30
Perfluorotetradecanoic acid	0.18 U	1.28	1.34	1.31	1.25	105	96	70-130	7	30
Perfluorotridecanoic acid	0.18 U	1.28	1.31	1.31	1.26	102	97	70-130	3	30
Perfluoroundecanoic acid	0.18 U	1.28	1.59	1.31	1.51	124	116	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172401063704	Sample number(s): 9176709-9176714 UNSPK: 9176709									
Aluminum	12027.04	190.48	13041.84	183.49	14109.59	533 (2)	1135 (2)	75-125	8	20
Calcium	1291.65	380.95	1633.68	366.97	1831.34	90	147*	75-125	11	20
Iron	25560.31	95.24	26102.96	91.74	28771.23	570 (2)	3500 (2)	75-125	10	20
Magnesium	4682.84	190.48	4284.13	183.49	4810.31	-209 (2)	69 (2)	75-125	12	20
Manganese	560.97	47.62	505.11	45.87	584.75	-117 (2)	52 (2)	75-125	15	20
Potassium	1229.55	952.38	2434.88	917.43	2675.32	127*	158*	75-125	9	20
Sodium	116.73	952.38	1092.48	917.43	1040.6	102	101	75-125	5	20
Zinc	61.8	47.62	110.66	45.87	130.95	103	151*	75-125	17	20
Batch number: 172401063704A	Sample number(s): 9176709-9176714 UNSPK: 9176709									
Antimony	0.199	1.14	1.19	1.10	1.23	87	93	75-125	3	20
Arsenic	6.65	1.90	11.68	1.83	19.23	264*	685*	75-125	49*	20
Beryllium	0.339	0.762	1.27	0.734	1.06	122	99	75-125	17	20
Cadmium	0.136	0.952	1.16	0.917	0.997	108	94	75-125	15	20
Chromium	12.66	9.52	24.05	9.17	19.82	119	78	75-125	19	20
Cobalt	12.34	47.62	63	45.87	58.66	106	101	75-125	7	20
Copper	17.05	9.52	31.94	9.17	31.01	156*	152*	75-125	3	20
Lead	15.2	2.86	27.73	2.75	16.87	439 (2)	61 (2)	75-125	49*	20
Nickel	19.45	9.52	30.38	9.17	24.52	115	55*	75-125	21*	20
Silver	0.0546	9.52	9.79	9.17	9.68	102	105	75-125	1	20
Thallium	0.0770	0.381	0.503	0.367	0.420	112	94	75-125	18	20
Vanadium	13.21	9.52	27.55	9.17	20.78	151*	83	75-125	28*	20
Batch number: 172401063704B	Sample number(s): 9176709-9176714 UNSPK: 9176709									
Selenium	0.259	1.90	2.21	1.83	1.97	102	93	75-125	11	20
Batch number: 172401063704D	Sample number(s): 9176709-9176714 UNSPK: 9176709									
Barium	44.44	9.52	117.65	9.17	43.34	769 (2)	-12 (2)	75-125	92*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17255667631A	Sample number(s): 9176701 UNSPK: P174894									
TOC	383.93	12030	12471.96			100		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 07:48

Group Number: 1842820

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17255667631B	Sample number(s): 9176693-9176694,9176696-9176700,9176702-9176705 UNSPK: 9176693									
TOC	18334.52	48090	53237.18			73		47-143		
Batch number: 17255837931A	Sample number(s): 9176707,9176709-9176714 UNSPK: 9176711									
TOC	1871.96	26250	27760.28			99		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172401063704	Sample number(s): 9176709-9176714 BKG: 9176709			
Aluminum	12027.04	11231.15	7	20
Calcium	1291.65	1555.43	19	20
Iron	25560.31	24719.62	3	20
Magnesium	4682.84	4483.93	4	20
Manganese	560.97	542.43	3	20
Potassium	1229.55	1302.64	6	20
Sodium	116.73	127.97	9 (1)	20
Zinc	61.8	61.26	1	20
Batch number: 172401063704A	Sample number(s): 9176709-9176714 BKG: 9176709			
Antimony	0.199	0.192	3 (1)	20
Arsenic	6.65	8.01	19	20
Beryllium	0.339	0.367	8 (1)	20
Cadmium	0.136	0.177	27* (1)	20
Chromium	12.66	12.93	2	20
Cobalt	12.34	9.44	27*	20
Copper	17.05	14.83	14	20
Lead	15.2	19.06	23*	20
Nickel	19.45	19.21	1	20
Silver	0.0546	0.0458	18 (1)	20
Thallium	0.0770	0.0791	3 (1)	20
Vanadium	13.21	14.65	10	20
Batch number: 172401063704B	Sample number(s): 9176709-9176714 BKG: 9176709			
Selenium	0.259	0.291	12 (1)	20
Batch number: 172401063704D	Sample number(s): 9176709-9176714 BKG: 9176709			
Barium	44.44	46.19	4	20
	mg/kg	mg/kg		
Batch number: 17255667631A	Sample number(s): 9176701 BKG: P174894			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1842820
Reported: 09/15/2017 07:48

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	383.93	402.32	5 (1)	7
Batch number: 17255667631B	Sample number(s): 9176693-9176694,9176696-9176700,9176702-9176705 BKG: 9176693			
TOC	18334.52	17536.81	4	7
Batch number: 17255837931A	Sample number(s): 9176707,9176709-9176714 BKG: 9176711			
TOC	1871.96	1405.24	28* (1)	7
	Std. Units	Std. Units		
Batch number: 17244039401A	Sample number(s): 9176697-9176703 BKG: P176517			
pH	4.00	4.03	1	3
Batch number: 17244039401B	Sample number(s): 9176693,9176696,9176704-9176705,9176707,9176709-9176714 BKG: 9176693			
pH	8.35	8.45	1	3
	%	%		
Batch number: 17243820002A	Sample number(s): 9176693-9176704 BKG: 9176693, P176693			
Moisture	16.42	15.62	5	5
Moisture	16.42	15.62	5	5
Moisture Duplicate	16.42	15.62	5	5
Batch number: 17243820002B	Sample number(s): 9176705-9176707,9176709-9176714 BKG: 9176705			
Moisture	9.86	10.88	10*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9176692	83	85	88	83	75	80
9176708	72	76	74	64	61	68
Blank	78	86	89	73	66	81
LCS	86	94	91	90	83	87
LCSD	74	78	82	82	73	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842820
Reported: 09/15/2017 07:48

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17239004

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	d5-NEtFOSAA
9176692	77	81	80	82	82	86
9176708	65	73	79	68	65	68
Blank	82	75	78	71	72	75
LCS	82	84	82	81	81	80
LCSD	76	72	67	68	67	68
Limits:	43-112	43-115	32-134	40-115	30-128	21-135

	13C2-PFDoDA	13C2-PFTeDA
9176692	74	75
9176708	61	65
Blank	72	76
LCS	74	74
LCSD	63	68
Limits:	28-127	26-119

Analysis Name: 14 PFCs
Batch number: 17249010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9176693	81	81	86	78	81	87
9176694	80	82	86	77	78	79
9176695	79	81	87	80	87	85
9176697	86	87	93	89	96	95
9176698	73	71	75	70	75	74
9176699	83	82	87	75	80	87
9176700	71	77	82	76	82	85
9176701	79	82	86	76	82	86
9176702	83	86	88	80	86	90
9176703	78	77	81	82	86	88
9176704	75	77	77	70	80	82
9176705	83	88	88	78	90	86
9176706	78	80	87	68	72	77
9176707	70	69*	78	69	75	70
9176709	71	75	79	75	74	80
9176710	76	79	85	70	76	78
9176711	78	75	83	89	88	89
9176712	65	64*	69	70	74	68
9176713	68	72	77	63	65	66
9176714	84	86	91	83	89	90
Blank	81	83	89	72	75	77
LCS	74	78	85	74	77	83

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1842820
Reported: 09/15/2017 07:48

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17249010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MS	80	82	86	77	78	79
MSD	79	81	87	80	87	85
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9176693	85	82	87	79	75	70
9176694	84	86	79	77	80	77
9176695	91	82	86	78	79	79
9176697	94	89	88	93	94	88
9176698	75	78	70	74	77	72
9176699	89	94	83	90	83	90
9176700	79	81	73	84	75	82
9176701	85	84	87	88	84	81
9176702	86	86	87	83	84	83
9176703	84	84	81	83	89	89
9176704	81	78	74	86	83	75
9176705	88	84	81	91	83	84
9176706	82	91	93	84	78	72
9176707	76	81	72	79	82	80
9176709	79	82	84	73	81	81
9176710	87	92	84	82	77	84
9176711	94	87	80	84	81	87
9176712	70	73	63	65	65	70
9176713	70	77	66	74	68	73
9176714	89	93	88	93	85	91
Blank	86	85	82	81	76	91
LCS	78	77	72	76	71	77
MS	84	86	79	77	80	77
MSD	91	82	86	78	79	79
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9176693	67
9176694	75
9176695	74
9176697	88
9176698	69
9176699	84
9176700	73
9176701	80

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1842820
Reported: 09/15/2017 07:48

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17249010

	13C2-PFTeDA
9176702	76
9176703	82
9176704	70
9176705	78
9176706	65
9176707	75
9176709	72
9176710	77
9176711	76
9176712	64
9176713	67
9176714	85
Blank	85
LCS	77
MS	75
MSD	74
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1842820 9176692-714

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52266

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd. (NY)
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250ml Field Blank	Soil — 250ml plastics, PFCs (14)	Soil — 4 oz. glass jars, TOC, pH, moist	Soil — % Solids
									A	A	A	
							N		1	1	1	
1. SG3-FB07-170825	/	/	/	08/25/2017	08:30	water	N	1	1			
2. SG3-S31-0-0.5'	0	0.5	ft.	08/25/2017	08:40	S	Y	6		3	3	
3. SG3-S31-0.5-1'	0.5	1	ft.	08/25/2017	09:00	S	N	2		1	1	
4. SG3-S31-1-1.5'	1	1.5	ft.	08/25/2017	09:05	S	N	2		1	1	
5. SG3-S31-3-4'	3	4	ft.	08/25/2017	09:20	S	N	2		1	1	
6. SG3-S31-8-9'	8	9	ft.	08/25/2017	09:45	S	N	2		1	1	
7. SG3-FD08-170825	/	/	/	08/25/2017	/	S	N	2		1	1	
8. SG3 ~~S31~~ -S12-0.0-0.5	0	0.5	ft.	08/25/2017	10:40	S	N	2		1	1	
9. SG3 ~~S31~~ - S12 ~~0-0.5~~ 0.5-1'	0.5	1.0	ft.	08/25/2017	10:50	S	N	2		1	1	
10. SG3-S12-1-1.5'	1.0	1.5	ft.	08/25/2017	11:00	S	N	2		1	1	

Preservative Code

Field Filtered Y/N

Samples split into two coolers

BARR USE ONLY

Sampled by: RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? Y N 08/25/2017 16:30

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: 8/26/17 9:45

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 2.8/1.9 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1842820 9176692-714

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52315

COC 2 of 2

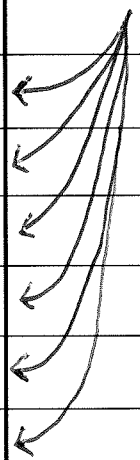
REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250ml Field Blank	Soil: 250 ml plastic, PFC (14)	Soil: 4 oz. glass jars, TOC, pH, moist.	Soil: Metals (out of 4oz. jar)	% Solids
	Preservative Code										A	A	A	
	Field Filtered Y/N										N	N	N	
1.	SG3-S12-3-4'	3	4	ft.	08/25/2017	11:10	S	N	2		1	1		
2.	SG3-S12-4.5-4.9'	4.5	4.9	ft.	08/25/2017	11:15	S	N	1		1			
3.	SG3-S12-8-9'	8	9	ft.	08/25/2017	11:25	S	N	2		1	1		
4.	SG3-~~S12~~ FB08-170825	/	/	/	08/25/2017	10:35	S	N	1	1				
5.	SG3-D18-0-0.5'	0	0.5	ft.	08/25/2017	14:20	S	N	2		1	1	X	
6.	SG3-D18-0.5-1'	0.5	1	ft.	08/25/2017	14:25	S	N	2		1	1	X	
7.	SG3-D18-1-1.5'	1	1.5	ft.	08/25/2017	14:30	S	N	2		1	1	X	
8.	SG3-D18-3-4'	3	4	ft.	08/25/2017	14:35	S	N	2		1	1	X	
9.	SG3-D18-8-9'	8	9	ft.	08/25/2017	14:40	S	N	2		1	1	X	
10.	SG3-D18-18-19'	18	19	ft.	08/25/2017	15:20	S	N	2		1	1	X	

Analyze Metals = TAL metals/cations excluding mercury for SG3-D18 samples



BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? Y N: Y — Date: 08/25/2017 — Time: 16:30

Received by: — Date: — Time:

Relinquished by: — On Ice? Y N: — Date: — Time:

Received by: — Date: 8/26/17 — Time: 9:45

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 2.8/1.9 Custody Seal Intact? ☒ Y ☐ N ☐ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 184820 9176692-714

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192699

Group Number(s): 1842820

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/26/2017 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Zane Hollinger (10251) at 14:09 on 08/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.8	DT	Wet	Y	Bagged	N
2	DT42-02	1.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 04, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1843582
SDG: SGB15
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FBS01-170827 Blank Water	08/27/2017 09:00	9179465
SG3-FDS01-170827 Soil	08/27/2017	9179466
SG3-D18-24-25' Soil	08/27/2017 09:10	9179467
SG3-D18-15-16' Soil	08/27/2017 10:10	9179468
SG3-FD09-170828 Soil	08/28/2017	9179474
SG3-FD10-170828 Soil	08/28/2017	9179475
SG3-FB09-170828 Blank Water	08/28/2017 10:15	9179476
SG3-FB10-170828 Blank Water	08/28/2017 10:40	9179477
SG3-S14-0-0.5' Soil	08/28/2017 10:45	9179478
SG3-S14-0-0.5' MS Soil	08/28/2017 10:45	9179479
SG3-S14-0-0.5' MSD Soil	08/28/2017 10:45	9179480
SG3-S14-0-0.5' Dupl Soil	08/28/2017 10:45	9179481
SG3-S14-0.5-1' Soil	08/28/2017 10:55	9179482
SG3-S14-1-1.5' Soil	08/28/2017 11:05	9179483
SG3-S14-3-4' Soil	08/28/2017 11:15	9179484
SG3-S14-8-9' Soil	08/28/2017 11:50	9179485

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1843582

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 6010C, Metals

Batch #: 172421063703 (Sample number(s): 9179466-9179468 UNSPK: P178940 BKG: P178940)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Manganese, Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Calcium, Iron, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium, Iron

Batch #: 172541063701 (Sample number(s): 9179466-9179468 UNSPK: P178940 BKG: P178940)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Potassium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Potassium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Zinc

SW-846 6020A, Metals

Batch #: 172541063701A (Sample number(s): 9179466-9179468 UNSPK: P178940 BKG: P178940)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead, Vanadium, Copper

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Chromium, Lead, Nickel, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Beryllium, Chromium, Lead, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Beryllium, Chromium, Cobalt, Copper, Lead, Nickel, Silver

Batch #: 172541063701D (Sample number(s): 9179466-9179468 UNSPK: P178940 BKG: P178940)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9179466, 9179484, 9179485

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17256667631A (Sample number(s): 9179466-9179468, 9179474-9179475, 9179478-9179479, 9179481-9179484 UNSPK: 9179478 BKG: 9179478)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17256667631B (Sample number(s): 9179485 UNSPK: P179490 BKG: P179490)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9179485

The pH was measured in water at 19.5 C.

Sample #s: 9179474

The pH was measured in water at 20.2 C.

Sample #s: 9179466, 9179478, 9179481

The pH was measured in water at 20.3 C.

Sample #s: 9179482, 9179483, 9179484

The pH was measured in water at 20.4 C.

Sample #s: 9179467, 9179475

The pH was measured in water at 20.5 C.

Sample #s: 9179468

The pH was measured in water at 20.7 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17243820021A (Sample number(s): 9179466-9179468, 9179474-9179475, 9179478-9179481, 9179485 BKG: 9179478)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Batch #: 17244820015B (Sample number(s): 9179482-9179484 BKG: P179069)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: SG3-FBS01-170827 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9179465
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 09:00 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB1 SDG#: SGB15-01FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 03:36	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FDS01-170827 Soil
SGPP - North Bennington

ELLE Sample # SW 9179466
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD1 SDG#: SGB15-02FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**12,400**		6.90	30.9	1
01650	**Calcium**	7440-70-2	**21,800**		2.57	30.9	1
01654	**Iron**	7439-89-6	**28,300**		31.1	154	5
01657	**Magnesium**	7439-95-4	**9,640**		1.88	15.4	1
06958	**Manganese**	7439-96-5	**804**		0.0641	0.772	1
01662	**Potassium**	7440-09-7	**2,740**		18.1	109	1
01667	**Sodium**	7440-23-5	**64.0**	**J**	18.1	217	1
06972	**Zinc**	7440-66-6	**64.6**		0.261	4.34	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.794**		0.101	0.434	2
06125	**Arsenic**	7440-38-2	**17.8**		0.139	0.869	2
06126	**Barium**	7440-39-3	**74.3**		0.197	0.869	2
06127	**Beryllium**	7440-41-7	**0.442**		0.0114	0.217	2
06128	**Cadmium**	7440-43-9	**0.171**	**J**	0.0373	0.217	2
06131	**Chromium**	7440-47-3	**18.1**		0.189	0.869	2
06132	**Cobalt**	7440-48-4	**19.5**		0.0339	0.217	2
06133	**Copper**	7440-50-8	**38.6**		0.116	0.869	2
06135	**Lead**	7439-92-1	**25.1**		0.0241	0.434	2
06139	**Nickel**	7440-02-0	**32.4**		0.216	0.869	2
06141	**Selenium**	7782-49-2	**1.10**		0.109	0.869	2
06142	**Silver**	7440-22-4	**0.0677**	**J**	0.0317	0.217	2
06145	**Thallium**	7440-28-0	**0.0910**	**J**	0.0271	0.217	2
06148	**Vanadium**	7440-62-2	**18.0**		0.0462	0.217	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FDS01-170827 Soil
SGPP - North Bennington

ELLE Sample # SW 9179466
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD1 SDG#: SGB15-02FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	226	U	226	678	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		Std. Units		Std. Units	Std. Units	
00394	**pH**	n.a.	**8.44**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**8.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 22:46	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063703	09/01/2017 13:52	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172421063703	09/01/2017 13:52	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172421063703	09/07/2017 00:36	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063703	09/01/2017 13:52	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172421063703	09/01/2017 13:52	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172541063701	09/13/2017 11:31	Patrick J Engle	1
01667	Sodium	SW-846 6010C	2	172541063701	09/13/2017 11:31	Patrick J Engle	1
06972	Zinc	SW-846 6010C	2	172541063701	09/13/2017 11:31	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172541063701D	09/13/2017 06:42	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172541063701A	09/13/2017 03:19	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172541063701A	09/13/2017 03:19	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FDS01-170827 Soil
SGPP - North Bennington

ELLE Sample # SW 9179466
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD1 SDG#: SGB15-02FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172541063701B	09/13/2017 03:19	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172541063701A	09/13/2017 03:19	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172541063701A	09/13/2017 06:42	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063703	08/31/2017 23:06	Annamaria Kuhns	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172541063701	09/12/2017 17:45	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 17:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401A	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9179467
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 09:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-7 SDG#: SGB15-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**13,500**		8.85	39.6	1
01650	**Calcium**	7440-70-2	**29,000**		3.30	39.6	1
01654	**Iron**	7439-89-6	**29,500**		39.8	198	5
01657	**Magnesium**	7439-95-4	**16,700**		2.41	19.8	1
06958	**Manganese**	7439-96-5	**681**		0.0822	0.990	1
01662	**Potassium**	7440-09-7	**2,690**		17.5	105	1
01667	**Sodium**	7440-23-5	**65.5**	**J**	17.5	209	1
06972	**Zinc**	7440-66-6	**66.0**		0.251	4.19	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.294**	**J**	0.0975	0.419	2
06125	**Arsenic**	7440-38-2	**12.8**		0.134	0.837	2
06126	**Barium**	7440-39-3	**76.4**		0.190	0.837	2
06127	**Beryllium**	7440-41-7	**0.496**		0.0110	0.209	2
06128	**Cadmium**	7440-43-9	**0.149**	**J**	0.0360	0.209	2
06131	**Chromium**	7440-47-3	**19.2**		0.182	0.837	2
06132	**Cobalt**	7440-48-4	**17.1**		0.0327	0.209	2
06133	**Copper**	7440-50-8	**43.4**		0.112	0.837	2
06135	**Lead**	7439-92-1	**18.1**		0.0232	0.419	2
06139	**Nickel**	7440-02-0	**32.2**		0.208	0.837	2
06141	**Selenium**	7782-49-2	**0.400**	**J**	0.105	0.837	2
06142	**Silver**	7440-22-4	**0.0862**	**J**	0.0306	0.209	2
06145	**Thallium**	7440-28-0	**0.0802**	**J**	0.0262	0.209	2
06148	**Vanadium**	7440-62-2	**19.6**		0.0446	0.209	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9179467
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 09:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-7 SDG#: SGB15-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,710**	215	646	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.37**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 23:07	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063703	09/01/2017 13:55	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172421063703	09/01/2017 13:55	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172421063703	09/07/2017 00:39	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063703	09/01/2017 13:55	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172421063703	09/01/2017 13:55	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172541063701	09/13/2017 11:35	Patrick J Engle	1
01667	Sodium	SW-846 6010C	2	172541063701	09/13/2017 11:35	Patrick J Engle	1
06972	Zinc	SW-846 6010C	2	172541063701	09/13/2017 11:35	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172541063701D	09/13/2017 06:44	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172541063701A	09/13/2017 03:22	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172541063701A	09/13/2017 03:22	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172541063701B	09/13/2017 03:22	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9179467
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 09:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-7 SDG#: SGB15-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172541063701A	09/13/2017 03:22	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172541063701A	09/13/2017 06:44	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063703	08/31/2017 23:06	Annamaria Kuhns	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172541063701	09/12/2017 17:45	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 10:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401A	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9179468
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 10:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-8 SDG#: SGB15-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.27	U	0.27	0.81	1
14027	Perfluorobutanoic acid	375-22-4	0.27	U	0.27	0.81	1
14027	Perfluorodecanoic acid	335-76-2	0.27	U	0.27	0.81	1
14027	Perfluorododecanoic acid	307-55-1	0.27	U	0.27	0.81	1
14027	Perfluoroheptanoic acid	375-85-9	0.27	U	0.27	0.81	1
14027	Perfluorohexanesulfonate	355-46-4	0.27	U	0.27	0.81	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.54	1
14027	Perfluorononanoic acid	375-95-1	0.14	U	0.14	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.41	U	0.41	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.27	U	0.27	0.81	1
14027	Perfluoropentanoic acid	2706-90-3	0.27	U	0.27	0.81	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27	U	0.27	0.81	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27	U	0.27	0.81	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27	U	0.27	0.81	1
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**21,000**		10.7	47.9	1
01650	**Calcium**	7440-70-2	**17,600**		3.99	47.9	1
01654	**Iron**	7439-89-6	**40,500**		48.2	239	5
01657	**Magnesium**	7439-95-4	**13,900**		2.91	23.9	1
06958	**Manganese**	7439-96-5	**681**		0.0993	1.20	1
01662	**Potassium**	7440-09-7	**4,450**		21.7	130	1
01667	**Sodium**	7440-23-5	**145**	**J**	21.7	260	1
06972	**Zinc**	7440-66-6	**97.9**		0.312	5.20	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.245**	**J**	0.121	0.520	2
06125	**Arsenic**	7440-38-2	**7.25**		0.166	1.04	2
06126	**Barium**	7440-39-3	**159**		0.236	1.04	2
06127	**Beryllium**	7440-41-7	**0.925**		0.0136	0.260	2
06128	**Cadmium**	7440-43-9	**0.175**	**J**	0.0447	0.260	2
06131	**Chromium**	7440-47-3	**23.9**		0.226	1.04	2
06132	**Cobalt**	7440-48-4	**16.6**		0.0405	0.260	2
06133	**Copper**	7440-50-8	**28.2**		0.139	1.04	2
06135	**Lead**	7439-92-1	**19.4**		0.0288	0.520	2
06139	**Nickel**	7440-02-0	**34.1**		0.259	1.04	2
06141	**Selenium**	7782-49-2	**0.202**	**J**	0.130	1.04	2
06142	**Silver**	7440-22-4	**0.0629**	**J**	0.0379	0.260	2
06145	**Thallium**	7440-28-0	**0.201**	**J**	0.0325	0.260	2
06148	**Vanadium**	7440-62-2	**27.1**		0.0553	0.260	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9179468
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 10:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-8 SDG#: SGB15-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,480**	288	864	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.29**	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**26.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 23:27	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063703	09/01/2017 13:59	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172421063703	09/01/2017 13:59	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172421063703	09/07/2017 00:42	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063703	09/01/2017 13:59	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172421063703	09/01/2017 13:59	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172541063701	09/13/2017 11:39	Patrick J Engle	1
01667	Sodium	SW-846 6010C	2	172541063701	09/13/2017 11:39	Patrick J Engle	1
06972	Zinc	SW-846 6010C	2	172541063701	09/13/2017 11:39	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172541063701D	09/13/2017 06:46	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172541063701A	09/13/2017 03:25	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172541063701A	09/13/2017 03:25	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172541063701B	09/13/2017 03:25	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D18-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9179468
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 10:10 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D18-8 SDG#: SGB15-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172541063701A	09/13/2017 03:25	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172541063701A	09/13/2017 06:46	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063703	08/31/2017 23:06	Annamaria Kuhns	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172541063701	09/12/2017 17:45	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 18:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401A	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD09-170828 Soil
SGPP - North Bennington

ELLE Sample # SW 9179474
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD9 SDG#: SGB15-10FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.9**		0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,500**		521	1,560	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.69**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 23:48	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD09-170828 Soil
SGPP - North Bennington

ELLE Sample # SW 9179474
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 by RAK

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD9 SDG#: SGB15-10FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 19:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD10-170828 Soil
SGPP - North Bennington

ELLE Sample # SW 9179475
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D10 SDG#: SGB15-11FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.75	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.75	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.75	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.75	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.75	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37	U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25	U	0.25	0.75	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.75	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.75	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,920**		274	822	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.60**		0.0100	0.0100	1
	The pH was measured in water at 20.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 00:08	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FD10-170828 Soil
SGPP - North Bennington

ELLE Sample # SW 9179475
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D10 SDG#: SGB15-11FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 18:27	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FB09-170828 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9179476
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:15 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB9 SDG#: SGB15-12FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 03:56	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FB10-170828 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9179477
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:40 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3F10 SDG#: SGB15-13FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 04:17	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9179478
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:45 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-1 SDG#: SGB15-14BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.55**	**J**	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.28**	**J**	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**28,300**		1,040	3,130	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 00:29	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9179478
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:45 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-1 SDG#: SGB15-14BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 16:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9179479
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:45 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-1 SDG#: SGB15-14MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.24	0.72	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.24	0.72	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.24	0.72	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.24	0.72	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.24	0.72	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.24	0.72	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.8**	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.12	0.48	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.0**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.24	0.72	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.24	0.72	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.24	0.72	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.0**	0.24	0.72	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1**	0.24	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**69,800**	1,520	4,560	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**16.7**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 21:24	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 12:08	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9179480
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:45 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-1 SDG#: SGB15-14MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.23	0.69	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.0**	0.23	0.69	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.23	0.69	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.23	0.69	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.23	0.69	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.2**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.23	0.69	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.23	0.69	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.23	0.69	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.9**	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1**	0.23	0.69	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**16.7**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/12/2017 21:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9179481
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:45 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-1 SDG#: SGB15-14DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**32,300**	1,030	3,090	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.26**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**16.7**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**18.9**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 17:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9179482
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:55 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-2 SDG#: SGB15-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,500**		738	2,210	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.65**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 01:30	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9179482
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 10:55 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-2 SDG#: SGB15-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 18:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820015B	09/02/2017 01:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9179483
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:05 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-3 SDG#: SGB15-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,760**		387	1,160	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.39**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 01:51	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9179483
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:05 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-3 SDG#: SGB15-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 18:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820015B	09/02/2017 01:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9179484
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:15 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-4 SDG#: SGB15-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24	U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**259**	**J**	242	726	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.63**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 02:12	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9179484
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:15 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-4 SDG#: SGB15-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17256667631A	09/14/2017 13:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820015B	09/02/2017 01:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9179485
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:50 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-5 SDG#: SGB15-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.42**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	223	U	223	669	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17250006	09/13/2017 02:32	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S14-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9179485
ELLE Group # 1843582
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:50 by RQM

Submitted: 08/29/2017 09:30
Reported: 10/04/2017 16:04

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S14-5 SDG#: SGB15-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17250006	09/11/2017 14:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 13:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039401A	09/09/2017 11:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820021A	09/01/2017 01:59	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1843582
Reported: 10/04/2017 16:04

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17250006	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179480,9179482-9179485			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17243009	Sample number(s): 9179465,9179476-9179477			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172421063703	Sample number(s): 9179466-9179468			
Aluminum	106		8.94	40.0
Calcium	245		3.33	40.0
Iron	215		8.05	40.0
Magnesium	68.1		2.43	20.0
Manganese	10.9		0.0830	1.00
Batch number: 172541063701	Sample number(s): 9179466-9179468			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.240	U	0.240	4.00
Batch number: 172541063701A	Sample number(s): 9179466-9179468			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172541063701B	Sample number(s): 9179466-9179468			
Selenium	0.100	U	0.100	0.800
Batch number: 172541063701D	Sample number(s): 9179466-9179468			
Barium	0.182	U	0.182	0.800
Batch number: 17256667631A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179479,9179481-9179484			
TOC	100	U	100	300
Batch number: 17256667631B	Sample number(s): 9179485			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17250006	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179480,9179482-9179485								
Perfluorobutanesulfonate	1.20	1.14			95		70-130		
Perfluorobutanoic acid	1.36	1.40			103		70-130		
Perfluorodecanoic acid	1.36	1.27			93		70-130		
Perfluorododecanoic acid	1.36	1.29			95		70-130		
Perfluoroheptanoic acid	1.36	1.41			104		70-130		
Perfluorohexanesulfonate	1.29	1.18			91		70-130		
Perfluorohexanoic acid	1.36	1.28			94		70-130		
Perfluorononanoic acid	1.36	1.36			100		70-130		
Perfluoro-octanesulfonate	1.30	1.16			90		70-130		
Perfluorooctanoic acid	1.36	1.26			93		70-130		
Perfluoropentanoic acid	1.36	1.35			99		70-130		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorotetradecanoic acid	1.36	1.33			97		70-130		
Perfluorotridecanoic acid	1.36	1.54			113		70-130		
Perfluoroundecanoic acid	1.36	1.37			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17243009	Sample number(s): 9179465,9179476-9179477								
Perfluorobutanesulfonate	12	11.37	12	10.8	95	90	70-130	5	30
Perfluorobutanoic Acid	13.6	14.69	13.6	15.13	108	111	70-130	3	30
Perfluorodecanoic acid	13.6	14.69	13.6	13.59	108	100	70-130	8	30
Perfluorododecanoic acid	13.6	13.61	13.6	14.03	100	103	70-130	3	30
Perfluoroheptanoic acid	13.6	14.45	13.6	14.35	106	106	70-130	1	30
Perfluorohexanesulfonate	12.9	12.01	12.9	12.05	93	93	70-130	0	30
Perfluorohexanoic acid	13.6	14.44	13.6	14.06	106	103	70-130	3	30
Perfluorononanoic acid	13.6	15.94	13.6	15.46	117	114	70-130	3	30
Perfluoro-octanesulfonate	13	12.02	13	11.71	92	90	70-130	3	30
Perfluorooctanoic acid	13.6	15.03	13.6	13.91	110	102	70-130	8	30
Perfluoropentanoic Acid	13.6	13.06	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.13	13.6	14.22	104	105	70-130	1	30
Perfluorotridecanoic acid	13.6	11.97	13.6	11.47	88	84	70-130	4	30
Perfluoroundecanoic acid	13.6	16.22	13.6	15.91	119	117	70-130	2	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172421063703	Sample number(s): 9179466-9179468								
Aluminum	200	206.71			103		80-120		
Calcium	400	386.49			97		80-120		
Iron	100	100.86			101		80-120		
Magnesium	200	203.2			102		80-120		
Manganese	50	47.99			96		80-120		
Batch number: 172541063701	Sample number(s): 9179466-9179468								
Potassium	1000	1020.18			102		80-120		
Sodium	1000	1026.63			103		80-120		
Zinc	50	49.63			99		80-120		
Batch number: 172541063701A	Sample number(s): 9179466-9179468								
Antimony	0.600	0.676			113		80-120		
Arsenic	1.00	0.980			98		80-120		
Beryllium	0.400	0.464			116		80-120		
Cadmium	0.500	0.524			105		80-120		
Chromium	5.00	4.99			100		80-120		
Cobalt	25	25.83			103		80-120		
Copper	5.00	5.42			108		80-120		
Lead	1.50	1.60			107		80-120		
Nickel	5.00	5.45			109		80-120		
Silver	5.00	5.38			108		80-120		
Thallium	0.200	0.204			102		80-120		
Vanadium	5.00	5.25			105		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172541063701B	Sample number(s): 9179466-9179468								
Selenium	1.00	1.06			106		80-120		
Batch number: 172541063701D	Sample number(s): 9179466-9179468								
Barium	5.00	4.96			99		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17256667631A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179479,9179481-9179484								
TOC	7150	4877.02			68		47-143		
Batch number: 17256667631B	Sample number(s): 9179485								
TOC	7150	4877.02			68		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17247039401A	Sample number(s): 9179466-9179468								
pH	7.00	7.00			100		95-105		
Batch number: 17247039401B	Sample number(s): 9179474-9179475,9179478,9179481-9179484								
pH	7.00	7.00			100		95-105		
Batch number: 17252039401A	Sample number(s): 9179485								
pH	7.00	7.00			100		95-105		
	%	%	%	%					
Batch number: 17243820021A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179481,9179485								
Moisture	89.5	89.37			100		99-101		
Moisture	89.5	89.37			100		99-101		
Moisture Duplicate	89.5	89.37			100		99-101		
Batch number: 17244820015B	Sample number(s): 9179482-9179484								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17250006	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179480,9179482-9179485 UNSPK: 9179478										
Perfluorobutanesulfonate	0.19	U	1.20	1.26	1.16	1.15	106	99	70-130	10	30
Perfluorobutanoic acid	0.19	U	1.35	1.47	1.31	1.42	109	109	70-130	3	30
Perfluorodecanoic acid	0.19	U	1.35	1.51	1.31	1.64	112	126	70-130	8	30
Perfluorododecanoic acid	0.19	U	1.35	1.55	1.31	1.55	115	118	70-130	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	0.19 U	1.35	1.47	1.31	1.46	109	111	70-130	1	30
Perfluorohexanesulfonate	0.19 U	1.28	1.17	1.24	1.25	92	101	70-130	6	30
Perfluorohexanoic acid	0.094 U	1.35	1.47	1.31	1.43	108	109	70-130	2	30
Perfluorononanoic acid	0.094 U	1.35	1.59	1.31	1.37	118	104	70-130	15	30
Perfluoro-octanesulfonate	0.458	1.29	1.65	1.25	1.81	92	108	70-130	9	30
Perfluorooctanoic acid	0.19 U	1.35	1.42	1.31	1.45	105	110	70-130	2	30
Perfluoropentanoic acid	0.19 U	1.35	1.37	1.31	1.36	102	104	70-130	1	30
Perfluorotetradecanoic acid	0.19 U	1.35	1.40	1.31	1.37	104	105	70-130	2	30
Perfluorotridecanoic acid	0.19 U	1.35	1.69	1.31	1.59	125	121	70-130	6	30
Perfluoroundecanoic acid	0.235	1.35	1.74	1.31	1.74	112	115	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172421063703	Sample number(s): 9179466-9179468 UNSPK: P178940									
Aluminum	9965.11	138.89	16364.96	157.48	10767.63	4608 (2)	510 (2)	75-125	41*	20
Calcium	14052.38	277.78	28953.6	314.96	4506.06	5364 (2)	-3031 (2)	75-125	146*	20
Iron	20432.14	69.44	27499.07	78.74	21592.94	10176 (2)	1474 (2)	75-125	24*	20
Magnesium	7911.32	138.89	9884.9	157.48	4712.48	1421 (2)	-2031 (2)	75-125	71*	20
Manganese	379.57	34.72	512.55	39.37	503.99	383 (2)	316 (2)	75-125	2	20
Batch number: 172541063701	Sample number(s): 9179466-9179468 UNSPK: P178940									
Potassium	1799.82	884.96	4184.12	980.39	5664.65	269*	394*	75-125	30*	20
Sodium	74.9	884.96	943.82	980.39	1094.74	98	104	75-125	15	20
Zinc	65.85	44.25	102.31	49.02	105.05	82	80	75-125	3	20
Batch number: 172541063701A	Sample number(s): 9179466-9179468 UNSPK: P178940									
Antimony	0.166	1.06	0.921	1.18	0.877	71*	60*	75-125	5	20
Arsenic	6.11	1.77	8.41	1.96	9.57	130*	177*	75-125	13	20
Beryllium	0.572	0.708	1.13	0.784	1.42	79	108	75-125	23*	20
Cadmium	0.0842	0.885	1.03	0.980	1.08	106	102	75-125	6	20
Chromium	16.5	8.85	18.56	9.80	25.96	23*	97	75-125	33*	20
Cobalt	12.85	44.25	53.98	49.02	57.6	93	91	75-125	6	20
Copper	19.75	8.85	33.48	9.80	30.62	155*	111	75-125	9	20
Lead	9.56	2.65	10.48	2.94	14.86	34*	180*	75-125	35*	20
Nickel	24.03	8.85	26.77	9.80	31.83	31*	80	75-125	17	20
Silver	0.0289 U	8.85	9.06	9.80	9.63	102	98	75-125	6	20
Thallium	0.0741	0.354	0.415	0.392	0.480	96	104	75-125	15	20
Vanadium	15.36	8.85	20.21	9.80	31.08	55*	160*	75-125	42*	20
Batch number: 172541063701B	Sample number(s): 9179466-9179468 UNSPK: P178940									
Selenium	0.147	1.77	1.88	1.96	2.08	98	99	75-125	10	20
Batch number: 172541063701D	Sample number(s): 9179466-9179468 UNSPK: P178940									

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Barium	109.57	8.85	93.61	9.80	130.79	-180 (2)	216 (2)	75-125	33*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17256667631A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179479,9179481-9179484 UNSPK: 9179478									
TOC	23542.21	38010	58149.56			91		47-143		
Batch number: 17256667631B	Sample number(s): 9179485 UNSPK: P179490									
TOC	2986.88	23580	26006.29			98		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172421063703	Sample number(s): 9179466-9179468 BKG: P178940			
Aluminum	9965.11	11954.7	18	20
Calcium	14052.38	19732.94	34*	20
Iron	20432.14	25286.28	21*	20
Magnesium	7911.32	9225.25	15	20
Manganese	379.57	465.89	20	20
Batch number: 172541063701	Sample number(s): 9179466-9179468 BKG: P178940			
Potassium	1799.82	1890.46	5	20
Sodium	74.9	73.15	2 (1)	20
Zinc	65.85	41.47	45*	20
Batch number: 172541063701A	Sample number(s): 9179466-9179468 BKG: P178940			
Antimony	0.166	0.192	15 (1)	20
Arsenic	6.11	4.53	30*	20
Beryllium	0.572	0.425	30* (1)	20
Cadmium	0.0842	0.0970	14 (1)	20
Chromium	16.5	11.94	32*	20
Cobalt	12.85	6.82	61*	20
Copper	19.75	12.63	44*	20
Lead	9.56	7.29	27*	20
Nickel	24.03	15.04	46*	20
Silver	0.0289 U	0.0366	200* (1)	20
Thallium	0.0741	0.0618	18 (1)	20
Vanadium	15.36	12.68	19	20
Batch number: 172541063701B	Sample number(s): 9179466-9179468 BKG: P178940			

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 16:04

Group Number: 1843582

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Selenium	0.147	0.138	6 (1)	20
Batch number: 172541063701D	Sample number(s): 9179466-9179468 BKG: P178940			
Barium	109.57	65.01	51*	20
	mg/kg	mg/kg		
Batch number: 17256667631A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179479,9179481-9179484 BKG: 9179478			
TOC	23542.21	26901.29	13*	7
Batch number: 17256667631B	Sample number(s): 9179485 BKG: P179490			
TOC	2986.88	2507.79	17* (1)	7
	Std. Units	Std. Units		
Batch number: 17247039401A	Sample number(s): 9179466-9179468 BKG: 9179467			
pH	8.37	8.37	0	3
Batch number: 17247039401B	Sample number(s): 9179474-9179475,9179478,9179481-9179484 BKG: 9179478			
pH	8.30	8.26	0	3
Batch number: 17252039401A	Sample number(s): 9179485 BKG: P181419			
pH	8.43	8.39	0	3
	%	%		
Batch number: 17243820021A	Sample number(s): 9179466-9179468,9179474-9179475,9179478-9179481,9179485 BKG: 9179478, P179478			
Moisture	16.73	18.89	12*	5
Moisture	16.73	18.89	12*	5
Moisture Duplicate	16.73	18.89	12*	5
Batch number: 17244820015B	Sample number(s): 9179482-9179484 BKG: P179069			
Moisture	16.92	19.27	13*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243009

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1843582
Reported: 10/04/2017 16:04

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9179465	86	85	90	89	91	92
9179476	88	91	91	96	98	100
9179477	93	93	94	89	96	93
Blank	93	93	99	91	102	103
LCS	89	91	100	90	98	92
LCSD	84	89	97	80	84	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9179465	91	95	82	91	89	83
9179476	99	82	97	98	109	98
9179477	97	89	87	95	101	99
Blank	94	82	83	94	94	90
LCS	103	87	88	93	82	90
LCSD	88	80	74	94	85	94
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9179465	76
9179476	87
9179477	78
Blank	82
LCS	74
LCSD	79
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17250006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9179466	82	87	82	80	77	83
9179467	77	89	79	80	75	77
9179468	78	84	82	79	76	72
9179474	80	82	78	82	79	78
9179475	79	81	77	80	77	74
9179478	78	84	76	69	63	66
9179479	81	93	86	78	81	81
9179480	77	84	81	72	72	74
9179482	80	83	78	88	85	85
9179483	76	77	76	74	66	74

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1843582
Reported: 10/04/2017 16:04

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17250006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9179484	76	80	71	80	70	73
9179485	69	71	74	70	66	66
Blank	87	96	87	84	78	82
LCS	79	88	81	88	77	85
MS	81	93	86	78	81	81
MSD	77	84	81	72	72	74
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9179466	92	88	78	91	86	77
9179467	78	88	73	83	83	68
9179468	78	74	71	83	74	63
9179474	81	71	71	86	64	62
9179475	83	74	70	74	76	62
9179478	67	76	94	76	76	65
9179479	87	76	84	81	69	67
9179480	76	82	87	79	76	72
9179482	84	75	81	72	73	64
9179483	80	82	77	82	77	67
9179484	78	81	81	83	73	64
9179485	72	72	69	77	74	63
Blank	84	84	82	89	78	70
LCS	85	84	77	93	81	68
MS	87	76	84	81	69	67
MSD	76	82	87	79	76	72
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9179466	66
9179467	65
9179468	57
9179474	65
9179475	66
9179478	70
9179479	72
9179480	79
9179482	73
9179483	78
9179484	62
9179485	68

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1843582
Reported: 10/04/2017 16:04

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17250006

	13C2-PFTeDA
Blank	73
LCS	61
MS	72
MSD	79
Limits:	20-127

*- Outside of specification
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37191 1843582 9179465-85

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52312
COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250ml Field Blank	Soil: 250ml plastic, PFCs (14)	Soil: 4 oz. glass jar, TOC, pH, Moist	Soil: Metals (shared out of 4 oz. jar)	% Solids
							Preservative Code			A	A	A	
							Field Filtered Y/N			N	N	N	
1. SG3-FBS01-170827				08/27/2017	09:00	Water	N	1	1				
2. SG3-FDS01-170827				08/27/2017		S	N	2		1	1	X	
3. SG3-D18-24-25'	24	25	ft.	08/27/2017	09:10	S	N	2		1	1	X	
4. SG3-D18-15-16'	15	16	ft.	08/27/2017	10:10	S	N	2		1	1	X	
5. SG3-S11-0-0.5'	0	0.5	ft.	08/28/2017	08:50	S	N	2		1	1		
6. SG3-S11-0.5-1'	0.5	1	ft.	08/28/2017	08:55	S	N	2		1	1		
7. SG3-S11-1-1.5'	1	1.5	ft.	08/28/2017	09:05	S	N	2		1	1		
8. SG3-S11-3-4'	3	4	ft.	08/28/2017	09:15	S	N	2		1	1		
9. SG3-S11-8-9'	8	9	ft.	08/28/2017	09:30	S	N	2		1	1		
10. SG3-FD09-170828				08/28/2017		S	N	2		1	1		

Metals: TAL metals/cations excluding Hg

Samples split into two coolers

Dispose of "SG3-LTB10-170828", was included by mistake...

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: RAK/RQM	(RQM)	☐ N	8/28/17	17:20			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? ☒ Y ☐ N	Date	Time	Received by:	Date 8/29/17	Time 9:30
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 0.8/1.0			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1843582 9179465-85

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52314
COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250ml Field Blank	Soil — 250ml plastic, PFCs (1)	Soil — 4 oz. glass jars, TOC, pH, moist	Soil — % Solids
										Preservative Code:	A	A
										Field Filtered Y/N:	1	1
1. SG3-FD10-170828				08/28/2017		S	N	2		1	1	
2. SG3-FB09-170828				08/28/2017	10:15	Water	N	1	1			
3. SG3-FB10-170828				08/28/2017	10:40	Water	N	1	1			
4. SG3-S14-0-0.5	0	0.5	ft.	08/28/2017	10:45	S	Y	6		3	3	
5. SG3-S14-0.5-1'	0.5	1	ft.	08/28/2017	10:55	S	N	2		1	1	
6. SG3-S14-1-1.5'	1	1.5	ft.	08/28/2017	11:05	S	N	2		1	1	
7. SG3-S14-3-4'	3	4	ft.	08/28/2017	11:15	S	N	2		1	1	
8. SG3-S14-8-9'	8	9	ft.	08/28/2017	11:50	S	N	2		1	1	
9.												
10.												

BARR USE ONLY

Sampled by: RQM
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster, PA

Relinquished by: (RQM) — On Ice? (Y) N — Date 8/28/2017 — Time 17:20
Relinquished by: — On Ice? (Y) N — Date — Time
Received by: — Date — Time
Received by: — Date 8/29/17 — Time 9:30

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:
Air Bill Number:
Lab WO: Temperature on Receipt (°C) 08/1.0 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192791

Group Number(s): 1843582

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/29/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:22 on 08/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 07, 2017 12:51

Project: SGPP - Bennington

Account #: 37191
Group Number: 1843584
SDG: SGB16
PO Number: 16.6131
State of Sample Origin: VT

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FBS02-170828 Blank Water	08/28/2017 15:00	9179487
SG3-D03-0-0.5' Soil	08/28/2017 13:20	9179488
SG3-D03-0.5-1.0' Soil	08/28/2017 13:25	9179489
SG3-D03-1-1.5' Soil	08/28/2017 13:30	9179490
SG3-D03-3-4' Soil	08/28/2017 13:50	9179491
SG3-D03-8-9' Soil	08/28/2017 14:05	9179492
SG3-D03-12-13' Soil	08/28/2017 14:45	9179493
SG3-D03-15-16' Soil	08/28/2017 14:55	9179494
SG3-D05-0-0.5' Soil	08/28/2017 08:35	9179495
SG3-D05-0.5-1' Soil	08/28/2017 08:40	9179496
SG3-D05-1-1.5' Soil	08/28/2017 08:45	9179497
SG3-D05-3-4' Soil	08/28/2017 09:00	9179498
SG3-D05-8-9' Soil	08/28/2017 09:15	9179499
SG3-D05-16-17' Soil	08/28/2017 10:00	9179500
SG3-D05-26-27' Soil	08/28/2017 10:30	9179501

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - Bennington
ELLE Group #: 1843584

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 6010C, Metals

Batch #: 172421063704 (Sample number(s): 9179488-9179501 UNSPK: 9179488 BKG: 9179488)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium, Manganese, Zinc

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Iron, Magnesium, Potassium, Sodium, Manganese, Zinc

SW-846 6020A, Metals

Sample #s: 9179501

The percent recovery for Beryllium in the Continuing Calibration Verification associated with this sample changed from 93.1% to 89.1%. The QC specification is 90-110%.

Sample #s: 9179488, 9179489, 9179490, 9179491, 9179492, 9179493, 9179494, 9179495, 9179496, 9179497, 9179498, 9179499, 9179500, 9179501

The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.

Batch #: 172421063704A (Sample number(s): 9179488-9179501 UNSPK: 9179488 BKG: 9179488)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Chromium, Copper, Lead, Nickel, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Copper

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Nickel, Silver, Thallium, Vanadium

Batch #: 172421063704B (Sample number(s): 9179488-9179501 UNSPK: 9179488 BKG: 9179488)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Selenium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172421063704D (Sample number(s): 9179488-9179501 UNSPK: 9179488 BKG: 9179488)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17256667631B (Sample number(s): 9179488-9179496 UNSPK: 9179490 BKG: 9179490)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17257837931A (Sample number(s): 9179497-9179501 UNSPK: 9179501 BKG: 9179501)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9179496, 9179499

The pH was measured in water at 19.7 C.

Sample #s: 9179493, 9179498

The pH was measured in water at 19.8 C.

Sample #s: 9179494, 9179495, 9179500

The pH was measured in water at 19.9 C.

Sample #s: 9179497, 9179501

The pH was measured in water at 20 C.

Sample #s: 9179488

The pH was measured in water at 20.1 C.

Sample #s: 9179489, 9179490

The pH was measured in water at 20.2 C.

Sample #s: 9179492

The pH was measured in water at 20.3 C.

Sample #s: 9179491

The pH was measured in water at 21.2 C.

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SM 2540 G-1997, Wet Chemistry

Batch #: 17244820015B (Sample number(s): 9179488 BKG: P179069)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Revised Report Summation

November 07, 2017

Project: SGPP - Bennington
SDG: SGB16
ELLE Group No.: 1843584

Upon further review of this data, it has been determined that the originally reported ICP-MS was associated with non-compliant quality control. Qualifying comments have been added to the Analysis Report and the revised report is attached.

The reported sample results do not change.

The following samples require additional commenting on the analytical report as described below and shown on the attached analytical reports.

ELLE Sample No.	Client Sample Identification	Collection Date
9179488	SG3-D03-0-0.5' Soil	08/28/2017
9179489	SG3-D03-0.5-1.0' Soil	08/28/2017
9179490	SG3-D03-1-1.5' Soil	08/28/2017
9179491	SG3-D03-3-4' Soil	08/28/2017
9179492	SG3-D03-8-9' Soil	08/28/2017
9179493	SG3-D03-12-13' Soil	08/28/2017
9179494	SG3-D03-15-16' Soil	08/28/2017
9179495	SG3-D05-0-0.5' Soil	08/28/2017
9179496	SG3-D05-0.5-1' Soil	08/28/2017
9179497	SG3-D05-1-1.5' Soil	08/28/2017
9179498	SG3-D05-3-4' Soil	08/28/2017
9179499	SG3-D05-8-9' Soil	08/28/2017
9179500	SG3-D05-16-17' Soil	08/28/2017
9179501	SG3-D05-26-27' Soil	08/28/2017

The associated quality control checks have been corrected and corresponding qualification added as detailed below:

Sample number(s) 9179488, 9179489, 9179490, 9179491, 9179492, 9179493, 9179494, 9179495, 9179496, 9179497, 9179498, 9179499, 9179500, 9179501

The percent recovery for Arsenic in the Laboratory Control Sample associated with this sample changed from 108% to 120%. The QC specification is 80-120%.

Sample number(s) 9179501

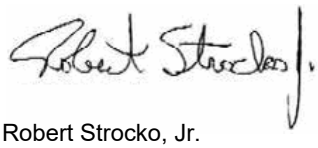
The percent recovery for Beryllium in the Continuing Calibration Verification associated with this sample changed from 93.1% to 89.1%. The QC specification is 90-110%.

Sample number(s) 9179488, 9179489, 9179490, 9179491, 9179492, 9179493, 9179494, 9179495, 9179496, 9179497, 9179498, 9179499, 9179500, 9179501

The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.

You are a valued client, and we apologize for any inconvenience that this incident may have caused. Should you have any questions, please do not hesitate to contact your project manager or call our dedicated phone number at 833-253-3365 for more information. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,



Robert Strocko, Jr.
Manager
Metals Analysis

REVISED

Sample Description: **SG3-FBS02-170828 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 15:00
SDG#: SGB16-01FB

C. T. Male Associates
ELLE Sample #: WW 9179487
ELLE Group #: 1843584
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 04:38	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:20
SDG#: SGB16-02

C. T. Male Associates
ELLE Sample #: SW 9179488
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,810**	7.13	31.9	1
01650	**Calcium**	7440-70-2	**84,400**	13.3	159	5
01654	**Iron**	7439-89-6	**8,650**	6.42	31.9	1
01657	**Magnesium**	7439-95-4	**19,000**	1.94	15.9	1
06958	**Manganese**	7439-96-5	**183**	0.0662	0.797	1
01662	**Potassium**	7440-09-7	**479**	13.3	79.7	1
01667	**Sodium**	7440-23-5	**319**	13.3	159	1
06972	**Zinc**	7440-66-6	**35.7**	0.191	3.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.298 J**	0.0743	0.319	2
06125	**Arsenic**	7440-38-2	**4.16**	0.102	0.638	2
06126	**Barium**	7440-39-3	**15.9**	0.145	0.638	2
06127	**Beryllium**	7440-41-7	**0.135 J**	0.0084	0.159	2
06128	**Cadmium**	7440-43-9	**0.150 J**	0.0274	0.159	2
06131	**Chromium**	7440-47-3	**5.81**	0.139	0.638	2
06132	**Cobalt**	7440-48-4	**3.11**	0.0249	0.159	2
06133	**Copper**	7440-50-8	**12.6**	0.0855	0.638	2
06135	**Lead**	7439-92-1	**32.0**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**6.04**	0.159	0.638	2
06141	**Selenium**	7782-49-2	**0.123 J**	0.0797	0.638	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0324 J**	0.0233	0.159	2
06145	**Thallium**	7440-28-0	**0.0314 J**	0.0199	0.159	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:20
SDG#: SGB16-02

C. T. Male Associates
ELLE Sample #: SW 9179488
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**4.64**	0.0340	0.159	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,840**	253	759	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.29**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**3.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 19:21	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/06/2017 03:19	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 03:00	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:17	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:06	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:06	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:20
SDG#: SGB16-02

C. T. Male Associates
ELLE Sample #: SW 9179488
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:06	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 13:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039401A	09/09/2017 11:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820015B	09/02/2017 01:06	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D03-0.5-1.0' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:25
SDG#: SGB16-03

C. T. Male Associates
ELLE Sample #: SW 9179489
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.72 J**	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,340**	8.72	39.0	1
01650	**Calcium**	7440-70-2	**28,100**	3.25	39.0	1
01654	**Iron**	7439-89-6	**23,300**	7.85	39.0	1
01657	**Magnesium**	7439-95-4	**14,700**	2.37	19.5	1
06958	**Manganese**	7439-96-5	**661**	0.0810	0.976	1
01662	**Potassium**	7440-09-7	**530**	16.3	97.6	1
01667	**Sodium**	7440-23-5	**384**	16.3	195	1
06972	**Zinc**	7440-66-6	**57.5**	0.234	3.90	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.598**	0.0909	0.390	2
06125	**Arsenic**	7440-38-2	**11.0**	0.125	0.781	2
06126	**Barium**	7440-39-3	**59.6**	0.177	0.781	2
06127	**Beryllium**	7440-41-7	**0.359**	0.0102	0.195	2
06128	**Cadmium**	7440-43-9	**0.341**	0.0336	0.195	2
06131	**Chromium**	7440-47-3	**9.69**	0.170	0.781	2
06132	**Cobalt**	7440-48-4	**13.1**	0.0304	0.195	2
06133	**Copper**	7440-50-8	**29.1**	0.105	0.781	2
06135	**Lead**	7439-92-1	**35.7**	0.0217	0.390	2
06139	**Nickel**	7440-02-0	**18.7**	0.194	0.781	2
06141	**Selenium**	7782-49-2	**0.219 J**	0.0976	0.781	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.127 J**	0.0285	0.195	2
06145	**Thallium**	7440-28-0	**0.405**	0.0244	0.195	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-0.5-1.0' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:25
SDG#: SGB16-03

C. T. Male Associates
ELLE Sample #: SW 9179489
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**10.6**	0.0416	0.195	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,320**	303	910	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 04:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 03:43	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:36	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:24	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:24	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-0.5-1.0' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:25
SDG#: SGB16-03

C. T. Male Associates
ELLE Sample #: SW 9179489
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:24	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 14:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:30
SDG#: SGB16-04

C. T. Male Associates
ELLE Sample #: SW 9179490
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098 U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098 U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,470**	8.66	38.7	1
01650	**Calcium**	7440-70-2	**73,700**	16.1	194	5
01654	**Iron**	7439-89-6	**12,800**	7.80	38.7	1
01657	**Magnesium**	7439-95-4	**20,100**	2.35	19.4	1
06958	**Manganese**	7439-96-5	**264**	0.0804	0.969	1
01662	**Potassium**	7440-09-7	**518**	16.2	96.9	1
01667	**Sodium**	7440-23-5	**181 J**	16.2	194	1
06972	**Zinc**	7440-66-6	**25.8**	0.232	3.87	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.209 J**	0.0903	0.387	2
06125	**Arsenic**	7440-38-2	**6.48**	0.124	0.775	2
06126	**Barium**	7440-39-3	**16.8**	0.176	0.775	2
06127	**Beryllium**	7440-41-7	**0.181 J**	0.0102	0.194	2
06128	**Cadmium**	7440-43-9	**0.102 J**	0.0333	0.194	2
06131	**Chromium**	7440-47-3	**4.62**	0.169	0.775	2
06132	**Cobalt**	7440-48-4	**5.43**	0.0302	0.194	2
06133	**Copper**	7440-50-8	**9.74**	0.104	0.775	2
06135	**Lead**	7439-92-1	**13.0**	0.0215	0.387	2
06139	**Nickel**	7440-02-0	**9.65**	0.193	0.775	2
06141	Selenium	7782-49-2	0.0969 U	0.0969	0.775	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	Silver	7440-22-4	0.0283 U	0.0283	0.194	2
06145	**Thallium**	7440-28-0	**0.0322 J**	0.0242	0.194	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D03-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:30
SDG#: SGB16-04

C. T. Male Associates
ELLE Sample #: SW 9179490
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.38**	0.0413	0.194	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,070**	345	1,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.70**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**2.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 05:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/06/2017 03:49	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 03:46	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:39	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:27	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:27	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:30
SDG#: SGB16-04

C. T. Male Associates
ELLE Sample #: SW 9179490
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:27	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 14:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:50
SDG#: SGB16-05

C. T. Male Associates
ELLE Sample #: SW 9179491
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.30 J**	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,350**	8.26	37.0	1
01650	**Calcium**	7440-70-2	**46,200**	3.08	37.0	1
01654	**Iron**	7439-89-6	**17,900**	7.44	37.0	1
01657	**Magnesium**	7439-95-4	**17,600**	2.24	18.5	1
06958	**Manganese**	7439-96-5	**403**	0.0767	0.924	1
01662	**Potassium**	7440-09-7	**530**	15.4	92.4	1
01667	**Sodium**	7440-23-5	**102 J**	15.4	185	1
06972	**Zinc**	7440-66-6	**33.0**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.144 J**	0.0861	0.370	2
06125	**Arsenic**	7440-38-2	**8.75**	0.118	0.739	2
06126	**Barium**	7440-39-3	**22.4**	0.168	0.739	2
06127	**Beryllium**	7440-41-7	**0.264**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.111 J**	0.0318	0.185	2
06131	**Chromium**	7440-47-3	**6.31**	0.161	0.739	2
06132	**Cobalt**	7440-48-4	**6.71**	0.0288	0.185	2
06133	**Copper**	7440-50-8	**11.7**	0.0990	0.739	2
06135	**Lead**	7439-92-1	**8.96**	0.0205	0.370	2
06139	**Nickel**	7440-02-0	**13.2**	0.184	0.739	2
06141	**Selenium**	7782-49-2	**0.127 J**	0.0924	0.739	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0373 J**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.0501 J**	0.0231	0.185	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:50
SDG#: SGB16-05

C. T. Male Associates
ELLE Sample #: SW 9179491
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**7.14**	0.0394	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,950**	263	789	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.37**	0.0100	0.0100	1
	The pH was measured in water at 21.2 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 06:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 03:52	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:48	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:37	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:37	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 13:50
SDG#: SGB16-05

C. T. Male Associates
ELLE Sample #: SW 9179491
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:37	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 15:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:05
SDG#: SGB16-06

C. T. Male Associates
ELLE Sample #: SW 9179492
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.33 J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,800**	9.09	40.7	1
01650	**Calcium**	7440-70-2	**68,700**	16.9	203	5
01654	**Iron**	7439-89-6	**14,300**	8.19	40.7	1
01657	**Magnesium**	7439-95-4	**36,700**	2.47	20.3	1
06958	**Manganese**	7439-96-5	**437**	0.0844	1.02	1
01662	**Potassium**	7440-09-7	**632**	17.0	102	1
01667	**Sodium**	7440-23-5	**93.1 J**	17.0	203	1
06972	**Zinc**	7440-66-6	**33.3**	0.244	4.07	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.156 J**	0.0948	0.407	2
06125	**Arsenic**	7440-38-2	**7.29**	0.130	0.814	2
06126	**Barium**	7440-39-3	**20.8**	0.185	0.814	2
06127	**Beryllium**	7440-41-7	**0.197 J**	0.0107	0.203	2
06128	**Cadmium**	7440-43-9	**0.113 J**	0.0350	0.203	2
06131	**Chromium**	7440-47-3	**4.81**	0.177	0.814	2
06132	**Cobalt**	7440-48-4	**9.45**	0.0317	0.203	2
06133	**Copper**	7440-50-8	**10.2**	0.109	0.814	2
06135	**Lead**	7439-92-1	**11.6**	0.0226	0.407	2
06139	**Nickel**	7440-02-0	**9.18**	0.203	0.814	2
06141	Selenium	7782-49-2	0.102 U	0.102	0.814	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	Silver	7440-22-4	0.0297 U	0.0297	0.203	2
06145	**Thallium**	7440-28-0	**0.0738 J**	0.0254	0.203	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:05
SDG#: SGB16-06

C. T. Male Associates
ELLE Sample #: SW 9179492
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.01**	0.0433	0.203	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,070**	465	1,390	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.95**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 06:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/06/2017 03:59	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 03:55	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:51	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:40	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:40	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:05
SDG#: SGB16-06

C. T. Male Associates
ELLE Sample #: SW 9179492
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:40	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 19:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-12-13' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:45
SDG#: SGB16-07

C. T. Male Associates
ELLE Sample #: SW 9179493
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,790**	8.28	37.0	1
01650	**Calcium**	7440-70-2	**49,100**	3.08	37.0	1
01654	**Iron**	7439-89-6	**19,700**	7.46	37.0	1
01657	**Magnesium**	7439-95-4	**26,000**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**5,040**	0.384	4.63	5
01662	**Potassium**	7440-09-7	**519**	15.5	92.6	1
01667	**Sodium**	7440-23-5	**78.7 J**	15.5	185	1
06972	**Zinc**	7440-66-6	**88.2**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.126 J**	0.0863	0.370	2
06125	**Arsenic**	7440-38-2	**5.79**	0.119	0.741	2
06126	**Barium**	7440-39-3	**58.1**	0.168	0.741	2
06127	**Beryllium**	7440-41-7	**0.218**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.152 J**	0.0319	0.185	2
06131	**Chromium**	7440-47-3	**5.12**	0.161	0.741	2
06132	**Cobalt**	7440-48-4	**23.4**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**20.8**	0.0993	0.741	2
06135	**Lead**	7439-92-1	**9.41**	0.0206	0.370	2
06139	**Nickel**	7440-02-0	**21.0**	0.184	0.741	2
06141	Selenium	7782-49-2	0.0926 U	0.0926	0.741	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0358 J**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.399**	0.0232	0.185	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-12-13' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:45
SDG#: SGB16-07

C. T. Male Associates
ELLE Sample #: SW 9179493
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**7.69**	0.0395	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,160**	284	853	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.93**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**3.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 06:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:08	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/06/2017 04:11	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:54	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:43	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:43	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-12-13' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:45
SDG#: SGB16-07

C. T. Male Associates
ELLE Sample #: SW 9179493
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:43	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 19:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039401B	09/04/2017 11:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-15-16' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:55
SDG#: SGB16-08

C. T. Male Associates
ELLE Sample #: SW 9179494
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,080**	9.41	42.1	1
01650	**Calcium**	7440-70-2	**67,300**	17.5	210	5
01654	**Iron**	7439-89-6	**7,930**	8.47	42.1	1
01657	**Magnesium**	7439-95-4	**24,500**	2.56	21.0	1
06958	**Manganese**	7439-96-5	**174**	0.0874	1.05	1
01662	**Potassium**	7440-09-7	**364**	17.6	105	1
01667	**Sodium**	7440-23-5	**91.1 J**	17.6	210	1
06972	**Zinc**	7440-66-6	**13.5**	0.253	4.21	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.114 J**	0.0981	0.421	2
06125	**Arsenic**	7440-38-2	**3.25**	0.135	0.842	2
06126	**Barium**	7440-39-3	**8.54**	0.191	0.842	2
06127	**Beryllium**	7440-41-7	**0.0937 J**	0.0110	0.210	2
06128	**Cadmium**	7440-43-9	**0.0671 J**	0.0362	0.210	2
06131	**Chromium**	7440-47-3	**2.58**	0.183	0.842	2
06132	**Cobalt**	7440-48-4	**2.79**	0.0328	0.210	2
06133	**Copper**	7440-50-8	**4.92**	0.113	0.842	2
06135	**Lead**	7439-92-1	**5.24**	0.0234	0.421	2
06139	**Nickel**	7440-02-0	**4.80**	0.210	0.842	2
06141	Selenium	7782-49-2	0.105 U	0.105	0.842	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	Silver	7440-22-4	0.0307 U	0.0307	0.210	2
06145	Thallium	7440-28-0	0.0263 U	0.0263	0.210	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D03-15-16' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9179494
ELLE Group #: 1843584
Matrix: Soil

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:55
SDG#: SGB16-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**2.71**	0.0448	0.210	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,040**	349	1,050	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.78**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 07:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/06/2017 04:14	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/06/2017 04:18	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:14	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 07:57	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 07:57	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 07:57	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 07:57	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 07:57	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:46	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:46	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D03-15-16' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 14:55
SDG#: SGB16-08

C. T. Male Associates
ELLE Sample #: SW 9179494
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:46	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 19:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:35
SDG#: SGB16-09

C. T. Male Associates
ELLE Sample #: SW 9179495
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.35 J**	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.20 J**	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**0.34 J**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.64 J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**7.2**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,400**	8.05	36.0	1
01650	**Calcium**	7440-70-2	**22,400**	3.00	36.0	1
01654	**Iron**	7439-89-6	**25,100**	36.2	180	5
01657	**Magnesium**	7439-95-4	**10,400**	2.19	18.0	1
06958	**Manganese**	7439-96-5	**879**	0.0747	0.900	1
01662	**Potassium**	7440-09-7	**1,520**	15.0	90.0	1
01667	**Sodium**	7440-23-5	**56.6 J**	15.0	180	1
06972	**Zinc**	7440-66-6	**140**	0.216	3.60	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.343 J**	0.0839	0.360	2
06125	**Arsenic**	7440-38-2	**10.2**	0.115	0.720	2
06126	**Barium**	7440-39-3	**82.1**	0.164	0.720	2
06127	**Beryllium**	7440-41-7	**0.384**	0.0094	0.180	2
06128	**Cadmium**	7440-43-9	**0.568**	0.0310	0.180	2
06131	**Chromium**	7440-47-3	**13.0**	0.157	0.720	2
06132	**Cobalt**	7440-48-4	**12.2**	0.0281	0.180	2
06133	**Copper**	7440-50-8	**40.1**	0.0965	0.720	2
06135	**Lead**	7439-92-1	**48.3**	0.0200	0.360	2
06139	**Nickel**	7440-02-0	**23.9**	0.179	0.720	2
06141	**Selenium**	7782-49-2	**0.451 J**	0.0900	0.720	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0989 J**	0.0263	0.180	2
06145	**Thallium**	7440-28-0	**0.0985 J**	0.0225	0.180	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D05-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:35
SDG#: SGB16-09

C. T. Male Associates
ELLE Sample #: SW 9179495
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.4**	0.0384	0.180	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**33,300**	883	2,650	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.80**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 07:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:48	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:01	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:49	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:49	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:35
SDG#: SGB16-09

C. T. Male Associates
ELLE Sample #: SW 9179495
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:49	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 16:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:40
SDG#: SGB16-10

C. T. Male Associates
ELLE Sample #: SW 9179496
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.11 J**	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.1**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,700**	7.00	31.3	1
01650	**Calcium**	7440-70-2	**16,000**	2.61	31.3	1
01654	**Iron**	7439-89-6	**31,200**	31.5	157	5
01657	**Magnesium**	7439-95-4	**9,780**	1.90	15.7	1
06958	**Manganese**	7439-96-5	**1,990**	0.325	3.91	5
01662	**Potassium**	7440-09-7	**1,220**	13.1	78.3	1
01667	**Sodium**	7440-23-5	**43.6 J**	13.1	157	1
06972	**Zinc**	7440-66-6	**105**	0.188	3.13	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.392**	0.0730	0.313	2
06125	**Arsenic**	7440-38-2	**14.0**	0.100	0.626	2
06126	**Barium**	7440-39-3	**69.2**	0.142	0.626	2
06127	**Beryllium**	7440-41-7	**0.341**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.526**	0.0269	0.157	2
06131	**Chromium**	7440-47-3	**14.0**	0.136	0.626	2
06132	**Cobalt**	7440-48-4	**16.2**	0.0244	0.157	2
06133	**Copper**	7440-50-8	**43.5**	0.0839	0.626	2
06135	**Lead**	7439-92-1	**39.9**	0.0174	0.313	2
06139	**Nickel**	7440-02-0	**37.1**	0.156	0.626	2
06141	**Selenium**	7782-49-2	**0.328 J**	0.0783	0.626	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0900 J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.0833 J**	0.0196	0.157	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D05-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:40
SDG#: SGB16-10

C. T. Male Associates
ELLE Sample #: SW 9179496
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.9**	0.0333	0.157	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,100**	528	1,580	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 08:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:24	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/06/2017 04:24	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:04	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:52	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:52	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:40
SDG#: SGB16-10

C. T. Male Associates
ELLE Sample #: SW 9179496
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:52	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17256667631B	09/14/2017 16:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:45
SDG#: SGB16-11

C. T. Male Associates
ELLE Sample #: SW 9179497
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.21 J**	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.2**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,400**	7.40	33.1	1
01650	**Calcium**	7440-70-2	**11,600**	2.76	33.1	1
01654	**Iron**	7439-89-6	**26,900**	33.3	166	5
01657	**Magnesium**	7439-95-4	**7,840**	2.01	16.6	1
06958	**Manganese**	7439-96-5	**894**	0.0687	0.828	1
01662	**Potassium**	7440-09-7	**1,360**	13.8	82.8	1
01667	**Sodium**	7440-23-5	**52.8 J**	13.8	166	1
06972	**Zinc**	7440-66-6	**97.1**	0.199	3.31	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.351**	0.0772	0.331	2
06125	**Arsenic**	7440-38-2	**17.0**	0.106	0.662	2
06126	**Barium**	7440-39-3	**71.6**	0.150	0.662	2
06127	**Beryllium**	7440-41-7	**0.459**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.334**	0.0285	0.166	2
06131	**Chromium**	7440-47-3	**13.4**	0.144	0.662	2
06132	**Cobalt**	7440-48-4	**11.4**	0.0258	0.166	2
06133	**Copper**	7440-50-8	**32.3**	0.0888	0.662	2
06135	**Lead**	7439-92-1	**40.2**	0.0184	0.331	2
06139	**Nickel**	7440-02-0	**23.4**	0.165	0.662	2
06141	**Selenium**	7782-49-2	**0.407 J**	0.0828	0.662	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.123 J**	0.0242	0.166	2
06145	**Thallium**	7440-28-0	**0.128 J**	0.0207	0.166	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:45
SDG#: SGB16-11

C. T. Male Associates
ELLE Sample #: SW 9179497
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**18.0**	0.0353	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,600**	873	2,620	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 08:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:27	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:07	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:55	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:55	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 08:45
SDG#: SGB16-11

C. T. Male Associates
ELLE Sample #: SW 9179497
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:55	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/14/2017 21:58	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:00
SDG#: SGB16-12

C. T. Male Associates
ELLE Sample #: SW 9179498
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.1**	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,300**	11.1	49.4	1
01650	**Calcium**	7440-70-2	**1,690**	4.12	49.4	1
01654	**Iron**	7439-89-6	**29,400**	9.95	49.4	1
01657	**Magnesium**	7439-95-4	**5,010**	3.00	24.7	1
06958	**Manganese**	7439-96-5	**751**	0.103	1.24	1
01662	**Potassium**	7440-09-7	**1,370**	20.6	124	1
01667	**Sodium**	7440-23-5	**78.3 J**	20.6	247	1
06972	**Zinc**	7440-66-6	**67.1**	0.297	4.94	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.232 J**	0.115	0.494	2
06125	**Arsenic**	7440-38-2	**10.1**	0.158	0.989	2
06126	**Barium**	7440-39-3	**53.2**	0.224	0.989	2
06127	**Beryllium**	7440-41-7	**0.498**	0.0130	0.247	2
06128	**Cadmium**	7440-43-9	**0.211 J**	0.0425	0.247	2
06131	**Chromium**	7440-47-3	**14.6**	0.215	0.989	2
06132	**Cobalt**	7440-48-4	**10.8**	0.0386	0.247	2
06133	**Copper**	7440-50-8	**19.8**	0.133	0.989	2
06135	**Lead**	7439-92-1	**14.8**	0.0274	0.494	2
06139	**Nickel**	7440-02-0	**22.0**	0.246	0.989	2
06141	**Selenium**	7782-49-2	**0.286 J**	0.124	0.989	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0717 J**	0.0361	0.247	2
06145	**Thallium**	7440-28-0	**0.111 J**	0.0309	0.247	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:00
SDG#: SGB16-12

C. T. Male Associates
ELLE Sample #: SW 9179498
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**19.5**	0.0527	0.247	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,510**	507	1,520	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**19.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 08:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:30	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:10	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 05:58	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 05:58	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:00
SDG#: SGB16-12

C. T. Male Associates
ELLE Sample #: SW 9179498
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 05:58	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/14/2017 22:24	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:15
SDG#: SGB16-13

C. T. Male Associates
ELLE Sample #: SW 9179499
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.91**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,700**	10.3	46.1	1
01650	**Calcium**	7440-70-2	**1,540**	3.84	46.1	1
01654	**Iron**	7439-89-6	**21,000**	9.28	46.1	1
01657	**Magnesium**	7439-95-4	**3,770**	2.80	23.1	1
06958	**Manganese**	7439-96-5	**755**	0.0957	1.15	1
01662	**Potassium**	7440-09-7	**796**	19.2	115	1
01667	**Sodium**	7440-23-5	**20.5 J**	19.2	231	1
06972	**Zinc**	7440-66-6	**42.0**	0.277	4.61	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.107 U	0.107	0.461	2
06125	**Arsenic**	7440-38-2	**8.23**	0.148	0.922	2
06126	**Barium**	7440-39-3	**29.7**	0.209	0.922	2
06127	**Beryllium**	7440-41-7	**0.214 J**	0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.169 J**	0.0397	0.231	2
06131	**Chromium**	7440-47-3	**8.56**	0.201	0.922	2
06132	**Cobalt**	7440-48-4	**9.29**	0.0360	0.231	2
06133	**Copper**	7440-50-8	**15.7**	0.124	0.922	2
06135	**Lead**	7439-92-1	**12.1**	0.0256	0.461	2
06139	**Nickel**	7440-02-0	**16.5**	0.230	0.922	2
06141	Selenium	7782-49-2	0.115 U	0.115	0.922	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	Silver	7440-22-4	0.0337 U	0.0337	0.231	2
06145	**Thallium**	7440-28-0	**0.0516 J**	0.0288	0.231	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:15
SDG#: SGB16-13

C. T. Male Associates
ELLE Sample #: SW 9179499
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.13**	0.0491	0.231	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	177 U	177	531	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.49**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 09:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:33	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:14	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 06:02	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 06:02	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 09:15
SDG#: SGB16-13

C. T. Male Associates
ELLE Sample #: SW 9179499
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 06:02	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/15/2017 14:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-16-17' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:00
SDG#: SGB16-14

C. T. Male Associates
ELLE Sample #: SW 9179500
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.24 J**	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,100**	7.71	34.5	1
01650	**Calcium**	7440-70-2	**22,700**	2.87	34.5	1
01654	**Iron**	7439-89-6	**34,200**	34.7	173	5
01657	**Magnesium**	7439-95-4	**13,100**	2.10	17.3	1
06958	**Manganese**	7439-96-5	**638**	0.0716	0.863	1
01662	**Potassium**	7440-09-7	**2,120**	14.4	86.3	1
01667	**Sodium**	7440-23-5	**58.2 J**	14.4	173	1
06972	**Zinc**	7440-66-6	**77.0**	0.207	3.45	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.296 J**	0.0804	0.345	2
06125	**Arsenic**	7440-38-2	**12.9**	0.110	0.690	2
06126	**Barium**	7440-39-3	**62.8**	0.157	0.690	2
06127	**Beryllium**	7440-41-7	**0.385**	0.0090	0.173	2
06128	**Cadmium**	7440-43-9	**0.186**	0.0297	0.173	2
06131	**Chromium**	7440-47-3	**24.1**	0.150	0.690	2
06132	**Cobalt**	7440-48-4	**17.6**	0.0269	0.173	2
06133	**Copper**	7440-50-8	**37.3**	0.0925	0.690	2
06135	**Lead**	7439-92-1	**15.8**	0.0191	0.345	2
06139	**Nickel**	7440-02-0	**37.6**	0.172	0.690	2
06141	**Selenium**	7782-49-2	**0.430 J**	0.0863	0.690	2
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0837 J**	0.0252	0.173	2
06145	**Thallium**	7440-28-0	**0.0718 J**	0.0216	0.173	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-16-17' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:00
SDG#: SGB16-14

C. T. Male Associates
ELLE Sample #: SW 9179500
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**17.2**	0.0367	0.173	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,190**	291	873	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.64**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 10:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:36	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:17	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 06:05	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 06:05	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-16-17' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:00
SDG#: SGB16-14

C. T. Male Associates
ELLE Sample #: SW 9179500
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 06:05	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/14/2017 23:02	Samuel J Weaver	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D05-26-27' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:30
SDG#: SGB16-15

C. T. Male Associates
ELLE Sample #: SW 9179501
ELLE Group #: 1843584
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,320**	9.04	40.4	1
01650	**Calcium**	7440-70-2	**35,500**	3.37	40.4	1
01654	**Iron**	7439-89-6	**25,900**	8.14	40.4	1
01657	**Magnesium**	7439-95-4	**16,400**	2.46	20.2	1
06958	**Manganese**	7439-96-5	**514**	0.0839	1.01	1
01662	**Potassium**	7440-09-7	**1,130**	16.9	101	1
01667	**Sodium**	7440-23-5	**46.2 J**	16.9	202	1
06972	**Zinc**	7440-66-6	**66.5**	0.243	4.04	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.236 J**	0.0942	0.404	2
06125	**Arsenic**	7440-38-2	**13.1**	0.129	0.809	2
06126	**Barium**	7440-39-3	**38.5**	0.184	0.809	2
06127	**Beryllium**	7440-41-7	**0.581**	0.0106	0.202	2
	The percent recovery for Beryllium in the Continuing Calibration Verification associated with this sample changed from 93.1% to 89.1%. The QC specification is 90-110%.					
06128	**Cadmium**	7440-43-9	**0.198 J**	0.0348	0.202	2
06131	**Chromium**	7440-47-3	**12.4**	0.176	0.809	2
06132	**Cobalt**	7440-48-4	**12.4**	0.0316	0.202	2
06133	**Copper**	7440-50-8	**20.0**	0.108	0.809	2
06135	**Lead**	7439-92-1	**15.1**	0.0224	0.404	2
06139	**Nickel**	7440-02-0	**25.1**	0.201	0.809	2
06141	**Selenium**	7782-49-2	**0.375 J**	0.101	0.809	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D05-26-27' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9179501
ELLE Group #: 1843584
Matrix: Soil

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:30
SDG#: SGB16-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
	The percent recovery for Selenium in the Laboratory Control Sample associated with this sample changed from 108% to 128%. The QC specification is 80-120%.					
06142	**Silver**	7440-22-4	**0.0934 J**	0.0295	0.202	2
06145	**Thallium**	7440-28-0	**0.108 J**	0.0253	0.202	2
06148	**Vanadium**	7440-62-2	**11.6**	0.0431	0.202	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,730**	216	647	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.71**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17253004	09/13/2017 10:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17253004	09/11/2017 14:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172421063704	09/06/2017 04:45	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172421063704	09/01/2017 08:26	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172421063704D	09/01/2017 06:14	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D05-26-27' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 08/29/2017 09:30
Collection Date/Time: 08/28/2017 10:30
SDG#: SGB16-15

C. T. Male Associates
ELLE Sample #: SW 9179501
ELLE Group #: 1843584
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172421063704B	09/01/2017 06:14	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172421063704A	09/01/2017 06:14	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172421063704	08/31/2017 18:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/15/2017 14:25	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402A	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17243820022B	09/01/2017 01:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17253004	Sample number(s): 9179488-9179501		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17243009	Sample number(s): 9179487		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172421063704	Sample number(s): 9179488-9179501		
Aluminum	8.94 U	8.94	40.0
Calcium	7.33 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	3.06 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172421063704A	Sample number(s): 9179488-9179501		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172421063704B	Sample number(s): 9179488-9179501		
Selenium	0.100 U	0.100	0.800
Batch number: 172421063704D	Sample number(s): 9179488-9179501		
Barium	0.182 U	0.182	0.800
Batch number: 17256667631B	Sample number(s): 9179488-9179496		
TOC	100 U	100	300
Batch number: 17257837931A	Sample number(s): 9179497-9179501		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17253004	Sample number(s): 9179488-9179501								
Perfluorobutanesulfonate	1.20	1.09	1.20	1.23	90	102	70-130	12	30
Perfluorobutanoic acid	1.36	1.41	1.36	1.39	104	102	70-130	1	30
Perfluorodecanoic acid	1.36	1.25	1.36	1.39	92	103	70-130	11	30
Perfluorododecanoic acid	1.36	1.43	1.36	1.32	105	97	70-130	8	30
Perfluoroheptanoic acid	1.36	1.52	1.36	1.41	112	104	70-130	8	30
Perfluorohexanesulfonate	1.29	1.19	1.29	1.18	92	92	70-130	1	30
Perfluorohexanoic acid	1.36	1.46	1.36	1.36	107	100	70-130	7	30
Perfluorononanoic acid	1.36	1.33	1.36	1.56	98	115	70-130	16	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.30	1.30	1.31	100	101	70-130	1	30
Perfluorooctanoic acid	1.36	1.23	1.36	1.26	90	93	70-130	2	30
Perfluoropentanoic acid	1.36	1.29	1.36	1.35	95	99	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.27	1.36	1.23	94	90	70-130	3	30
Perfluorotridecanoic acid	1.36	1.55	1.36	1.51	114	111	70-130	2	30
Perfluoroundecanoic acid	1.36	1.30	1.36	1.42	96	104	70-130	8	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17243009	Sample number(s): 9179487								
Perfluorobutanesulfonate	12	11.37	12	10.8	95	90	70-130	5	30
Perfluorobutanoic Acid	13.6	14.69	13.6	15.13	108	111	70-130	3	30
Perfluorodecanoic acid	13.6	14.69	13.6	13.59	108	100	70-130	8	30
Perfluorododecanoic acid	13.6	13.61	13.6	14.03	100	103	70-130	3	30
Perfluoroheptanoic acid	13.6	14.45	13.6	14.35	106	106	70-130	1	30
Perfluorohexanesulfonate	12.9	12.01	12.9	12.05	93	93	70-130	0	30
Perfluorohexanoic acid	13.6	14.44	13.6	14.06	106	103	70-130	3	30
Perfluorononanoic acid	13.6	15.94	13.6	15.46	117	114	70-130	3	30
Perfluoro-octanesulfonate	13	12.02	13	11.71	92	90	70-130	3	30
Perfluorooctanoic acid	13.6	15.03	13.6	13.91	110	102	70-130	8	30
Perfluoropentanoic Acid	13.6	13.06	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.13	13.6	14.22	104	105	70-130	1	30
Perfluorotridecanoic acid	13.6	11.97	13.6	11.47	88	84	70-130	4	30
Perfluoroundecanoic acid	13.6	16.22	13.6	15.91	119	117	70-130	2	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172421063704	Sample number(s): 9179488-9179501								
Aluminum	200	218.55			109		80-120		
Calcium	400	393.87			98		80-120		
Iron	100	102.54			103		80-120		
Magnesium	200	199.71			100		80-120		
Manganese	50	49.58			99		80-120		
Potassium	1000	969.68			97		80-120		
Sodium	1000	978.07			98		80-120		
Zinc	50	50.11			100		80-120		
Batch number: 172421063704A	Sample number(s): 9179488-9179501								
Antimony	0.600	0.688			115		80-120		
Arsenic	1.00	1.20			120		80-120		
Beryllium	0.400	0.456			114		80-120		
Cadmium	0.500	0.532			106		80-120		
Chromium	5.00	4.92			98		80-120		
Cobalt	25	25.99			104		80-120		
Copper	5.00	5.71			114		80-120		
Lead	1.50	1.52			101		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	5.48			110		80-120		
Silver	5.00	5.40			108		80-120		
Thallium	0.200	0.191			96		80-120		
Vanadium	5.00	4.90			98		80-120		
Batch number: 172421063704B	Sample number(s): 9179488-9179501								
Selenium	1.00	1.28			128*		80-120		
Batch number: 172421063704D	Sample number(s): 9179488-9179501								
Barium	5.00	4.86			97		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17256667631B	Sample number(s): 9179488-9179496								
TOC	7150	4877.02			68		47-143		
Batch number: 17257837931A	Sample number(s): 9179497-9179501								
TOC	7150	6631.25			93		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17247039401B	Sample number(s): 9179489-9179493								
pH	7.00	7.00			100		95-105		
Batch number: 17247039402A	Sample number(s): 9179494-9179501								
pH	7.00	7.06			101		95-105		
Batch number: 17252039401A	Sample number(s): 9179488								
pH	7.00	7.00			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17243820022B	Sample number(s): 9179489-9179501								
Moisture	89.5	89.43			100		99-101		
Batch number: 17244820015B	Sample number(s): 9179488								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17253004	Sample number(s): 9179488-9179501 UNSPK: 9179488									
Perfluorobutanesulfonate	0.19 U	1.14	1.11			97		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanoic acid	0.19 U	1.29	1.25			97		70-130		
Perfluorodecanoic acid	0.19 U	1.29	1.26			97		70-130		
Perfluorododecanoic acid	0.19 U	1.29	1.28			99		70-130		
Perfluoroheptanoic acid	0.19 U	1.29	1.26			98		70-130		
Perfluorohexanesulfonate	0.19 U	1.22	1.16			95		70-130		
Perfluorohexanoic acid	0.097 U	1.29	1.25			97		70-130		
Perfluorononanoic acid	0.097 U	1.29	1.15			89		70-130		
Perfluoro-octanesulfonate	0.29 U	1.24	1.55			125		70-130		
Perfluorooctanoic acid	0.19 U	1.29	1.18			91		70-130		
Perfluoropentanoic acid	0.19 U	1.29	1.19			92		70-130		
Perfluorotetradecanoic acid	0.19 U	1.29	1.27			98		70-130		
Perfluorotridecanoic acid	0.19 U	1.29	1.41			109		70-130		
Perfluoroundecanoic acid	0.19 U	1.29	1.31			101		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172421063704	Sample number(s): 9179488-9179501 UNSPK: 9179488									
Aluminum	2707.5	200	5315.64	194.17	5384.86	1304 (2)	1379 (2)	75-125	1	20
Calcium	81402.47	400	100251.02	388.35	94758.83	4712 (2)	3439 (2)	75-125	6	20
Iron	8343.36	100	14386.11	97.09	12284.75	6043 (2)	4060 (2)	75-125	16	20
Magnesium	18289.95	200	28702.47	194.17	22866.61	5206 (2)	2357 (2)	75-125	23*	20
Manganese	176.42	50	354.91	48.54	333.84	357*	324*	75-125	6	20
Potassium	462.49	1000	2145.21	970.87	2155.92	168*	174*	75-125	0	20
Sodium	307.78	1000	1473.54	970.87	1462.76	117	119	75-125	1	20
Zinc	34.41	50	94.38	48.54	96.94	120	129*	75-125	3	20
Batch number: 172421063704A	Sample number(s): 9179488-9179501 UNSPK: 9179488									
Antimony	0.288	1.20	1.59	1.17	1.40	108	95	75-125	13	20
Arsenic	4.02	2.00	8.59	1.94	9.38	229*	276*	75-125	9	20
Beryllium	0.130	0.800	1.09	0.777	1.03	119	116	75-125	5	20
Cadmium	0.145	1.00	1.23	0.971	1.29	108	118	75-125	5	20
Chromium	5.61	10	21.7	9.71	21.49	161*	164*	75-125	1	20
Cobalt	3.00	50	59.68	48.54	54.9	113	107	75-125	8	20
Copper	12.13	10	51.17	9.71	28.76	390*	171*	75-125	56*	20
Lead	30.91	3.00	49.64	2.91	55.92	624 (2)	858 (2)	75-125	12	20
Nickel	5.83	10	22.39	9.71	20.81	166*	154*	75-125	7	20
Silver	0.0312	10	10.24	9.71	9.48	102	97	75-125	8	20
Thallium	0.0303	0.400	0.470	0.388	0.454	110	109	75-125	3	20
Vanadium	4.48	10	19.09	9.71	19.01	146*	150*	75-125	0	20
Batch number: 172421063704B	Sample number(s): 9179488-9179501 UNSPK: 9179488									
Selenium	0.118	2.00	2.28	1.94	2.18	108	106	75-125	4	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172421063704D	Sample number(s): 9179488-9179501 UNSPK: 9179488									
Barium	15.34	10	50.88	9.71	41.7	355*	271*	75-125	20	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17256667631B	Sample number(s): 9179488-9179496 UNSPK: 9179490									
TOC	2986.88	23580	26006.29			98		47-143		
Batch number: 17257837931A	Sample number(s): 9179497-9179501 UNSPK: 9179501									
TOC	1557.54	8970	8570.15			78		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172421063704	Sample number(s): 9179488-9179501 BKG: 9179488			
Aluminum	2707.5	3860.44	35*	20
Calcium	81402.47	85083.21	4	20
Iron	8343.36	12195.14	38*	20
Magnesium	18289.95	14610.61	22*	20
Manganese	176.42	256.28	37*	20
Potassium	462.49	656.92	35*	20
Sodium	307.78	448.54	37* (1)	20
Zinc	34.41	48.5	34*	20
Batch number: 172421063704A	Sample number(s): 9179488-9179501 BKG: 9179488			
Antimony	0.288	0.326	12 (1)	20
Arsenic	4.02	5.43	30*	20
Beryllium	0.130	0.173	28* (1)	20
Cadmium	0.145	0.222	42* (1)	20
Chromium	5.61	8.59	42*	20
Cobalt	3.00	5.29	55*	20
Copper	12.13	27.62	78*	20
Lead	30.91	37.56	19	20
Nickel	5.83	8.92	42*	20
Silver	0.0312	0.0411	27* (1)	20
Thallium	0.0303	0.0510	51* (1)	20
Vanadium	4.48	6.63	39*	20
Batch number: 172421063704B	Sample number(s): 9179488-9179501 BKG: 9179488			

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Selenium	0.118	0.0935 U	200* (1)	20
Batch number: 172421063704D	Sample number(s): 9179488-9179501 BKG: 9179488			
Barium	15.34	23.77	43*	20
	mg/kg	mg/kg		
Batch number: 17256667631B	Sample number(s): 9179488-9179496 BKG: 9179490			
TOC	2986.88	2507.79	17* (1)	7
Batch number: 17257837931A	Sample number(s): 9179497-9179501 BKG: 9179501			
TOC	1557.54	1387.79	12* (1)	7
	Std. Units	Std. Units		
Batch number: 17247039401B	Sample number(s): 9179489-9179493 BKG: P179478			
pH	8.30	8.26	0	3
Batch number: 17247039402A	Sample number(s): 9179494-9179501 BKG: 9179496			
pH	7.84	7.85	0	3
Batch number: 17252039401A	Sample number(s): 9179488 BKG: P181419			
pH	8.43	8.39	0	3
	%	%		
Batch number: 17243820022B	Sample number(s): 9179489-9179501 BKG: 9179491			
Moisture	4.22	4.16	1	5
Batch number: 17244820015B	Sample number(s): 9179488 BKG: P179069			
Moisture	16.92	19.27	13*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9179487	90	94	93	88	97	90
Blank	93	93	99	91	102	103
LCS	89	91	100	90	98	92

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCSD	84	89	97	80	84	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9179487	100	93	85	96	95	95
Blank	94	82	83	94	94	90
LCS	103	87	88	93	82	90
LCSD	88	80	74	94	85	94
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9179487	82
Blank	82
LCS	74
LCSD	79
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17253004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9179488	90	99	96	89	80	82
9179489	84	87	82	78	82	87
9179490	78	79	82	86	83	84
9179491	68	74	88	71	77	71
9179492	75	80	77	66	69	67
9179493	85	91	85	75	74	75
9179494	78	82	75	70	66	69
9179495	79	82	83	71	74	76
9179496	65	74	82	63	75	73
9179497	79	84	90	77	77	70
9179498	85	86	84	82	83	82
9179499	74	77	77	87	83	90
9179500	86	91	82	92	88	91
9179501	90	101	91	88	82	83
Blank	83	88	84	85	81	93
LCS	87	95	90	75	73	76

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17253004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCSD	81	88	81	86	81	89
MS	94	104	95	88	86	92
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9179488	89	80	78	92	79	65
9179489	76	88	91	78	80	66
9179490	94	92	76	89	82	76
9179491	69	89	71	71	75	69
9179492	71	82	84	85	83	77
9179493	80	88	83	86	78	75
9179494	70	83	77	79	85	69
9179495	78	84	75	80	76	67
9179496	76	90	82	83	74	72
9179497	79	83	83	84	79	70
9179498	89	88	78	90	83	73
9179499	85	89	88	91	90	77
9179500	89	91	80	93	80	75
9179501	91	91	83	97	85	81
Blank	86	87	87	83	87	69
LCS	89	89	91	84	81	69
LCSD	86	84	87	95	79	69
MS	91	84	104	103	92	74
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9179488	72
9179489	70
9179490	74
9179491	75
9179492	75
9179493	76
9179494	74
9179495	79
9179496	77
9179497	72
9179498	76

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 12:51

Group Number: 1843584

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17253004

	13C2-PFTeDA
9179499	86
9179500	75
9179501	89
Blank	69
LCS	62
LCSD	67
MS	79
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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37191 1843584 9179487-501

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52220
COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	Soil: 250ml plastics, PFCs (14)	Soil: 4 oz. glass jars, Tox, pH, Metals, Moisture	% Solids
									A	A	A	
									N	1	1	
1. SG3-FBS02-170828	/	/	/	08/28/2017	15:00	Water	N	1	1			
2. SG3-D03-0-0.5'	0	0.5	ft.	08/28/2017	13:20	S	N	2		1	1	
3. SG3-D03-0.5-1.0'	0.5	1	ft.	08/28/2017	13:25	S	N	2		1	1	
4. SG3-D03-1-1.5'	1	1.5	ft.	08/28/2017	13:30	S	N	2		1	1	
5. SG3-D03-3-4'	3	4	ft.	08/28/2017	13:50	S	N	2		1	1	
6. SG3-D03-8-9'	8	9	ft.	08/28/2017	14:05	S	N	2		1	1	
7. SG3-D03-12-13'	12	13	ft.	08/28/2017	14:45	S	N	2		1	1	
8. SG3-D03-15-16'	15	16	ft.	08/28/2017	14:55	S	N	2		1	1	
9.												
10.												

Preservative Code

Field Filtered Y/N

Soil Metals: TAL cations/anions excluding Hg

BARR USE ONLY	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
Sampled by: DSZ/RAK/RQM	(RQM)		8/28/2017	17:30			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						8/29/17	9:30
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.0			Custody Seal Intact? ☑ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1843584 9179487-501

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52221

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250ml plastic, PFCs (14)	Soil: 4 oz. jar, TOC, Metals, pH, moist.	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A				
										1	1				
1. SG3-DO5-0-0.5'	0	0.5	ft.	08/28/2017	08:35	S	N	2		1	1				Metals: TAL cations/anions excluding Hg
2. SG3-DO5-0.5-1'	0.5	1	ft.	08/28/2017	08:40	S	N	2		1	1				
3. SG3-DO5-1-1.5'	1	1.5	ft.	08/28/2017	08:45	S	N	2		1	1				
4. SG3-DO5-3-4'	3	4	ft.	08/28/2017	09:00	S	N	2		1	1				
5. SG3-DO5-8-9'	8	9	ft.	08/28/2017	09:15	S	N	2		1	1				
6. SG3-DO5-16-17'	16	17	ft.	08/28/2017	10:00	S	N	2		1	1				
7. SG3-DO5-26-27'	26	27	ft.	08/28/2017	10:30	S	N	2		1	1				
8.															
9.															
10.															

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: DJZ/RAK	(RQM)	Y (N)	8/28/17	17:20			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 8/29/17	Time 9:30
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 08/1.0			Custody Seal Intact? ☐ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 192791

Group Number(s): 1843584

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/29/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:22 on 08/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 18, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1844077
SDG: SGB17
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-LTB10-170829 Blank Water	08/29/2017 07:45	9181474
SG3-D03-170829 Grab Groundwater	08/29/2017 07:45	9181475
SG3-FBS03-170829 Blank Water	08/29/2017 10:50	9181476
SG3-D14-0-0.5' Grab Soil	08/29/2017 11:20	9181477
SG3-D14-0.5-1' Grab Soil	08/29/2017 11:25	9181478
SG3-D14-1-1.5' Grab Soil	08/29/2017 11:30	9181479
SG3-D14-2-3' Grab Soil	08/29/2017 11:40	9181480
SG3-D14-3-4' Grab Soil	08/29/2017 11:45	9181481
SG3-FDS02-170829 Grab Soil	08/29/2017	9181482
SG3-D14-8-9' Grab Soil	08/29/2017 12:05	9181483
SG3-D14-8-9' MS Grab Soil	08/29/2017 12:05	9181484
SG3-D14-8-9' MSD Grab Soil	08/29/2017 12:05	9181485
SG3-D14-8-9' Dupl Grab Soil	08/29/2017 12:05	9181486
SG3-D14-9.5-10.5' Grab Soil	08/29/2017 12:15	9181487
SG3-FDS03-170829 Grab Soil	08/29/2017	9181488
SG3-LTB11-170829 Blank Water	08/29/2017	9181489
SG3-LTB12-170829 Blank Water	08/29/2017	9181490

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1844077

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9181474, 9181475, 9181480, 9181484, 9181488

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17243007 (Sample number(s): 9181474-9181475 UNSPK: 9181475)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9181474, 9181475, Blank, LCS, LCSD, MS

Batch #: 17255005 (Sample number(s): 9181477-9181485, 9181487-9181488 UNSPK: 9181483)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluoroundecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9181480, 9181484, 9181488, MS

SW-846 6010C, Metals

Batch #: 172511063701 (Sample number(s): 9181477-9181488 UNSPK: 9181483 BKG: 9181483)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below

the acceptance window: Manganese, Iron, Magnesium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Iron, Magnesium, Zinc

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Magnesium

SW-846 6020A, Metals

Batch #: 172441063902A (Sample number(s): 9181475 UNSPK: 9181475 BKG: 9181475)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Silver

Batch #: 172441063902D (Sample number(s): 9181475 UNSPK: 9181475 BKG: 9181475)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 172511063701A (Sample number(s): 9181477-9181488 UNSPK: 9181483 BKG: 9181483)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Copper, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 172511063701D (Sample number(s): 9181477-9181488 UNSPK: 9181483 BKG: 9181483)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

EPA 300.0, Wet Chemistry

Batch #: 17242249106A (Sample number(s): 9181475 UNSPK: P179617 BKG: P179617)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Bromide

EPA 350.1, Wet Chemistry

Batch #: 17249107102A (Sample number(s): 9181475 UNSPK: P179960 BKG: P179960)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17257837931A (Sample number(s): 9181477-9181479 UNSPK: P179501 BKG: P179501)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17257837931B (Sample number(s): 9181480-9181484, 9181486-9181488 UNSPK: 9181483 BKG: 9181483)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9181488

The pH was measured in water at 19.7 C.

Sample #s: 9181487

The pH was measured in water at 19.8 C.

Sample #s: 9181479, 9181483

The pH was measured in water at 19.9 C.

Sample #s: 9181477, 9181486

The pH was measured in water at 20.1 C.

Sample #s: 9181480, 9181481

The pH was measured in water at 20.2 C.

Sample #s: 9181478, 9181482

The pH was measured in water at 20.4 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17244820002B (Sample number(s): 9181477-9181488 BKG: 9181483)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Batch #: 17249820002A (Sample number(s): 9181483-9181486 BKG: 9181483)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-LTB10-170829 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9181474
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 07:45

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB171 SDG#: SGB17-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17243007	09/02/2017 08:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243007	08/31/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-170829 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9181475
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 07:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB172 SDG#: SGB17-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**4**		0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**9**	**J**	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**0.9**	**J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**15**		0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**2**	**J**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**11**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**4**		0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**10**		2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**240**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**9**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**86.0**		0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0324**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**1,010**		0.300	2.00	5
01754	**Iron**	7439-89-6	**259**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**483**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**5.37**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**17.7**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**235**		0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.559**		0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.00082**	**J**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0747**		0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.430**		0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0029**		0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0013**		0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0795**		0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0654**		0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-170829 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9181475
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 07:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB172 SDG#: SGB17-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**		**mg/l**	**mg/l**	
06033	**Copper**	7440-50-8	**0.199**		0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.150**		0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.123**		0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0022**	**J**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0013**		0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0012**		0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0836**		0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**		**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3	U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**330**		100	200	500
00368	**Nitrate Nitrogen**	14797-55-8	**6.0**		0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25	U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**31.2**		1.5	5.0	5
	EPA 350.1		**mg/l**		**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.12**		0.050	0.10	1
	EPA 351.2		**mg/l**		**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50	U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**		**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**350**		1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**350**		1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7	U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**		**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030	U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17243007	09/02/2017 08:44	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-170829 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9181475
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 07:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB172 SDG#: SGB17-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243007	08/31/2017 14:35	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	172441063501	09/07/2017 07:22	Scott R Yanos	5
01754	Iron	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	172441063501	09/05/2017 21:31	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172441063902D	09/05/2017 16:30	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172441063902B	09/05/2017 16:30	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172441063902A	09/05/2017 16:30	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172441063501	09/05/2017 07:00	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172441063902	09/05/2017 05:50	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17242249106A	08/31/2017 03:22	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17242249106A	08/31/2017 03:38	Zachary W Enck	500
00368	Nitrate Nitrogen	EPA 300.0	1	17242249106A	08/31/2017 03:22	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17242249106A	08/31/2017 03:22	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17242249106A	08/31/2017 03:22	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17249107102A	09/06/2017 21:40	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17244108101B	09/03/2017 18:29	Joseph E McKenzie	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17244108101B	09/01/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17243003202A	08/31/2017 17:26	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17243003202A	08/31/2017 17:26	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17243003202A	08/31/2017 17:26	Ian D Toomey	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-170829 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9181475
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 07:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB172 SDG#: SGB17-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17242022601A	08/30/2017 22:20	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FBS03-170829 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9181476
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 10:50 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB173 SDG#: SGB17-03FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 04:58	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181477
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:20 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB174 SDG#: SGB17-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.25**	**J**	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17**	**J**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.50**	**J**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.27**	**J**	0.25	0.74	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,570**		9.57	42.8	1
01650	**Calcium**	7440-70-2	**40,500**		3.57	42.8	1
01654	**Iron**	7439-89-6	**18,200**		8.62	42.8	1
01657	**Magnesium**	7439-95-4	**19,300**		2.60	21.4	1
06958	**Manganese**	7439-96-5	**532**		0.0889	1.07	1
01662	**Potassium**	7440-09-7	**1,250**		17.9	107	1
01667	**Sodium**	7440-23-5	**79.6**	**J**	17.9	214	1
06972	**Zinc**	7440-66-6	**94.9**		0.257	4.28	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.387**	**J**	0.0998	0.428	2
06125	**Arsenic**	7440-38-2	**10.1**		0.137	0.857	2
06126	**Barium**	7440-39-3	**57.3**		0.194	0.857	2
06127	**Beryllium**	7440-41-7	**0.414**		0.0112	0.214	2
06128	**Cadmium**	7440-43-9	**0.285**		0.0368	0.214	2
06131	**Chromium**	7440-47-3	**11.9**		0.186	0.857	2
06132	**Cobalt**	7440-48-4	**8.65**		0.0334	0.214	2
06133	**Copper**	7440-50-8	**25.7**		0.115	0.857	2
06135	**Lead**	7439-92-1	**52.7**		0.0238	0.428	2
06139	**Nickel**	7440-02-0	**14.3**		0.213	0.857	2
06141	**Selenium**	7782-49-2	**0.302**	**J**	0.107	0.857	2
06142	**Silver**	7440-22-4	**0.359**		0.0313	0.214	2
06145	**Thallium**	7440-28-0	**0.111**	**J**	0.0268	0.214	2
06148	**Vanadium**	7440-62-2	**17.8**		0.0456	0.214	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181477
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:20 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB174 SDG#: SGB17-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**24,600**	863	2,590	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.74**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**19.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 01:37	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:48	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:06	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:06	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0-0.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181477
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:20 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB174 SDG#: SGB17-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:06	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/15/2017 09:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181478
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:25 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB175 SDG#: SGB17-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.25**	**J**	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.19**	**J**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.73**	**J**	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.22**	**J**	0.22	0.66	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,340**		8.19	36.6	1
01650	**Calcium**	7440-70-2	**32,400**		3.05	36.6	1
01654	**Iron**	7439-89-6	**17,600**		7.37	36.6	1
01657	**Magnesium**	7439-95-4	**17,000**		2.23	18.3	1
06958	**Manganese**	7439-96-5	**503**		0.0760	0.916	1
01662	**Potassium**	7440-09-7	**1,130**		15.3	91.6	1
01667	**Sodium**	7440-23-5	**84.4**	**J**	15.3	183	1
06972	**Zinc**	7440-66-6	**86.4**		0.220	3.66	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.276**	**J**	0.0853	0.366	2
06125	**Arsenic**	7440-38-2	**10.9**		0.117	0.733	2
06126	**Barium**	7440-39-3	**59.7**		0.166	0.733	2
06127	**Beryllium**	7440-41-7	**0.449**		0.0096	0.183	2
06128	**Cadmium**	7440-43-9	**0.361**		0.0315	0.183	2
06131	**Chromium**	7440-47-3	**10.2**		0.159	0.733	2
06132	**Cobalt**	7440-48-4	**8.42**		0.0286	0.183	2
06133	**Copper**	7440-50-8	**18.8**		0.0982	0.733	2
06135	**Lead**	7439-92-1	**51.2**		0.0203	0.366	2
06139	**Nickel**	7440-02-0	**15.9**		0.182	0.733	2
06141	**Selenium**	7782-49-2	**0.337**	**J**	0.0916	0.733	2
06142	**Silver**	7440-22-4	**0.533**		0.0267	0.183	2
06145	**Thallium**	7440-28-0	**0.115**	**J**	0.0229	0.183	2
06148	**Vanadium**	7440-62-2	**16.7**		0.0390	0.183	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181478
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:25 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB175 SDG#: SGB17-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**15,500**	694	2,080	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.77**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**16.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 01:57	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:51	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:09	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:09	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0.5-1' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181478
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:25 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB175 SDG#: SGB17-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:09	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/15/2017 09:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181479
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:30 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB176 SDG#: SGB17-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.13**	**J**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.43**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.34**	**J**	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,580**		9.69	43.4	1
01650	**Calcium**	7440-70-2	**40,700**		3.61	43.4	1
01654	**Iron**	7439-89-6	**21,800**		8.73	43.4	1
01657	**Magnesium**	7439-95-4	**17,900**		2.63	21.7	1
06958	**Manganese**	7439-96-5	**684**		0.0900	1.08	1
01662	**Potassium**	7440-09-7	**1,290**		18.1	108	1
01667	**Sodium**	7440-23-5	**117**	**J**	18.1	217	1
06972	**Zinc**	7440-66-6	**99.2**		0.260	4.34	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.320**	**J**	0.101	0.434	2
06125	**Arsenic**	7440-38-2	**12.7**		0.139	0.867	2
06126	**Barium**	7440-39-3	**85.3**		0.197	0.867	2
06127	**Beryllium**	7440-41-7	**0.497**		0.0114	0.217	2
06128	**Cadmium**	7440-43-9	**0.411**		0.0373	0.217	2
06131	**Chromium**	7440-47-3	**11.4**		0.189	0.867	2
06132	**Cobalt**	7440-48-4	**10.1**		0.0338	0.217	2
06133	**Copper**	7440-50-8	**20.9**		0.116	0.867	2
06135	**Lead**	7439-92-1	**58.6**		0.0241	0.434	2
06139	**Nickel**	7440-02-0	**18.3**		0.216	0.867	2
06141	**Selenium**	7782-49-2	**0.410**	**J**	0.108	0.867	2
06142	**Silver**	7440-22-4	**1.08**		0.0317	0.217	2
06145	**Thallium**	7440-28-0	**0.162**	**J**	0.0271	0.217	2
06148	**Vanadium**	7440-62-2	**17.0**		0.0462	0.217	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181479
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:30 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB176 SDG#: SGB17-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**11,300**	917	2,750	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.82**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**16.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 02:18	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:54	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:19	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:19	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-1-1.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181479
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:30 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB176 SDG#: SGB17-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:19	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931A	09/15/2017 15:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-2-3' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181480
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:40 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB177 SDG#: SGB17-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.72**		0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,600**		9.36	41.9	1
01650	**Calcium**	7440-70-2	**1,420**		3.49	41.9	1
01654	**Iron**	7439-89-6	**27,200**		42.1	209	5
01657	**Magnesium**	7439-95-4	**3,770**		2.54	20.9	1
06958	**Manganese**	7439-96-5	**533**		0.0869	1.05	1
01662	**Potassium**	7440-09-7	**1,510**		17.5	105	1
01667	**Sodium**	7440-23-5	**278**		17.5	209	1
06972	**Zinc**	7440-66-6	**62.9**		0.251	4.19	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.251**	**J**	0.0976	0.419	2
06125	**Arsenic**	7440-38-2	**14.4**		0.134	0.837	2
06126	**Barium**	7440-39-3	**70.3**		0.190	0.837	2
06127	**Beryllium**	7440-41-7	**0.662**		0.0110	0.209	2
06128	**Cadmium**	7440-43-9	**0.145**	**J**	0.0360	0.209	2
06131	**Chromium**	7440-47-3	**14.4**		0.182	0.837	2
06132	**Cobalt**	7440-48-4	**9.93**		0.0327	0.209	2
06133	**Copper**	7440-50-8	**14.9**		0.112	0.837	2
06135	**Lead**	7439-92-1	**15.1**		0.0232	0.419	2
06139	**Nickel**	7440-02-0	**20.5**		0.209	0.837	2
06141	**Selenium**	7782-49-2	**0.230**	**J**	0.105	0.837	2
06142	**Silver**	7440-22-4	**0.0350**	**J**	0.0306	0.209	2
06145	**Thallium**	7440-28-0	**0.149**	**J**	0.0262	0.209	2
06148	**Vanadium**	7440-62-2	**18.7**		0.0446	0.209	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-2-3' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181480
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:40 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB177 SDG#: SGB17-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**4,410**	510	1,530	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.02**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**14.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 02:38	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 15:01	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:57	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:22	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:22	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-2-3' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181480
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:40 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB177 SDG#: SGB17-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:22	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 10:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181481
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB178 SDG#: SGB17-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36**	**J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,760**		8.84	39.6	1
01650	**Calcium**	7440-70-2	**111,000**		16.5	198	5
01654	**Iron**	7439-89-6	**14,400**		7.96	39.6	1
01657	**Magnesium**	7439-95-4	**61,200**		12.0	98.9	5
06958	**Manganese**	7439-96-5	**350**		0.0821	0.989	1
01662	**Potassium**	7440-09-7	**968**		16.5	98.9	1
01667	**Sodium**	7440-23-5	**136**	**J**	16.5	198	1
06972	**Zinc**	7440-66-6	**23.5**		0.237	3.96	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.112**	**J**	0.0922	0.396	2
06125	**Arsenic**	7440-38-2	**15.1**		0.127	0.791	2
06126	**Barium**	7440-39-3	**30.3**		0.180	0.791	2
06127	**Beryllium**	7440-41-7	**0.319**		0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**0.0962**	**J**	0.0340	0.198	2
06131	**Chromium**	7440-47-3	**5.96**		0.172	0.791	2
06132	**Cobalt**	7440-48-4	**6.09**		0.0309	0.198	2
06133	**Copper**	7440-50-8	**8.82**		0.106	0.791	2
06135	**Lead**	7439-92-1	**9.57**		0.0220	0.396	2
06139	**Nickel**	7440-02-0	**11.3**		0.197	0.791	2
06141	Selenium	7782-49-2	0.0989	U	0.0989	0.791	2
06142	Silver	7440-22-4	0.0289	U	0.0289	0.198	2
06145	**Thallium**	7440-28-0	**0.176**	**J**	0.0247	0.198	2
06148	**Vanadium**	7440-62-2	**8.30**		0.0421	0.198	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181481
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB178 SDG#: SGB17-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,410**	296	888	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.91**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**8.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 02:59	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 15:04	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 15:04	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 15:13	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:25	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:25	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-3-4' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181481
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 11:45 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB178 SDG#: SGB17-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:25	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 15:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS02-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181482
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB179 SDG#: SGB17-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.34**	**J**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,520**		7.94	35.5	1
01650	**Calcium**	7440-70-2	**98,700**		14.8	178	5
01654	**Iron**	7439-89-6	**15,800**		7.15	35.5	1
01657	**Magnesium**	7439-95-4	**50,500**		10.8	88.9	5
06958	**Manganese**	7439-96-5	**367**		0.0737	0.889	1
01662	**Potassium**	7440-09-7	**1,010**		14.8	88.9	1
01667	**Sodium**	7440-23-5	**149**	**J**	14.8	178	1
06972	**Zinc**	7440-66-6	**28.6**		0.213	3.55	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.260**	**J**	0.0828	0.355	2
06125	**Arsenic**	7440-38-2	**12.7**		0.114	0.711	2
06126	**Barium**	7440-39-3	**33.7**		0.161	0.711	2
06127	**Beryllium**	7440-41-7	**0.359**		0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.110**	**J**	0.0306	0.178	2
06131	**Chromium**	7440-47-3	**6.58**		0.155	0.711	2
06132	**Cobalt**	7440-48-4	**6.33**		0.0277	0.178	2
06133	**Copper**	7440-50-8	**11.7**		0.0953	0.711	2
06135	**Lead**	7439-92-1	**10.6**		0.0197	0.355	2
06139	**Nickel**	7440-02-0	**12.0**		0.177	0.711	2
06141	**Selenium**	7782-49-2	**0.117**	**J**	0.0889	0.711	2
06142	**Silver**	7440-22-4	**0.0325**	**J**	0.0259	0.178	2
06145	**Thallium**	7440-28-0	**0.147**	**J**	0.0222	0.178	2
06148	**Vanadium**	7440-62-2	**9.40**		0.0379	0.178	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS02-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181482
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB179 SDG#: SGB17-09FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,860**	352	1,060	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**8.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 03:19	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 15:20	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 15:20	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 15:16	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:28	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:28	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS02-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181482
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB179 SDG#: SGB17-09FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:28	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 16:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181483
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,920**		8.60	38.5	1
01650	**Calcium**	7440-70-2	**118,000**		16.0	192	5
01654	**Iron**	7439-89-6	**10,100**		7.74	38.5	1
01657	**Magnesium**	7439-95-4	**33,500**		2.34	19.2	1
06958	**Manganese**	7439-96-5	**272**		0.0798	0.961	1
01662	**Potassium**	7440-09-7	**1,110**		16.1	96.1	1
01667	**Sodium**	7440-23-5	**82.9**	**J**	16.1	192	1
06972	**Zinc**	7440-66-6	**26.6**		0.231	3.85	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0896	U	0.0896	0.385	2
06125	**Arsenic**	7440-38-2	**5.84**		0.123	0.769	2
06126	**Barium**	7440-39-3	**25.0**		0.175	0.769	2
06127	**Beryllium**	7440-41-7	**0.426**		0.0101	0.192	2
06128	**Cadmium**	7440-43-9	**0.105**	**J**	0.0331	0.192	2
06131	**Chromium**	7440-47-3	**5.57**		0.167	0.769	2
06132	**Cobalt**	7440-48-4	**4.84**		0.0300	0.192	2
06133	**Copper**	7440-50-8	**8.60**		0.103	0.769	2
06135	**Lead**	7439-92-1	**6.23**		0.0213	0.385	2
06139	**Nickel**	7440-02-0	**12.0**		0.192	0.769	2
06141	Selenium	7782-49-2	0.0961	U	0.0961	0.769	2
06142	Silver	7440-22-4	0.0281	U	0.0281	0.192	2
06145	**Thallium**	7440-28-0	**0.151**	**J**	0.0240	0.192	2
06148	**Vanadium**	7440-62-2	**6.89**		0.0410	0.192	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181483
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,520**	264	791	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.90**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**6.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 03:40	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:23	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:03	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 06:48	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 06:48	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181483
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 06:48	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 16:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	2	17249820002A	09/06/2017 12:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' MS Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181484
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.20	0.61	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.6**	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.20	0.61	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.20	0.61	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.20	0.61	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.8**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.20	0.61	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**5,300**	7.89	35.3	1
01650	**Calcium**	7440-70-2	**154,000**	14.7	176	5
01654	**Iron**	7439-89-6	**8,570**	7.10	35.3	1
01657	**Magnesium**	7439-95-4	**30,900**	2.14	17.6	1
06958	**Manganese**	7439-96-5	**313**	0.0732	0.882	1
01662	**Potassium**	7440-09-7	**2,670**	14.7	88.2	1
01667	**Sodium**	7440-23-5	**1,060**	14.7	176	1
06972	**Zinc**	7440-66-6	**62.6**	0.212	3.53	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.02**	0.0822	0.353	2
06125	**Arsenic**	7440-38-2	**8.61**	0.113	0.706	2
06126	**Barium**	7440-39-3	**30.2**	0.160	0.706	2
06127	**Beryllium**	7440-41-7	**1.07**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**0.901**	0.0303	0.176	2
06131	**Chromium**	7440-47-3	**13.8**	0.153	0.706	2
06132	**Cobalt**	7440-48-4	**49.6**	0.0275	0.176	2
06133	**Copper**	7440-50-8	**18.4**	0.0946	0.706	2
06135	**Lead**	7439-92-1	**9.15**	0.0196	0.353	2
06139	**Nickel**	7440-02-0	**20.8**	0.176	0.706	2
06141	**Selenium**	7782-49-2	**1.79**	0.0882	0.706	2
06142	**Silver**	7440-22-4	**8.66**	0.0258	0.176	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' MS Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181484
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06145	**Thallium**	7440-28-0	**0.448**	0.0221	0.176	2
06148	**Vanadium**	7440-62-2	**15.0**	0.0376	0.176	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**19,700**	807	2,420	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**6.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/14/2017 22:11	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:39	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:13	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 06:57	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 06:57	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 06:57	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' MS Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181484
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 11:42	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	2	17249820002A	09/06/2017 12:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' MSD Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181485
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.10	0.42	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.10	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.0**	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,860**	8.52	38.1	1
01650	**Calcium**	7440-70-2	**121,000**	15.9	191	5
01654	**Iron**	7439-89-6	**11,600**	7.67	38.1	1
01657	**Magnesium**	7439-95-4	**39,900**	2.32	19.1	1
06958	**Manganese**	7439-96-5	**291**	0.0791	0.953	1
01662	**Potassium**	7440-09-7	**2,810**	15.9	95.3	1
01667	**Sodium**	7440-23-5	**1,120**	15.9	191	1
06972	**Zinc**	7440-66-6	**79.0**	0.229	3.81	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.17**	0.0888	0.381	2
06125	**Arsenic**	7440-38-2	**7.04**	0.122	0.762	2
06126	**Barium**	7440-39-3	**35.4**	0.173	0.762	2
06127	**Beryllium**	7440-41-7	**1.11**	0.010	0.191	2
06128	**Cadmium**	7440-43-9	**1.06**	0.0328	0.191	2
06131	**Chromium**	7440-47-3	**14.9**	0.166	0.762	2
06132	**Cobalt**	7440-48-4	**52.3**	0.0297	0.191	2
06133	**Copper**	7440-50-8	**15.6**	0.102	0.762	2
06135	**Lead**	7439-92-1	**8.46**	0.0212	0.381	2
06139	**Nickel**	7440-02-0	**18.7**	0.190	0.762	2
06141	**Selenium**	7782-49-2	**1.86**	0.0953	0.762	2
06142	**Silver**	7440-22-4	**9.54**	0.0278	0.191	2
06145	**Thallium**	7440-28-0	**0.463**	0.0238	0.191	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' MSD Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181485
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06148	**Vanadium**	7440-62-2	**15.8**	0.0406	0.191	2
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**6.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/14/2017 22:32	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:42	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:17	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:00	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:00	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:00	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
00118	Moisture	SM 2540 G-1997	2	17249820002A	09/06/2017 12:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' Dupl Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181486
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,670**	8.92	39.9	1
01650	**Calcium**	7440-70-2	**130,000**	16.6	199	5
01654	**Iron**	7439-89-6	**10,500**	8.03	39.9	1
01657	**Magnesium**	7439-95-4	**42,400**	2.42	19.9	1
06958	**Manganese**	7439-96-5	**293**	0.0828	0.997	1
01662	**Potassium**	7440-09-7	**1,030**	16.7	99.7	1
01667	**Sodium**	7440-23-5	**82.7 J**	16.7	199	1
06972	**Zinc**	7440-66-6	**26.0**	0.239	3.99	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0930 U	0.0930	0.399	2
06125	**Arsenic**	7440-38-2	**6.68**	0.128	0.798	2
06126	**Barium**	7440-39-3	**25.2**	0.181	0.798	2
06127	**Beryllium**	7440-41-7	**0.348**	0.0105	0.199	2
06128	**Cadmium**	7440-43-9	**0.0884 J**	0.0343	0.199	2
06131	**Chromium**	7440-47-3	**5.37**	0.174	0.798	2
06132	**Cobalt**	7440-48-4	**5.09**	0.0311	0.199	2
06133	**Copper**	7440-50-8	**8.91**	0.107	0.798	2
06135	**Lead**	7439-92-1	**6.50**	0.0221	0.399	2
06139	**Nickel**	7440-02-0	**10.3**	0.199	0.798	2
06141	Selenium	7782-49-2	0.0997 U	0.0997	0.798	2
06142	Silver	7440-22-4	0.0291 U	0.0291	0.199	2
06145	**Thallium**	7440-28-0	**0.111 J**	0.0249	0.199	2
06148	**Vanadium**	7440-62-2	**5.76**	0.0425	0.199	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,520**	256	768	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.90**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**6.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**7.5**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-8-9' Dupl Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181486
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:05 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB170 SDG#: SGB17-10DUP

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 14:35	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 14:10	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 06:54	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 06:54	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 06:54	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 16:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	2	17249820002A	09/06/2017 12:54	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997	2	17249820002A	09/06/2017 12:54	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-9.5-10.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181487
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:15 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1711 SDG#: SGB17-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**5,730**		6.97	31.2	1
01650	**Calcium**	7440-70-2	**65,700**		13.0	156	5
01654	**Iron**	7439-89-6	**13,200**		6.27	31.2	1
01657	**Magnesium**	7439-95-4	**18,900**		1.89	15.6	1
06958	**Manganese**	7439-96-5	**328**		0.0647	0.779	1
01662	**Potassium**	7440-09-7	**951**		13.0	77.9	1
01667	**Sodium**	7440-23-5	**102**	**J**	13.0	156	1
06972	**Zinc**	7440-66-6	**36.0**		0.187	3.12	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.152**	**J**	0.0726	0.312	2
06125	**Arsenic**	7440-38-2	**12.4**		0.0997	0.623	2
06126	**Barium**	7440-39-3	**31.0**		0.142	0.623	2
06127	**Beryllium**	7440-41-7	**0.668**		0.0082	0.156	2
06128	**Cadmium**	7440-43-9	**0.178**		0.0268	0.156	2
06131	**Chromium**	7440-47-3	**8.13**		0.136	0.623	2
06132	**Cobalt**	7440-48-4	**7.81**		0.0243	0.156	2
06133	**Copper**	7440-50-8	**12.5**		0.0835	0.623	2
06135	**Lead**	7439-92-1	**10.3**		0.0173	0.312	2
06139	**Nickel**	7440-02-0	**16.9**		0.155	0.623	2
06141	**Selenium**	7782-49-2	**0.103**	**J**	0.0779	0.623	2
06142	**Silver**	7440-22-4	**0.0318**	**J**	0.0228	0.156	2
06145	**Thallium**	7440-28-0	**0.215**		0.0195	0.156	2
06148	**Vanadium**	7440-62-2	**8.90**		0.0332	0.156	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-9.5-10.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181487
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:15 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1711 SDG#: SGB17-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**2,510**	271	814	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.87**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**11.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 04:00	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 15:26	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 15:23	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:31	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:31	Sarah L Burt	2
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-9.5-10.5' Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181487
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 12:15 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1711 SDG#: SGB17-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:31	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 16:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS03-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181488
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1712 SDG#: SGB17-12FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,680**		9.08	40.6	1
01650	**Calcium**	7440-70-2	**99,200**		16.9	203	5
01654	**Iron**	7439-89-6	**12,300**		8.18	40.6	1
01657	**Magnesium**	7439-95-4	**28,100**		2.47	20.3	1
06958	**Manganese**	7439-96-5	**348**		0.0843	1.02	1
01662	**Potassium**	7440-09-7	**1,020**		17.0	102	1
01667	**Sodium**	7440-23-5	**101**	**J**	17.0	203	1
06972	**Zinc**	7440-66-6	**33.9**		0.244	4.06	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.128**	**J**	0.0947	0.406	2
06125	**Arsenic**	7440-38-2	**9.55**		0.130	0.813	2
06126	**Barium**	7440-39-3	**35.3**		0.184	0.813	2
06127	**Beryllium**	7440-41-7	**0.542**		0.0106	0.203	2
06128	**Cadmium**	7440-43-9	**0.120**	**J**	0.0349	0.203	2
06131	**Chromium**	7440-47-3	**7.47**		0.177	0.813	2
06132	**Cobalt**	7440-48-4	**7.08**		0.0317	0.203	2
06133	**Copper**	7440-50-8	**11.1**		0.109	0.813	2
06135	**Lead**	7439-92-1	**8.67**		0.0225	0.406	2
06139	**Nickel**	7440-02-0	**15.0**		0.202	0.813	2
06141	Selenium	7782-49-2	0.102	U	0.102	0.813	2
06142	Silver	7440-22-4	0.0297	U	0.0297	0.203	2
06145	**Thallium**	7440-28-0	**0.199**	**J**	0.0254	0.203	2
06148	**Vanadium**	7440-62-2	**8.36**		0.0433	0.203	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS03-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181488
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1712 SDG#: SGB17-12FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,150**	261	784	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17255005	09/15/2017 04:21	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17255005	09/12/2017 14:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172511063701	09/11/2017 15:32	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172511063701	09/11/2017 15:29	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06126	Barium	SW-846 6020A	1	172511063701D	09/11/2017 07:34	Sarah L Burt	2
06127	Beryllium	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06131	Chromium	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06132	Cobalt	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06133	Copper	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06135	Lead	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06141	Selenium	SW-846 6020A	1	172511063701B	09/11/2017 07:34	Sarah L Burt	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS03-170829 Grab Soil
SGPP - North Bennington

ELLE Sample # SW 9181488
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1712 SDG#: SGB17-12FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06145	Thallium	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172511063701A	09/11/2017 07:34	Sarah L Burt	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063701	09/08/2017 16:30	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17257837931B	09/15/2017 17:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17247039402B	09/04/2017 12:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17244820002B	09/01/2017 11:20	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB11-170829 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9181489
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1713 SDG#: SGB17-13TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 05:19	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB12-170829 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9181490
ELLE Group # 1844077
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017

Submitted: 08/30/2017 09:35
Reported: 09/18/2017 09:58

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B1714 SDG#: SGB17-14TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17243009	09/02/2017 08:03	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243009	08/31/2017 14:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844077
Reported: 09/18/2017 09:58

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17255005	Sample number(s): 9181477-9181485,9181487-9181488			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17243007	Sample number(s): 9181474-9181475			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
Batch number: 17243009	Sample number(s): 9181476,9181489-9181490			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172511063701	Sample number(s): 9181477-9181488			
Aluminum	8.94	U	8.94	40.0
Calcium	3.48	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.43	U	2.43	20.0
Manganese	0.323	J	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.240	U	0.240	4.00
Batch number: 172511063701A	Sample number(s): 9181477-9181488			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.336	J	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172511063701B	Sample number(s): 9181477-9181488			
Selenium	0.100	U	0.100	0.800
Batch number: 172511063701D	Sample number(s): 9181477-9181488			
Barium	0.182	U	0.182	0.800
	mg/l		mg/l	mg/l
Batch number: 172441063501	Sample number(s): 9181475			
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.186	J	0.0600	0.400
Iron	0.0915	J	0.0805	0.400
Magnesium	0.0854	J	0.0374	0.200

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Manganese	0.0023 J	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172441063902A	Sample number(s): 9181475		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172441063902B	Sample number(s): 9181475		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172441063902D	Sample number(s): 9181475		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17257837931A	Sample number(s): 9181477-9181479		
TOC	100 U	100	300
Batch number: 17257837931B	Sample number(s): 9181480-9181484,9181486-9181488		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17242249106A	Sample number(s): 9181475		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17244108101B	Sample number(s): 9181475		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17249107102A	Sample number(s): 9181475		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17242022601A	Sample number(s): 9181475		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17243003202A	Sample number(s): 9181475		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17255005	Sample number(s): 9181477-9181485,9181487-9181488								
Perfluorobutanesulfonate	1.20	1.24			103		70-130		
Perfluorobutanoic acid	1.36	1.62			119		70-130		
Perfluorodecanoic acid	1.36	1.55			114		70-130		
Perfluorododecanoic acid	1.36	1.54			114		70-130		
Perfluoroheptanoic acid	1.36	1.53			112		70-130		
Perfluorohexanesulfonate	1.29	1.26			98		70-130		
Perfluorohexanoic acid	1.36	1.49			109		70-130		
Perfluorononanoic acid	1.36	1.51			111		70-130		
Perfluoro-octanesulfonate	1.30	1.15			88		70-130		
Perfluorooctanoic acid	1.36	1.47			108		70-130		
Perfluoropentanoic acid	1.36	1.41			104		70-130		
Perfluorotetradecanoic acid	1.36	1.52			112		70-130		
Perfluorotridecanoic acid	1.36	1.45			106		70-130		
Perfluoroundecanoic acid	1.36	1.71			125		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17243007	Sample number(s): 9181474-9181475								
6:2 fluorotelomersulfonate	12.9	14.47	12.9	15.12	112	117	70-130	4	30
8:2 fluorotelomersulfonate	13	13.48	13	14.73	104	113	70-130	9	30
NEtFOSAA	13.6	15.15	13.6	15.45	111	114	70-130	2	30
NMeFOSAA	13.6	16.17	13.6	16.2	119	119	70-130	0	30
Perfluorobutanesulfonate	12	11.62	12	11.17	97	93	70-130	4	30
Perfluorobutanoic Acid	13.6	14.45	13.6	15.07	106	111	70-130	4	30
Perfluorodecanoic acid	13.6	14.81	13.6	13.73	109	101	70-130	8	30
Perfluorododecanoic acid	13.6	13.65	13.6	13.64	100	100	70-130	0	30
Perfluoroheptanoic acid	13.6	13.82	13.6	14.77	102	109	70-130	7	30
Perfluorohexanesulfonate	12.9	11.32	12.9	11.61	88	90	70-130	2	30
Perfluorohexanoic acid	13.6	13.3	13.6	14.64	98	108	70-130	10	30
Perfluorononanoic acid	13.6	14.39	13.6	15.7	106	115	70-130	9	30
Perfluoro-octanesulfonate	13	11.56	13	12.59	89	97	70-130	8	30
Perfluorooctanoic acid	13.6	14.92	13.6	14.28	110	105	70-130	4	30
Perfluoropentanoic Acid	13.6	12.95	13.6	13.28	95	98	70-130	3	30
Perfluorotetradecanoic acid	13.6	13.35	13.6	13.28	98	98	70-130	1	30
Perfluorotridecanoic acid	13.6	11.59	13.6	12.2	85	90	70-130	5	30
Perfluoroundecanoic acid	13.6	14.78	13.6	15.71	109	115	70-130	6	30
PFOSA	13.6	12.65	13.6	14.09	93	104	70-130	11	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17243009	Sample number(s): 9181476,9181489-9181490								
Perfluorobutanesulfonate	12	11.37	12	10.8	95	90	70-130	5	30
Perfluorobutanoic Acid	13.6	14.69	13.6	15.13	108	111	70-130	3	30
Perfluorodecanoic acid	13.6	14.69	13.6	13.59	108	100	70-130	8	30
Perfluorododecanoic acid	13.6	13.61	13.6	14.03	100	103	70-130	3	30
Perfluoroheptanoic acid	13.6	14.45	13.6	14.35	106	106	70-130	1	30
Perfluorohexanesulfonate	12.9	12.01	12.9	12.05	93	93	70-130	0	30
Perfluorohexanoic acid	13.6	14.44	13.6	14.06	106	103	70-130	3	30
Perfluorononanoic acid	13.6	15.94	13.6	15.46	117	114	70-130	3	30
Perfluoro-octanesulfonate	13	12.02	13	11.71	92	90	70-130	3	30
Perfluorooctanoic acid	13.6	15.03	13.6	13.91	110	102	70-130	8	30
Perfluoropentanoic Acid	13.6	13.06	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.13	13.6	14.22	104	105	70-130	1	30
Perfluorotridecanoic acid	13.6	11.97	13.6	11.47	88	84	70-130	4	30
Perfluoroundecanoic acid	13.6	16.22	13.6	15.91	119	117	70-130	2	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172511063701	Sample number(s): 9181477-9181488								
Aluminum	200	210.12			105		80-120		
Calcium	400	411.86			103		80-120		
Iron	100	101.58			102		80-120		
Magnesium	200	208.32			104		80-120		
Manganese	50	51.97			104		80-120		
Potassium	1000	983.17			98		80-120		
Sodium	1000	1005.49			101		80-120		
Zinc	50	52.05			104		80-120		
Batch number: 172511063701A	Sample number(s): 9181477-9181488								
Antimony	0.600	0.687			115		80-120		
Arsenic	1.00	1.08			108		80-120		
Beryllium	0.400	0.447			112		80-120		
Cadmium	0.500	0.561			112		80-120		
Chromium	5.00	4.76			95		80-120		
Cobalt	25	27.06			108		80-120		
Copper	5.00	5.64			113		80-120		
Lead	1.50	1.47			98		80-120		
Nickel	5.00	5.69			114		80-120		
Silver	5.00	5.49			110		80-120		
Thallium	0.200	0.188			94		80-120		
Vanadium	5.00	4.61			92		80-120		
Batch number: 172511063701B	Sample number(s): 9181477-9181488								
Selenium	1.00	1.12			112		80-120		
Batch number: 172511063701D	Sample number(s): 9181477-9181488								
Barium	5.00	5.24			105		80-120		
	mg/l	mg/l	mg/l	mg/l					

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844077
Reported: 09/18/2017 09:58

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172441063501	Sample number(s): 9181475								
Aluminum	2.00	2.35			117		80-120		
Boron	2.00	1.87			93		80-120		
Calcium	4.00	4.33			108		80-120		
Iron	1.00	1.11			111		80-120		
Magnesium	2.00	2.19			110		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	10.45			105		80-120		
Sodium	10	10.72			107		80-120		
Zinc	0.500	0.496			99		80-120		
Batch number: 172441063902A	Sample number(s): 9181475								
Antimony	0.00600	0.00555			92		80-120		
Arsenic	0.0100	0.0104			104		80-120		
Beryllium	0.00400	0.00394			99		80-120		
Cadmium	0.00500	0.00492			98		80-120		
Chromium	0.0500	0.0498			100		80-120		
Cobalt	0.250	0.230			92		80-120		
Copper	0.0500	0.0516			103		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0511			102		80-120		
Silver	0.0500	0.0491			98		80-120		
Thallium	0.00200	0.00189			94		80-120		
Vanadium	0.0500	0.0500			100		80-120		
Batch number: 172441063902B	Sample number(s): 9181475								
Selenium	0.0100	0.00949			95		80-120		
Batch number: 172441063902D	Sample number(s): 9181475								
Barium	0.0500	0.0483			97		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17257837931A	Sample number(s): 9181477-9181479								
TOC	7150	6631.25			93		47-143		
Batch number: 17257837931B	Sample number(s): 9181480-9181484,9181486-9181488								
TOC	7150	6631.25			93		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17242249106A	Sample number(s): 9181475								
Bromide	7.50	7.50			100		90-110		
Chloride	3.00	2.95			98		90-110		
Nitrate Nitrogen	0.750	0.744			99		90-110		
Nitrite Nitrogen	0.750	0.695			93		90-110		
Sulfate	7.50	7.40			99		90-110		
Batch number: 17244108101B	Sample number(s): 9181475								
Kjeldahl Nitrogen	5.00	4.94			99		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17249107102A	Sample number(s): 9181475								
Ammonia Nitrogen	1.50	1.47			98		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17242022601A	Sample number(s): 9181475								
Ortho-Phosphate as P	0.400	0.410			103		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17243003202A	Sample number(s): 9181475								
Total Alkalinity to pH 4.5	188	180.78			96		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17247039402B	Sample number(s): 9181477-9181483,9181486-9181488								
pH	7.00	7.06			101		95-105		
	%	%	%	%					
Batch number: 17244820002B	Sample number(s): 9181477-9181482,9181487-9181488								
Moisture	89.5	89.41			100		99-101		
Batch number: 17249820002A	Sample number(s): 9181483-9181486								
Moisture	89.5	89.39			100		99-101		
Moisture	89.5	89.39			100		99-101		
Moisture Duplicate	89.5	89.39			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17255005	Sample number(s): 9181477-9181485,9181487-9181488 UNSPK: 9181483										
Perfluorobutanesulfonate	0.19	U	1.15	1.21	1.17	1.21	106	103	70-130	0	30
Perfluorobutanoic acid	0.19	U	1.30	1.52	1.33	1.53	117	116	70-130	1	30
Perfluorodecanoic acid	0.19	U	1.30	1.48	1.33	1.59	115	120	70-130	7	30
Perfluorododecanoic acid	0.19	U	1.30	1.50	1.33	1.60	116	121	70-130	7	30
Perfluoroheptanoic acid	0.19	U	1.30	1.52	1.33	1.51	117	114	70-130	1	30
Perfluorohexanesulfonate	0.19	U	1.23	1.23	1.25	1.34	101	107	70-130	8	30
Perfluorohexanoic acid	0.097	U	1.30	1.50	1.33	1.55	116	117	70-130	3	30
Perfluorononanoic acid	0.097	U	1.30	1.65	1.33	1.64	128	123	70-130	1	30
Perfluoro-octanesulfonate	0.29	U	1.24	1.27	1.27	1.30	103	103	70-130	2	30
Perfluorooctanoic acid	0.19	U	1.30	1.58	1.33	1.56	122	118	70-130	1	30
Perfluoropentanoic acid	0.19	U	1.30	1.42	1.33	1.48	110	111	70-130	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Perfluorotetradecanoic acid	0.19	U	1.30	1.42	1.33	1.55	110	117	70-130	9	30
Perfluorotridecanoic acid	0.19	U	1.30	1.50	1.33	1.52	116	115	70-130	2	30
Perfluoroundecanoic acid	0.19	U	1.30	1.67	1.33	1.89	129	143*	70-130	13	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17243007	Sample number(s): 9181474-9181475 UNSPK: 9181475										
6:2 fluorotelomersulfonate	3	U	12.92	15.37			119		70-130		
8:2 fluorotelomersulfonate	4	U	13.02	15.41			118		70-130		
NEtFOSAA	1	U	13.62	15.8			116		70-130		
NMeFOSAA	1	U	13.62	16.22			119		70-130		
Perfluorobutanesulfonate	4.17		12.02	14.96			90		70-130		
Perfluorobutanoic Acid	8.63		13.62	23.17			107		70-130		
Perfluorodecanoic acid	0.934		13.62	14.96			103		70-130		
Perfluorododecanoic acid	0.5	U	13.62	14.74			108		70-130		
Perfluoroheptanoic acid	15.26		13.62	27.57			90		70-130		
Perfluorohexanesulfonate	1.50		12.92	13.68			94		70-130		
Perfluorohexanoic acid	11.07		13.62	24.26			97		70-130		
Perfluorononanoic acid	4.31		13.62	19.08			108		70-130		
Perfluoro-octanesulfonate	10.41		13.02	22.46			93		70-130		
Perfluorooctanoic acid	240.61		13.62	240.43			0 (2)		70-130		
Perfluoropentanoic Acid	8.59		13.62	21.35			94		70-130		
Perfluorotetradecanoic acid	0.5	U	13.62	14.6			107		70-130		
Perfluorotridecanoic acid	0.5	U	13.62	12.82			94		70-130		
Perfluoroundecanoic acid	1	U	13.62	16.25			119		70-130		
PFOSA	3	U	13.62	14.51			107		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172511063701	Sample number(s): 9181477-9181488 UNSPK: 9181483										
Aluminum	4610.7		165.29	4963.16	178.57	5493.11	213 (2)	494 (2)	75-125	10	20
Calcium	110223.1		330.58	144541.57	357.14	113224.15	10381 (2)	840 (2)	75-125	24*	20
Iron	9487.15		82.64	8026.9	89.29	10867.51	-1767 (2)	1546 (2)	75-125	30*	20
Magnesium	31409.21		165.29	28988.58	178.57	37350.06	-1464 (2)	3327 (2)	75-125	25*	20
Manganese	254.87		41.32	293.46	44.64	272.34	93 (2)	39 (2)	75-125	7	20
Potassium	1037		826.45	2502.8	892.86	2634.95	177*	179*	75-125	5	20
Sodium	77.67		826.45	992.31	892.86	1053.76	111	109	75-125	6	20
Zinc	24.93		41.32	58.68	44.64	74.06	82	110	75-125	23*	20
Batch number: 172511063701A	Sample number(s): 9181477-9181488 UNSPK: 9181483										
Antimony	0.0840	U	0.992	0.954	1.07	1.10	96	103	75-125	14	20
Arsenic	5.48		1.65	8.07	1.79	6.59	157*	63*	75-125	20	20
Beryllium	0.399		0.661	1.00	0.714	1.04	91	90	75-125	4	20
Cadmium	0.0980		0.826	0.844	0.893	0.996	90	101	75-125	17	20
Chromium	5.22		8.26	12.91	8.93	13.92	93	97	75-125	8	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Cobalt	4.53	41.32	46.5	44.64	49.02	102	100	75-125	5	20
Copper	8.06	8.26	17.22	8.93	14.64	111	74*	75-125	16	20
Lead	5.84	2.48	8.58	2.68	7.93	110	78	75-125	8	20
Nickel	11.26	8.26	19.51	8.93	17.57	100	71*	75-125	10	20
Silver	0.0263 U	8.26	8.12	8.93	8.94	98	100	75-125	10	20
Thallium	0.142	0.331	0.419	0.357	0.434	84	82	75-125	3	20
Vanadium	6.46	8.26	14.07	8.93	14.82	92	94	75-125	5	20
Batch number: 172511063701B	Sample number(s): 9181477-9181488 UNSPK: 9181483									
Selenium	0.0901 U	1.65	1.68	1.79	1.74	101	98	75-125	4	20
Batch number: 172511063701D	Sample number(s): 9181477-9181488 UNSPK: 9181483									
Barium	23.38	8.26	28.29	8.93	33.18	59*	110	75-125	16	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 172441063501	Sample number(s): 9181475 UNSPK: P182059									
Aluminum	0.0894 U	2.00	2.37	2.00	2.41	119	120	75-125	2	20
Boron	0.0703	2.00	2.02	2.00	1.99	98	96	75-125	2	20
Calcium	124.04	4.00	129.04	4.00	127.9	125 (2)	97 (2)	75-125	1	20
Iron	0.149	1.00	1.20	1.00	1.22	105	107	75-125	1	20
Magnesium	20.82	2.00	23.05	2.00	22.92	111 (2)	105 (2)	75-125	1	20
Manganese	0.970	0.500	1.49	0.500	1.48	105	102	75-125	1	20
Potassium	3.40	10	14.46	10	14.24	111	108	75-125	2	20
Sodium	175.75	10	187.2	10	185.66	114 (2)	99 (2)	75-125	1	20
Zinc	0.0065 U	0.500	0.510	0.500	0.502	102	100	75-125	2	20
Batch number: 172441063902A	Sample number(s): 9181475 UNSPK: 9181475									
Antimony	0.000821	0.00600	0.00250	0.00600	0.00325	28*	41*	75-125	26*	20
Arsenic	0.0747	0.0100	0.0869	0.0100	0.0894	122 (2)	147 (2)	75-125	3	20
Beryllium	0.00287	0.00400	0.00675	0.00400	0.00658	97	93	75-125	3	20
Cadmium	0.00134	0.00500	0.00563	0.00500	0.00573	86	88	75-125	2	20
Chromium	0.0795	0.0500	0.131	0.0500	0.135	103	111	75-125	3	20
Cobalt	0.0654	0.250	0.290	0.250	0.301	90	94	75-125	4	20
Copper	0.199	0.0500	0.250	0.0500	0.257	103	116	75-125	3	20
Lead	0.150	0.0150	0.167	0.0150	0.168	115 (2)	123 (2)	75-125	1	20
Nickel	0.123	0.0500	0.173	0.0500	0.179	101	112	75-125	3	20
Silver	0.00132	0.0500	0.0435	0.0500	0.0451	84	88	75-125	4	20
Thallium	0.00122	0.00200	0.00331	0.00200	0.00328	105	103	75-125	1	20
Vanadium	0.0836	0.0500	0.140	0.0500	0.144	113	120	75-125	2	20
Batch number: 172441063902B	Sample number(s): 9181475 UNSPK: 9181475									
Selenium	0.00219	0.0100	0.0106	0.0100	0.0110	84	88	75-125	4	20
Batch number: 172441063902D	Sample number(s): 9181475 UNSPK: 9181475									
Barium	0.430	0.0500	0.495	0.0500	0.520	130 (2)	180 (2)	75-125	5	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17257837931A	Sample number(s): 9181477-9181479 UNSPK: P179501									
TOC	1557.54	8970	8570.15			78		47-143		
Batch number: 17257837931B	Sample number(s): 9181480-9181484,9181486-9181488 UNSPK: 9181483									
TOC	3300.4	22680	18488.28			67		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17242249106A	Sample number(s): 9181475 UNSPK: P179617									
Bromide	1.3 U	25	28.54			114*		90-110		
Chloride	92	100	221.72			130*		90-110		
Nitrate Nitrogen	1.30	2.50	4.21			117*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.52			101		90-110		
Sulfate	43.16	25	75.84			131*		90-110		
Batch number: 17244108101B	Sample number(s): 9181475 UNSPK: P183183									
Kjeldahl Nitrogen	1.20	5.00	6.31			102		90-110		
Batch number: 17249107102A	Sample number(s): 9181475 UNSPK: P179960									
Ammonia Nitrogen	0.208	1.00	1.41			120*		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17242022601A	Sample number(s): 9181475 UNSPK: P182524									
Ortho-Phosphate as P	0.222	0.400	0.613	0.400	0.612	98	97	69-131	0	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17243003202A	Sample number(s): 9181475 UNSPK: P179947									
Total Alkalinity to pH 4.5	183.37	188	348.16			88		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172511063701	Sample number(s): 9181477-9181488 BKG: 9181483			
Aluminum	4610.7	3441.77	29*	20
Calcium	110223.1	121696.25	10	20
Iron	9487.15	9804.89	3	20
Magnesium	31409.21	39698.66	23*	20
Manganese	254.87	274.34	7	20
Potassium	1037	962.82	7	20
Sodium	77.67	77.5	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/18/2017 09:58

Group Number: 1844077

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Zinc	24.93	24.41	2	20
Batch number: 172511063701A	Sample number(s): 9181477-9181488 BKG: 9181483			
Antimony	0.0840 U	0.0871 U	0 (1)	20
Arsenic	5.48	6.26	13	20
Beryllium	0.399	0.326	20 (1)	20
Cadmium	0.0980	0.0828	17 (1)	20
Chromium	5.22	5.03	4	20
Cobalt	4.53	4.77	5	20
Copper	8.06	8.35	4	20
Lead	5.84	6.09	4	20
Nickel	11.26	9.62	16	20
Silver	0.0263 U	0.0273 U	0 (1)	20
Thallium	0.142	0.104	31* (1)	20
Vanadium	6.46	5.39	18	20
Batch number: 172511063701B	Sample number(s): 9181477-9181488 BKG: 9181483			
Selenium	0.0901 U	0.0935 U	0 (1)	20
Batch number: 172511063701D	Sample number(s): 9181477-9181488 BKG: 9181483			
Barium	23.38	23.65	1	20
	mg/l	mg/l		
Batch number: 172441063501	Sample number(s): 9181475 BKG: P182059			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0703	0.0662	6 (1)	20
Calcium	124.04	124.17	0	20
Iron	0.149	0.142	5 (1)	20
Magnesium	20.82	20.84	0	20
Manganese	0.970	0.974	0	20
Potassium	3.40	3.44	1 (1)	20
Sodium	175.75	176.17	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172441063902A	Sample number(s): 9181475 BKG: 9181475			
Antimony	0.000821	0.000594	32* (1)	20
Arsenic	0.0747	0.0754	1	20
Beryllium	0.00287	0.00295	3 (1)	20
Cadmium	0.00134	0.00126	6 (1)	20
Chromium	0.0795	0.0796	0	20
Cobalt	0.0654	0.0661	1	20
Copper	0.199	0.201	1	20
Lead	0.150	0.148	1	20
Nickel	0.123	0.122	1	20
Silver	0.00132	0.000946	33* (1)	20
Thallium	0.00122	0.00113	7 (1)	20
Vanadium	0.0836	0.0820	2	20

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844077
Reported: 09/18/2017 09:58

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172441063902B	Sample number(s): 9181475 BKG: 9181475			
Selenium	0.00219	0.00251	13 (1)	20
Batch number: 172441063902D	Sample number(s): 9181475 BKG: 9181475			
Barium	0.430	0.423	2	20
	mg/kg	mg/kg		
Batch number: 17257837931A	Sample number(s): 9181477-9181479 BKG: P179501			
TOC	1557.54	1387.79	12* (1)	7
Batch number: 17257837931B	Sample number(s): 9181480-9181484,9181486-9181488 BKG: 9181483			
TOC	3300.4	2357.61	33* (1)	7
	mg/l	mg/l		
Batch number: 17242249106A	Sample number(s): 9181475 BKG: P179617			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	92	92.46	0 (1)	15
Nitrate Nitrogen	1.30	1.28	1 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	43.16	42.89	1	15
Batch number: 17244108101B	Sample number(s): 9181475 BKG: P183183			
Kjeldahl Nitrogen	1.20	1.27	5 (1)	20
Batch number: 17249107102A	Sample number(s): 9181475 BKG: P179960			
Ammonia Nitrogen	0.208	0.209	0 (1)	20
	mg/l	mg/l		
Batch number: 17242022601A	Sample number(s): 9181475 BKG: P182524			
Ortho-Phosphate as P	0.222	0.223	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17243003202A	Sample number(s): 9181475 BKG: P179947			
Total Alkalinity to pH 4.5	183.37	184.5	1	5
	Std. Units	Std. Units		
Batch number: 17247039402B	Sample number(s): 9181477-9181483,9181486-9181488 BKG: 9181483			
pH	7.90	7.90	0	3
	%	%		
Batch number: 17244820002B	Sample number(s): 9181477-9181482,9181487-9181488 BKG: P181483			
Moisture	8.39	6.80	21*	5
Batch number: 17249820002A	Sample number(s): 9181483-9181486 BKG: 9181483, P181483			
Moisture	6.30	7.47	17*	5
Moisture	6.30	7.47	17*	5
Moisture Duplicate	6.30	7.47	17*	5

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844077
Reported: 09/18/2017 09:58

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17243007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9181474	86	86	92	83	88	86
9181475	81	90	104	67	86	81
Blank	88	91	91	88	97	95
LCS	90	91	94	96	104	94
LCSD	86	88	95	83	93	89
MS	87	95	113	82	87	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9181474	85	83	81	81	85	76
9181475	98	82	83	94	81	85
Blank	75	101	86	94	88	81
LCS	101	92	91	93	90	86
LCSD	89	97	82	81	91	81
MS	109	90	89	96	87	88
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9181474	60	88	77	85	78	42*
9181475	63	88	78	78	62	30*
Blank	71	78	88	83	74	45*
LCS	81	97	89	103	85	64*
LCSD	74	88	80	95	78	46*
MS	70	99	89	90	70	34*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17243009

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844077
Reported: 09/18/2017 09:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17243009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9181476	84	86	85	89	93	94
9181489	84	85	94	85	98	90
9181490	85	88	83	80	89	82
Blank	93	93	99	91	102	103
LCS	89	91	100	90	98	92
LCSD	84	89	97	80	84	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9181476	98	96	91	97	89	98
9181489	96	88	83	95	96	91
9181490	92	83	87	88	82	85
Blank	94	82	83	94	94	90
LCS	103	87	88	93	82	90
LCSD	88	80	74	94	85	94
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9181476	80
9181489	76
9181490	74
Blank	82
LCS	74
LCSD	79
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17255005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9181477	77	73	81	70	74	89
9181478	72	73	75	69	74	75
9181479	84	79	84	76	79	81
9181480	69	68*	62	67	75	78
9181481	73	70	72	72	75	77
9181482	81	80	82	76	81	98
9181483	74	74	74	75	76	84
9181484	74	69*	74	67	73	76
9181485	75	72	73	73	76	85
9181487	71	72	70	72	73	85

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844077
Reported: 09/18/2017 09:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17255005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9181488	68	66*	69	66	74	71
Blank	69	70	69	70	72	71
LCS	77	76	77	79	77	77
MS	74	69*	74	67	73	76
MSD	75	72	73	73	76	85
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9181477	80	79	80	77	81	67
9181478	81	79	82	81	84	76
9181479	93	87	81	82	84	82
9181480	76	80	68	72	68	71
9181481	80	71	65	85	72	83
9181482	88	82	77	85	88	82
9181483	77	78	63	78	72	73
9181484	77	74	69	75	80	83
9181485	82	77	72	77	76	76
9181487	78	76	70	80	78	78
9181488	78	72	72	74	72	73
Blank	70	71	65	69	68	70
LCS	85	85	79	81	80	82
MS	77	74	69	75	80	83
MSD	82	77	72	77	76	76
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9181477	61
9181478	70
9181479	81
9181480	64
9181481	74
9181482	82
9181483	72
9181484	74
9181485	69
9181487	69
9181488	70
Blank	62
LCS	74
MS	74

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844077
Reported: 09/18/2017 09:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17255005

	13C2-PFTeDA
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1844077 | 9181474-90

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52219

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250ml WM plastic	40ml glass vial	250ml WM plastic	500ml WM plastic	250ml WM plastic	250ml WM plastic w/ Trizma	Soil: 250ml plastics PFCs (14)	4oz. glass, TOC, pH, Metals, moist.		250ml Field Blank (water)	250ml Trip Blank (water) Trizma	% Solids	Analysis Requested
Preservative Code									C	A	A	D	A	O	A	A		A	O		
Field Filtered Y/N									N	N	N	N	Y	N	–	–		N	N		
1. SG3-LTB10-170829				08/29/2017	07:45	Water	N	1											1		Soil: Metals TAL cations/anions excluding Hg
2. SG3-D03-170829				08/29/2017	07:45	GW	N	8	1	2	1	1	1	2							
3. SG3-FBS03-170829				08/29/2017	10:50	Water	N	1										1			Water: Bromide, Chloride, Nitrate + Nitrite Nitrogen, Sulfate, Bicarbonate + Carbonate Alkalinity, Alkalinity to pH 4.5, Ammonia + Kjeldahl nitrogen, o-PO4, PFCs (19)
4. SG3-D14-0-0.5'	0	0.5	ft.	08/29/2017	11:20	S	N	2							1	1					
5. SG3-D14-0.5-1'	0.5	1	ft.	08/29/2017	11:25	S	N	2							1	1					
6. SG3-D14-1-1.5'	1	1.5	ft.	08/29/2017	11:30	S	N	2							1	1					
7. SG3-D14-2-3'	2	3	ft.	08/29/2017	11:40	S	N	2							1	1					
8. SG3-D14-3-4'	3	4	ft.	08/29/2017	11:45	S	N	2							1	1					Samples split into two coolers
9. SG3-FDS02-170829				08/29/2017		S	N	2							1	1					
10. SG3-D14-8-9'	8	9	ft.	08/29/2017	12:05	S	Y	6							3	3					

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM/RAK/DSZ	(RQM)	Y N	08/29/2017	15:50			
Barr Proj. Manager: JTC		On Ice? Y N	Date	Time	Received by:	Date 8.30.17	Time 935
Barr DQ Manager: MDD							
Lab Name: ELLE							
Lab Location: Lancaster, PA							

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.0-1.6 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 | 1844077 | 9181474-90

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52332 COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: 250ml plastic, PFCs (4)	Soil: 8 oz. glass, TOC, metals, pH, moist	% Solids
Preservative Code									A	A	A	
Field Filtered Y/N									N	1	1	
1. SG3-D14-9.5-10.5'	9.5	10.5	ft.	08/29/2017	12:15	S	N	2		1	1	
2. SG3-FDS03-170829	/	/	/	08/29/2017	/	S	N	2		1	1	
3. [redacted] SG3-LTB11-170829	/	/	/	08/29/2017	PM	Water	[redacted]					
4. SG3-LTB12-170829	/	/	/	08/29/2017	PM	Water	[redacted]					
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM/RAK	Relinquished by: (RQM)	(Y) N	08/29/2017	15:50	Received by:		
Barr Proj. Manager: JTC	Relinquished by:	Y N	Date	Time	Received by: 3	Date 8.30.17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.0-1.6	Custody Seal Intact? ☑Y ☐N ☐None				

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 192960

Group Number(s): 1844077

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/30/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL Unpreserved plastics

Unpacked by Timothy Cubberley (6520) at 11:18 on 08/30/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.0	DT	Wet	Y	Bagged	N
2	DT131	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 05, 2017

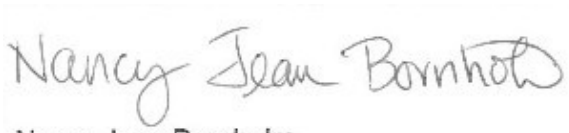
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1844084
SDG: SGB18
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-POET Output Hose-170829 Drinking Water	08/29/2017 14:30	9181507
SG3-Filtered Water Frac Tk-170829 Drinking Water	08/29/2017 14:50	9181508

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1844084

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9181507, 9181508

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17243007 (Sample number(s): 9181507-9181508 UNSPK: P181475)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9181507, 9181508, Blank, LCS, LCSD, MS

Sample Description: SG3-POET Output Hose-170829 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9181507
ELLE Group # 1844084
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 14:30 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/05/2017 16:49

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB181 SDG#: SGB18-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17243007	09/02/2017 09:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243007	08/31/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Filtered Water Frac Tk-170829 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9181508
ELLE Group # 1844084
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 14:50 by RQM

Submitted: 08/30/2017 09:35
Reported: 09/05/2017 16:49

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB182 SDG#: SGB18-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17243007	09/02/2017 09:25	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17243007	08/31/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/05/2017 16:49

Group Number: 1844084

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17243007	Sample number(s): 9181507-9181508			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17243007	Sample number(s): 9181507-9181508								
6:2 fluorotelomersulfonate	12.9	14.47	12.9	15.12	112	117	70-130	4	30
8:2 fluorotelomersulfonate	13	13.48	13	14.73	104	113	70-130	9	30
NEtFOSAA	13.6	15.15	13.6	15.45	111	114	70-130	2	30
NMeFOSAA	13.6	16.17	13.6	16.2	119	119	70-130	0	30
Perfluorobutanesulfonate	12	11.62	12	11.17	97	93	70-130	4	30
Perfluorobutanoic Acid	13.6	14.45	13.6	15.07	106	111	70-130	4	30
Perfluorodecanoic acid	13.6	14.81	13.6	13.73	109	101	70-130	8	30
Perfluorododecanoic acid	13.6	13.65	13.6	13.64	100	100	70-130	0	30
Perfluoroheptanoic acid	13.6	13.82	13.6	14.77	102	109	70-130	7	30
Perfluorohexanesulfonate	12.9	11.32	12.9	11.61	88	90	70-130	2	30
Perfluorohexanoic acid	13.6	13.3	13.6	14.64	98	108	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844084
Reported: 09/05/2017 16:49

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.39	13.6	15.7	106	115	70-130	9	30
Perfluoro-octanesulfonate	13	11.56	13	12.59	89	97	70-130	8	30
Perfluorooctanoic acid	13.6	14.92	13.6	14.28	110	105	70-130	4	30
Perfluoropentanoic Acid	13.6	12.95	13.6	13.28	95	98	70-130	3	30
Perfluorotetradecanoic acid	13.6	13.35	13.6	13.28	98	98	70-130	1	30
Perfluorotridecanoic acid	13.6	11.59	13.6	12.2	85	90	70-130	5	30
Perfluoroundecanoic acid	13.6	14.78	13.6	15.71	109	115	70-130	6	30
PFOSA	13.6	12.65	13.6	14.09	93	104	70-130	11	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17243007	Sample number(s): 9181507-9181508 UNSPK: P181475									
6:2 fluorotelomersulfonate	3 U	12.92	15.37			119		70-130		
8:2 fluorotelomersulfonate	4 U	13.02	15.41			118		70-130		
NEtFOSAA	1 U	13.62	15.8			116		70-130		
NMeFOSAA	1 U	13.62	16.22			119		70-130		
Perfluorobutanesulfonate	4.17	12.02	14.96			90		70-130		
Perfluorobutanoic Acid	8.63	13.62	23.17			107		70-130		
Perfluorodecanoic acid	0.934	13.62	14.96			103		70-130		
Perfluorododecanoic acid	0.5 U	13.62	14.74			108		70-130		
Perfluoroheptanoic acid	15.26	13.62	27.57			90		70-130		
Perfluorohexanesulfonate	1.50	12.92	13.68			94		70-130		
Perfluorohexanoic acid	11.07	13.62	24.26			97		70-130		
Perfluorononanoic acid	4.31	13.62	19.08			108		70-130		
Perfluoro-octanesulfonate	10.41	13.02	22.46			93		70-130		
Perfluorooctanoic acid	240.61	13.62	240.43			0 (2)		70-130		
Perfluoropentanoic Acid	8.59	13.62	21.35			94		70-130		
Perfluorotetradecanoic acid	0.5 U	13.62	14.6			107		70-130		
Perfluorotridecanoic acid	0.5 U	13.62	12.82			94		70-130		
Perfluoroundecanoic acid	1 U	13.62	16.25			119		70-130		
PFOSA	3 U	13.62	14.51			107		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/05/2017 16:49

Group Number: 1844084

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17243007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9181507	81	83	93	83	89	88
9181508	78	81	90	83	87	81
Blank	88	91	91	88	97	95
LCS	90	91	94	96	104	94
LCSD	86	88	95	83	93	89
MS	87	95	113	82	87	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9181507	89	87	80	77	80	75
9181508	109	85	80	89	81	111
Blank	75	101	86	94	88	81
LCS	101	92	91	93	90	86
LCSD	89	97	82	81	91	81
MS	109	90	89	96	87	88
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9181507	59	83	74	81	68	37*
9181508	49	74	61	73	62	55*
Blank	71	78	88	83	74	45*
LCS	81	97	89	103	85	64*
LCSD	74	88	80	95	78	46*
MS	70	99	89	90	70	34*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1844084 | 9181507-08

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52326

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml plastic, PFCs (19)	Soil: 250ml plastic, PFCs (14)	Soil: 4oz glass, TOC, alk, metals, ms.ft.	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-POET output hose-170829				08/29/2017	14:30	DW	N	2	2					
2. SG3-Filtered Water Frac TK-170829				08/29/2017	14:50	DW	N	2	2					
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Soil Metals: TAL Cations + Anions excluding Hg

RUSH Samples- Need ASAP

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM/RAK	(RQM)	Y	08/29/2017	15:50			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						8.30.17	9:15
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☑ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.0-1.6			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 192960

Group Number(s): 1844084

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/30/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL Unpreserved plastics

Unpacked by Timothy Cubberley (6520) at 11:18 on 08/30/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.0	DT	Wet	Y	Bagged	N
2	DT131	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 01, 2017

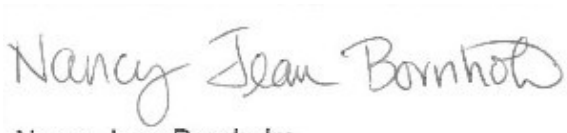
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1844785
SDG: SGB19
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
Trip Blank Water	08/30/2017	9184929
SG3-Filtered Water Frac TK-170830 Drinking Water	08/30/2017 15:45	9184930

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1844785

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9184929, 9184930

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9184929
ELLE Group # 1844785
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017

Submitted: 08/31/2017 09:40
Reported: 09/01/2017 12:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3T31 SDG#: SGB19-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9184929
ELLE Group # 1844785
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017

Submitted: 08/31/2017 09:40
Reported: 09/01/2017 12:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3T31 SDG#: SGB19-01TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172432AA	08/31/2017 23:24	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172432AA	08/31/2017 23:24	Kevin D Kelly	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Filtered Water Frac TK-170830 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9184930
ELLE Group # 1844785
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 15:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/01/2017 12:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FTK SDG#: SGB19-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Filtered Water Frac TK-170830 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9184930
ELLE Group # 1844785
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 15:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/01/2017 12:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FTK SDG#: SGB19-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172432AA	08/31/2017 23:45	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172432AA	08/31/2017 23:45	Kevin D Kelly	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844785
Reported: 09/01/2017 12:55

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l		MDL** ug/l	LOQ ug/l
Batch number: L172432AA	Sample number(s): 9184929-9184930			
Acetone	6	U	6	20
Benzene	0.5	U	0.5	1
Bromochloromethane	1	U	1	5
Bromodichloromethane	0.5	U	0.5	1
Bromoform	0.5	U	0.5	4
Bromomethane	0.5	U	0.5	1
2-Butanone	3	U	3	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	0.5	U	0.5	1
Chlorobenzene	0.5	U	0.5	1
Chloroethane	0.5	U	0.5	1
Chloroform	0.5	U	0.5	1
Chloromethane	0.5	U	0.5	1
Cyclohexane	2	U	2	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	0.5	U	0.5	1
1,2-Dibromoethane	0.5	U	0.5	1
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	0.5	U	0.5	1
1,1-Dichloroethane	0.5	U	0.5	1
1,2-Dichloroethane	0.5	U	0.5	1
1,1-Dichloroethene	0.5	U	0.5	1
cis-1,2-Dichloroethene	0.5	U	0.5	1
trans-1,2-Dichloroethene	0.5	U	0.5	1
1,2-Dichloropropane	0.5	U	0.5	1
cis-1,3-Dichloropropene	0.5	U	0.5	1
trans-1,3-Dichloropropene	0.5	U	0.5	1
Ethylbenzene	0.5	U	0.5	1
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	1	U	1	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	1
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	4
Styrene	1	U	1	5
1,1,2,2-Tetrachloroethane	0.5	U	0.5	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/01/2017 12:55

Group Number: 1844785

Method Blank (continued)

Analysis Name	Result ug/l		MDL** ug/l	LOQ ug/l
Tetrachloroethene	0.5	U	0.5	1
Toluene	0.5	U	0.5	1
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	0.5	U	0.5	1
1,1,2-Trichloroethane	0.5	U	0.5	1
Trichloroethene	0.5	U	0.5	1
Trichlorofluoromethane	0.5	U	0.5	1
Vinyl Chloride	0.5	U	0.5	1
m+p-Xylene	0.5	U	0.5	1
o-Xylene	0.5	U	0.5	1
Xylene (Total)	0.5	U	0.5	1

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L172432AA	Sample number(s): 9184929-9184930								
Acetone	150	187.69	150	168.39	125	112	44-177	11	30
Benzene	20	20.46	20	20.43	102	102	78-120	0	30
Bromochloromethane	20	19.05	20	19.2	95	96	80-125	1	30
Bromodichloromethane	20	17.68	20	17.86	88	89	71-120	1	30
Bromoform	20	14.44	20	14.34	72	72	59-120	1	30
Bromomethane	20	20.22	20	19.8	101	99	44-139	2	30
2-Butanone	150	135.24	150	138.61	90	92	53-140	2	30
Carbon Disulfide	20	18.4	20	18.46	92	92	65-128	0	30
Carbon Tetrachloride	20	17.05	20	16.94	85	85	68-128	1	30
Chlorobenzene	20	20.03	20	20.07	100	100	80-120	0	30
Chloroethane	20	19.57	20	19.5	98	97	52-127	0	30
Chloroform	20	19.69	20	20.04	98	100	80-120	2	30
Chloromethane	20	18.2	20	18.17	91	91	57-120	0	30
Cyclohexane	20	17.21	20	17.06	86	85	67-121	1	30
1,2-Dibromo-3-chloropropane	20	18	20	18.08	90	90	64-120	0	30
Dibromochloromethane	20	17.03	20	17.4	85	87	71-120	2	30
1,2-Dibromoethane	20	20.07	20	20.39	100	102	75-120	2	30
1,2-Dichlorobenzene	20	20.18	20	20.26	101	101	80-120	0	30
1,3-Dichlorobenzene	20	19.97	20	20.05	100	100	80-120	0	30
1,4-Dichlorobenzene	20	20.55	20	20.55	103	103	80-120	0	30
Dichlorodifluoromethane	20	14.8	20	14.29	74	71	47-124	3	30
1,1-Dichloroethane	20	19.79	20	19.9	99	99	80-120	1	30
1,2-Dichloroethane	20	19.31	20	19.11	97	96	73-124	1	30
1,1-Dichloroethene	20	20.95	20	21.2	105	106	76-124	1	30
cis-1,2-Dichloroethene	20	20.52	20	20.45	103	102	80-120	0	30
trans-1,2-Dichloroethene	20	20.37	20	20.65	102	103	80-120	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/01/2017 12:55

Group Number: 1844785

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloropropane	20	20	20	20.28	100	101	80-120	1	30
cis-1,3-Dichloropropene	20	17.99	20	18.23	90	91	75-120	1	30
trans-1,3-Dichloropropene	20	17.26	20	17.69	86	88	76-120	3	30
Ethylbenzene	20	20.58	20	20.48	103	102	78-120	0	30
Freon 113	20	18.28	20	18.09	91	90	68-137	1	30
2-Hexanone	100	93.52	100	93.24	94	93	60-134	0	30
Isopropylbenzene	20	20.87	20	20.48	104	102	80-120	2	30
Methyl Acetate	20	18.84	20	19.34	94	97	61-137	3	30
Methyl Tertiary Butyl Ether	20	19.4	20	19.32	97	97	75-120	0	30
4-Methyl-2-pentanone	100	93.35	100	93.03	93	93	67-128	0	30
Methylcyclohexane	20	17.34	20	17.07	87	85	66-126	2	30
Methylene Chloride	20	20.33	20	20.54	102	103	80-120	1	30
Styrene	20	20.31	20	20.17	102	101	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.79	20	20.22	104	101	72-120	3	30
Tetrachloroethene	20	19.3	20	19.34	96	97	80-129	0	30
Toluene	20	20.49	20	20.35	102	102	80-120	1	30
1,2,3-Trichlorobenzene	20	18.92	20	18.47	95	92	66-120	2	30
1,2,4-Trichlorobenzene	20	18.6	20	18.2	93	91	70-120	2	30
1,1,1-Trichloroethane	20	17.27	20	17.16	86	86	67-120	1	30
1,1,2-Trichloroethane	20	21.04	20	20.86	105	104	80-120	1	30
Trichloroethene	20	19.65	20	19.68	98	98	80-120	0	30
Trichlorofluoromethane	20	18.36	20	18.31	92	92	52-143	0	30
Vinyl Chloride	20	18.87	20	18.59	94	93	63-121	2	30
m+p-Xylene	40	41	40	40.82	102	102	80-120	0	30
o-Xylene	20	19.93	20	19.98	100	100	80-120	0	30
Xylene (Total)	60	60.93	60	60.81	102	101	80-120	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172432AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9184929	95	100	101	97
9184930	96	101	101	97
Blank	95	100	101	98
LCS	97	99	101	100
LCSD	97	99	101	99

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844785
Reported: 09/01/2017 12:55

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172432AA

Limits:	80-120	80-120	80-120	80-120

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1844785 9184929-30

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52218

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	250ml Field Blank	40ml Trip Blank	VOCs	Soil: 250ml plastic, PFCs (14)	4oz. glass, TOC, pH, metals, moist.	% Solids
									A	A	A	B	A	A	
									N	N	N	N	-	-	
1. SG3-D19-0.0.5'	0	0.5	ft.	08/30/2017	09:20	S	N	2					1	1	
2. SG3-D19-0.5-1'	0.5	1	ft.	08/30/2017	09:25	S	N	2					1	1	
3. SG3-D19-1-1.5'	1	1.5	ft.	08/30/2017	09:35	S	N	2					1	1	
4. SG3-D19-2-3'	2	3	ft.	08/30/2017	09:45	S	Y	6					3	3	
5. SG3-LTB13-170830				08/30/2017	AM	Water	N	1	1						
6. SG3-LTB14-170830				08/30/2017	AM	Water	N	1	1						
7. SG3-FBS04-170830				08/30/2017	09:15	Water	N	1		1					
8. SG3-FDS04-170830				08/30/2017		S	N	2					1	1	
9. Trip Blank				08/30/2017		O	N	1			1				
10. SG3-Filtered Water Frac TK-170830				08/30/2017	15:45	DW	N	3				3			

Preservative Code

Field Filtered Y/N

Samples split into two coolers

Metals = TAL cations/anions excluding Hg

RUSH TAT, ASAP!

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: RQM/RAK	(RQM)	(Y) N					
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						8/31/17	940
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 5.2/5.			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 193074

Group Number(s): 1844785

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/31/2017 9:40
Number of Packages:	2	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:55 on 08/31/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	3.2	DT	Wet	Y	Bagged	N
2	DT42-01	5.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 20, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1844839
SDG: SGB20
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D19-0-0.5' Soil	08/30/2017 09:20	9185422
SG3-D19-0.5-1' Soil	08/30/2017 09:25	9185423
SG3-D19-1-1.5' Soil	08/30/2017 09:35	9185424
SG3-D19-2-3' Soil	08/30/2017 09:45	9185425
SG3-D19-2-3' MS Soil	08/30/2017 09:45	9185426
SG3-D19-2-3' MSD Soil	08/30/2017 09:45	9185427
SG3-D19-2-3' Dupl Soil	08/30/2017 09:45	9185428
SG3-LTB13-170830 Blank Water	08/30/2017	9185429
SG3-LTB14-170830 Blank Water	08/30/2017	9185430
SG3-FBS04-170830 Blank Water	08/30/2017 09:15	9185431
SG3-FDS04-170830 Soil	08/30/2017	9185432

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1844839

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9185424, 9185426, 9185427

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9185425, 9185432

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

A target analyte(s) in the closing continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Sample #s: 9185422, 9185423

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection internal standard peak areas were outside of the QC limits in this sample. The sample was re-injected and sample injection internals were within QC limits. The data is reported from the initial injection of the sample due to a target analyte(s) in the closing calibration verification standard (CCV) being outside of QC acceptance limits high with a positive detection in the reinjected sample. Comparable results were observed between the two injections. Both sets of data are included in the data package.

Batch #: 17256014 (Sample number(s): 9185422-9185427, 9185432 UNSPK: 9185425)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluoroundecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9185422, 9185423, 9185424, 9185425, 9185426, 9185427, 9185432, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 172511063703 (Sample number(s): 9185422-9185428, 9185432 UNSPK: 9185425 BKG: 9185425)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Manganese

SW-846 6020A, Metals

Batch #: 172511063703A (Sample number(s): 9185422-9185428, 9185432 UNSPK: 9185425 BKG: 9185425)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Chromium, Copper, Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Silver

Batch #: 172511063703D (Sample number(s): 9185422-9185428, 9185432 UNSPK: 9185425 BKG: 9185425)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17261667631A (Sample number(s): 9185422-9185424, 9185432 UNSPK: P185327 BKG: P185327)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17261667631B (Sample number(s): 9185425-9185426, 9185428 UNSPK: 9185425 BKG: 9185425)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9185428

The pH was measured in water at 20.5 C.

Sample #s: 9185425, 9185432

The pH was measured in water at 20.6 C.

Sample #s: 9185423

The pH was measured in water at 20.7 C.

Sample #s: 9185422, 9185424

The pH was measured in water at 20.8 C.

SM 2540 G-1997, Wet Chemistry

Batch #: 17249820004B (Sample number(s): 9185422-9185428, 9185432 BKG: 9185425)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: SG3-D19-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185422
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:20 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-1 SDG#: SGB20-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.23	0.70	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.36**	**J**	0.23	0.70	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.31**	**J**	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.24**	**J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.92**	**J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.37**	**J**	0.23	0.70	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection internal standard peak areas were outside of the QC limits in this sample. The sample was re-injected and sample injection internals were within QC limits. The data is reported from the initial injection of the sample due to a target analyte(s) in the closing calibration verification standard (CCV) being outside of QC acceptance limits high with a positive detection in the reinjected sample. Comparable results were observed between the two injections. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,280**		10.7	47.8	1
01650	**Calcium**	7440-70-2	**61,500**		3.98	47.8	1
01654	**Iron**	7439-89-6	**16,000**		9.63	47.8	1
01657	**Magnesium**	7439-95-4	**29,900**		2.91	23.9	1
06958	**Manganese**	7439-96-5	**616**		0.0992	1.20	1
01662	**Potassium**	7440-09-7	**1,070**		20.0	120	1
01667	**Sodium**	7440-23-5	**221**	**J**	20.0	239	1
06972	**Zinc**	7440-66-6	**54.7**		0.287	4.78	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.154**	**J**	0.111	0.478	2
06125	**Arsenic**	7440-38-2	**10.5**		0.153	0.957	2
06126	**Barium**	7440-39-3	**49.6**		0.217	0.957	2
06127	**Beryllium**	7440-41-7	**0.394**		0.0125	0.239	2
06128	**Cadmium**	7440-43-9	**0.255**		0.0411	0.239	2
06131	**Chromium**	7440-47-3	**7.91**		0.208	0.957	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185422
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:20 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-1 SDG#: SGB20-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06132	**Cobalt**	7440-48-4	**7.47**		0.0373	0.239	2
06133	**Copper**	7440-50-8	**11.9**		0.128	0.957	2
06135	**Lead**	7439-92-1	**16.9**		0.0265	0.478	2
06139	**Nickel**	7440-02-0	**12.8**		0.238	0.957	2
06141	**Selenium**	7782-49-2	**0.221**	**J**	0.120	0.957	2
06142	**Silver**	7440-22-4	**0.273**		0.0349	0.239	2
06145	**Thallium**	7440-28-0	**0.188**	**J**	0.0299	0.239	2
06148	**Vanadium**	7440-62-2	**18.3**		0.0509	0.239	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,900**		876	2,630	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.64**		0.0100	0.0100	1
	The pH was measured in water at 20.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/18/2017 13:47	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185422
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:20 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-1 SDG#: SGB20-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:23	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631A	09/19/2017 09:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039402B	09/09/2017 12:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17249820004B	09/06/2017 13:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9185423
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:25 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-2 SDG#: SGB20-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.72	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25**	**J**	0.24	0.72	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.30**	**J**	0.24	0.72	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.26**	**J**	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20**	**J**	0.12	0.48	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.78**	**J**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**		0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.72	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.31**	**J**	0.24	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection internal standard peak areas were outside of the QC limits in this sample. The sample was re-injected and sample injection internals were within QC limits. The data is reported from the initial injection of the sample due to a target analyte(s) in the closing calibration verification standard (CCV) being outside of QC acceptance limits high with a positive detection in the reinjected sample. Comparable results were observed between the two injections. Both sets of data are included in the data package.

Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,640**		7.29	32.6	1
01650	**Calcium**	7440-70-2	**37,300**		2.71	32.6	1
01654	**Iron**	7439-89-6	**18,600**		6.56	32.6	1
01657	**Magnesium**	7439-95-4	**9,220**		1.98	16.3	1
06958	**Manganese**	7439-96-5	**599**		0.0676	0.815	1
01662	**Potassium**	7440-09-7	**1,080**		13.6	81.5	1
01667	**Sodium**	7440-23-5	**246**		13.6	163	1
06972	**Zinc**	7440-66-6	**61.3**		0.196	3.26	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.158**	**J**	0.0760	0.326	2
06125	**Arsenic**	7440-38-2	**6.43**		0.104	0.652	2
06126	**Barium**	7440-39-3	**53.4**		0.148	0.652	2
06127	**Beryllium**	7440-41-7	**0.490**		0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.276**		0.0280	0.163	2
06131	**Chromium**	7440-47-3	**9.59**		0.142	0.652	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9185423
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:25 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-2 SDG#: SGB20-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06132	**Cobalt**	7440-48-4	**8.64**	0.0254	0.163	2
06133	**Copper**	7440-50-8	**15.2**	0.0874	0.652	2
06135	**Lead**	7439-92-1	**19.6**	0.0181	0.326	2
06139	**Nickel**	7440-02-0	**14.6**	0.162	0.652	2
06141	**Selenium**	7782-49-2	**0.293 J**	0.0815	0.652	2
06142	**Silver**	7440-22-4	**0.319**	0.0238	0.163	2
06145	**Thallium**	7440-28-0	**0.174**	0.0204	0.163	2
06148	**Vanadium**	7440-62-2	**23.0**	0.0347	0.163	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,600**	696	2,090	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.36**	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/18/2017 14:07	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9185423
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:25 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-2 SDG#: SGB20-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:27	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:21	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:21	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:21	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631A	09/19/2017 10:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039402B	09/09/2017 12:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17249820004B	09/06/2017 13:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185424
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:35 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-3 SDG#: SGB20-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**11,800**		9.13	40.8	1
01650	**Calcium**	7440-70-2	**1,890**		3.40	40.8	1
01654	**Iron**	7439-89-6	**22,900**		8.22	40.8	1
01657	**Magnesium**	7439-95-4	**3,290**		2.48	20.4	1
06958	**Manganese**	7439-96-5	**772**		0.0847	1.02	1
01662	**Potassium**	7440-09-7	**1,200**		17.1	102	1
01667	**Sodium**	7440-23-5	**235**		17.1	204	1
06972	**Zinc**	7440-66-6	**68.2**		0.245	4.08	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.131**	**J**	0.0952	0.408	2
06125	**Arsenic**	7440-38-2	**7.62**		0.131	0.817	2
06126	**Barium**	7440-39-3	**69.0**		0.185	0.817	2
06127	**Beryllium**	7440-41-7	**0.670**		0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.319**		0.0351	0.204	2
06131	**Chromium**	7440-47-3	**11.8**		0.178	0.817	2
06132	**Cobalt**	7440-48-4	**11.4**		0.0319	0.204	2
06133	**Copper**	7440-50-8	**13.6**		0.109	0.817	2
06135	**Lead**	7439-92-1	**14.7**		0.0227	0.408	2
06139	**Nickel**	7440-02-0	**19.7**		0.203	0.817	2
06141	**Selenium**	7782-49-2	**0.239**	**J**	0.102	0.817	2
06142	**Silver**	7440-22-4	**0.0867**	**J**	0.0298	0.204	2
06145	**Thallium**	7440-28-0	**0.229**		0.0255	0.204	2
06148	**Vanadium**	7440-62-2	**15.8**		0.0435	0.204	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185424
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:35 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-3 SDG#: SGB20-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**5,380**	337	1,010	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.64**	0.0100	0.0100	1
	The pH was measured in water at 20.8 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**17.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/18/2017 14:28	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:38	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:24	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185424
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:35 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-3 SDG#: SGB20-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631A	09/19/2017 10:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039402B	09/09/2017 12:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17249820004B	09/06/2017 13:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185425
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

A target analyte(s) in the closing continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,800**		7.18	32.1	1
01650	**Calcium**	7440-70-2	**1,990**		2.67	32.1	1
01654	**Iron**	7439-89-6	**27,100**		32.3	161	5
01657	**Magnesium**	7439-95-4	**4,600**		1.95	16.1	1
06958	**Manganese**	7439-96-5	**557**		0.0666	0.803	1
01662	**Potassium**	7440-09-7	**1,390**		13.4	80.3	1
01667	**Sodium**	7440-23-5	**272**		13.4	161	1
06972	**Zinc**	7440-66-6	**52.0**		0.193	3.21	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.116**	**J**	0.0748	0.321	2
06125	**Arsenic**	7440-38-2	**9.33**		0.103	0.642	2
06126	**Barium**	7440-39-3	**51.9**		0.146	0.642	2
06127	**Beryllium**	7440-41-7	**0.709**		0.0084	0.161	2
06128	**Cadmium**	7440-43-9	**0.221**		0.0276	0.161	2
06131	**Chromium**	7440-47-3	**11.3**		0.140	0.642	2
06132	**Cobalt**	7440-48-4	**12.4**		0.0251	0.161	2
06133	**Copper**	7440-50-8	**21.2**		0.0861	0.642	2
06135	**Lead**	7439-92-1	**15.2**		0.0178	0.321	2
06139	**Nickel**	7440-02-0	**28.3**		0.160	0.642	2
06141	**Selenium**	7782-49-2	**0.137**	**J**	0.0803	0.642	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185425
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06142	**Silver**	7440-22-4	**0.0720 J**	0.0234	0.161	2
06145	**Thallium**	7440-28-0	**0.250**	0.0201	0.161	2
06148	**Vanadium**	7440-62-2	**13.2**	0.0342	0.161	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**2,720**	254	763	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**14.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/16/2017 01:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/13/2017 00:30	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:01	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 10:54	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185425
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 10:54	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 10:54	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631B	09/19/2017 11:47	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039403A	09/09/2017 13:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	2	17250820012B	09/07/2017 21:07	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9185426
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.9**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.9**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.8**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.9**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.5**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.9**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1**	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,300**	7.08	31.7	1
01650	**Calcium**	7440-70-2	**1,910**	2.64	31.7	1
01654	**Iron**	7439-89-6	**30,900**	31.9	158	5
01657	**Magnesium**	7439-95-4	**5,840**	1.92	15.8	1
06958	**Manganese**	7439-96-5	**836**	0.0657	0.792	1
01662	**Potassium**	7440-09-7	**2,920**	13.2	79.2	1
01667	**Sodium**	7440-23-5	**957**	13.2	158	1
06972	**Zinc**	7440-66-6	**90.1**	0.190	3.17	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.634**	0.0738	0.317	2
06125	**Arsenic**	7440-38-2	**9.70**	0.101	0.634	2
06126	**Barium**	7440-39-3	**57.0**	0.144	0.634	2
06127	**Beryllium**	7440-41-7	**1.25**	0.0083	0.158	2
06128	**Cadmium**	7440-43-9	**0.900**	0.0272	0.158	2
06131	**Chromium**	7440-47-3	**16.0**	0.138	0.634	2
06132	**Cobalt**	7440-48-4	**46.4**	0.0247	0.158	2
06133	**Copper**	7440-50-8	**25.4**	0.0849	0.634	2
06135	**Lead**	7439-92-1	**14.6**	0.0176	0.317	2
06139	**Nickel**	7440-02-0	**31.2**	0.158	0.634	2
06141	**Selenium**	7782-49-2	**1.68**	0.0792	0.634	2
06142	**Silver**	7440-22-4	**7.84**	0.0231	0.158	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9185426
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06145	**Thallium**	7440-28-0	**0.518**	0.0198	0.158	2
06148	**Vanadium**	7440-62-2	**19.6**	0.0337	0.158	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**23,700**	742	2,230	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**14.7**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/18/2017 13:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/13/2017 00:36	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:12	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:03	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:03	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:03	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9185426
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631B	09/19/2017 11:58	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	2	17250820012B	09/07/2017 21:07	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9185427
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.22	0.67	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.22	0.67	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.22	0.67	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.22	0.67	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.22	0.67	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.22	0.67	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.9**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.3**	0.22	0.67	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.22	0.67	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.22	0.67	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.22	0.67	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.9**	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,400**	6.99	31.3	1
01650	**Calcium**	7440-70-2	**2,460**	2.60	31.3	1
01654	**Iron**	7439-89-6	**29,400**	31.5	156	5
01657	**Magnesium**	7439-95-4	**5,550**	1.90	15.6	1
06958	**Manganese**	7439-96-5	**637**	0.0649	0.782	1
01662	**Potassium**	7440-09-7	**3,200**	13.1	78.2	1
01667	**Sodium**	7440-23-5	**981**	13.1	156	1
06972	**Zinc**	7440-66-6	**85.2**	0.188	3.13	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.483**	0.0728	0.313	2
06125	**Arsenic**	7440-38-2	**10.8**	0.100	0.625	2
06126	**Barium**	7440-39-3	**71.3**	0.142	0.625	2
06127	**Beryllium**	7440-41-7	**1.33**	0.0082	0.156	2
06128	**Cadmium**	7440-43-9	**0.919**	0.0269	0.156	2
06131	**Chromium**	7440-47-3	**18.9**	0.136	0.625	2
06132	**Cobalt**	7440-48-4	**47.7**	0.0244	0.156	2
06133	**Copper**	7440-50-8	**29.1**	0.0838	0.625	2
06135	**Lead**	7439-92-1	**18.6**	0.0174	0.313	2
06139	**Nickel**	7440-02-0	**35.9**	0.156	0.625	2
06141	**Selenium**	7782-49-2	**1.74**	0.0782	0.625	2
06142	**Silver**	7440-22-4	**7.69**	0.0228	0.156	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9185427
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06145	**Thallium**	7440-28-0	**0.528**	0.0195	0.156	2
06148	**Vanadium**	7440-62-2	**22.3**	0.0333	0.156	2
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**14.7**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/18/2017 14:49	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/13/2017 00:39	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:16	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:06	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:06	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:06	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
00118	Moisture	SM 2540 G-1997	2	17250820012B	09/07/2017 21:07	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9185428
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,000**	10.5	46.9	1
01650	**Calcium**	7440-70-2	**1,770**	3.90	46.9	1
01654	**Iron**	7439-89-6	**30,700**	9.44	46.9	1
01657	**Magnesium**	7439-95-4	**4,490**	2.85	23.4	1
06958	**Manganese**	7439-96-5	**638**	0.0973	1.17	1
01662	**Potassium**	7440-09-7	**1,500**	19.6	117	1
01667	**Sodium**	7440-23-5	**280**	19.6	234	1
06972	**Zinc**	7440-66-6	**58.7**	0.281	4.69	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.132 J**	0.109	0.469	2
06125	**Arsenic**	7440-38-2	**10.0**	0.150	0.938	2
06126	**Barium**	7440-39-3	**58.8**	0.213	0.938	2
06127	**Beryllium**	7440-41-7	**0.727**	0.0123	0.234	2
06128	**Cadmium**	7440-43-9	**0.237**	0.0403	0.234	2
06131	**Chromium**	7440-47-3	**12.9**	0.204	0.938	2
06132	**Cobalt**	7440-48-4	**12.5**	0.0366	0.234	2
06133	**Copper**	7440-50-8	**23.3**	0.126	0.938	2
06135	**Lead**	7439-92-1	**16.2**	0.0260	0.469	2
06139	**Nickel**	7440-02-0	**29.8**	0.234	0.938	2
06141	**Selenium**	7782-49-2	**0.128 J**	0.117	0.938	2
06142	**Silver**	7440-22-4	**0.0959 J**	0.0342	0.234	2
06145	**Thallium**	7440-28-0	**0.237**	0.0293	0.234	2
06148	**Vanadium**	7440-62-2	**15.0**	0.0499	0.234	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,130**	252	756	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.23**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**14.7**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**15.2**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-2-3' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9185428
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:45 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D19-4 SDG#: SGB20-04DUP

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:09	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:00	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:00	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:00	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631B	09/19/2017 12:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039403A	09/09/2017 13:20	Luz M Groff	1
00118	Moisture	SM 2540 G-1997	2	17250820012B	09/07/2017 21:07	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	2	17250820012B	09/07/2017 21:07	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB13-170830 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9185429
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3T13 SDG#: SGB20-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17248006	09/09/2017 08:42	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17248006	09/05/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB14-170830 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9185430
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3T14 SDG#: SGB20-06TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17248006	09/09/2017 09:02	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17248006	09/05/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FBS04-170830 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9185431
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:15 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FS4 SDG#: SGB20-07FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17248006	09/09/2017 09:23	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17248006	09/05/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS04-170830 Soil
SGPP - North Bennington

ELLE Sample # SW 9185432
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FD4S3 SDG#: SGB20-08FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

A target analyte(s) in the closing continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,800**		9.53	42.6	1
01650	**Calcium**	7440-70-2	**1,820**		3.55	42.6	1
01654	**Iron**	7439-89-6	**23,900**		8.58	42.6	1
01657	**Magnesium**	7439-95-4	**3,200**		2.59	21.3	1
06958	**Manganese**	7439-96-5	**1,010**		0.0885	1.07	1
01662	**Potassium**	7440-09-7	**1,330**		17.8	107	1
01667	**Sodium**	7440-23-5	**267**		17.8	213	1
06972	**Zinc**	7440-66-6	**75.1**		0.256	4.26	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.168**	**J**	0.0994	0.426	2
06125	**Arsenic**	7440-38-2	**14.5**		0.136	0.853	2
06126	**Barium**	7440-39-3	**73.8**		0.194	0.853	2
06127	**Beryllium**	7440-41-7	**0.700**		0.0112	0.213	2
06128	**Cadmium**	7440-43-9	**0.371**		0.0367	0.213	2
06131	**Chromium**	7440-47-3	**12.0**		0.186	0.853	2
06132	**Cobalt**	7440-48-4	**13.4**		0.0333	0.213	2
06133	**Copper**	7440-50-8	**14.3**		0.114	0.853	2
06135	**Lead**	7439-92-1	**18.2**		0.0237	0.426	2
06139	**Nickel**	7440-02-0	**20.9**		0.212	0.853	2
06141	**Selenium**	7782-49-2	**0.293**	**J**	0.107	0.853	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS04-170830 Soil
SGPP - North Bennington

ELLE Sample # SW 9185432
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FD4S3 SDG#: SGB20-08FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06142	**Silver**	7440-22-4	**0.0813 J**	0.0311	0.213	2
06145	**Thallium**	7440-28-0	**0.252**	0.0267	0.213	2
06148	**Vanadium**	7440-62-2	**16.9**	0.0454	0.213	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**8,770**	367	1,100	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**17.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17256014	09/15/2017 23:35	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17256014	09/13/2017 20:20	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172511063703	09/12/2017 12:42	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172511063703D	09/13/2017 11:27	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS04-170830 Soil
SGPP - North Bennington

ELLE Sample # SW 9185432
ELLE Group # 1844839
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/20/2017 19:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FD4S3 SDG#: SGB20-08FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172511063703B	09/13/2017 11:27	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172511063703A	09/13/2017 11:27	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172511063703	09/11/2017 23:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17261667631A	09/19/2017 10:53	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17252039403A	09/09/2017 13:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	17249820004B	09/06/2017 13:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17256014	Sample number(s): 9185422-9185427,9185432			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17248006	Sample number(s): 9185429-9185431			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172511063703	Sample number(s): 9185422-9185428,9185432			
Aluminum	8.94	U	8.94	40.0
Calcium	7.95	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.60	J	2.43	20.0
Manganese	0.184	J	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

Method Blank (continued)

Analysis Name	Result mg/kg		MDL** mg/kg	LOQ mg/kg
Zinc	0.967	J	0.240	4.00
Batch number: 172511063703A	Sample number(s): 9185422-9185428,9185432			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0254	J	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172511063703B	Sample number(s): 9185422-9185428,9185432			
Selenium	0.100	U	0.100	0.800
Batch number: 172511063703D	Sample number(s): 9185422-9185428,9185432			
Barium	0.548	J	0.182	0.800
Batch number: 17261667631A	Sample number(s): 9185422-9185424,9185432			
TOC	100	U	100	300
Batch number: 17261667631B	Sample number(s): 9185425-9185426,9185428			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17256014	Sample number(s): 9185422-9185427,9185432								
Perfluorobutanesulfonate	1.20	1.06			88		70-130		
Perfluorobutanoic acid	1.36	1.63			120		70-130		
Perfluorodecanoic acid	1.36	1.29			95		70-130		
Perfluorododecanoic acid	1.36	1.49			109		70-130		
Perfluoroheptanoic acid	1.36	1.42			105		70-130		
Perfluorohexanesulfonate	1.29	1.27			99		70-130		
Perfluorohexanoic acid	1.36	1.30			96		70-130		
Perfluorononanoic acid	1.36	1.58			116		70-130		
Perfluoro-octanesulfonate	1.30	1.26			97		70-130		
Perfluorooctanoic acid	1.36	1.43			105		70-130		
Perfluoropentanoic acid	1.36	1.32			97		70-130		
Perfluorotetradecanoic acid	1.36	1.45			106		70-130		
Perfluorotridecanoic acid	1.36	1.40			103		70-130		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoroundecanoic acid	1.36	1.60			118		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17248006	Sample number(s): 9185429-9185431								
Perfluorobutanesulfonate	12.03	11.15	12.03	12	93	100	70-130	7	30
Perfluorobutanoic Acid	13.6	12.87	13.6	14.25	95	105	70-130	10	30
Perfluorodecanoic acid	13.6	13.04	13.6	13	96	96	70-130	0	30
Perfluorododecanoic acid	13.6	12.47	13.6	13.46	92	99	70-130	8	30
Perfluoroheptanoic acid	13.6	13.29	13.6	13.4	98	99	70-130	1	30
Perfluorohexanesulfonate	12.86	12.03	12.86	12.77	94	99	70-130	6	30
Perfluorohexanoic acid	13.6	13.1	13.6	13.5	96	99	70-130	3	30
Perfluorononanoic acid	13.6	12.22	13.6	13.51	90	99	70-130	10	30
Perfluoro-octanesulfonate	13	10.86	13	11.49	84	88	70-130	6	30
Perfluorooctanoic acid	13.6	12.12	13.6	12.86	89	95	70-130	6	30
Perfluoropentanoic Acid	13.6	11.64	13.6	12.14	86	89	70-130	4	30
Perfluorotetradecanoic acid	13.6	11.66	13.6	12.01	86	88	70-130	3	30
Perfluorotridecanoic acid	13.6	15.97	13.6	17.66	117	130	70-130	10	30
Perfluoroundecanoic acid	13.6	12.61	13.6	12.29	93	90	70-130	3	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172511063703	Sample number(s): 9185422-9185428,9185432								
Aluminum	200	208.85			104		80-120		
Calcium	400	391.94			98		80-120		
Iron	100	99.59			100		80-120		
Magnesium	200	195.5			98		80-120		
Manganese	50	50.07			100		80-120		
Potassium	1000	959.3			96		80-120		
Sodium	1000	981.18			98		80-120		
Zinc	50	49.4			99		80-120		
Batch number: 172511063703A	Sample number(s): 9185422-9185428,9185432								
Antimony	0.600	0.631			105		80-120		
Arsenic	1.00	1.02			102		80-120		
Beryllium	0.400	0.434			108		80-120		
Cadmium	0.500	0.492			98		80-120		
Chromium	5.00	5.10			102		80-120		
Cobalt	25	24.04			96		80-120		
Copper	5.00	5.01			100		80-120		
Lead	1.50	1.55			103		80-120		
Nickel	5.00	5.08			102		80-120		
Silver	5.00	5.32			106		80-120		
Thallium	0.200	0.193			97		80-120		
Vanadium	5.00	5.18			104		80-120		
Batch number: 172511063703B	Sample number(s): 9185422-9185428,9185432								
Selenium	1.00	1.04			104		80-120		
Batch number: 172511063703D	Sample number(s): 9185422-9185428,9185432								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg					
Barium	5.00	5.87			117		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17261667631A	Sample number(s): 9185422-9185424,9185432								
TOC	7150	5103.23			71		47-143		
Batch number: 17261667631B	Sample number(s): 9185425-9185426,9185428								
TOC	7150	5103.23			71		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17252039402B	Sample number(s): 9185422-9185424								
pH	7.00	7.00			100		95-105		
Batch number: 17252039403A	Sample number(s): 9185425,9185428,9185432								
pH	7.00	6.98			100		95-105		
	%	%	%	%					
Batch number: 17249820004B	Sample number(s): 9185422-9185424,9185432								
Moisture	89.5	89.36			100		99-101		
Batch number: 17250820012B	Sample number(s): 9185425-9185428								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17256014	Sample number(s): 9185422-9185427,9185432 UNSPK: 9185425										
Perfluorobutanesulfonate	0.19	U	1.16	1.13	1.15	1.14	97	99	70-130	1	30
Perfluorobutanoic acid	0.19	U	1.31	1.62	1.30	1.58	123	122	70-130	2	30
Perfluorodecanoic acid	0.19	U	1.31	1.49	1.30	1.52	114	117	70-130	2	30
Perfluorododecanoic acid	0.19	U	1.31	1.57	1.30	1.55	119	120	70-130	1	30
Perfluoroheptanoic acid	0.19	U	1.31	1.59	1.30	1.55	121	119	70-130	2	30
Perfluorohexanesulfonate	0.19	U	1.24	1.54	1.23	1.29	124	105	70-130	18	30
Perfluorohexanoic acid	0.093	U	1.31	1.60	1.30	1.35	122	104	70-130	17	30
Perfluorononanoic acid	0.093	U	1.31	1.64	1.30	1.62	125	125	70-130	1	30
Perfluoro-octanesulfonate	0.28	U	1.26	1.27	1.24	1.29	101	104	70-130	2	30
Perfluorooctanoic acid	1.22		1.31	2.95	1.30	2.81	132*	123	70-130	5	30
Perfluoropentanoic acid	0.19	U	1.31	1.40	1.30	1.33	106	103	70-130	4	30

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844839
Reported: 09/20/2017 19:31

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.19 U	1.31	1.58	1.30	1.46	120	112	70-130	8	30
Perfluorotridecanoic acid	0.19 U	1.31	1.41	1.30	1.42	107	109	70-130	1	30
Perfluoroundecanoic acid	0.19 U	1.31	1.83	1.30	1.60	139*	123	70-130	13	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172511063703	Sample number(s): 9185422-9185428,9185432 UNSPK: 9185425									
Aluminum	9202.42	135.14	13013.23	133.33	12281.42	2820 (2)	2309 (2)	75-125	6	20
Calcium	1695.06	270.27	1627.07	266.67	2094.49	-25 (2)	150 (2)	75-125	25*	20
Iron	23107.68	67.57	26372.8	66.67	25072.61	4832 (2)	2947 (2)	75-125	5	20
Magnesium	3921.33	135.14	4983.49	133.33	4731.2	786 (2)	607 (2)	75-125	5	20
Manganese	474.82	33.78	713.34	33.33	543.06	706 (2)	205 (2)	75-125	27*	20
Potassium	1182.01	675.68	2491.12	666.67	2730.65	194*	232*	75-125	9	20
Sodium	232.16	675.68	816.52	666.67	837.08	86	91	75-125	2	20
Zinc	44.32	33.78	76.82	33.33	72.66	96	85	75-125	6	20
Batch number: 172511063703A	Sample number(s): 9185422-9185428,9185432 UNSPK: 9185425									
Antimony	0.0989	0.811	0.541	0.800	0.412	55*	39*	75-125	27*	20
Arsenic	7.96	1.35	8.28	1.33	9.20	24 (2)	93 (2)	75-125	11	20
Beryllium	0.605	0.541	1.07	0.533	1.13	86	99	75-125	6	20
Cadmium	0.188	0.676	0.768	0.667	0.784	86	89	75-125	2	20
Chromium	9.61	6.76	13.68	6.67	16.13	60*	98	75-125	16	20
Cobalt	10.61	33.78	39.55	33.33	40.69	86	90	75-125	3	20
Copper	18.05	6.76	21.66	6.67	24.81	53*	101	75-125	14	20
Lead	12.94	2.03	12.49	2.00	15.85	-22 (2)	146 (2)	75-125	24*	20
Nickel	24.14	6.76	26.64	6.67	30.61	37*	97	75-125	14	20
Silver	0.0615	6.76	6.69	6.67	6.56	98	97	75-125	2	20
Thallium	0.213	0.270	0.442	0.267	0.450	85	89	75-125	2	20
Vanadium	11.25	6.76	16.69	6.67	19.04	81	117	75-125	13	20
Batch number: 172511063703B	Sample number(s): 9185422-9185428,9185432 UNSPK: 9185425									
Selenium	0.117	1.35	1.44	1.33	1.49	98	103	75-125	4	20
Batch number: 172511063703D	Sample number(s): 9185422-9185428,9185432 UNSPK: 9185425									
Barium	44.29	6.76	48.65	6.67	60.83	65 (2)	248 (2)	75-125	22*	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17261667631A	Sample number(s): 9185422-9185424,9185432 UNSPK: P185327									
TOC	2191.24	52830	41830.99			75		47-143		
Batch number: 17261667631B	Sample number(s): 9185425-9185426,9185428 UNSPK: 9185425									
TOC	2318.05	18990	20215.05			94		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172511063703	Sample number(s): 9185422-9185428,9185432 BKG: 9185425			
Aluminum	9202.42	10246.39	11	20
Calcium	1695.06	1506.21	12	20
Iron	23107.68	26174.84	12	20
Magnesium	3921.33	3828.23	2	20
Manganese	474.82	544.56	14	20
Potassium	1182.01	1277.97	8	20
Sodium	232.16	239.21	3 (1)	20
Zinc	44.32	50.08	12	20
Batch number: 172511063703A	Sample number(s): 9185422-9185428,9185432 BKG: 9185425			
Antimony	0.0989	0.113	13 (1)	20
Arsenic	7.96	8.57	7	20
Beryllium	0.605	0.620	2 (1)	20
Cadmium	0.188	0.202	7 (1)	20
Chromium	9.61	11	13	20
Cobalt	10.61	10.69	1	20
Copper	18.05	19.87	10	20
Lead	12.94	13.85	7	20
Nickel	24.14	25.4	5	20
Silver	0.0615	0.0818	28* (1)	20
Thallium	0.213	0.202	5 (1)	20
Vanadium	11.25	12.83	13	20
Batch number: 172511063703B	Sample number(s): 9185422-9185428,9185432 BKG: 9185425			
Selenium	0.117	0.109	7 (1)	20
Batch number: 172511063703D	Sample number(s): 9185422-9185428,9185432 BKG: 9185425			
Barium	44.29	50.14	12	20
	mg/kg	mg/kg		
Batch number: 17261667631A	Sample number(s): 9185422-9185424,9185432 BKG: P185327			
TOC	2191.24	2582.08	16* (1)	7
Batch number: 17261667631B	Sample number(s): 9185425-9185426,9185428 BKG: 9185425			
TOC	2318.05	1815.64	24* (1)	7
	Std. Units	Std. Units		
Batch number: 17252039402B	Sample number(s): 9185422-9185424 BKG: P185327			
pH	6.80	6.77	0	3
Batch number: 17252039403A	Sample number(s): 9185425,9185428,9185432 BKG: 9185425			
pH	8.20	8.23	0	3
	%	%		
Batch number: 17249820004B	Sample number(s): 9185422-9185424,9185432 BKG: P185425			
Moisture	15.76	13.23	17*	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/20/2017 19:31

Group Number: 1844839

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 17250820012B	Sample number(s): 9185425-9185428 BKG: 9185425, P185425			
Moisture	14.7	15.17	3	5
Moisture	14.7	15.17	3	5
Moisture Duplicate	14.7	15.17	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17248006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9185429	97	92	95	101	89	100
9185430	81	85	82	85	86	89
9185431	89	88	84	84	81	90
Blank	79	86	80	73	73	77
LCS	89	91	82	82	77	83
LCSD	84	86	82	85	76	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9185429	95	94	98	100	101	95
9185430	87	79	81	89	82	75
9185431	90	89	100	89	81	75
Blank	83	81	84	79	81	72
LCS	79	97	88	85	82	78
LCSD	83	89	84	80	77	71
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9185429	84
9185430	76
9185431	63
Blank	72
LCS	74
LCSD	71

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844839
Reported: 09/20/2017 19:31

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17248006

Limits: 26-119

Analysis Name: 14 PFCs
Batch number: 17256014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9185422	62	61*	60	59	62	70
9185423	61	59*	63	54	57	61
9185424	61	60*	69	61	66	66
9185425	72	68*	75	63	72	78
9185426	63	65*	65	62	65	67
9185427	65	65*	62	63	64	65
9185432	62	63*	69	70	77	85
Blank	72	71	72	73	78	88
LCS	63	64*	69	57	57	61
MS	63	65*	65	62	65	67
MSD	65	65*	62	63	64	65
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9185422	65	70	77	67	59	58
9185423	63	69	78	57	60	62
9185424	70	70	69	69	70	75
9185425	73	80	77	73	72	70
9185426	68	73	71	67	63	68
9185427	71	68	71	62	63	69
9185432	70	67	63	69	71	77
Blank	76	76	67	72	73	77
LCS	58	65	62	67	61	64
MS	68	73	71	67	63	68
MSD	71	68	71	62	63	69
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9185422	53
9185423	55
9185424	64
9185425	70
9185426	62
9185427	71
9185432	59

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1844839
Reported: 09/20/2017 19:31

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256014

	13C2-PFTeDA
Blank	72
LCS	60
MS	62
MSD	71
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1844839 9185422-32

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52218

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	250ml Field Blank	40ml Trip Blank	VOCs	Soil: 250ml plastic, PFCs (19)	4oz glass, TOC, pH, metals, moist.	% Solids
Preservative Code									D	A	A	B	A	A	
Field Filtered Y/N									N	N	N	N	-	-	
1. SG3-D19-0-0.5'	0	0.5	ft.	08/30/2017	09:20	S	N	2					1	1	
2. SG3-D19-0.5-1'	0.5	1	ft.	08/30/2017	09:25	S	N	2					1	1	
3. SG3-D19-1-1.5'	1	1.5	ft.	08/30/2017	09:35	S	N	2					1	1	
4. SG3-D19-2-3'	2	3	ft.	08/30/2017	09:45	S	Y	6					3	3	
5. SG3-LTB13-170830				08/30/2017	AM	Water	N	1	1						
6. SG3-LTB14-170830				08/30/2017	AM	Water	N	1	1						
7. SG3-FBS04-170830				08/30/2017	09:15	Water	N	1		1					
8. SG3-FDS04-170830				08/30/2017		S	N	2					1	1	
9. Trip Blank				08/30/2017		O	N	1			1				
10. SG3-Filtered Water Frac TK+ 170830				08/30/2017	15:45	DW	N	3				3			

Samples split into two coolers

Metals = TAL cations/anions excluding Hg

RUSH TAT, ASAP!

BARR USE ONLY	
Sampled by:	RQM/RAK
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

Relinquished by: (RQM) On Ice? (Y) N Date Time

Received by: Date Time

Relinquished by: On Ice? Y N Date Time

Received by: 8/31/17 940

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO:

Temperature on Receipt (°C): 5.2/5.6 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193074

Group Number(s): 1844839

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/31/2017 9:40
Number of Packages:	2	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:55 on 08/31/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	3.2	DT	Wet	Y	Bagged	N
2	DT42-01	5.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 25, 2017

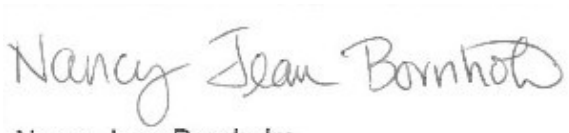
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1844841
SDG: SGB21
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D18-0-1.7' Soil	08/25/2017 14:30	9185445
SG3-D18-1.7-7.5' Soil	08/25/2017 14:40	9185446
SG3-D18-7.5-8.7' Soil	08/25/2017 14:50	9185447
SG3-D18-8.7-19' Soil	08/25/2017 15:00	9185448
SG3-D18-19-25' Soil	08/27/2017 09:00	9185449
SG3-D03-0-10' Soil	08/28/2017 14:50	9185450
SG3-D03-10-20' Soil	08/28/2017 14:55	9185451
SG3-D19-0-1.5' Soil	08/30/2017 09:50	9185452
SG3-D19-1.5-3' Soil	08/30/2017 09:55	9185453
SG3-D05-0-1.5' Soil	08/28/2017 11:20	9185454
SG3-D05-1.5-15' Soil	08/28/2017 11:25	9185455
SG3-D05-15-20' Soil	08/28/2017 11:30	9185456
SG3-D05-20-27' Soil	08/28/2017 11:35	9185457
SG3-D14-0-1.3' Soil	08/29/2017 13:00	9185458
SG3-D14-1.5-3' Soil	08/29/2017 13:10	9185460
SG3-D14-3-9' Soil	08/29/2017 13:15	9185461
SG3-D14-9-12' Soil	08/29/2017 13:20	9185462

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1844841

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: SG3-D18-0-1.7' Soil
SGPP - North Bennington

ELLE Sample # SW 9185445
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:30 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD181 SDG#: SGB21-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**95.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**92.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**91.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**90.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**89.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**89.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**88.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**82.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**24.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**14.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-1.7-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185446
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:40 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD182 SDG#: SGB21-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**94.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**91.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**87.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**87.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**87.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**87.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**87.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**85.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**76.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**43.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**28.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**19.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-7.5-8.7' Soil
SGPP - North Bennington

ELLE Sample # SW 9185447
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 14:50 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD183 SDG#: SGB21-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**95.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**95.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**94.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**92.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**63.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**28.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-8.7-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9185448
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/25/2017 15:00 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD184 SDG#: SGB21-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**100**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**97.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**97.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**97.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**97.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**97.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**97.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**96.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**90.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**58.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**18.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D18-19-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9185449
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/27/2017 09:00 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD185 SDG#: SGB21-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**99.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**79.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**71.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**55.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**50.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**45.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**40.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**35.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**34.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**31.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**21.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-0-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9185450
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 14:50 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD031 SDG#: SGB21-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**96.3**	0.50	0.50	1
07103	**19 mm**	n.a.	**55.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**34.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**31.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**21.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**11.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**6.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**4.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**3.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.005 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D03-10-20' Soil
SGPP - North Bennington

ELLE Sample # SW 9185451
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 14:55 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD032 SDG#: SGB21-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**89.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**51.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**41.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**24.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**12.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**8.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**6.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**5.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**3.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.005 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-0-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185452
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:50 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD191 SDG#: SGB21-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**91.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**68.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**59.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**51.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**45.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**42.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**39.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**33.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D19-1.5-3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185453
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/30/2017 09:55 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD192 SDG#: SGB21-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**79.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**70.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**61.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**56.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**53.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**49.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**44.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D05-0-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9185454
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:20 by RAK

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD051 SDG#: SGB21-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**94.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**90.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**80.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**70.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**66.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**59.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**51.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**33.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D05-1.5-15' Soil
SGPP - North Bennington

ELLE Sample # SW 9185455
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:25 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD052 SDG#: SGB21-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**84.8**	0.50	0.50	1
07103	**19 mm**	n.a.	**84.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**80.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**64.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**60.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**51.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**33.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D05-15-20' Soil
SGPP - North Bennington

ELLE Sample # SW 9185456
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:30 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD053 SDG#: SGB21-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**78.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**61.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**55.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**50.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**46.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**29.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D05-20-27' Soil
SGPP - North Bennington

ELLE Sample # SW 9185457
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/28/2017 11:35 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD054 SDG#: SGB21-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**88.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**80.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**65.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**61.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**56.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**51.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**44.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-0-1.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185458
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 13:00 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD141 SDG#: SGB21-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**85.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**76.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**73.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**63.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**51.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**46.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**32.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**19.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**6.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-1.5-3' Soil
SGPP - North Bennington

ELLE Sample # SW 9185460
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 13:10 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD143 SDG#: SGB21-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**95.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**90.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**79.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**77.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**74.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**70.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**65.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**57.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**55.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**33.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-3-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9185461
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 13:15 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD144 SDG#: SGB21-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**75.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**52.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**46.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**41.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**36.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**32.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**25.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**20.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**18.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D14-9-12' Soil
SGPP - North Bennington

ELLE Sample # SW 9185462
ELLE Group # 1844841
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/29/2017 13:20 by RQM

Submitted: 08/31/2017 09:40
Reported: 09/25/2017 10:52

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GD145 SDG#: SGB21-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422-63 (reapproved 2007)**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**91.8**	0.50	0.50	1
07103	**19 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**73.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**68.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**60.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**56.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**53.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**44.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**41.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**18.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422-63 (reapproved 2007)	1	17252710302A	09/09/2017 15:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1844841
Reported: 09/25/2017 10:52

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1844841 9/85545-62

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52313

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250-ml plastic, PFCs (4)	Soil: 4 oz. glass jars, TOC, pH, moist.	Soil: Particle Size Distribution	Soil: % Solids
										A	A	A	
										1	1	1	
1. SG3-D18-0-1.7'	0	1.7	ft.	08/25/2017	14:30	S	N	1				1	
2. SG3-D18-1.7-7.5'	1.7	7.5	ft.	08/25/2017	14:40	S	N	1				1	
3. SG3-D18-7.5-8.7'	7.5	8.7	ft.	08/25/2017	14:50	S	N	1				1	
4. SG3-D18-8.7-19'	8.7	19	ft.	08/25/2017	15:00	S	N	1				1	
5. SG3-D18-19-25'	19	25	ft.	08/27/2017	09:00	S	N	1				1	
6. SG3-D03-0-10'	0	10	ft.	08/28/2017	14:50	S	N	1				1	
7. SG3-D03-10-20'	10	20	ft.	08/28/2017	14:55	S	N	1				1	
8. SG3-D19-0-1.5'	0	1.5	ft.	08/30/2017	09:50	S	N	1				1	
9. SG3-D19-1.5-3'	1.5	3	ft.	08/30/2017	09:55	S	N	1				1	
10. SG3-D05-0-1.5'	0	1.5	ft.	08/28/2017	11:20	S	N	1				1	

Preservative Code

Field Filtered Y/N

BARR USE ONLY

Sampled by: RAK/RQM/DSZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? ☒ Y ☐ N Date 08/30/17 Time 16:30

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: Date 8/31/17 Time 945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1844841 9185415-62

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52330

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250ml plastic, PFCs (14)	4 oz. glass jar, TOC, pH, metals	Particle Size Distribution, moisture	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A	A				
										1	1	1				
1. SG3-D05-1.5-15'	1.5	15	ft.	08/28/2017	11:25	S	N	1				1				~~Soil metals: TAL cations/ anions except Hg~~
2. SG3-D05-15-20'	15	20	ft.	08/28/17	11:30	S	N	1				1				
3. SG3-D05-20-27'	20	27	ft.	08/28/2017	11:35	S	N	1				1				
4. SG3-D14-0-1.3'	0	1.3	ft.	08/29/2017	13:00	S	N	1				1				
5. SG3-D14-1.3-1.5'	1.3	1.5	ft.	08/29/2017	13:05	S	N	1				1				
6. SG3-D14-1.5-3'	1.5	3	ft.	08/29/2017	13:10	S	N	1				1				
7. SG3-D14-3-9'	3	9	ft.	08/29/2017	13:15	S	N	1				1				
8. SG3-D14-9-12'	9	12	ft.	08/29/2017	13:20	S	N	1				1				
9.																
10.																

BARR USE ONLY

Sampled by: RQM/DSZ/RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? ☒ N Date: 08/30/17 Time: 16:30 Received by: Date: Time:

Relinquished by: On Ice? Y N Date: Time: Received by: Date: 8/31/17 Time: 0740

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Nancy Bornholm

From: Michael D. Dupay <MDupay@barr.com>
Sent: Thursday, September 21, 2017 2:20 PM
To: Nancy Bornholm
Subject: RE: SG3-D14-1.3-1.5' Soil SGPP - North Bennington

Sorry about the delayed response on this.

If we don't have enough sample, then we'll need to cancel. I was hoping because the depth was shallow, they might be able to resample and send a replacement, but that doesn't appear to be going to happen.

Michael

Michael D. Dupay

Senior Environmental Scientist
Minneapolis, MN office: 952.832.2698
cell: 763.234.8791
mdupay@barr.com
www.barr.com

If you no longer wish to receive marketing e-mails from Barr, respond to communications@barr.com and we will be happy to honor your request.

From: Nancy Bornholm [mailto:NancyBornholm@eurofinsUS.com]
Sent: Thursday, September 14, 2017 07:06
To: Michael D. Dupay <MDupay@barr.com>
Subject: SG3-D14-1.3-1.5' Soil SGPP - North Bennington

Michael,

For the above sample we have about 40 gm of dried sieved sample, but we need at least 70 gm to run grain size. Is there additional sample that can be forwarded to us?

Nancy

Nancy Bornholm

Principal Project Manager, Environmental Client Services

eurofins

ELLE - Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
USA
Hours: M, W, Th, F 7 AM – 4 PM
Direct: +1 717-556-7250
Cell: +1 717-725-4760
✉: nancybornholm@eurofinsus.com
http://www.EurofinsUS.com/LancLabsEnv

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193074

Group Number(s): 1844841

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	08/31/2017 9:40
Number of Packages:	1	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	No	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 14:26 on 08/31/2017

General Comments: Cooler received unchilled (Grain size samples)

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 07, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1845403
SDG: SGB22
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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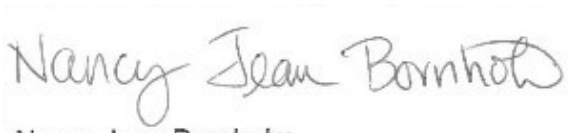
Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-City Water Truck-170831 Drinking Water	08/31/2017 11:35	9188281
SG3-City Water Hose-170831 Drinking Water	08/31/2017 11:40	9188282
SG3-City Water Frac Tk-170831 Drinking Water	08/31/2017 12:00	9188283

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1845403

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9188281, 9188282, 9188283

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17246001 (Sample number(s): 9188281-9188283 UNSPK: 9188281)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorobutanoic Acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9188281, 9188282, 9188283, Blank, LCS, LCSD, MS

Sample Description: SG3-City Water Truck-170831 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9188281
ELLE Group # 1845403
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/31/2017 11:35 by DJZ

Submitted: 09/01/2017 09:55
Reported: 09/07/2017 15:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

TRUCK SDG#: SGB22-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 23:06	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-City Water Hose-170831 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9188282
ELLE Group # 1845403
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/31/2017 11:40 by DJZ

Submitted: 09/01/2017 09:55
Reported: 09/07/2017 15:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HOSE- SDG#: SGB22-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 23:27	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-City Water Frac Tk-170831 Drinking Water
SGPP - North Bennington

ELLE Sample # PW 9188283
ELLE Group # 1845403
Account # 37191

Project Name: SGPP - North Bennington

Collected: 08/31/2017 12:00 by DJZ

Submitted: 09/01/2017 09:55
Reported: 09/07/2017 15:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

TANKF SDG#: SGB22-03

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.8**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**3**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 23:47	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17246001	09/05/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/07/2017 15:24

Group Number: 1845403

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17246001	Sample number(s): 9188281-9188283			
6:2 fluorotelomersulfonate	5	J	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	2	J	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17246001	Sample number(s): 9188281-9188283								
6:2 fluorotelomersulfonate	13.27	18.01	13.27	16.53	136*	125	70-130	9	30
8:2 fluorotelomersulfonate	13.41	15.88	13.41	14.31	118	107	70-130	10	30
NEtFOSAA	14	16.04	14	15.52	115	111	70-130	3	30
NMeFOSAA	14	15.49	14	14.41	111	103	70-130	7	30
Perfluorobutanesulfonate	12.38	12.03	12.38	10.44	97	84	70-130	14	30
Perfluorobutanoic Acid	14	15.32	14	14.97	109	107	70-130	2	30
Perfluorodecanoic acid	14	13.89	14	13.85	99	99	70-130	0	30
Perfluorododecanoic acid	14	13.41	14	14.89	96	106	70-130	11	30
Perfluoroheptanoic acid	14	14.55	14	14.76	104	105	70-130	1	30
Perfluorohexanesulfonate	13.24	12.34	13.24	12.44	93	94	70-130	1	30
Perfluorohexanoic acid	14	13.22	14	14	94	100	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1845403
Reported: 09/07/2017 15:24

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	14	15.42	14	14.89	110	106	70-130	4	30
Perfluoro-octanesulfonate	13.38	10.93	13.38	11.36	82	85	70-130	4	30
Perfluorooctanoic acid	14	14.02	14	14.21	100	102	70-130	1	30
Perfluoropentanoic Acid	14	13.48	14	13.16	96	94	70-130	2	30
Perfluorotetradecanoic acid	14	14.5	14	13.46	104	96	70-130	7	30
Perfluorotridecanoic acid	14	13	14	13.9	93	99	70-130	7	30
Perfluoroundecanoic acid	14	15.28	14	16.01	109	114	70-130	5	30
PFOSA	14	13.77	14	13.65	98	98	70-130	1	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17246001	Sample number(s): 9188281-9188283 UNSPK: 9188281										
6:2 fluorotelomersulfonate	3	U	13.22	20.95			158*		70-130		
8:2 fluorotelomersulfonate	4	U	13.36	13.8			103		70-130		
NEtFOSAA	1	U	13.95	15.06			108		70-130		
NMeFOSAA	1	U	13.95	16.45			118		70-130		
Perfluorobutanesulfonate	0.8	U	12.33	12.01			97		70-130		
Perfluorobutanoic Acid	3	U	13.95	18.48			133*		70-130		
Perfluorodecanoic acid	0.5	U	13.95	16.12			116		70-130		
Perfluorododecanoic acid	0.5	U	13.95	14.99			107		70-130		
Perfluoroheptanoic acid	0.993		13.95	14.73			98		70-130		
Perfluorohexanesulfonate	1	U	13.19	12.87			98		70-130		
Perfluorohexanoic acid	0.967		13.95	15.75			106		70-130		
Perfluorononanoic acid	0.6	U	13.95	15.47			111		70-130		
Perfluoro-octanesulfonate	2	U	13.33	12.62			95		70-130		
Perfluorooctanoic acid	2.71		13.95	15.83			94		70-130		
Perfluoropentanoic Acid	1.30		13.95	15.06			99		70-130		
Perfluorotetradecanoic acid	0.5	U	13.95	14.31			103		70-130		
Perfluorotridecanoic acid	0.5	U	13.95	13.74			99		70-130		
Perfluoroundecanoic acid	1	U	13.95	16.5			118		70-130		
PFOSA	3	U	13.95	14.4			103		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1845403
Reported: 09/07/2017 15:24

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17246001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9188281	86	103	129	83	94	93
9188282	86	101	130	85	97	86
9188283	85	104	132	82	88	94
Blank	96	95	109	92	105	107
LCS	86	88	89	89	96	92
LCSD	88	89	101	86	92	93
MS	86	104	130	76	85	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9188281	111	93	90	85	87	106
9188282	97	90	91	95	81	82
9188283	98	90	91	91	91	98
Blank	100	103	88	94	102	89
LCS	95	98	90	91	90	79
LCSD	89	99	86	84	88	86
MS	99	94	90	96	85	92
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9188281	53	81	62	85	73	34*
9188282	54	77	59	76	64	44*
9188283	60	86	64	84	73	53*
Blank	71	105	86	105	90	53*
LCS	66	92	74	95	78	54*
LCSD	62	75	65	79	73	35*
MS	56	74	70	78	67	35*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1845403 S-918828/1-83

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52287

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Marketpointe Dr	Address: 50 Century Hill Dr
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 20 350 mL plastic/trizma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-City Water Truck 170831	/	/	/	8-31-17	1135	DW	N	2			PFCs (19)	
2. SG3-City Water Hose 170831	/	/	/	8-31-17	1140	DW	N	2			(See Included List)	
3. SG3-City Water FracTk 170831	/	/	/	8-31-17	1200	DW	N	2				
4.												
5.											* RUSH *	
6.											3 Day TAT	
7.												
8.												
9.												
10.												

BARR USE ONLY		Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by:	NJZ	Derek Zander	Y N	8-31-17	1300			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9.1.17	Time 9:50
Barr DQ Manager:	MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELE	Lab WO:	Temperature on Receipt (°C): 1.9 - 1.3			Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location:	Lancaster PA							

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

A-37191
G-1845403
S-9188281-83

Soils (14 compound list)

Perfluorobutanoic acid (PFBA)
Perfluorobutanesulfonate (PFBS)
Perfluorodecanoic acid (PFDA)
Perfluorododecanoic acid (PFDoA)
Perfluoroheptanoic acid (PFHpA)
Perfluorohexanoic acid (PFHxA)
Perfluorohexanesulfonate (PFHxS)
Perfluorononanoic acid (PFNA)
Perfluorooctanoic acid (PFOA)
Perfluoro-octanesulfonate (PFOS)
Perfluoropentanoic acid (PFPeA)
Perfluorotetradecanoic acid (PFTA)
Perfluorotridecanoic acid (PFTriA)
Perfluoroundecanoic acid (PFUnA)

Waters (19 compound list)

6:2 fluorotelomersulfonate
8:2 fluorotelomersulfonate
NEtFOSAA
NMeFOSAA
Perfluoro-octanesulfonate
Perfluorobutanesulfonate
Perfluorobutanoic Acid
Perfluorodecanoic acid
Perfluorododecanoic acid
Perfluoroheptanoic acid
Perfluorohexanesulfonate
Perfluorohexanoic acid
Perfluorononanoic acid
Perfluorooctanoic acid
Perfluoropentanoic Acid
Perfluorotetradecanoic acid
Perfluorotridecanoic acid
Perfluoroundecanoic acid
PFOSA

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193207

Group Number(s): 1845403

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/01/2017 9:55
Number of Packages:	2	Number of Projects:	3
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:22 on 09/01/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.9	DT	Wet	Y	Bagged	N
2	DT131	1.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 19, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1846447
SDG: SGB23
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S01-170905 Groundwater	09/05/2017 15:15	9192587
Trip Blank Water	09/05/2017	9192654

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1846447

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9192587, 9192654

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17253001 (Sample number(s): 9192587, 9192654 UNSPK: P199893)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9192587, 9192654, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 172541063505 (Sample number(s): 9192587 UNSPK: P199893 BKG: P199893)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

SW-846 6020A, Metals

Batch #: 172501063901A (Sample number(s): 9192587 UNSPK: 9192587 BKG: 9192587)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Lead

EPA 351.2, Wet Chemistry

Batch #: 17254108101B (Sample number(s): 9192587 UNSPK: 9192587 BKG: 9192587)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Kjeldahl Nitrogen

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Kjeldahl Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17250005102A (Sample number(s): 9192587 UNSPK: P190320 BKG: P190320, P193250)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: SG3-S01-170905 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9192587
ELLE Group # 1846447
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 15:15 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/19/2017 13:35

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB231 SDG#: SGB23-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**5**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.127**	**J**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0114**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**68.7**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.168**	**J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**16.7**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0166**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.74**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.92**	**J**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072	U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0104**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087	U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016	U	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0011**	**J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00080**	**J**	0.00011	0.0020	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-170905 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9192587
ELLE Group # 1846447
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 15:15 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/19/2017 13:35

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB231 SDG#: SGB23-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**4.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.41 J**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**3.8 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**2.1**	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**235**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**235**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 00:59	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-170905 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9192587
ELLE Group # 1846447
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 15:15 by RAK

Submitted: 09/06/2017 09:50
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C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB231 SDG#: SGB23-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:23	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172501063901D	09/11/2017 00:28	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172501063901B	09/11/2017 00:28	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172501063901A	09/11/2017 00:28	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172501063901A	09/11/2017 05:16	Sarah L Burt	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172501063901	09/08/2017 05:50	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17249249115B	09/07/2017 01:50	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17249249115B	09/07/2017 01:50	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17249249115B	09/07/2017 01:50	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17249249115B	09/07/2017 01:50	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17249249115B	09/07/2017 01:50	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17260107101A	09/17/2017 23:00	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17254108101B	09/15/2017 19:42	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17254108101B	09/11/2017 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17250005102A	09/07/2017 19:22	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17250005102A	09/07/2017 19:22	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17250005102A	09/07/2017 19:22	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17249022601A	09/06/2017 22:00	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9192654
ELLE Group # 1846447
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017

Submitted: 09/06/2017 09:50
Reported: 09/19/2017 13:35

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SDG#: SGB23-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**1**	**J**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 01:19	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1846447
Reported: 09/19/2017 13:35

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17253001	Sample number(s): 9192587,9192654			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172501063901A	Sample number(s): 9192587			
Antimony	0.00045	U	0.00045	0.0020
Arsenic	0.00072	U	0.00072	0.0040
Beryllium	0.000071	U	0.000071	0.0010
Cadmium	0.00015	U	0.00015	0.0010
Chromium	0.00087	U	0.00087	0.0040
Cobalt	0.00016	U	0.00016	0.0010
Copper	0.00054	U	0.00054	0.0040
Lead	0.00011	U	0.00011	0.0020
Nickel	0.0010	U	0.0010	0.0040
Silver	0.00015	U	0.00015	0.0010
Thallium	0.00012	U	0.00012	0.0010
Vanadium	0.00021	U	0.00021	0.0010
Batch number: 172501063901B	Sample number(s): 9192587			
Selenium	0.00050	U	0.00050	0.0040
Batch number: 172501063901D	Sample number(s): 9192587			
Barium	0.00072	U	0.00072	0.0040
Batch number: 172541063505	Sample number(s): 9192587			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/l		mg/l	mg/l
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0374	U	0.0374	0.200
Manganese	0.0016	U	0.0016	0.0100
Potassium	0.179	U	0.179	1.00
Sodium	0.321	U	0.321	2.00
Zinc	0.0065	U	0.0065	0.0400
Batch number: 17249249115B	Sample number(s): 9192587			
Bromide	0.25	U	0.25	0.50
Chloride	0.20	U	0.20	0.40
Nitrate Nitrogen	0.050	U	0.050	0.10
Nitrite Nitrogen	0.050	U	0.050	0.10
Sulfate	0.30	U	0.30	1.0
Batch number: 17254108101B	Sample number(s): 9192587			
Kjeldahl Nitrogen	0.50	U	0.50	1.0
Batch number: 17260107101A	Sample number(s): 9192587			
Ammonia Nitrogen	0.050	U	0.050	0.10
Batch number: 17249022601A	Sample number(s): 9192587			
Ortho-Phosphate as P	0.030	U	0.030	0.090
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3
Batch number: 17250005102A	Sample number(s): 9192587			
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9192587,9192654								
6:2 fluorotelomersulfonate	12.89	12.89			100		70-130		
8:2 fluorotelomersulfonate	13.03	15.8			121		70-130		
NEtFOSAA	13.6	13.49			99		70-130		
NMeFOSAA	13.6	14.05			103		70-130		
Perfluorobutanesulfonate	12.03	10			83		70-130		
Perfluorobutanoic Acid	13.6	13.05			96		70-130		
Perfluorodecanoic acid	13.6	11.42			84		70-130		
Perfluorododecanoic acid	13.6	11.08			81		70-130		
Perfluoroheptanoic acid	13.6	12.03			88		70-130		
Perfluorohexanesulfonate	12.86	11.37			88		70-130		

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorohexanoic acid	13.6	11.67			86		70-130		
Perfluorononanoic acid	13.6	13.93			102		70-130		
Perfluoro-octanesulfonate	13	12.55			96		70-130		
Perfluorooctanoic acid	13.6	12.3			90		70-130		
Perfluoropentanoic Acid	13.6	11.93			88		70-130		
Perfluorotetradecanoic acid	13.6	12.02			88		70-130		
Perfluorotridecanoic acid	13.6	12.92			95		70-130		
Perfluoroundecanoic acid	13.6	12.34			91		70-130		
PFOSA	13.6	12.12			89		70-130		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172501063901A	Sample number(s): 9192587								
Antimony	0.00600	0.00585			98		80-120		
Arsenic	0.0100	0.00896			90		80-120		
Beryllium	0.00400	0.00387			97		80-120		
Cadmium	0.00500	0.00504			101		80-120		
Chromium	0.0500	0.0498			100		80-120		
Cobalt	0.250	0.252			101		80-120		
Copper	0.0500	0.0517			103		80-120		
Lead	0.0150	0.0149			100		80-120		
Nickel	0.0500	0.0511			102		80-120		
Silver	0.0500	0.0509			102		80-120		
Thallium	0.00200	0.00195			98		80-120		
Vanadium	0.0500	0.0497			99		80-120		
Batch number: 172501063901B	Sample number(s): 9192587								
Selenium	0.0100	0.00985			99		80-120		
Batch number: 172501063901D	Sample number(s): 9192587								
Barium	0.0500	0.0453			91		80-120		
Batch number: 172541063505	Sample number(s): 9192587								
Aluminum	2.00	2.06			103		80-120		
Boron	2.00	1.90			95		80-120		
Calcium	4.00	4.00			100		80-120		
Iron	1.00	0.983			98		80-120		
Magnesium	2.00	2.03			101		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	10.05			100		80-120		
Sodium	10	9.97			100		80-120		
Zinc	0.500	0.502			100		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17249249115B	Sample number(s): 9192587								
Bromide	7.50	7.65			102		90-110		
Chloride	3.00	3.00			100		90-110		
Nitrate Nitrogen	0.750	0.754			100		90-110		
Nitrite Nitrogen	0.750	0.725			97		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Sulfate	7.50	7.63			102		90-110		
Batch number: 17254108101B	Sample number(s): 9192587								
Kjeldahl Nitrogen	5.00	5.11			102		90-110		
Batch number: 17260107101A	Sample number(s): 9192587								
Ammonia Nitrogen	1.50	1.58			105		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17249022601A	Sample number(s): 9192587								
Ortho-Phosphate as P	0.400	0.407			102		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17250005102A	Sample number(s): 9192587								
Total Alkalinity to pH 4.5	188	170.06			90		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17253001	Sample number(s): 9192587,9192654 UNSPK: P199893										
6:2 fluorotelomersulfonate	3	U	12.9	12.51	12.88	15.98	97	124	70-130	24	30
8:2 fluorotelomersulfonate	4	U	13.03	11.57	13.01	16.42	89	126	70-130	35*	30
NEtFOSAA	1	U	13.6	14.26	13.58	15.14	105	111	70-130	6	30
NMeFOSAA	1	U	13.6	15.56	13.58	14.94	114	110	70-130	4	30
Perfluorobutanesulfonate	0.841		12.03	12.1	12.02	11.5	94	89	70-130	5	30
Perfluorobutanoic Acid	6.28		13.6	18.65	13.58	18.34	91	89	70-130	2	30
Perfluorodecanoic acid	0.5	U	13.6	12.1	13.58	14.01	89	103	70-130	15	30
Perfluorododecanoic acid	0.5	U	13.6	12.78	13.58	11.69	94	86	70-130	9	30
Perfluoroheptanoic acid	2.13		13.6	13.76	13.58	14.42	85	90	70-130	5	30
Perfluorohexanesulfonate	1	U	12.86	12.42	12.84	11.53	97	90	70-130	7	30
Perfluorohexanoic acid	1.93		13.6	13.79	13.58	14.55	87	93	70-130	5	30
Perfluorononanoic acid	0.749		13.6	14.5	13.58	12.58	101	87	70-130	14	30
Perfluoro-octanesulfonate	3.64		13.01	17.57	12.99	16.82	107	102	70-130	4	30
Perfluorooctanoic acid	27.34		13.6	42.02	13.58	42.02	108	108	70-130	0	30
Perfluoropentanoic Acid	2.33		13.6	13.86	13.58	13.24	85	80	70-130	5	30
Perfluorotetradecanoic acid	0.5	U	13.6	12.43	13.58	12.23	91	90	70-130	2	30
Perfluorotridecanoic acid	0.5	U	13.6	12.91	13.58	12.99	95	96	70-130	1	30
Perfluoroundecanoic acid	1	U	13.6	11.79	13.58	12.54	87	92	70-130	6	30
PFOSA	3	U	13.6	12.34	13.58	13.79	91	101	70-130	11	30

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172501063901A	Sample number(s): 9192587 UNSPK: 9192587									
Antimony	0.00045 U	0.00600	0.00585	0.00600	0.00627	97	104	75-125	7	20
Arsenic	0.00072 U	0.0100	0.0101	0.0100	0.00996	101	100	75-125	2	20
Beryllium	0.000071 U	0.00400	0.00400	0.00400	0.00409	100	102	75-125	2	20
Cadmium	0.00015 U	0.00500	0.00495	0.00500	0.00473	99	95	75-125	5	20
Chromium	0.00087 U	0.0500	0.0511	0.0500	0.0514	102	103	75-125	1	20
Cobalt	0.00016 U	0.250	0.246	0.250	0.250	98	100	75-125	2	20
Copper	0.00105	0.0500	0.0510	0.0500	0.0514	100	101	75-125	1	20
Lead	0.000795	0.0150	0.0153	0.0150	0.0154	97	97	75-125	0	20
Nickel	0.0010 U	0.0500	0.0508	0.0500	0.0505	102	101	75-125	1	20
Silver	0.00015 U	0.0500	0.0501	0.0500	0.0496	100	99	75-125	1	20
Thallium	0.00012 U	0.00200	0.00205	0.00200	0.00206	102	103	75-125	1	20
Vanadium	0.00021 U	0.0500	0.0475	0.0500	0.0485	95	97	75-125	2	20
Batch number: 172501063901B	Sample number(s): 9192587 UNSPK: 9192587									
Selenium	0.00050 U	0.0100	0.00976	0.0100	0.00961	98	96	75-125	2	20
Batch number: 172501063901D	Sample number(s): 9192587 UNSPK: 9192587									
Barium	0.0104	0.0500	0.0598	0.0500	0.0613	99	102	75-125	3	20
Batch number: 172541063505	Sample number(s): 9192587 UNSPK: P199893									
Aluminum	0.748	2.00	2.86	2.00	2.98	106	112	75-125	4	20
Boron	0.0171	2.00	1.97	2.00	2.00	98	99	75-125	1	20
Calcium	209.94	4.00	210.67	4.00	216.14	18 (2)	155 (2)	75-125	3	20
Iron	2.73	1.00	3.43	1.00	3.68	70*	95	75-125	7	20
Magnesium	37.49	2.00	39.05	2.00	40.25	78 (2)	138 (2)	75-125	3	20
Manganese	1.14	0.500	1.63	0.500	1.69	98	109	75-125	3	20
Potassium	1.35	10	11.7	10	11.75	104	104	75-125	0	20
Sodium	114.97	10	123.27	10	125.25	83 (2)	103 (2)	75-125	2	20
Zinc	0.0065 U	0.500	0.510	0.500	0.510	102	102	75-125	0	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17249249115B	Sample number(s): 9192587 UNSPK: 9192587									
Bromide	1.3 U	25	24.99			100		90-110		
Chloride	4.36	10	13.74			94		90-110		
Nitrate Nitrogen	0.407	2.50	2.83			97		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.52			101		90-110		
Sulfate	3.77	25	28.27			98		90-110		
Batch number: 17254108101B	Sample number(s): 9192587 UNSPK: 9192587									
Kjeldahl Nitrogen	2.07	5.00	5.38			66*		90-110		
Batch number: 17260107101A	Sample number(s): 9192587 UNSPK: P192968									
Ammonia Nitrogen	0.116	1.00	1.20			109		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17249022601A	Sample number(s): 9192587 UNSPK: P193416									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Ortho-Phosphate as P	0.266	0.400	0.673	0.400	0.671	102	101	69-131	0	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17250005102A	Sample number(s): 9192587 UNSPK: P190320									
Total Alkalinity to pH 4.5	107.87	188	243.45	188	234.99	72*	68*	77-114	4	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172501063901A	Sample number(s): 9192587 BKG: 9192587			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00016 U	0.00016 U	0 (1)	20
Copper	0.00105	0.00104	1 (1)	20
Lead	0.000795	0.00011 U	200* (1)	20
Nickel	0.0010 U	0.0010 U	0 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 172501063901B	Sample number(s): 9192587 BKG: 9192587			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172501063901D	Sample number(s): 9192587 BKG: 9192587			
Barium	0.0104	0.0101	3 (1)	20
Batch number: 172541063505	Sample number(s): 9192587 BKG: P199893			
Aluminum	0.748	0.748	0 (1)	20
Boron	0.0171	0.0145	17 (1)	20
Calcium	209.94	207.72	1	20
Iron	2.73	2.74	0	20
Magnesium	37.49	37.06	1	20
Manganese	1.14	1.14	0	20
Potassium	1.35	1.37	1 (1)	20
Sodium	114.97	114.74	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/19/2017 13:35

Group Number: 1846447

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17249249115B	Sample number(s): 9192587 BKG: 9192587			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	4.36	4.43	2 (1)	15
Nitrate Nitrogen	0.407	0.423	4 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	3.77	3.82	1 (1)	15
Batch number: 17254108101B	Sample number(s): 9192587 BKG: 9192587			
Kjeldahl Nitrogen	2.07	0.50 U	200* (1)	20
Batch number: 17260107101A	Sample number(s): 9192587 BKG: P192968			
Ammonia Nitrogen	0.116	0.112	4 (1)	20
	mg/l	mg/l		
Batch number: 17249022601A	Sample number(s): 9192587 BKG: P193416			
Ortho-Phosphate as P	0.266	0.273	2 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17250005102A	Sample number(s): 9192587 BKG: P190320			
Total Alkalinity to pH 4.5	107.87	110.76	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9192587	83	94	87	90	78	85
9192654	82	89	82	83	79	80
Blank	87	88	79	94	88	93
LCS	76	79	73	78	69	75
MS	79	106	100	75	68	75
MSD	79	106	110	75	70	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9192587	83	86	84	86	81	61
9192654	92	81	76	88	85	49

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1846447
Reported: 09/19/2017 13:35

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
Blank	80	91	80	78	88	53
LCS	64	74	69	73	78	52
MS	96	77	74	79	75	58
MSD	80	77	79	86	75	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9192587	86	81	86	81	82	30*
9192654	74	74	72	77	74	59*
Blank	79	84	87	76	74	41*
LCS	75	81	74	76	72	54*
MS	77	76	79	67	63	11*
MSD	74	73	72	70	68	26*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1846447 | 9192587 - 54 ① kmz 9/9/17 9192654

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52274

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL w/ HNO3	250 mL	40 mL glass	250 mL	500 mL	250 mL	Soil	% Solids	Preservative Code	Field Filtered Y/N
									O	C	A	A	D	A				
1. SG3-SW1-170905	–	–	–	09/05/2017	1515	GW	N	8	2	1	2	1	1	1			PFC's (19) see list, Metals/cations (Excluding CN & Hg), Anions, Ammonia, Orthophosphate, TKN.	
2.																		
3.																		
4.																		
5.																		
6.																		
7.																		
8.																	Samples in 2 Coolers.	
9.																		
10.																		

BARR USE ONLY

Sampled by: RAK/JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Robert Kosinsky — On Ice? (Y) N — Date 9.5.17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 9/6/17 — Time 950

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.7 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

1.8

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Sample Administration Receipt Documentation Log

Doc Log ID: 193467

Group Number(s): 1846447

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/06/2017 9:50
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:11 on 09/06/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.7	DT	Wet	Y	Bagged	N
2	DT42-01	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 25, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1846458
SDG: SGB24
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S05-0-0.5' Soil	09/05/2017 09:15	9192636
SG3-S05-0.5-1' Soil	09/05/2017 09:25	9192637
SG3-S05-1-1.5' Soil	09/05/2017 09:30	9192638
SG3-S05-3-4' Soil	09/05/2017 09:45	9192639
SG3-S05-8-9' Soil	09/05/2017 10:30	9192640
SG3-S01-0-0.5' Soil	09/05/2017 13:00	9192641
SG3-S01-0-0.5' MS Soil	09/05/2017 13:00	9192642
SG3-S01-0-0.5' MSD Soil	09/05/2017 13:00	9192643
SG3-S01-0-0.5' Dupl Soil	09/05/2017 13:00	9192644
SG3-S01-0.5-1' Soil	09/05/2017 13:30	9192645
SG3-FD11-170905 Soil	09/05/2017	9192646
SG3-FB11-170905 Blank Water	09/05/2017 13:05	9192647
SG3-LTB15-170905 Water	09/05/2017	9192648
SG3-LTB16-170905 Water	09/05/2017	9192649
SG3-S01-1-1.5' Soil	09/05/2017 13:40	9192650
SG3-S01-3-4' Soil	09/05/2017 14:00	9192651
SG3-S01-6.5-7.5' Soil	09/05/2017 14:25	9192652

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1846458

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9192646, 9192652

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9192637, 9192638, 9192639

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Sample #s: 9192640, 9192641

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17257012 (Sample number(s): 9192636-9192643, 9192645-9192646, 9192650-9192652 UNSPK: 9192641)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window

indicating a positive bias for sample(s) LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9192640, 9192641, 9192646, 9192652

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9192640, 9192651

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17264667631B (Sample number(s): 9192641-9192642, 9192644, 9192652 UNSPK: 9192641 BKG: 9192641)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9192636, 9192637, 9192650

The pH was measured in water at 19.7 C.

Sample #s: 9192640, 9192641, 9192644, 9192645, 9192651

The pH was measured in water at 19.8 C.

Sample #s: 9192638, 9192639, 9192646, 9192652

The pH was measured in water at 19.9 C.

Sample Description: SG3-S05-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192636
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:15 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2401 SDG#: SGB24-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.23**	**J**	0.12	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.56**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**		0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.24**	**J**	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,200**		456	1,370	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.74**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/21/2017 00:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192636
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:15 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2401 SDG#: SGB24-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 10:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402A	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9192637
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:25 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2402 SDG#: SGB24-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	UZ	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.87**		0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	UZ	0.22	0.65	1
	Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,230**		413	1,240	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9192637
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:25 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2402 SDG#: SGB24-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 06:13	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 10:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402A	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192638
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2403 SDG#: SGB24-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	UZ	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.57**	**J**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	UZ	0.21	0.64	1

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,010**		675	2,030	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**9.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192638
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2403 SDG#: SGB24-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 06:34	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 10:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402A	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9192639
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:45 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2404 SDG#: SGB24-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	UZ	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.47**	**J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	UZ	0.21	0.63	1

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,610**		426	1,280	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.18**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**10.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9192639
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 09:45 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2404 SDG#: SGB24-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 06:55	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 10:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9192640
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 10:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2405 SDG#: SGB24-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	UZ	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.39**	**J**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	UZ	0.22	0.65	1

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**770**	**J**	336	1,010	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.88**		0.0100	0.0100	1

The pH was measured in water at 19.8 C.

Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.3**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S05-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9192640
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 10:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2405 SDG#: SGB24-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 07:15	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 11:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192641
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2406 SDG#: SGB24-06BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	UZ	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	UZ	0.23	0.68	1

Z = A target analyte(s) in the opening continuing calibration verification standard is outside the QC acceptance limits. Since the result is high and the target analyte(s) is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		536	1,610	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192641
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2406 SDG#: SGB24-06BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 07:36	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631B	09/21/2017 12:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0-0.5' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9192642
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2406 SDG#: SGB24-06MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.7**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.8**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.9**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,700**	941	2,820	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/20/2017 23:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631B	09/21/2017 12:56	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0-0.5' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9192643
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2406 SDG#: SGB24-06MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.8**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.8**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.9**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.8**	0.23	0.68	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/21/2017 23:25	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0-0.5' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9192644
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2406 SDG#: SGB24-06DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**14,800**	464	1,390	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.87**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**14.0**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17264667631B	09/21/2017 13:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9192645
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2407 SDG#: SGB24-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.23**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,210**		242	726	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 08:37	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9192645
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:30 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2407 SDG#: SGB24-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 11:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD11-170905 Soil
SGPP - North Bennington

ELLE Sample # SW 9192646
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2408 SDG#: SGB24-08FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.28**	**J**	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,930**		260	781	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.18**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**4.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 08:58	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD11-170905 Soil
SGPP - North Bennington

ELLE Sample # SW 9192646
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2408 SDG#: SGB24-08FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 11:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB11-170905 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9192647
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:05 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2409 SDG#: SGB24-09FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/15/2017 14:52	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB15-170905 Water
SGPP - North Bennington

ELLE Sample # WW 9192648
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2410 SDG#: SGB24-10TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/18/2017 18:33	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB16-170905 Water
SGPP - North Bennington

ELLE Sample # WW 9192649
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2411 SDG#: SGB24-11TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/15/2017 15:33	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192650
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:40 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2412 SDG#: SGB24-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.50**	**J**	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,530**		344	1,030	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	**Moisture**	n.a.	**15.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 09:18	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192650
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 13:40 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2412 SDG#: SGB24-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 12:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9192651
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 14:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2413 SDG#: SGB24-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.48**	**J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**628**	**J**	281	843	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 09:39	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9192651
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 14:00 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2413 SDG#: SGB24-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631A	09/21/2017 12:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-6.5-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192652
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 14:25 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2414 SDG#: SGB24-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.27**	**J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**791**		168	503	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17257012	09/19/2017 09:59	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S01-6.5-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9192652
ELLE Group # 1846458
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/05/2017 14:25 by RAK

Submitted: 09/06/2017 09:50
Reported: 09/25/2017 11:47

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2414 SDG#: SGB24-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17257012	09/14/2017 16:20	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17264667631B	09/21/2017 13:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039402B	09/12/2017 20:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17250820015A	09/08/2017 10:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/25/2017 11:47

Group Number: 1846458

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17257012	Sample number(s): 9192636-9192643,9192645-9192646,9192650-9192652			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17256006	Sample number(s): 9192647-9192649			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17264667631A	Sample number(s): 9192636-9192640,9192645-9192646,9192650-9192651			
TOC	100	U	100	300
Batch number: 17264667631B	Sample number(s): 9192641-9192642,9192644,9192652			
TOC	100	U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/25/2017 11:47

Group Number: 1846458

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17257012	Sample number(s): 9192636-9192643,9192645-9192646,9192650-9192652								
Perfluorobutanesulfonate	1.20	1.25			104		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.43			105		70-130		
Perfluorododecanoic acid	1.36	1.62			119		70-130		
Perfluoroheptanoic acid	1.36	1.62			119		70-130		
Perfluorohexanesulfonate	1.29	1.23			96		70-130		
Perfluorohexanoic acid	1.36	1.43			105		70-130		
Perfluorononanoic acid	1.36	1.47			108		70-130		
Perfluoro-octanesulfonate	1.30	1.20			92		70-130		
Perfluorooctanoic acid	1.36	1.43			105		70-130		
Perfluoropentanoic acid	1.36	1.33			98		70-130		
Perfluorotetradecanoic acid	1.36	1.57			115		70-130		
Perfluorotridecanoic acid	1.36	1.39			102		70-130		
Perfluoroundecanoic acid	1.36	1.45			107		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17256006	Sample number(s): 9192647-9192649								
Perfluorobutanesulfonate	12.03	10.68	12.03	12.74	89	106	70-130	18	30
Perfluorobutanoic Acid	13.6	13.49	13.6	14.56	99	107	70-130	8	30
Perfluorodecanoic acid	13.6	12.83	13.6	14.19	94	104	70-130	10	30
Perfluorododecanoic acid	13.6	13.77	13.6	15.3	101	112	70-130	10	30
Perfluoroheptanoic acid	13.6	13.39	13.6	14.17	98	104	70-130	6	30
Perfluorohexanesulfonate	12.86	12.18	12.86	12.28	95	96	70-130	1	30
Perfluorohexanoic acid	13.6	13.28	13.6	14.23	98	105	70-130	7	30
Perfluorononanoic acid	13.6	13.36	13.6	15.48	98	114	70-130	15	30
Perfluoro-octanesulfonate	13	12.51	13	13.58	96	104	70-130	8	30
Perfluorooctanoic acid	13.6	13.1	13.6	14.27	96	105	70-130	9	30
Perfluoropentanoic Acid	13.6	13.08	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	13.73	13.6	14.5	101	107	70-130	5	30
Perfluorotridecanoic acid	13.6	13.6	13.6	14.17	100	104	70-130	4	30
Perfluoroundecanoic acid	13.6	13.83	13.6	14.91	102	110	70-130	8	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17264667631A	Sample number(s): 9192636-9192640,9192645-9192646,9192650-9192651								
TOC	7150	6103.59			85		47-143		
Batch number: 17264667631B	Sample number(s): 9192641-9192642,9192644,9192652								
TOC	7150	6103.59			85		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17255039402A	Sample number(s): 9192636-9192638								
pH	7.00	6.98			100		95-105		
Batch number: 17255039402B	Sample number(s): 9192639-9192641,9192644-9192646,9192650-9192652								
pH	7.00	6.98			100		95-105		

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/25/2017 11:47

Group Number: 1846458

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	%	%	%	%					
Batch number: 17250820015A	Sample number(s): 9192636-9192646,9192650-9192652								
Moisture	89.5	89.43			100		99-101		
Moisture	89.5	89.43			100		99-101		
Moisture Duplicate	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17257012	Sample number(s): 9192636-9192643,9192645-9192646,9192650-9192652 UNSPK: 9192641										
Perfluorobutanesulfonate	0.20	U	1.17	1.26	1.18	1.22	108	103	70-130	4	30
Perfluorobutanoic acid	0.20	U	1.33	1.42	1.33	1.43	107	107	70-130	1	30
Perfluorodecanoic acid	0.20	U	1.33	1.49	1.33	1.45	112	109	70-130	2	30
Perfluorododecanoic acid	0.20	U	1.33	1.65	1.33	1.55	124	116	70-130	6	30
Perfluoroheptanoic acid	0.20	U	1.33	1.47	1.33	1.42	111	107	70-130	3	30
Perfluorohexanesulfonate	0.20	U	1.26	1.18	1.26	1.22	94	97	70-130	3	30
Perfluorohexanoic acid	0.099	U	1.33	1.35	1.33	1.53	101	115	70-130	13	30
Perfluorononanoic acid	0.099	U	1.33	1.50	1.33	1.59	113	119	70-130	6	30
Perfluoro-octanesulfonate	0.30	U	1.27	1.47	1.28	1.41	116	111	70-130	4	30
Perfluorooctanoic acid	0.20	U	1.33	1.60	1.33	1.75	121	131*	70-130	9	30
Perfluoropentanoic acid	0.20	U	1.33	1.54	1.33	1.45	116	109	70-130	6	30
Perfluorotetradecanoic acid	0.20	U	1.33	1.62	1.33	1.68	122	126	70-130	3	30
Perfluorotridecanoic acid	0.20	U	1.33	1.46	1.33	1.35	110	101	70-130	8	30
Perfluoroundecanoic acid	0.20	U	1.33	1.54	1.33	1.60	116	120	70-130	4	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17264667631A	Sample number(s): 9192636-9192640,9192645-9192646,9192650-9192651 UNSPK: P188844										
TOC	290	U	18360	14758.41			80		47-143		
Batch number: 17264667631B	Sample number(s): 9192641-9192642,9192644,9192652 UNSPK: 9192641										
TOC	10418.22		24480	27453.06			70		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/25/2017 11:47

Group Number: 1846458

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17264667631A	Sample number(s): 9192636-9192640,9192645-9192646,9192650-9192651 BKG: P188844			
TOC	290 U	298 U	0 (1)	7
Batch number: 17264667631B	Sample number(s): 9192641-9192642,9192644,9192652 BKG: 9192641			
TOC	10418.22	12853.12	21*	7
	Std. Units	Std. Units		
Batch number: 17255039402A	Sample number(s): 9192636-9192638 BKG: P194106			
pH	8.84	8.79	1	3
Batch number: 17255039402B	Sample number(s): 9192639-9192641,9192644-9192646,9192650-9192652 BKG: 9192641			
pH	7.92	7.87	1	3
	%	%		
Batch number: 17250820015A	Sample number(s): 9192636-9192646,9192650-9192652 BKG: 9192641, P192641			
Moisture	13.32	14.04	5	5
Moisture	13.32	14.04	5	5
Moisture Duplicate	13.32	14.04	5	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9192647	78	74	80	83	80	82
9192648	82	77	72	79	78	77
9192649	83	85	86	91	73	77
Blank	82	81	83	89	91	88
LCS	91	90	98	82	82	86
LCSD	76	79	79	86	86	80
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9192647	78	73	82	82	80	81
9192648	72	80	85	79	86	95
9192649	84	84	90	88	86	81
Blank	79	83	81	77	74	77

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1846458
Reported: 09/25/2017 11:47

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCS	84	79	83	86	80	78
LCSD	77	71	74	77	73	70
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9192647	73
9192648	96
9192649	80
Blank	72
LCS	75
LCSD	69
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17257012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9192636	81	78	73	83	77	70
9192637	81	75	78	83	86	86
9192638	87	84	82	82	79	90
9192639	75	70	77	65	76	76
9192640	71	69*	72	58	73	68
9192641	66	62*	64	60	69	68
9192642	82	78	77	84	89	80
9192643	75	72	73	76	80	75
9192645	75	72	76	72	85	83
9192646	66	62*	66	71	79	78
9192650	79	77	76	75	86	84
9192651	76	77	76	79	78	86
9192652	66	65*	64	61	64	70
Blank	82	76	79	80	81	83
LCS	98*	97	91	95	99	94
MS	82	78	77	84	89	80
MSD	75	72	73	76	80	75
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9192636	78	86	83	81	93	92
9192637	82	85	83	80	80	72
9192638	91	97	99	83	94	91

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1846458
Reported: 09/25/2017 11:47

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17257012

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9192639	75	75	73	72	73	77
9192640	69	78	78	64	62	69
9192641	68	73	62	72	66	72
9192642	84	88	88	81	85	80
9192643	77	77	79	75	87	86
9192645	80	86	78	80	89	80
9192646	71	74	75	72	68	67
9192650	83	85	83	81	89	80
9192651	86	85	79	86	85	89
9192652	67	71	67	66	71	81
Blank	84	84	78	79	76	82
LCS	100	87	83	92	100	90
MS	84	88	88	81	85	80
MSD	77	77	79	75	87	86
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9192636	91
9192637	77
9192638	94
9192639	74
9192640	64
9192641	70
9192642	87
9192643	84
9192645	86
9192646	69
9192650	78
9192651	85
9192652	76
Blank	78
LCS	100
MS	87
MSD	84
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1846458 | 9192636-52

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 52271

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 3242/001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL Trip Blank	Soil: 250 mL plastic (PFC's) (14)	Soil: 4 oz glass (TOC, pH, moist)	% Solids	Preservative Code	Field Filtered Y/N	Comments
									1				A		
										A	A				
										1	1				
1. SG3-SΦ5-0-0.5'	0	0.5	ft	09/05/2017	0915	S	N	2		1	1				14 PFC's, Moisture content, TOC, pH
2. SG3-SΦ5-0.5-1'	0.5	1	ft	09/05/2017	0925	S	N	2		1	1				Samples in 2 coolers
3. SG3-SΦ5-1-1.5'	1	1.5	ft	09/05/2017	0930	S	N	2		1	1				
4. SG3-SΦ5-3-4'	3	4	ft	09/05/2017	0945	S	N	2		1	1				
5. SG3-SΦ5-8-9'	8	9	ft	09/05/2017	1030	S	N	2		1	1				
6. SG3-SΦ1-0-0.5'	0	0.5	ft	09/05/2017	1300	S	Y	6		3	3				MS/MSD
7. SG3-SΦ1-0.5-1	0.5	1	ft	09/05/2017	1330	S	N	2		1	1				
8. SG3-SΦ-FD11-170905 (RAK 9-5-17)	—	—	—	09/05/2017	—	S	N	2		1	1				SG3-FD11-170905
9. SG3-FB11-170905	—	—	—	09/05/2017	1305	W	N	1	1						
10. SG3-LTB15-170905	—	—	—	09/05/2017	—	W	N	1	1						Trip Blank - dated 8-15-17 & prepared by ELLE

BARR USE ONLY							
Sampled by: RAK/JMS	Relinquished by: Robert Kashusky	On Ice? Y N	Date 9.5.17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/6/17	Time 950
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 2.7			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\ST\DFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 | 1846458 | 9192636-52

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52316

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd
Name: Michael DuPay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: 250ml Plastic/PECB 14	Soil: 4oz glass/TOC pH, Moist	% Solids	Preservative Code	Field Filtered Y/N
									1	1	1			
									A	A	A			
1. SG3-LTB16-170905	—	—	—	09/05/2017	—	W	N	1	1					
2. SG3-S01-1-1.5'	1	1.5	ft	09/05/2017	1340	S	N	2		1	1			
3. SG3-S01-3-4'	3	4	ft	09/05/2017	1400	S	N	2		1	1			
4. SG3-S01-6.5-7.5'	6.5	7.5	ft	09/05/2017	1425	S	N	2		1	1			
5.														
6.														
7.														
8.														
9.														
10.														

Trip Blank: Dated 8.15.17 Prepared by ELLE

BARR USE ONLY						
Sampled by:	PAK/JMS	Relinquished by: Robert Kimberly	On Ice? Y (N)	Date 9.5.17	Time 1700	Received by:
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C): 2.7	Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location:	Lancaster, PA					

Received by: Date 9/6/17 Time 950

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 193467

Group Number(s): 1846458

Client: BARR ENGINEERING CO

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/06/2017 9:50
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:11 on 09/06/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.7	DT	Wet	Y	Bagged	N
2	DT42-01	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 24, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1847132
SDG: SGB25
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S04-170906 Groundwater	09/06/2017 14:00	9195177
SG3-LTB19-170906 Blank Water	09/06/2017 14:00	9195178
SG3-D13-170906 Groundwater	09/06/2017 12:30	9195179

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1847132

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9195177, 9195178, 9195179

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17253001 (Sample number(s): 9195177-9195179 UNSPK: P199893)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9195177, 9195178, 9195179, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 172541063505 (Sample number(s): 9195177, 9195179 UNSPK: P199893 BKG: P199893)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

SW-846 6020A, Metals

Batch #: 172541063906A (Sample number(s): 9195177, 9195179 UNSPK: P199893 BKG: P199893)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper, Nickel, Vanadium

EPA 300.0, Wet Chemistry

Batch #: 17250249106B (Sample number(s): 9195177, 9195179 UNSPK: P194552 BKG: P194552)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Sulfate

EPA 350.1, Wet Chemistry

Batch #: 17262107102A (Sample number(s): 9195179 UNSPK: P196235 BKG: P196235)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

Sample Description: SG3-S04-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195177
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 14:00 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB251 SDG#: SGB25-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**19**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**0.6**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.757**		0.0894	0.400	1
08014	Boron	7440-42-8	0.0101	U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**41.0**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**8.95**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**8.80**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.58**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.39**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**18.4**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072	U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.220**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015	U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087	U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0049**		0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054	U	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00093**	**J**	0.00011	0.0020	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3-S04-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195177
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 14:00 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB251 SDG#: SGB25-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00083 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**29.5**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.28 J**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**7.5**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.078 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**126**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**126**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 01:40	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195177
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 14:00 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB251 SDG#: SGB25-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:26	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:39	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:39	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:39	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17250249106B	09/08/2017 04:03	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17250249106B	09/08/2017 04:03	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17250249106B	09/08/2017 04:03	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17250249106B	09/08/2017 04:03	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17250249106B	09/08/2017 04:03	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17262107102B	09/20/2017 00:07	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17256108102A	09/16/2017 11:13	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17256108102A	09/13/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17254003205A	09/12/2017 05:36	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17254003205A	09/12/2017 05:36	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17254003205A	09/12/2017 05:36	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17250022601A	09/07/2017 22:00	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB19-170906 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9195178
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 14:00

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB252 SDG#: SGB25-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 02:00	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195179
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB253 SDG#: SGB25-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**3**		0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**1**	**J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**5**		0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**1**	**J**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**4**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.8**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**5**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**72**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**2**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.603**		0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0113**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**64.7**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.53**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**24.8**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.209**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.36**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**8.52**		0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0069**	**J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0011**	**J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0119**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00022**	**J**	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087	U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0058**		0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195179
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB253 SDG#: SGB25-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06033	**Copper**	7440-50-8	**0.0017 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00072 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0101**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0010 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**16.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**1.5**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**15.5**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**234**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**234**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 02:21	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-170906 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9195179
ELLE Group # 1847132
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/24/2017 10:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB253 SDG#: SGB25-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:35	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:42	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:42	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:42	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17250249106B	09/08/2017 04:20	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17250249106B	09/08/2017 04:20	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17250249106B	09/08/2017 04:20	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17250249106B	09/08/2017 04:20	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17250249106B	09/08/2017 04:20	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17262107102A	09/19/2017 22:50	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17256108102A	09/16/2017 11:15	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17256108102A	09/13/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17254003203A	09/11/2017 22:20	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 22:20	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 22:20	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17250022601A	09/07/2017 22:00	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17253001	Sample number(s): 9195177-9195179			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 172541063505	Sample number(s): 9195177,9195179			
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0374	U	0.0374	0.200
Manganese	0.0016	U	0.0016	0.0100
Potassium	0.179	U	0.179	1.00
Sodium	0.321	U	0.321	2.00
Zinc	0.0065	U	0.0065	0.0400
Batch number: 172541063906A	Sample number(s): 9195177,9195179			
Antimony	0.00045	U	0.00045	0.0020
Arsenic	0.00072	U	0.00072	0.0040
Beryllium	0.000071	U	0.000071	0.0010
Cadmium	0.00015	U	0.00015	0.0010
Chromium	0.00087	U	0.00087	0.0040
Cobalt	0.00016	U	0.00016	0.0010
Copper	0.00054	U	0.00054	0.0040
Lead	0.00011	U	0.00011	0.0020

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172541063906B	Sample number(s): 9195177,9195179		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172541063906D	Sample number(s): 9195177,9195179		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17250249106B	Sample number(s): 9195177,9195179		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17256108102A	Sample number(s): 9195177,9195179		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17262107102A	Sample number(s): 9195179		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17262107102B	Sample number(s): 9195177		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17250022601A	Sample number(s): 9195177,9195179		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17254003203A	Sample number(s): 9195179		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17254003205A	Sample number(s): 9195177		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9195177-9195179								
6:2 fluorotelomersulfonate	12.89	12.89			100		70-130		
8:2 fluorotelomersulfonate	13.03	15.8			121		70-130		
NEtFOSAA	13.6	13.49			99		70-130		
NMeFOSAA	13.6	14.05			103		70-130		
Perfluorobutanesulfonate	12.03	10			83		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluorobutanoic Acid	13.6	13.05			96		70-130		
Perfluorodecanoic acid	13.6	11.42			84		70-130		
Perfluorododecanoic acid	13.6	11.08			81		70-130		
Perfluoroheptanoic acid	13.6	12.03			88		70-130		
Perfluorohexanesulfonate	12.86	11.37			88		70-130		
Perfluorohexanoic acid	13.6	11.67			86		70-130		
Perfluorononanoic acid	13.6	13.93			102		70-130		
Perfluoro-octanesulfonate	13	12.55			96		70-130		
Perfluorooctanoic acid	13.6	12.3			90		70-130		
Perfluoropentanoic Acid	13.6	11.93			88		70-130		
Perfluorotetradecanoic acid	13.6	12.02			88		70-130		
Perfluorotridecanoic acid	13.6	12.92			95		70-130		
Perfluoroundecanoic acid	13.6	12.34			91		70-130		
PFOSA	13.6	12.12			89		70-130		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172541063505	Sample number(s): 9195177,9195179								
Aluminum	2.00	2.06			103		80-120		
Boron	2.00	1.90			95		80-120		
Calcium	4.00	4.00			100		80-120		
Iron	1.00	0.983			98		80-120		
Magnesium	2.00	2.03			101		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	10.05			100		80-120		
Sodium	10	9.97			100		80-120		
Zinc	0.500	0.502			100		80-120		
Batch number: 172541063906A	Sample number(s): 9195177,9195179								
Antimony	0.00600	0.00581			97		80-120		
Arsenic	0.0100	0.0109			109		80-120		
Beryllium	0.00400	0.00411			103		80-120		
Cadmium	0.00500	0.00498			100		80-120		
Chromium	0.0500	0.0483			97		80-120		
Cobalt	0.250	0.253			101		80-120		
Copper	0.0500	0.0497			99		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0506			101		80-120		
Silver	0.0500	0.0490			98		80-120		
Thallium	0.00200	0.00188			94		80-120		
Vanadium	0.0500	0.0472			94		80-120		
Batch number: 172541063906B	Sample number(s): 9195177,9195179								
Selenium	0.0100	0.0106			106		80-120		
Batch number: 172541063906D	Sample number(s): 9195177,9195179								
Barium	0.0500	0.0526			105		80-120		
	mg/l	mg/l	mg/l	mg/l					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17250249106B	Sample number(s): 9195177,9195179								
Bromide	7.50	7.51			100		90-110		
Chloride	3.00	2.95			98		90-110		
Nitrate Nitrogen	0.750	0.764			102		90-110		
Nitrite Nitrogen	0.750	0.757			101		90-110		
Sulfate	7.50	7.64			102		90-110		
Batch number: 17256108102A	Sample number(s): 9195177,9195179								
Kjeldahl Nitrogen	5.00	5.16			103		90-110		
Batch number: 17262107102A	Sample number(s): 9195179								
Ammonia Nitrogen	1.50	1.63			109		90-110		
Batch number: 17262107102B	Sample number(s): 9195177								
Ammonia Nitrogen	1.50	1.63			109		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17250022601A	Sample number(s): 9195177,9195179								
Ortho-Phosphate as P	0.400	0.406			101		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17254003203A	Sample number(s): 9195179								
Total Alkalinity to pH 4.5	188	180.53			96		77-114		
Batch number: 17254003205A	Sample number(s): 9195177								
Total Alkalinity to pH 4.5	188	181.04			96		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17253001	Sample number(s): 9195177-9195179 UNSPK: P199893										
6:2 fluorotelomersulfonate	3	U	12.9	12.51	12.88	15.98	97	124	70-130	24	30
8:2 fluorotelomersulfonate	4	U	13.03	11.57	13.01	16.42	89	126	70-130	35*	30
NEtFOSAA	1	U	13.6	14.26	13.58	15.14	105	111	70-130	6	30
NMeFOSAA	1	U	13.6	15.56	13.58	14.94	114	110	70-130	4	30
Perfluorobutanesulfonate	0.841		12.03	12.1	12.02	11.5	94	89	70-130	5	30
Perfluorobutanoic Acid	6.28		13.6	18.65	13.58	18.34	91	89	70-130	2	30
Perfluorodecanoic acid	0.5	U	13.6	12.1	13.58	14.01	89	103	70-130	15	30
Perfluorododecanoic acid	0.5	U	13.6	12.78	13.58	11.69	94	86	70-130	9	30
Perfluoroheptanoic acid	2.13		13.6	13.76	13.58	14.42	85	90	70-130	5	30
Perfluorohexanesulfonate	1	U	12.86	12.42	12.84	11.53	97	90	70-130	7	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l	ng/l					
Perfluorohexanoic acid	1.93	13.6	13.79	13.58	14.55	87	93	70-130	5	30
Perfluorononanoic acid	0.749	13.6	14.5	13.58	12.58	101	87	70-130	14	30
Perfluoro-octanesulfonate	3.64	13.01	17.57	12.99	16.82	107	102	70-130	4	30
Perfluorooctanoic acid	27.34	13.6	42.02	13.58	42.02	108	108	70-130	0	30
Perfluoropentanoic Acid	2.33	13.6	13.86	13.58	13.24	85	80	70-130	5	30
Perfluorotetradecanoic acid	0.5 U	13.6	12.43	13.58	12.23	91	90	70-130	2	30
Perfluorotridecanoic acid	0.5 U	13.6	12.91	13.58	12.99	95	96	70-130	1	30
Perfluoroundecanoic acid	1 U	13.6	11.79	13.58	12.54	87	92	70-130	6	30
PFOSA	3 U	13.6	12.34	13.58	13.79	91	101	70-130	11	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 172541063505	Sample number(s): 9195177,9195179 UNSPK: P199893									
Aluminum	0.748	2.00	2.86	2.00	2.98	106	112	75-125	4	20
Boron	0.0171	2.00	1.97	2.00	2.00	98	99	75-125	1	20
Calcium	209.94	4.00	210.67	4.00	216.14	18 (2)	155 (2)	75-125	3	20
Iron	2.73	1.00	3.43	1.00	3.68	70*	95	75-125	7	20
Magnesium	37.49	2.00	39.05	2.00	40.25	78 (2)	138 (2)	75-125	3	20
Manganese	1.14	0.500	1.63	0.500	1.69	98	109	75-125	3	20
Potassium	1.35	10	11.7	10	11.75	104	104	75-125	0	20
Sodium	114.97	10	123.27	10	125.25	83 (2)	103 (2)	75-125	2	20
Zinc	0.0065 U	0.500	0.510	0.500	0.510	102	102	75-125	0	20
Batch number: 172541063906A	Sample number(s): 9195177,9195179 UNSPK: P199893									
Antimony	0.00045 U	0.00600	0.00621	0.00600	0.00579	103	96	75-125	7	20
Arsenic	0.00182	0.0100	0.0123	0.0100	0.0137	105	118	75-125	10	20
Beryllium	0.000071 U	0.00400	0.00403	0.00400	0.00439	101	110	75-125	9	20
Cadmium	0.00015 U	0.00500	0.00506	0.00500	0.00488	101	98	75-125	4	20
Chromium	0.00087 U	0.0500	0.0497	0.0500	0.0488	99	98	75-125	2	20
Cobalt	0.00240	0.250	0.265	0.250	0.262	105	104	75-125	1	20
Copper	0.00104	0.0500	0.0533	0.0500	0.0527	105	103	75-125	1	20
Lead	0.00180	0.0150	0.0174	0.0150	0.0178	104	106	75-125	2	20
Nickel	0.00122	0.0500	0.0530	0.0500	0.0530	104	104	75-125	0	20
Silver	0.00015 U	0.0500	0.0464	0.0500	0.0480	93	96	75-125	3	20
Thallium	0.00012 U	0.00200	0.00230	0.00200	0.00206	115	103	75-125	11	20
Vanadium	0.000306	0.0500	0.0519	0.0500	0.0508	103	101	75-125	2	20
Batch number: 172541063906B	Sample number(s): 9195177,9195179 UNSPK: P199893									
Selenium	0.00050 U	0.0100	0.0100	0.0100	0.0115	100	115	75-125	14	20
Batch number: 172541063906D	Sample number(s): 9195177,9195179 UNSPK: P199893									
Barium	0.0797	0.0500	0.134	0.0500	0.142	108	125	75-125	6	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17250249106B	Sample number(s): 9195177,9195179 UNSPK: P194552									
Bromide	2.82	25	28.91			104		90-110		
Chloride	1516.95	1000	2575.53			106		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/24/2017 10:54

Group Number: 1847132

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Nitrate Nitrogen	0.499	2.50	3.08			103		90-110		
Nitrite Nitrogen	25.0 U	250	251.66			101		90-110		
Sulfate	49.99	25	77.89			112*		90-110		
Batch number: 17256108102A	Sample number(s): 9195177,9195179 UNSPK: P194676									
Kjeldahl Nitrogen	1.08	5.00	6.16			102		90-110		
Batch number: 17262107102A	Sample number(s): 9195179 UNSPK: P196235									
Ammonia Nitrogen	0.211	2.00	2.74			126*		90-110		
Batch number: 17262107102B	Sample number(s): 9195177 UNSPK: 9195177									
Ammonia Nitrogen	0.0777	1.00	1.17			110		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17250022601A	Sample number(s): 9195177,9195179 UNSPK: P194645									
Ortho-Phosphate as P	2.13	2.00	3.98	2.00	4.06	93	97	69-131	2	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17254003203A	Sample number(s): 9195179 UNSPK: P199893									
Total Alkalinity to pH 4.5	396.02	188	556.78	188	559.9	86	87	77-114	1	10
Batch number: 17254003205A	Sample number(s): 9195177 UNSPK: P196493									
Total Alkalinity to pH 4.5	107.57	188	273.33			88		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172541063505	Sample number(s): 9195177,9195179 BKG: P199893			
Aluminum	0.748	0.748	0 (1)	20
Boron	0.0171	0.0145	17 (1)	20
Calcium	209.94	207.72	1	20
Iron	2.73	2.74	0	20
Magnesium	37.49	37.06	1	20
Manganese	1.14	1.14	0	20
Potassium	1.35	1.37	1 (1)	20
Sodium	114.97	114.74	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172541063906A	Sample number(s): 9195177,9195179 BKG: P199893			
Antimony	0.00045 U	0.00045 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1847132
Reported: 09/24/2017 10:54

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Arsenic	0.00182	0.00192	5 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00240	0.00275	14 (1)	20
Copper	0.00104	0.000773	29* (1)	20
Lead	0.00180	0.00200	10 (1)	20
Nickel	0.00122	0.00164	29* (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000306	0.000241	24* (1)	20
Batch number: 172541063906B	Sample number(s): 9195177,9195179 BKG: P199893			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172541063906D	Sample number(s): 9195177,9195179 BKG: P199893			
Barium	0.0797	0.0904	13	20
	mg/l	mg/l		
Batch number: 17250249106B	Sample number(s): 9195177,9195179 BKG: P194552			
Bromide	2.82	2.84	1 (1)	15
Chloride	1516.95	1503.93	1	15
Nitrate Nitrogen	0.499	0.493	1 (1)	15
Nitrite Nitrogen	25.0 U	25.0 U	0 (1)	15
Sulfate	49.99	50.19	0	15
Batch number: 17256108102A	Sample number(s): 9195177,9195179 BKG: P194676			
Kjeldahl Nitrogen	1.08	1.06	3 (1)	20
Batch number: 17262107102A	Sample number(s): 9195179 BKG: P196235			
Ammonia Nitrogen	0.211	0.177	18 (1)	20
Batch number: 17262107102B	Sample number(s): 9195177 BKG: 9195177			
Ammonia Nitrogen	0.0777	0.0798	3 (1)	20
	mg/l	mg/l		
Batch number: 17250022601A	Sample number(s): 9195177,9195179 BKG: P194645			
Ortho-Phosphate as P	2.13	2.21	4 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17254003203A	Sample number(s): 9195179 BKG: P199893			
Total Alkalinity to pH 4.5	396.02	396.51	0	5
Batch number: 17254003205A	Sample number(s): 9195177 BKG: P196493			
Total Alkalinity to pH 4.5	107.57	107.14	0	5

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1847132
Reported: 09/24/2017 10:54

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9195177	83	96	86	88	85	93
9195178	80	87	82	87	74	82
9195179	79	89	80	75	71	83
Blank	87	88	79	94	88	93
LCS	76	79	73	78	69	75
MS	79	106	100	75	68	75
MSD	79	106	110	75	70	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9195177	91	92	84	84	79	71
9195178	76	83	77	90	82	60
9195179	67	73	83	102	75	60
Blank	80	91	80	78	88	53
LCS	64	74	69	73	78	52
MS	96	77	74	79	75	58
MSD	80	77	79	86	75	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9195177	66	75	69	75	70	35*
9195178	79	87	87	82	87	38*
9195179	69	77	65	72	68	37*
Blank	79	84	87	76	74	41*
LCS	75	81	74	76	72	54*
MS	77	76	79	67	63	11*
MSD	74	73	72	70	68	26*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1847132 | 9195177 – 79

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51384

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/ Trizma	250 mL	40 mL glass	250 mL	500 mL	250 mL	Soil: % Solids	Preservative Code	Field Filtered Y/N
									O	C	A	A	D	A			
									N	N	N	N	N	Y			
1. SG3-S04-170906	—	—	—	09/06/2017	1400	GW	N	8	2	1	2	1	1	1			
2. SG3-LFB1P-170906	—	—	—	09/06/297	1400	W	N	1	1							Trizma Blank Prepared by ELLE 8-11-2017	
3. SG3-D13-170906	—	—	—	09/06/2017	1230	GW	N	8	2	1	2	1	1	1			
4. SG3-Canopy1-170906	—	—	—	09/06/2017	0825	W	N	1				1				Equipment Blank for PFCs	
5. SG3-Canopy2-170906	—	—	—	09/06/2017	0830	W	N	1				1				Equipment Blank for PFCs	
6.																	
7.																	
8.																	
9.																	
10.																	

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: RAK / KMJ2	Robert Kushnay	(Y) N	9.6.17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						9.7.17	945
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:				Temperature on Receipt (°C): 1.3 - 1.8 Custody Seal Intact? ☒ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Nancy Bornholm

From: Michael D. Dupay <MDupay@barr.com>
Sent: Thursday, September 07, 2017 9:29 AM
To: Nancy Bornholm
Subject: Incoming sample modifications

Nancy,

Some samples should be arriving today that require some modifications:

- D-13 series of soils samples do not apparently specify the full parameter list (TOC, metals, pH, moisture, PFAS) on the COC. The correct jars were provided. Could you add any missing parameters to the requested analyses that we've requested for the samples labeled "D-XX" up until now.
- SG3-LFB19-170906 was incorrectly named. It should be a LTB sample, not a LFB sample.
- Samples on the last COC (line items 4 and 5) and named as rinsate blanks or equipment blanks, have a requested rush analysis. If there is difficulty in determining which samples, I can probably tell if you send me the COCs. The phone call from one of the field crew was breaking up this morning and the naming wasn't clear over the phone. 5-day rush is requested.

Thanks,
Michael

Michael D. Dupay

Senior Environmental Scientist
Minneapolis, MN office: 952.832.2698
cell: 763.234.8791
mdupay@barr.com
www.barr.com

If you no longer wish to receive marketing e-mails from Barr, respond to communications@barr.com and we will be happy to honor your request.

Notify us here to report this email as spam.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193626

Group Number(s): 1847132

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/07/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250mL plastic bottles

Unpacked by Timothy Cubberley (6520) at 10:44 on 09/07/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 26, 2017

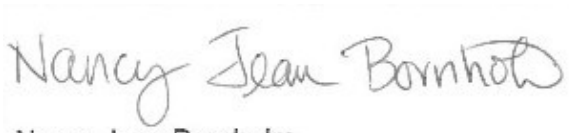
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1847145
SDG: SGB26
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S04-0-0.5' Soil	09/06/2017 09:55	9195193
SG3-S04-0.5-1' Soil	09/06/2017 10:05	9195194
SG3-S04-1-1.5' Soil	09/06/2017 10:15	9195195
SG3-S04-3-4' Soil	09/06/2017 10:50	9195196
SG3-LTB17-17-09-06 Water	09/06/2017	9195197
SG3-LTB18-17-09-06 Water	09/06/2017	9195198
SG3-S04-7-8' Soil	09/06/2017 11:40	9195199
SG3-D13-0-0.5' Soil	09/06/2017 10:05	9195200
SG3-D13-0.5-1' Soil	09/06/2017 10:10	9195201
SG3-D13-1-1.5' Soil	09/06/2017 10:15	9195202
SG3-D13-3-4' Soil	09/06/2017 10:25	9195203
SG3-D13-8-9' Soil	09/06/2017 10:45	9195204
SG3-D13-15-16' Soil	09/06/2017 12:30	9195205
SG3-D13-18-19' Soil	09/06/2017 12:45	9195206
SG3-D13-24-25' Soil	09/06/2017 13:05	9195207

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1847145

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9195198

The recovery for injection internal 13C2-PFDA was outside of QC acceptance limits marginally high. Since the recovery for the extraction standards were within QC acceptance limits, the data is reported.

Sample #s: 9195193, 9195194, 9195201, 9195202, 9195203, 9195207

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17258009 (Sample number(s): 9195193-9195196, 9195199-9195207 UNSPK: 9195193)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9195193, 9195194, 9195201, 9195202, 9195203, 9195207, MS

SW-846 6010C, Metals

Batch #: 172541063702 (Sample number(s): 9195200-9195207 UNSPK: P199868 BKG: P199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Calcium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD

were outside acceptance windows: Aluminum, Iron, Magnesium, Manganese

SW-846 6020A, Metals

Batch #: 172541063702A (Sample number(s): 9195200-9195207 UNSPK: P199868 BKG: P199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 172541063702B (Sample number(s): 9195200-9195207 UNSPK: P199868 BKG: P199868)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172541063702D (Sample number(s): 9195200-9195207 UNSPK: P199868 BKG: P199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17265667631A (Sample number(s): 9195193-9195196, 9195199-9195200 UNSPK: P193831 BKG: P193831)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9195194, 9195195, 9195196, 9195199

The pH was measured in water at 19.9 C.

Sample #s: 9195193, 9195200, 9195203, 9195205, 9195206, 9195207

The pH was measured in water at 20.1 C.

Sample #s: 9195202, 9195204

The pH was measured in water at 20.2 C.

Sample #s: 9195201

The pH was measured in water at 20.3 C.

Sample Description: SG3-S04-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195193
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 09:55 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2601 SDG#: SGB26-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.41**	**J**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,200**		558	1,670	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.97**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 16:06	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195193
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 09:55 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2601 SDG#: SGB26-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 14:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039403A	09/12/2017 21:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9195194
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2602 SDG#: SGB26-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17**	**J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.72**	**J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,700**		514	1,540	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.51**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 16:27	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9195194
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2602 SDG#: SGB26-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 14:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039403A	09/12/2017 21:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195195
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:15 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2603 SDG#: SGB26-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.18**	**J**	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.39**	**J**	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.2**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,630**		480	1,440	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.85**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 16:48	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195195
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:15 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2603 SDG#: SGB26-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 14:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039403A	09/12/2017 21:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9195196
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:50 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2604 SDG#: SGB26-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,540**		228	685	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.62**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 17:08	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9195196
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:50 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2604 SDG#: SGB26-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 15:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039403A	09/12/2017 21:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB17-17-09-06 Water
SGPP - North Bennington

ELLE Sample # WW 9195197
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2605 SDG#: SGB26-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/15/2017 15:53	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB18-17-09-06 Water
SGPP - North Bennington

ELLE Sample # WW 9195198
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2606 SDG#: SGB26-06TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

The recovery for injection internal 13C2-PFDA was outside of QC acceptance limits marginally high. Since the recovery for the extraction standards were within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/18/2017 19:01	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-7-8' Soil
SGPP - North Bennington

ELLE Sample # SW 9195199
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 11:40 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2607 SDG#: SGB26-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,470**		218	654	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.47**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 18:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S04-7-8' Soil
SGPP - North Bennington

ELLE Sample # SW 9195199
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 11:40 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2607 SDG#: SGB26-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 15:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17255039403A	09/12/2017 21:05	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195200
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2608 SDG#: SGB26-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.75	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.75	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.75	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.75	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.75	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.50	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17**	**J**	0.13	0.50	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.55**	**J**	0.38	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.25	0.75	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.75	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.75	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.75	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,900**		11.3	50.7	1
01650	**Calcium**	7440-70-2	**38,000**		4.22	50.7	1
01654	**Iron**	7439-89-6	**18,200**		10.2	50.7	1
01657	**Magnesium**	7439-95-4	**17,800**		3.08	25.3	1
06958	**Manganese**	7439-96-5	**624**		0.105	1.27	1
01662	**Potassium**	7440-09-7	**1,270**		21.2	127	1
01667	**Sodium**	7440-23-5	**69.0**	**J**	21.2	253	1
06972	**Zinc**	7440-66-6	**89.6**		0.304	5.07	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.289**	**J**	0.118	0.507	2
06125	**Arsenic**	7440-38-2	**6.94**		0.162	1.01	2
06126	**Barium**	7440-39-3	**66.2**		0.230	1.01	2
06127	**Beryllium**	7440-41-7	**0.297**		0.0133	0.253	2
06128	**Cadmium**	7440-43-9	**0.287**		0.0436	0.253	2
06131	**Chromium**	7440-47-3	**11.8**		0.220	1.01	2
06132	**Cobalt**	7440-48-4	**14.9**		0.0395	0.253	2
06133	**Copper**	7440-50-8	**23.2**		0.136	1.01	2
06135	**Lead**	7439-92-1	**74.9**		0.0281	0.507	2
06139	**Nickel**	7440-02-0	**13.9**		0.252	1.01	2
06141	**Selenium**	7782-49-2	**0.172**	**J**	0.127	1.01	2
06142	**Silver**	7440-22-4	**0.0933**	**J**	0.0370	0.253	2
06145	**Thallium**	7440-28-0	**0.406**		0.0317	0.253	2
06148	**Vanadium**	7440-62-2	**12.9**		0.0540	0.253	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195200
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2608 SDG#: SGB26-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**20,300**	850	2,550	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**24.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 18:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:22	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:22	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:08	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:49	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 13:58	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195200
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2608 SDG#: SGB26-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:49	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:49	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631A	09/22/2017 15:27	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9195201
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:10 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2609 SDG#: SGB26-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15**	**J**	0.12	0.48	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.56**	**J**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**		0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.72	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,500**		10.7	47.9	1
01650	**Calcium**	7440-70-2	**40,700**		3.99	47.9	1
01654	**Iron**	7439-89-6	**20,900**		9.65	47.9	1
01657	**Magnesium**	7439-95-4	**19,300**		2.91	24.0	1
06958	**Manganese**	7439-96-5	**572**		0.0995	1.20	1
01662	**Potassium**	7440-09-7	**1,610**		20.0	120	1
01667	**Sodium**	7440-23-5	**76.1**	**J**	20.0	240	1
06972	**Zinc**	7440-66-6	**87.9**		0.288	4.79	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.369**	**J**	0.112	0.479	2
06125	**Arsenic**	7440-38-2	**7.50**		0.153	0.959	2
06126	**Barium**	7440-39-3	**57.6**		0.218	0.959	2
06127	**Beryllium**	7440-41-7	**0.355**		0.0126	0.240	2
06128	**Cadmium**	7440-43-9	**0.424**		0.0412	0.240	2
06131	**Chromium**	7440-47-3	**10.7**		0.209	0.959	2
06132	**Cobalt**	7440-48-4	**8.83**		0.0374	0.240	2
06133	**Copper**	7440-50-8	**21.6**		0.128	0.959	2
06135	**Lead**	7439-92-1	**80.9**		0.0266	0.479	2
06139	**Nickel**	7440-02-0	**16.1**		0.239	0.959	2
06141	**Selenium**	7782-49-2	**0.211**	**J**	0.120	0.959	2
06142	**Silver**	7440-22-4	**0.0932**	**J**	0.0350	0.240	2
06145	**Thallium**	7440-28-0	**0.136**	**J**	0.0300	0.240	2
06148	**Vanadium**	7440-62-2	**13.4**		0.0511	0.240	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9195201
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:10 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2609 SDG#: SGB26-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**13,300**	776	2,330	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**18.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 18:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:26	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:26	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:11	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:52	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/19/2017 11:34	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:26	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9195201
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:10 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2609 SDG#: SGB26-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:52	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:52	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 16:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401B	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195202
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:15 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2610 SDG#: SGB26-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,170**		10.2	45.6	1
01650	**Calcium**	7440-70-2	**28,700**		3.80	45.6	1
01654	**Iron**	7439-89-6	**13,400**		9.18	45.6	1
01657	**Magnesium**	7439-95-4	**12,500**		2.77	22.8	1
06958	**Manganese**	7439-96-5	**389**		0.0947	1.14	1
01662	**Potassium**	7440-09-7	**1,170**		19.0	114	1
01667	**Sodium**	7440-23-5	**53.5**	**J**	19.0	228	1
06972	**Zinc**	7440-66-6	**49.9**		0.274	4.56	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.180**	**J**	0.106	0.456	2
06125	**Arsenic**	7440-38-2	**4.80**		0.146	0.913	2
06126	**Barium**	7440-39-3	**47.6**		0.207	0.913	2
06127	**Beryllium**	7440-41-7	**0.228**	**J**	0.0120	0.228	2
06128	**Cadmium**	7440-43-9	**0.227**	**J**	0.0392	0.228	2
06131	**Chromium**	7440-47-3	**7.82**		0.198	0.913	2
06132	**Cobalt**	7440-48-4	**5.60**		0.0356	0.228	2
06133	**Copper**	7440-50-8	**13.2**		0.122	0.913	2
06135	**Lead**	7439-92-1	**31.3**		0.0253	0.456	2
06139	**Nickel**	7440-02-0	**10.4**		0.227	0.913	2
06141	**Selenium**	7782-49-2	**0.116**	**J**	0.114	0.913	2
06142	**Silver**	7440-22-4	**0.0523**	**J**	0.0333	0.228	2
06145	**Thallium**	7440-28-0	**0.0715**	**J**	0.0285	0.228	2
06148	**Vanadium**	7440-62-2	**8.74**		0.0486	0.228	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195202
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:15 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2610 SDG#: SGB26-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**5,110**	241	722	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**13.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 19:11	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:38	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:38	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:28	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:01	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:00	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9195202
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:15 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2610 SDG#: SGB26-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:01	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:01	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 17:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9195203
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:25 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2611 SDG#: SGB26-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.79	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.79	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.79	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.79	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.79	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.39	U	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**		0.26	0.79	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.79	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.79	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.79	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,300**		11.2	50.3	1
01650	**Calcium**	7440-70-2	**3,240**		4.18	50.3	1
01654	**Iron**	7439-89-6	**34,300**		50.6	251	5
01657	**Magnesium**	7439-95-4	**6,040**		3.05	25.1	1
06958	**Manganese**	7439-96-5	**1,230**		0.104	1.26	1
01662	**Potassium**	7440-09-7	**2,560**		21.0	126	1
01667	**Sodium**	7440-23-5	**266**		21.0	251	1
06972	**Zinc**	7440-66-6	**88.3**		0.302	5.03	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.283**	**J**	0.117	0.503	2
06125	**Arsenic**	7440-38-2	**12.5**		0.161	1.01	2
06126	**Barium**	7440-39-3	**121**		0.228	1.01	2
06127	**Beryllium**	7440-41-7	**0.805**		0.0132	0.251	2
06128	**Cadmium**	7440-43-9	**0.396**		0.0432	0.251	2
06131	**Chromium**	7440-47-3	**17.7**		0.219	1.01	2
06132	**Cobalt**	7440-48-4	**17.8**		0.0392	0.251	2
06133	**Copper**	7440-50-8	**33.2**		0.135	1.01	2
06135	**Lead**	7439-92-1	**29.8**		0.0279	0.503	2
06139	**Nickel**	7440-02-0	**31.7**		0.250	1.01	2
06141	**Selenium**	7782-49-2	**0.293**	**J**	0.126	1.01	2
06142	**Silver**	7440-22-4	**0.0949**	**J**	0.0367	0.251	2
06145	**Thallium**	7440-28-0	**0.266**		0.0314	0.251	2
06148	**Vanadium**	7440-62-2	**23.7**		0.0535	0.251	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9195203
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:25 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2611 SDG#: SGB26-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,420**	467	1,400	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.32**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**27.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 19:32	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:31	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:41	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/16/2017 09:45	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:41	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:31	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:31	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:31	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:31	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:04	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9195203
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:25 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2611 SDG#: SGB26-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:04	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:04	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 17:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9195204
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2612 SDG#: SGB26-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.53**	**J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,570**		9.40	42.1	1
01650	**Calcium**	7440-70-2	**51,000**		3.50	42.1	1
01654	**Iron**	7439-89-6	**17,600**		8.47	42.1	1
01657	**Magnesium**	7439-95-4	**27,300**		2.56	21.0	1
06958	**Manganese**	7439-96-5	**591**		0.0873	1.05	1
01662	**Potassium**	7440-09-7	**1,240**		17.6	105	1
01667	**Sodium**	7440-23-5	**97.7**	**J**	17.6	210	1
06972	**Zinc**	7440-66-6	**41.8**		0.252	4.21	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.154**	**J**	0.0980	0.421	2
06125	**Arsenic**	7440-38-2	**7.22**		0.135	0.841	2
06126	**Barium**	7440-39-3	**57.4**		0.191	0.841	2
06127	**Beryllium**	7440-41-7	**0.344**		0.0110	0.210	2
06128	**Cadmium**	7440-43-9	**0.197**	**J**	0.0362	0.210	2
06131	**Chromium**	7440-47-3	**7.63**		0.183	0.841	2
06132	**Cobalt**	7440-48-4	**40.2**		0.0328	0.210	2
06133	**Copper**	7440-50-8	**13.9**		0.113	0.841	2
06135	**Lead**	7439-92-1	**8.37**		0.0233	0.421	2
06139	**Nickel**	7440-02-0	**17.4**		0.210	0.841	2
06141	Selenium	7782-49-2	0.105	U	0.105	0.841	2
06142	**Silver**	7440-22-4	**0.0365**	**J**	0.0307	0.210	2
06145	**Thallium**	7440-28-0	**0.110**	**J**	0.0263	0.210	2
06148	**Vanadium**	7440-62-2	**8.96**		0.0448	0.210	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9195204
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2612 SDG#: SGB26-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,860**	252	756	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.46**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**10.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 19:52	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:49	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:49	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:34	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:07	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:07	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9195204
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 10:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2612 SDG#: SGB26-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:07	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:07	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/25/2017 10:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9195205
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2613 SDG#: SGB26-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.51**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,640**		10.4	46.5	1
01650	**Calcium**	7440-70-2	**54,100**		3.87	46.5	1
01654	**Iron**	7439-89-6	**27,500**		9.35	46.5	1
01657	**Magnesium**	7439-95-4	**22,700**		2.82	23.2	1
06958	**Manganese**	7439-96-5	**631**		0.0964	1.16	1
01662	**Potassium**	7440-09-7	**1,370**		19.4	116	1
01667	**Sodium**	7440-23-5	**108**	**J**	19.4	232	1
06972	**Zinc**	7440-66-6	**79.0**		0.279	4.65	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.211**	**J**	0.108	0.465	2
06125	**Arsenic**	7440-38-2	**8.23**		0.149	0.929	2
06126	**Barium**	7440-39-3	**61.0**		0.211	0.929	2
06127	**Beryllium**	7440-41-7	**0.430**		0.0122	0.232	2
06128	**Cadmium**	7440-43-9	**0.204**	**J**	0.0400	0.232	2
06131	**Chromium**	7440-47-3	**9.70**		0.202	0.929	2
06132	**Cobalt**	7440-48-4	**15.5**		0.0362	0.232	2
06133	**Copper**	7440-50-8	**21.3**		0.125	0.929	2
06135	**Lead**	7439-92-1	**16.5**		0.0258	0.465	2
06139	**Nickel**	7440-02-0	**19.0**		0.231	0.929	2
06141	**Selenium**	7782-49-2	**0.149**	**J**	0.116	0.929	2
06142	**Silver**	7440-22-4	**0.0509**	**J**	0.0339	0.232	2
06145	**Thallium**	7440-28-0	**0.157**	**J**	0.0290	0.232	2
06148	**Vanadium**	7440-62-2	**9.52**		0.0495	0.232	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9195205
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2613 SDG#: SGB26-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,140**	200	599	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**13.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 20:13	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:53	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:53	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:37	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:10	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:09	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-15-16' Soil
SGPP - North Bennington

ELLE Sample # SW 9195205
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2613 SDG#: SGB26-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:10	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:10	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 17:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9195206
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2614 SDG#: SGB26-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,210**		10.2	45.8	1
01650	**Calcium**	7440-70-2	**90,300**		19.1	229	5
01654	**Iron**	7439-89-6	**10,800**		9.21	45.8	1
01657	**Magnesium**	7439-95-4	**44,000**		2.78	22.9	1
06958	**Manganese**	7439-96-5	**622**		0.0950	1.14	1
01662	**Potassium**	7440-09-7	**858**		19.1	114	1
01667	**Sodium**	7440-23-5	**74.0**	**J**	19.1	229	1
06972	**Zinc**	7440-66-6	**24.6**		0.275	4.58	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.107	U	0.107	0.458	2
06125	**Arsenic**	7440-38-2	**4.26**		0.147	0.916	2
06126	**Barium**	7440-39-3	**45.6**		0.208	0.916	2
06127	**Beryllium**	7440-41-7	**0.194**	**J**	0.0120	0.229	2
06128	**Cadmium**	7440-43-9	**0.456**		0.0394	0.229	2
06131	**Chromium**	7440-47-3	**4.62**		0.199	0.916	2
06132	**Cobalt**	7440-48-4	**12.5**		0.0357	0.229	2
06133	**Copper**	7440-50-8	**7.10**		0.123	0.916	2
06135	**Lead**	7439-92-1	**8.10**		0.0254	0.458	2
06139	**Nickel**	7440-02-0	**20.3**		0.228	0.916	2
06141	Selenium	7782-49-2	0.114	U	0.114	0.916	2
06142	Silver	7440-22-4	0.0334	U	0.0334	0.229	2
06145	**Thallium**	7440-28-0	**0.116**	**J**	0.0286	0.229	2
06148	**Vanadium**	7440-62-2	**5.49**		0.0488	0.229	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9195206
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2614 SDG#: SGB26-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,980**	288	864	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	**Moisture**	n.a.	**13.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 20:33	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:01	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:57	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:41	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:13	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:10	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9195206
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 12:45 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2614 SDG#: SGB26-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:13	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:13	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 20:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9195207
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 13:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2615 SDG#: SGB26-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,090**		9.93	44.4	1
01650	**Calcium**	7440-70-2	**58,600**		3.70	44.4	1
01654	**Iron**	7439-89-6	**23,800**		8.94	44.4	1
01657	**Magnesium**	7439-95-4	**20,600**		2.70	22.2	1
06958	**Manganese**	7439-96-5	**659**		0.0922	1.11	1
01662	**Potassium**	7440-09-7	**1,810**		18.6	111	1
01667	**Sodium**	7440-23-5	**67.7**	**J**	18.6	222	1
06972	**Zinc**	7440-66-6	**50.9**		0.267	4.44	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.127**	**J**	0.104	0.444	2
06125	**Arsenic**	7440-38-2	**8.73**		0.142	0.889	2
06126	**Barium**	7440-39-3	**70.3**		0.202	0.889	2
06127	**Beryllium**	7440-41-7	**0.439**		0.0116	0.222	2
06128	**Cadmium**	7440-43-9	**0.432**		0.0382	0.222	2
06131	**Chromium**	7440-47-3	**9.39**		0.193	0.889	2
06132	**Cobalt**	7440-48-4	**13.3**		0.0347	0.222	2
06133	**Copper**	7440-50-8	**16.1**		0.119	0.889	2
06135	**Lead**	7439-92-1	**13.5**		0.0247	0.444	2
06139	**Nickel**	7440-02-0	**23.7**		0.221	0.889	2
06141	**Selenium**	7782-49-2	**0.126**	**J**	0.111	0.889	2
06142	**Silver**	7440-22-4	**0.0554**	**J**	0.0324	0.222	2
06145	**Thallium**	7440-28-0	**0.166**	**J**	0.0278	0.222	2
06148	**Vanadium**	7440-62-2	**11.0**		0.0473	0.222	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9195207
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 13:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2615 SDG#: SGB26-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**234**	**J**	177	530	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.61**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17258009	09/20/2017 20:54	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17258009	09/17/2017 11:15	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:05	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:05	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:44	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:16	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/19/2017 11:37	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:27	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-24-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9195207
ELLE Group # 1847145
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 13:05 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/26/2017 06:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

G2615 SDG#: SGB26-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:16	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:16	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17265667631B	09/22/2017 18:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039401A	09/13/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997	1	17255820003A	09/12/2017 12:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1847145
Reported: 09/26/2017 06:57

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17258009	Sample number(s): 9195193-9195196,9195199-9195207			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17256006	Sample number(s): 9195197-9195198			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172541063702	Sample number(s): 9195200-9195207			
Aluminum	8.94	U	8.94	40.0
Calcium	12.6	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	8.08	J	2.43	20.0
Manganese	0.110	J	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/26/2017 06:57

Group Number: 1847145

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Zinc	0.785	J	0.240	4.00
Batch number: 172541063702A	Sample number(s): 9195200-9195207			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.185	J	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172541063702B	Sample number(s): 9195200-9195207			
Selenium	0.100	U	0.100	0.800
Batch number: 172541063702D	Sample number(s): 9195200-9195207			
Barium	0.182	U	0.182	0.800
Batch number: 17265667631A	Sample number(s): 9195193-9195196,9195199-9195200			
TOC	100	U	100	300
Batch number: 17265667631B	Sample number(s): 9195201-9195207			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17258009	Sample number(s): 9195193-9195196,9195199-9195207								
Perfluorobutanesulfonate	1.20	1.14	1.20	1.24	95	103	70-130	8	30
Perfluorobutanoic acid	1.36	1.46	1.36	1.49	107	110	70-130	2	30
Perfluorodecanoic acid	1.36	1.34	1.36	1.31	99	96	70-130	2	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.47	104	108	70-130	4	30
Perfluoroheptanoic acid	1.36	1.46	1.36	1.53	107	112	70-130	4	30
Perfluorohexanesulfonate	1.29	1.25	1.29	1.19	97	92	70-130	5	30
Perfluorohexanoic acid	1.36	1.55	1.36	1.43	114	105	70-130	8	30
Perfluorononanoic acid	1.36	1.51	1.36	1.37	111	101	70-130	10	30
Perfluoro-octanesulfonate	1.30	1.35	1.30	1.24	104	95	70-130	9	30
Perfluorooctanoic acid	1.36	1.66	1.36	1.41	122	104	70-130	17	30
Perfluoropentanoic acid	1.36	1.38	1.36	1.43	101	105	70-130	4	30
Perfluorotetradecanoic acid	1.36	1.45	1.36	1.60	107	117	70-130	10	30
Perfluorotridecanoic acid	1.36	1.58	1.36	1.69	116	124	70-130	7	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/26/2017 06:57

Group Number: 1847145

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluoroundecanoic acid	1.36	1.46	1.36	1.39	107	102	70-130	5	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17256006	Sample number(s): 9195197-9195198								
Perfluorobutanesulfonate	12.03	10.68	12.03	12.74	89	106	70-130	18	30
Perfluorobutanoic Acid	13.6	13.49	13.6	14.56	99	107	70-130	8	30
Perfluorodecanoic acid	13.6	12.83	13.6	14.19	94	104	70-130	10	30
Perfluorododecanoic acid	13.6	13.77	13.6	15.3	101	112	70-130	10	30
Perfluoroheptanoic acid	13.6	13.39	13.6	14.17	98	104	70-130	6	30
Perfluorohexanesulfonate	12.86	12.18	12.86	12.28	95	96	70-130	1	30
Perfluorohexanoic acid	13.6	13.28	13.6	14.23	98	105	70-130	7	30
Perfluorononanoic acid	13.6	13.36	13.6	15.48	98	114	70-130	15	30
Perfluoro-octanesulfonate	13	12.51	13	13.58	96	104	70-130	8	30
Perfluorooctanoic acid	13.6	13.1	13.6	14.27	96	105	70-130	9	30
Perfluoropentanoic Acid	13.6	13.08	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	13.73	13.6	14.5	101	107	70-130	5	30
Perfluorotridecanoic acid	13.6	13.6	13.6	14.17	100	104	70-130	4	30
Perfluoroundecanoic acid	13.6	13.83	13.6	14.91	102	110	70-130	8	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172541063702	Sample number(s): 9195200-9195207								
Aluminum	200	211.13			106		80-120		
Calcium	400	408.32			102		80-120		
Iron	100	100.32			100		80-120		
Magnesium	200	209.03			105		80-120		
Manganese	50	50.88			102		80-120		
Potassium	1000	983.36			98		80-120		
Sodium	1000	1018.2			102		80-120		
Zinc	50	49.47			99		80-120		
Batch number: 172541063702A	Sample number(s): 9195200-9195207								
Antimony	0.600	0.615			103		80-120		
Arsenic	1.00	1.04			104		80-120		
Beryllium	0.400	0.398			100		80-120		
Cadmium	0.500	0.534			107		80-120		
Chromium	5.00	5.23			105		80-120		
Cobalt	25	25.38			102		80-120		
Copper	5.00	5.32			106		80-120		
Lead	1.50	1.53			102		80-120		
Nickel	5.00	5.65			113		80-120		
Silver	5.00	5.47			109		80-120		
Thallium	0.200	0.191			95		80-120		
Vanadium	5.00	5.09			102		80-120		
Batch number: 172541063702B	Sample number(s): 9195200-9195207								
Selenium	1.00	0.948			95		80-120		
Batch number: 172541063702D	Sample number(s): 9195200-9195207								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/26/2017 06:57

Group Number: 1847145

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg					
Barium	5.00	5.74			115		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17265667631A	Sample number(s): 9195193-9195196,9195199-9195200								
TOC	7150	5761.63			81		47-143		
Batch number: 17265667631B	Sample number(s): 9195201-9195207								
TOC	7150	5761.63			81		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17255039403A	Sample number(s): 9195193-9195196,9195199								
pH	7.00	7.02			100		95-105		
Batch number: 17256039401A	Sample number(s): 9195200,9195203-9195207								
pH	7.00	6.98			100		95-105		
Batch number: 17256039401B	Sample number(s): 9195201								
pH	7.00	6.98			100		95-105		
Batch number: 17257039402A	Sample number(s): 9195202								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17255820003A	Sample number(s): 9195193-9195196,9195199-9195207								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17258009	Sample number(s): 9195193-9195196,9195199-9195207 UNSPK: 9195193										
Perfluorobutanesulfonate	0.19	U	1.13	1.12			100		70-130		
Perfluorobutanoic acid	0.19	U	1.28	1.47			115		70-130		
Perfluorodecanoic acid	0.19	U	1.28	1.17			92		70-130		
Perfluorododecanoic acid	0.19	U	1.28	1.37			107		70-130		
Perfluoroheptanoic acid	0.19	U	1.28	1.40			110		70-130		
Perfluorohexanesulfonate	0.19	U	1.21	1.03			85		70-130		
Perfluorohexanoic acid	0.095	U	1.28	1.40			110		70-130		
Perfluorononanoic acid	0.095	U	1.28	1.35			106		70-130		
Perfluoro-octanesulfonate	0.29	U	1.22	1.20			98		70-130		
Perfluorooctanoic acid	0.363		1.28	1.54			92		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/26/2017 06:57

Group Number: 1847145

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	0.19 U	1.28	1.37			107		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.30			102		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.43			112		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.32			104		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172541063702	Sample number(s): 9195200-9195207 UNSPK: P199868									
Aluminum	9183.17	192.31	18877.61	192.31	13444.12	5041 (2)	2216 (2)	75-125	34*	20
Calcium	312.09	384.62	878.77	384.62	733.37	147*	110	75-125	18	20
Iron	16199.14	96.15	23118.76	96.15	17878.2	7196 (2)	1746 (2)	75-125	26*	20
Magnesium	1501.09	192.31	2717.49	192.31	1924.21	633 (2)	220 (2)	75-125	34*	20
Manganese	360.4	48.08	494.16	48.08	364.34	278 (2)	8 (2)	75-125	30*	20
Potassium	1432.31	961.54	3840.37	961.54	3199.66	250*	184*	75-125	18	20
Sodium	134.66	961.54	1171.69	961.54	1118.08	108	102	75-125	5	20
Zinc	30.49	48.08	87.3	48.08	75.69	118	94	75-125	14	20
Batch number: 172541063702A	Sample number(s): 9195200-9195207 UNSPK: P199868									
Antimony	0.114	1.15	0.945	1.15	1.02	72*	79	75-125	8	20
Arsenic	4.91	1.92	7.03	1.92	7.01	110	109	75-125	0	20
Beryllium	0.428	0.769	1.26	0.769	1.25	108	107	75-125	1	20
Cadmium	0.0803	0.962	1.10	0.962	0.976	106	93	75-125	12	20
Chromium	7.05	9.62	17.86	9.62	18.73	112	121	75-125	5	20
Cobalt	7.26	48.08	54.54	48.08	54.29	98	98	75-125	0	20
Copper	10.5	9.62	19.88	9.62	20.37	98	103	75-125	2	20
Lead	9.83	2.88	13.54	2.88	14	129*	145*	75-125	3	20
Nickel	11.36	9.62	19.75	9.62	21.06	87	101	75-125	6	20
Silver	0.0256 U	9.62	10.02	9.62	10.02	104	104	75-125	0	20
Thallium	0.156	0.385	0.549	0.385	0.579	102	110	75-125	5	20
Vanadium	10.17	9.62	21.98	9.62	23.37	123	137*	75-125	6	20
Batch number: 172541063702B	Sample number(s): 9195200-9195207 UNSPK: P199868									
Selenium	0.0995	1.92	1.97	1.92	1.89	97	93	75-125	4	20
Batch number: 172541063702D	Sample number(s): 9195200-9195207 UNSPK: P199868									
Barium	56.35	9.62	67.33	9.62	74.92	114 (2)	193 (2)	75-125	11	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17265667631A	Sample number(s): 9195193-9195196,9195199-9195200 UNSPK: P193831									
TOC	251.95	9510	7784.11			79		47-143		
Batch number: 17265667631B	Sample number(s): 9195201-9195207 UNSPK: P193837									
TOC	164 U	13410	9306.8			69		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/26/2017 06:57

Group Number: 1847145

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172541063702	Sample number(s): 9195200-9195207 BKG: P199868			
Aluminum	9183.17	8151.19	12	20
Calcium	312.09	294.59	6	20
Iron	16199.14	14913.91	8	20
Magnesium	1501.09	1520.23	1	20
Manganese	360.4	313.38	14	20
Potassium	1432.31	1351.83	6	20
Sodium	134.66	127.79	5 (1)	20
Zinc	30.49	28.46	7	20
Batch number: 172541063702A	Sample number(s): 9195200-9195207 BKG: P199868			
Antimony	0.114	0.104	9 (1)	20
Arsenic	4.91	4.64	6	20
Beryllium	0.428	0.388	10 (1)	20
Cadmium	0.0803	0.0753	6 (1)	20
Chromium	7.05	6.82	3	20
Cobalt	7.26	6.32	14	20
Copper	10.5	9.49	10	20
Lead	9.83	8.90	10	20
Nickel	11.36	10.19	11	20
Silver	0.0256 U	0.0292 U	0 (1)	20
Thallium	0.156	0.125	22* (1)	20
Vanadium	10.17	9.77	4	20
Batch number: 172541063702B	Sample number(s): 9195200-9195207 BKG: P199868			
Selenium	0.0995	0.100 U	200* (1)	20
Batch number: 172541063702D	Sample number(s): 9195200-9195207 BKG: P199868			
Barium	56.35	46.06	20	20
	mg/kg	mg/kg		
Batch number: 17265667631A	Sample number(s): 9195193-9195196,9195199-9195200 BKG: P193831			
TOC	251.95	200.74	23* (1)	7
Batch number: 17265667631B	Sample number(s): 9195201-9195207 BKG: P193837			
TOC	164 U	159 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17255039403A	Sample number(s): 9195193-9195196,9195199 BKG: P198863			
pH	8.27	8.34	1	3
Batch number: 17256039401A	Sample number(s): 9195200,9195203-9195207 BKG: P199809			
pH	6.92	6.89	0	3
Batch number: 17256039401B	Sample number(s): 9195201 BKG: 9195201			
pH	8.08	8.05	0	3

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1847145
Reported: 09/26/2017 06:57

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
Batch number: 17257039402A	Sample number(s): 9195202 BKG: P201874			
pH	8.08	8.06	0	3
	%	%		
Batch number: 17255820003A	Sample number(s): 9195193-9195196,9195199-9195207 BKG: 9195199			
Moisture	8.21	8.27	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9195197	76	78	78	75	72	81
9195198	85	77	77	79	77	84
Blank	82	81	83	89	91	88
LCS	91	90	98	82	82	86
LCSD	76	79	79	86	86	80
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9195197	71	73	83	77	73	71
9195198	73	78	87	76	90	88
Blank	79	83	81	77	74	77
LCS	84	79	83	86	80	78
LCSD	77	71	74	77	73	70
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9195197	63
9195198	92
Blank	72
LCS	75
LCSD	69
Limits:	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1847145
Reported: 09/26/2017 06:57

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17258009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9195193	68	65*	71	78	75	79
9195194	75	69*	76	78	81	96
9195195	77	70	77	71	74	75
9195196	74	71	83	85	89	85
9195199	83	74	80	82	87	77
9195200	66	70	76	71	69	78
9195201	68	65*	69	75	73	74
9195202	69	67*	70	72	72	69
9195203	78	69*	74	80	75	77
9195204	78	72	70	75	76	79
9195205	80	75	80	73	73	72
9195206	82	81	82	77	78	75
9195207	68	67*	67	65	79	66
Blank	69	72	79	88	89	86
LCS	74	74	82	74	80	77
LCSD	69	70	80	79	89	75
MS	69	68*	81	76	85	76
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9195193	69	70	74	71	65	66
9195194	75	78	79	67	66	66
9195195	78	77	109	68	85	81
9195196	81	77	90	77	74	77
9195199	78	86	83	84	82	79
9195200	67	74	77	68	75	73
9195201	66	76	74	73	78	74
9195202	73	82	82	79	84	76
9195203	74	93	80	79	82	77
9195204	72	80	93	73	79	76
9195205	75	75	85	76	82	79
9195206	81	85	84	83	84	88
9195207	70	82	78	71	72	67
Blank	86	92	81	78	78	76
LCS	71	85	83	78	73	69
LCSD	80	85	86	77	75	66
MS	77	83	81	78	74	67
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1847145
Reported: 09/26/2017 06:57

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17258009

	13C2-PFTeDA
9195193	74
9195194	79
9195195	94
9195196	85
9195199	76
9195200	84
9195201	80
9195202	81
9195203	73
9195204	76
9195205	84
9195206	84
9195207	62
Blank	70
LCS	70
LCSD	62
MS	72
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1847145 | 9195193-207

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51383

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 23242100 1.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250ml Trip blank	Soil: 250 ml plastic/PFCs (14)	Soil: 4oz glass/TOC, pH, moist	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
									1	1	1		A	N	
1. SG3-S04-0-0.5'	0	0.5	ft.	09.06.2017	0955	S	N	2		1	1				(14) PFC's, TOC, pH, Moist, content
2. SG3-S04-0.5-1'	0.5	1	ft.	09.06.2017	1005	S	N	2		1	1				
3. SG3-S04-1-1.5'	1	1.5	ft	09.06.2017	1015	S	N	2		1	1				Samples in 2 coolers
4. SG3-S04-3-4'	3	4	ft	09.06.2017	1050	S	N	2		1	1				
5. SG3-LTB17-17.0906	—	—	—	09.06.2017	411	W	N	1	1						Prepared by ELLE 8.15.17
6. SG3-LTB18.17.0906	—	—	—	09.06.2017	411	W	N	1	1						Prepared by ELLE 8.16.17
7. SG3-S04-7-8'	7	8	ft	09.06.2017	1140	S	N	1	1						
8. SG3-D13-0-0.5'	0	0.5	ft	09.06.2017	1005	S	N	2		1	1				
9. SG3-D13-0.5-1'	0.5	1	ft	09.06.2017	1010	S	N	2		1	1				
10. SG3-D13-1-1.5'	1	1.5	ft	09.06.2017	1015	S	N	2		1	1				

BARR USE ONLY

Sampled by: RAK/KMJ2

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Robert Kostecky — On Ice? (Y) N — Date: 9.6.17 — Time: 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: 3 — Date: 9.7.17 — Time: 945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.3-1.9 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 | 1847145 | 9195193-207

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51382

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 mL Trip blank	Soil: 250 mL Plastic PF 4°C	Soil: 4oz glass TOC pH, Moist	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-D13-3-4'	3	4	ft	09.06.2017	1025	S	N	2		1	1			
2. SG3-D13-8-9'	8	9	ft	09.06.2017	1045	S	N	2		1	1			
3. SG3-D13-15-16'	15	16	ft	09.06.2017	1230	S	N	2		1	1			
4. SG3-D13-18-19'	18	19	ft	09.06.2017	1245	S	N	2		1	1			
5. SG3-D13-24-25'	24	25	ft	09.06.2017	1305	S	N	2		1	1			
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by	RMK / KMJ 2	Robert Kershaw	Y	9.6.17	1700			
Barr Proj. Manager	~~MDD~~ (for) JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9.7.17	Time 945
Barr DQ Manager	MDD							
Lab Name	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location	Lancaster, PA.	Lab WO:				Temperature on Receipt (°C): 1.3-1.8 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Nancy Bornholm

From: Michael D. Dupay <MDupay@barr.com>
Sent: Thursday, September 07, 2017 9:29 AM
To: Nancy Bornholm
Subject: Incoming sample modifications

Nancy,

Some samples should be arriving today that require some modifications:

- D-13 series of soils samples do not apparently specify the full parameter list (TOC, metals, pH, moisture, PFAS) on the COC. The correct jars were provided. Could you add any missing parameters to the requested analyses that we've requested for the samples labeled "D-XX" up until now.
- SG3-LFB19-170906 was incorrectly named. It should be a LTB sample, not a LFB sample.
- Samples on the last COC (line items 4 and 5) and named as rinsate blanks or equipment blanks, have a requested rush analysis. If there is difficulty in determining which samples, I can probably tell if you send me the COCs. The phone call from one of the field crew was breaking up this morning and the naming wasn't clear over the phone. 5-day rush is requested.

Thanks,
Michael

Michael D. Dupay

Senior Environmental Scientist
Minneapolis, MN office: 952.832.2698
cell: 763.234.8791
mdupay@barr.com
www.barr.com

If you no longer wish to receive marketing e-mails from Barr, respond to communications@barr.com and we will be happy to honor your request.

Notify us here to report this email as spam.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193626

Group Number(s): 1847145

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/07/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250mL plastic bottles

Unpacked by Timothy Cubberley (6520) at 10:44 on 09/07/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 14, 2017

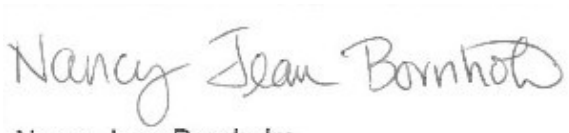
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1847155
SDG: SGB27
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-Canopy1-170906 Blank Water	09/06/2017 08:25	9195232
SG3-Canopy2-170906 Blank Water	09/06/2017 08:30	9195233

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1847155

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9195232

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9195233

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Batch #: 17253001 (Sample number(s): 9195232-9195233 UNSPK: P199893)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9195232, 9195233, Blank, LCS, MS, MSD

Sample Description: SG3-Canopy1-170906 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9195232
ELLE Group # 1847155
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 08:25 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/14/2017 10:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB271 SDG#: SGB27-01EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 02:41	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Canopy2-170906 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9195233
ELLE Group # 1847155
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 08:30 by RAK

Submitted: 09/07/2017 09:45
Reported: 09/14/2017 10:00

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB272 SDG#: SGB27-02EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 03:43	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1847155
Reported: 09/14/2017 10:00

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17253001	Sample number(s): 9195232-9195233			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9195232-9195233								
6:2 fluorotelomersulfonate	12.89	12.89			100		70-130		
8:2 fluorotelomersulfonate	13.03	15.8			121		70-130		
NEtFOSAA	13.6	13.49			99		70-130		
NMeFOSAA	13.6	14.05			103		70-130		
Perfluorobutanesulfonate	12.03	10			83		70-130		
Perfluorobutanoic Acid	13.6	13.05			96		70-130		
Perfluorodecanoic acid	13.6	11.42			84		70-130		
Perfluorododecanoic acid	13.6	11.08			81		70-130		
Perfluoroheptanoic acid	13.6	12.03			88		70-130		
Perfluorohexanesulfonate	12.86	11.37			88		70-130		
Perfluorohexanoic acid	13.6	11.67			86		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/14/2017 10:00

Group Number: 1847155

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	13.93			102		70-130		
Perfluoro-octanesulfonate	13	12.55			96		70-130		
Perfluorooctanoic acid	13.6	12.3			90		70-130		
Perfluoropentanoic Acid	13.6	11.93			88		70-130		
Perfluorotetradecanoic acid	13.6	12.02			88		70-130		
Perfluorotridecanoic acid	13.6	12.92			95		70-130		
Perfluoroundecanoic acid	13.6	12.34			91		70-130		
PFOSA	13.6	12.12			89		70-130		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9195232-9195233 UNSPK: P199893										
6:2 fluorotelomersulfonate	3	U	12.9	12.51	12.88	15.98	97	124	70-130	24	30
8:2 fluorotelomersulfonate	4	U	13.03	11.57	13.01	16.42	89	126	70-130	35*	30
NEtFOSAA	1	U	13.6	14.26	13.58	15.14	105	111	70-130	6	30
NMeFOSAA	1	U	13.6	15.56	13.58	14.94	114	110	70-130	4	30
Perfluorobutanesulfonate	0.841		12.03	12.1	12.02	11.5	94	89	70-130	5	30
Perfluorobutanoic Acid	6.28		13.6	18.65	13.58	18.34	91	89	70-130	2	30
Perfluorodecanoic acid	0.5	U	13.6	12.1	13.58	14.01	89	103	70-130	15	30
Perfluorododecanoic acid	0.5	U	13.6	12.78	13.58	11.69	94	86	70-130	9	30
Perfluoroheptanoic acid	2.13		13.6	13.76	13.58	14.42	85	90	70-130	5	30
Perfluorohexanesulfonate	1	U	12.86	12.42	12.84	11.53	97	90	70-130	7	30
Perfluorohexanoic acid	1.93		13.6	13.79	13.58	14.55	87	93	70-130	5	30
Perfluorononanoic acid	0.749		13.6	14.5	13.58	12.58	101	87	70-130	14	30
Perfluoro-octanesulfonate	3.64		13.01	17.57	12.99	16.82	107	102	70-130	4	30
Perfluorooctanoic acid	27.34		13.6	42.02	13.58	42.02	108	108	70-130	0	30
Perfluoropentanoic Acid	2.33		13.6	13.86	13.58	13.24	85	80	70-130	5	30
Perfluorotetradecanoic acid	0.5	U	13.6	12.43	13.58	12.23	91	90	70-130	2	30
Perfluorotridecanoic acid	0.5	U	13.6	12.91	13.58	12.99	95	96	70-130	1	30
Perfluoroundecanoic acid	1	U	13.6	11.79	13.58	12.54	87	92	70-130	6	30
PFOSA	3	U	13.6	12.34	13.58	13.79	91	101	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1847155
Reported: 09/14/2017 10:00

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9195232	82	88	73	78	69	83
9195233	82	84	78	89	79	82
Blank	87	88	79	94	88	93
LCS	76	79	73	78	69	75
MS	79	106	100	75	68	75
MSD	79	106	110	75	70	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9195232	71	81	84	93	87	59
9195233	78	80	80	89	85	62
Blank	80	91	80	78	88	53
LCS	64	74	69	73	78	52
MS	96	77	74	79	75	58
MSD	80	77	79	86	75	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9195232	94	86	96	81	80	52*
9195233	85	90	92	84	85	55*
Blank	79	84	87	76	74	41*
LCS	75	81	74	76	72	54*
MS	77	76	79	67	63	11*
MSD	74	73	72	70	68	26*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1847155 | 9195232-33

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51384

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/ TriZma	250 mL	40 mL glass	Soil: 250 mL	500 mL	250 mL	% Solids	Preservative Code	Field Filtered Y/N	Comments
									O	C	A	A	D	A				
									W	N	N	N	N	Y				
1. SG3-S04-170906	—	—	—	09/06/2017	1400	GW	N	8	2	1	2	1	1	1				
2. SG3-LFB19-170906	—	—	—	09/06/2017	1400	W	N	1	1									Trizma Blank Prepared by ELLE 8-11-2017
3. SG3-D13-170906	—	—	—	09/06/2017	1230	GW	N	8	2	1	2	1	1	1				
4. SG3-Canopy1-170906	—	—	—	09/06/2017	0825	W	N	1				1						Equipment Blank for PFCs
5. SG3-Canopy2-170906	—	—	—	09/06/2017	0830	W	N	1				1						Equipment Blank for PFCs
6.																		
7.																		
8.																		
9.																		
10.																		

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	RAK / KMJ2	Robert Kosbahy	Y	9.6.17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9.7.17	Time 945
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:				Temperature on Receipt (°C): 1.3 - 1.8 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 193626

Group Number(s): 1847155

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/07/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250mL plastic bottles

Unpacked by Timothy Cubberley (6520) at 10:44 on 09/07/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 14, 2017

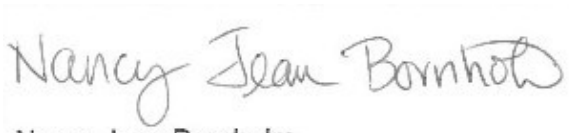
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1848217
SDG: SGB28
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-After POET-170908 Water	09/08/2017 16:15	9199779
SG3-Filtered FracTK-170908 Water	09/08/2017 16:20	9199780

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1848217

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9199779, 9199780

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Batch #: 17253001 (Sample number(s): 9199779-9199780 UNSPK: P199893)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9199779, 9199780, Blank, LCS, MS, MSD

Sample Description: SG3-After POET-170908 Water
SGPP - North Bennington

ELLE Sample # PW 9199779
ELLE Group # 1848217
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 16:15 by KAM

Submitted: 09/09/2017 09:45
Reported: 09/14/2017 13:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3AP SDG#: SGB28-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 04:03	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Filtered FracTK-170908 Water
SGPP - North Bennington

ELLE Sample # PW 9199780
ELLE Group # 1848217
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 16:20 by KAM

Submitted: 09/09/2017 09:45
Reported: 09/14/2017 13:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3FF SDG#: SGB28-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 04:24	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848217
Reported: 09/14/2017 13:40

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17253001	Sample number(s): 9199779-9199780			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9199779-9199780								
6:2 fluorotelomersulfonate	12.89	12.89			100		70-130		
8:2 fluorotelomersulfonate	13.03	15.8			121		70-130		
NEtFOSAA	13.6	13.49			99		70-130		
NMeFOSAA	13.6	14.05			103		70-130		
Perfluorobutanesulfonate	12.03	10			83		70-130		
Perfluorobutanoic Acid	13.6	13.05			96		70-130		
Perfluorodecanoic acid	13.6	11.42			84		70-130		
Perfluorododecanoic acid	13.6	11.08			81		70-130		
Perfluoroheptanoic acid	13.6	12.03			88		70-130		
Perfluorohexanesulfonate	12.86	11.37			88		70-130		
Perfluorohexanoic acid	13.6	11.67			86		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848217
Reported: 09/14/2017 13:40

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	13.93			102		70-130		
Perfluoro-octanesulfonate	13	12.55			96		70-130		
Perfluorooctanoic acid	13.6	12.3			90		70-130		
Perfluoropentanoic Acid	13.6	11.93			88		70-130		
Perfluorotetradecanoic acid	13.6	12.02			88		70-130		
Perfluorotridecanoic acid	13.6	12.92			95		70-130		
Perfluoroundecanoic acid	13.6	12.34			91		70-130		
PFOSA	13.6	12.12			89		70-130		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17253001	Sample number(s): 9199779-9199780 UNSPK: P199893										
6:2 fluorotelomersulfonate	3	U	12.9	12.51	12.88	15.98	97	124	70-130	24	30
8:2 fluorotelomersulfonate	4	U	13.03	11.57	13.01	16.42	89	126	70-130	35*	30
NEtFOSAA	1	U	13.6	14.26	13.58	15.14	105	111	70-130	6	30
NMeFOSAA	1	U	13.6	15.56	13.58	14.94	114	110	70-130	4	30
Perfluorobutanesulfonate	0.841		12.03	12.1	12.02	11.5	94	89	70-130	5	30
Perfluorobutanoic Acid	6.28		13.6	18.65	13.58	18.34	91	89	70-130	2	30
Perfluorodecanoic acid	0.5	U	13.6	12.1	13.58	14.01	89	103	70-130	15	30
Perfluorododecanoic acid	0.5	U	13.6	12.78	13.58	11.69	94	86	70-130	9	30
Perfluoroheptanoic acid	2.13		13.6	13.76	13.58	14.42	85	90	70-130	5	30
Perfluorohexanesulfonate	1	U	12.86	12.42	12.84	11.53	97	90	70-130	7	30
Perfluorohexanoic acid	1.93		13.6	13.79	13.58	14.55	87	93	70-130	5	30
Perfluorononanoic acid	0.749		13.6	14.5	13.58	12.58	101	87	70-130	14	30
Perfluoro-octanesulfonate	3.64		13.01	17.57	12.99	16.82	107	102	70-130	4	30
Perfluorooctanoic acid	27.34		13.6	42.02	13.58	42.02	108	108	70-130	0	30
Perfluoropentanoic Acid	2.33		13.6	13.86	13.58	13.24	85	80	70-130	5	30
Perfluorotetradecanoic acid	0.5	U	13.6	12.43	13.58	12.23	91	90	70-130	2	30
Perfluorotridecanoic acid	0.5	U	13.6	12.91	13.58	12.99	95	96	70-130	1	30
Perfluoroundecanoic acid	1	U	13.6	11.79	13.58	12.54	87	92	70-130	6	30
PFOSA	3	U	13.6	12.34	13.58	13.79	91	101	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848217
Reported: 09/14/2017 13:40

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199779	84	87	83	84	70	78
9199780	69	73	74	75	74	79
Blank	87	88	79	94	88	93
LCS	76	79	73	78	69	75
MS	79	106	100	75	68	75
MSD	79	106	110	75	70	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9199779	66	83	83	79	103	59
9199780	64	74	69	79	74	61
Blank	80	91	80	78	88	53
LCS	64	74	69	73	78	52
MS	96	77	74	79	75	58
MSD	80	77	79	86	75	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9199779	96	92	102	92	95	9*
9199780	56	70	73	69	73	5*
Blank	79	84	87	76	74	41*
LCS	75	81	74	76	72	54*
MS	77	76	79	67	63	11*
MSD	74	73	72	70	68	26*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1848217 9199779-80

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☒ Minneapolis ☐ Bismarck ☐ Hibbing

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52306

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 3242100 1.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL / Trizma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-After POET-170908				09/08/2017	16:15	water	N	2	2			PFC's (19)
2. SG3-Filtered FracTk-170908				09/08/2017	16:20	water	N	2	2			
3.												*Rush*
4.												Results ASAP
5.												for these 2 samples
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY							
Sampled by: Kam	Relinquished by: MSP	On Ice? Y N	Date 09/08/17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/9/17	Time 945
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 1.5-5.3			Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location: Lancaster, PA						Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 193962

Group Number(s): 1848217

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/09/2017 9:45
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 11:44 on 09/09/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.5	DT	Wet	Y	Bagged	N
2	DT42-01	1.7	DT	Wet	Y	Bagged	N
3	DT42-01	5.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 29, 2017

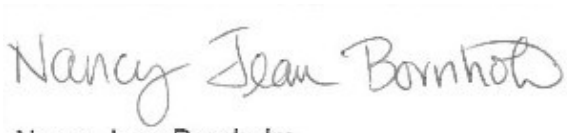
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1848233
SDG: SGB29
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D07-0-0.5 Soil	09/08/2017 09:10	9199864
SG3-D07-0.5-1 Soil	09/08/2017 09:15	9199865
SG3-D07-1-1.5 Soil	09/08/2017 09:20	9199866
SG3-D07-3-4 Soil	09/08/2017 09:30	9199867
SG3-D07-8-9 Soil	09/08/2017 09:35	9199868
SG3-D07-8-9 MS Soil	09/08/2017 09:35	9199869
SG3-D07-8-9 MSD Soil	09/08/2017 09:35	9199870
SG3-D07-8-9 Dupl Soil	09/08/2017 09:35	9199871
SG3-D07-18-19 Soil	09/08/2017 10:00	9199872
SG3-D07-28-29 Soil	09/08/2017 10:05	9199873
SG3-D07-38-39 Soil	09/08/2017 11:10	9199874
SG3-D07-48-49 Soil	09/08/2017 13:40	9199875

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1848233

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9199864, 9199865, 9199866, 9199867, 9199868, 9199869, 9199870, 9199872, 9199874

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9199875

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The data reported is from the initial trial of the sample and comparable results were observed.

Batch #: 17265013 (Sample number(s): 9199864-9199870, 9199872-9199873, 9199875 UNSPK: 9199868)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9199864, 9199865, 9199866, 9199867, 9199868, 9199869, 9199870, 9199872, 9199873, 9199875, MS, MSD

Batch #: 17270006 (Sample number(s): 9199874 UNSPK: 9199874)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9199874, MS

SW-846 6010C, Metals

Batch #: 172541063702 (Sample number(s): 9199864-9199875 UNSPK: 9199868 BKG: 9199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Calcium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Iron, Magnesium, Manganese

SW-846 6020A, Metals

Batch #: 172541063702A (Sample number(s): 9199864-9199875 UNSPK: 9199868 BKG: 9199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 172541063702B (Sample number(s): 9199864-9199875 UNSPK: 9199868 BKG: 9199868)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172541063702D (Sample number(s): 9199864-9199875 UNSPK: 9199868 BKG: 9199868)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9199867, 9199868, 9199871, 9199874, 9199875

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17270245031A (Sample number(s): 9199867, 9199873 UNSPK: P201354 BKG: P201354)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9199867

The pH was measured in water at 19.6 C.

Sample #s: 9199873, 9199875

The pH was measured in water at 19.8 C.

Sample #s: 9199872

The pH was measured in water at 20 C.

Sample #s: 9199864, 9199865, 9199866, 9199874

The pH was measured in water at 20.1 C.

Sample #s: 9199871

The pH was measured in water at 20.2 C.

Sample #s: 9199868

The pH was measured in water at 20.3 C.

Sample Description: SG3-D07-0-0.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199864
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-1 SDG#: SGB29-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.28	U	0.28	0.84	1
14027	Perfluorobutanoic acid	375-22-4	0.28	U	0.28	0.84	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.29**	**J**	0.28	0.84	1
14027	Perfluorododecanoic acid	307-55-1	0.28	U	0.28	0.84	1
14027	Perfluoroheptanoic acid	375-85-9	0.28	U	0.28	0.84	1
14027	Perfluorohexanesulfonate	355-46-4	0.28	U	0.28	0.84	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.56	1
14027	**Perfluorononanoic acid**	375-95-1	**0.21**	**J**	0.14	0.56	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.73**	**J**	0.42	1.3	1
14027	Perfluorooctanoic acid	335-67-1	0.28	U	0.28	0.84	1
14027	Perfluoropentanoic acid	2706-90-3	0.28	U	0.28	0.84	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28	U	0.28	0.84	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28	U	0.28	0.84	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.53**	**J**	0.28	0.84	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**4,070**		10.9	48.7	1
01650	**Calcium**	7440-70-2	**29,300**		4.05	48.7	1
01654	**Iron**	7439-89-6	**12,000**		9.80	48.7	1
01657	**Magnesium**	7439-95-4	**13,700**		2.96	24.4	1
06958	**Manganese**	7439-96-5	**294**		0.101	1.22	1
01662	**Potassium**	7440-09-7	**984**		20.3	122	1
01667	**Sodium**	7440-23-5	**54.8**	**J**	20.3	244	1
06972	**Zinc**	7440-66-6	**89.2**		0.292	4.87	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.249**	**J**	0.113	0.487	2
06125	**Arsenic**	7440-38-2	**2.96**		0.156	0.974	2
06126	**Barium**	7440-39-3	**27.0**		0.221	0.974	2
06127	**Beryllium**	7440-41-7	**0.209**	**J**	0.0128	0.244	2
06128	**Cadmium**	7440-43-9	**0.231**	**J**	0.0419	0.244	2
06131	**Chromium**	7440-47-3	**14.7**		0.212	0.974	2
06132	**Cobalt**	7440-48-4	**4.89**		0.0380	0.244	2
06133	**Copper**	7440-50-8	**15.1**		0.131	0.974	2
06135	**Lead**	7439-92-1	**42.7**		0.0270	0.487	2
06139	**Nickel**	7440-02-0	**8.27**		0.243	0.974	2
06141	**Selenium**	7782-49-2	**0.125**	**J**	0.122	0.974	2
06142	**Silver**	7440-22-4	**0.0380**	**J**	0.0356	0.244	2
06145	**Thallium**	7440-28-0	**0.0818**	**J**	0.0304	0.244	2
06148	**Vanadium**	7440-62-2	**15.0**		0.0519	0.244	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0-0.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199864
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-1 SDG#: SGB29-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,900**	1,310	3,940	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.62**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**29.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/26/2017 00:43	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:09	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:09	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:47	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:19	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0-0.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199864
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-1 SDG#: SGB29-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:12	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:19	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:19	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 12:46	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0.5-1 Soil
SGPP - North Bennington

ELLE Sample # SW 9199865
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:15 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-2 SDG#: SGB29-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**0.27**	**J**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.88**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,490**		8.03	35.9	1
01650	**Calcium**	7440-70-2	**16,100**		2.99	35.9	1
01654	**Iron**	7439-89-6	**16,800**		7.23	35.9	1
01657	**Magnesium**	7439-95-4	**9,080**		2.18	18.0	1
06958	**Manganese**	7439-96-5	**391**		0.0745	0.898	1
01662	**Potassium**	7440-09-7	**1,090**		15.0	89.8	1
01667	**Sodium**	7440-23-5	**59.5**	**J**	15.0	180	1
06972	**Zinc**	7440-66-6	**56.4**		0.216	3.59	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.263**	**J**	0.0837	0.359	2
06125	**Arsenic**	7440-38-2	**6.15**		0.115	0.718	2
06126	**Barium**	7440-39-3	**42.8**		0.163	0.718	2
06127	**Beryllium**	7440-41-7	**0.323**		0.0094	0.180	2
06128	**Cadmium**	7440-43-9	**0.181**		0.0309	0.180	2
06131	**Chromium**	7440-47-3	**9.36**		0.156	0.718	2
06132	**Cobalt**	7440-48-4	**6.34**		0.0280	0.180	2
06133	**Copper**	7440-50-8	**17.5**		0.0963	0.718	2
06135	**Lead**	7439-92-1	**52.4**		0.0199	0.359	2
06139	**Nickel**	7440-02-0	**8.81**		0.179	0.718	2
06141	**Selenium**	7782-49-2	**0.347**	**J**	0.0898	0.718	2
06142	**Silver**	7440-22-4	**0.0967**	**J**	0.0262	0.180	2
06145	**Thallium**	7440-28-0	**0.165**	**J**	0.0224	0.180	2
06148	**Vanadium**	7440-62-2	**14.0**		0.0383	0.180	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0.5-1 Soil
SGPP - North Bennington

ELLE Sample # SW 9199865
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:15 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-2 SDG#: SGB29-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**16,100**	558	1,670	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.61**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**19.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 03:50	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:12	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:12	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:50	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:22	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0.5-1 Soil
SGPP - North Bennington

ELLE Sample # SW 9199865
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:15 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-2 SDG#: SGB29-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:22	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:22	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 12:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-1-1.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199866
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:20 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-3 SDG#: SGB29-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.39**	**J**	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,280**		10.3	46.2	1
01650	**Calcium**	7440-70-2	**545**		3.84	46.2	1
01654	**Iron**	7439-89-6	**11,600**		9.29	46.2	1
01657	**Magnesium**	7439-95-4	**530**		2.80	23.1	1
06958	**Manganese**	7439-96-5	**581**		0.0958	1.15	1
01662	**Potassium**	7440-09-7	**743**		19.3	115	1
01667	**Sodium**	7440-23-5	**181**	**J**	19.3	231	1
06972	**Zinc**	7440-66-6	**25.8**		0.277	4.62	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.108	U	0.108	0.462	2
06125	**Arsenic**	7440-38-2	**2.54**		0.148	0.923	2
06126	**Barium**	7440-39-3	**25.3**		0.210	0.923	2
06127	**Beryllium**	7440-41-7	**0.268**		0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.0827**	**J**	0.0397	0.231	2
06131	**Chromium**	7440-47-3	**5.37**		0.201	0.923	2
06132	**Cobalt**	7440-48-4	**3.53**		0.0360	0.231	2
06133	**Copper**	7440-50-8	**4.09**		0.124	0.923	2
06135	**Lead**	7439-92-1	**6.71**		0.0256	0.462	2
06139	**Nickel**	7440-02-0	**5.35**		0.230	0.923	2
06141	**Selenium**	7782-49-2	**0.263**	**J**	0.115	0.923	2
06142	**Silver**	7440-22-4	**0.0574**	**J**	0.0337	0.231	2
06145	**Thallium**	7440-28-0	**0.112**	**J**	0.0289	0.231	2
06148	**Vanadium**	7440-62-2	**9.35**		0.0492	0.231	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-1-1.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199866
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:20 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-3 SDG#: SGB29-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,210**	309	928	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.83**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**20.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 04:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:24	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:24	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:53	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:25	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-1-1.5 Soil
SGPP - North Bennington

ELLE Sample # SW 9199866
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:20 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-3 SDG#: SGB29-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:15	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:25	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:25	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 13:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-3-4 Soil
SGPP - North Bennington

ELLE Sample # SW 9199867
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:30 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-4 SDG#: SGB29-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,560**		7.47	33.4	1
01650	**Calcium**	7440-70-2	**268**		2.78	33.4	1
01654	**Iron**	7439-89-6	**14,500**		6.73	33.4	1
01657	**Magnesium**	7439-95-4	**930**		2.03	16.7	1
06958	**Manganese**	7439-96-5	**280**		0.0694	0.836	1
01662	**Potassium**	7440-09-7	**1,430**		14.0	83.6	1
01667	**Sodium**	7440-23-5	**113**	**J**	14.0	167	1
06972	**Zinc**	7440-66-6	**21.0**		0.201	3.34	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0802**	**J**	0.0779	0.334	2
06125	**Arsenic**	7440-38-2	**4.10**		0.107	0.669	2
06126	**Barium**	7440-39-3	**41.0**		0.152	0.669	2
06127	**Beryllium**	7440-41-7	**0.453**		0.0088	0.167	2
06128	**Cadmium**	7440-43-9	**0.0538**	**J**	0.0287	0.167	2
06131	**Chromium**	7440-47-3	**6.45**		0.145	0.669	2
06132	**Cobalt**	7440-48-4	**6.00**		0.0261	0.167	2
06133	**Copper**	7440-50-8	**8.14**		0.0896	0.669	2
06135	**Lead**	7439-92-1	**8.90**		0.0186	0.334	2
06139	**Nickel**	7440-02-0	**8.99**		0.166	0.669	2
06141	**Selenium**	7782-49-2	**0.0991**	**J**	0.0836	0.669	2
06142	Silver	7440-22-4	0.0244	U	0.0244	0.167	2
06145	**Thallium**	7440-28-0	**0.140**	**J**	0.0209	0.167	2
06148	**Vanadium**	7440-62-2	**9.15**		0.0356	0.167	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-3-4 Soil
SGPP - North Bennington

ELLE Sample # SW 9199867
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:30 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-4 SDG#: SGB29-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	161 U	161	484	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.42**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 04:31	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:27	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:27	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:56	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-3-4 Soil
SGPP - North Bennington

ELLE Sample # SW 9199867
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:30 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-4 SDG#: SGB29-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:28	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:28	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:28	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 11:25	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Soil
SGPP - North Bennington

ELLE Sample # SW 9199868
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,400**		8.92	39.9	1
01650	**Calcium**	7440-70-2	**355**		3.32	39.9	1
01654	**Iron**	7439-89-6	**18,400**		8.03	39.9	1
01657	**Magnesium**	7439-95-4	**1,710**		2.43	20.0	1
06958	**Manganese**	7439-96-5	**410**		0.0828	0.998	1
01662	**Potassium**	7440-09-7	**1,630**		16.7	99.8	1
01667	**Sodium**	7440-23-5	**153**	**J**	16.7	200	1
06972	**Zinc**	7440-66-6	**34.7**		0.240	3.99	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.129**	**J**	0.0930	0.399	2
06125	**Arsenic**	7440-38-2	**5.59**		0.128	0.798	2
06126	**Barium**	7440-39-3	**64.1**		0.181	0.798	2
06127	**Beryllium**	7440-41-7	**0.487**		0.0105	0.200	2
06128	**Cadmium**	7440-43-9	**0.0914**	**J**	0.0343	0.200	2
06131	**Chromium**	7440-47-3	**8.03**		0.174	0.798	2
06132	**Cobalt**	7440-48-4	**8.26**		0.0311	0.200	2
06133	**Copper**	7440-50-8	**11.9**		0.107	0.798	2
06135	**Lead**	7439-92-1	**11.2**		0.0222	0.399	2
06139	**Nickel**	7440-02-0	**12.9**		0.199	0.798	2
06141	**Selenium**	7782-49-2	**0.113**	**J**	0.0998	0.798	2
06142	Silver	7440-22-4	0.0291	U	0.0291	0.200	2
06145	**Thallium**	7440-28-0	**0.177**	**J**	0.0249	0.200	2
06148	**Vanadium**	7440-62-2	**11.6**		0.0425	0.200	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Soil
SGPP - North Bennington

ELLE Sample # SW 9199868
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	233	U	233	700	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		Std. Units		Std. Units	Std. Units	
00394	**pH**	n.a.	**7.74**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%		%	%	
00111	**Moisture**	n.a.	**12.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 04:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 08:59	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 08:59	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 19:49	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Soil
SGPP - North Bennington

ELLE Sample # SW 9199868
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:30	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 13:48	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:30	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:30	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 13:40	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17264039401B	09/21/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199869
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.45	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**21,500**	9.78	43.8	1
01650	**Calcium**	7440-70-2	**1,000**	3.64	43.8	1
01654	**Iron**	7439-89-6	**26,300**	8.81	43.8	1
01657	**Magnesium**	7439-95-4	**3,090**	2.66	21.9	1
06958	**Manganese**	7439-96-5	**562**	0.0908	1.09	1
01662	**Potassium**	7440-09-7	**4,370**	18.3	109	1
01667	**Sodium**	7440-23-5	**1,330**	18.3	219	1
06972	**Zinc**	7440-66-6	**99.3**	0.263	4.38	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.08**	0.102	0.438	2
06125	**Arsenic**	7440-38-2	**8.00**	0.140	0.875	2
06126	**Barium**	7440-39-3	**76.6**	0.199	0.875	2
06127	**Beryllium**	7440-41-7	**1.43**	0.0115	0.219	2
06128	**Cadmium**	7440-43-9	**1.25**	0.0376	0.219	2
06131	**Chromium**	7440-47-3	**20.3**	0.190	0.875	2
06132	**Cobalt**	7440-48-4	**62.0**	0.0341	0.219	2
06133	**Copper**	7440-50-8	**22.6**	0.117	0.875	2
06135	**Lead**	7439-92-1	**15.4**	0.0243	0.438	2
06139	**Nickel**	7440-02-0	**22.5**	0.218	0.875	2
06141	**Selenium**	7782-49-2	**2.24**	0.109	0.875	2
06142	**Silver**	7440-22-4	**11.4**	0.0319	0.219	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199869
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06145	**Thallium**	7440-28-0	**0.625**	0.0273	0.219	2
06148	**Vanadium**	7440-62-2	**25.0**	0.0466	0.219	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**11,400**	490	1,470	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00118	**Moisture**	n.a.	**12.1**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 01:26	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:10	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:10	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 19:59	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:39	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 13:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199869
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:39	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:39	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 14:07	Drew M Gerhart	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199870
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.22	0.65	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.22	0.65	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.22	0.65	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.22	0.65	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.22	0.65	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.22	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.22	0.65	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.22	0.65	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,300**	9.78	43.8	1
01650	**Calcium**	7440-70-2	**834**	3.64	43.8	1
01654	**Iron**	7439-89-6	**20,300**	8.81	43.8	1
01657	**Magnesium**	7439-95-4	**2,190**	2.66	21.9	1
06958	**Manganese**	7439-96-5	**414**	0.0908	1.09	1
01662	**Potassium**	7440-09-7	**3,640**	18.3	109	1
01667	**Sodium**	7440-23-5	**1,270**	18.3	219	1
06972	**Zinc**	7440-66-6	**86.1**	0.263	4.38	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.16**	0.102	0.438	2
06125	**Arsenic**	7440-38-2	**7.97**	0.140	0.875	2
06126	**Barium**	7440-39-3	**85.2**	0.199	0.875	2
06127	**Beryllium**	7440-41-7	**1.42**	0.0115	0.219	2
06128	**Cadmium**	7440-43-9	**1.11**	0.0376	0.219	2
06131	**Chromium**	7440-47-3	**21.3**	0.190	0.875	2
06132	**Cobalt**	7440-48-4	**61.8**	0.0341	0.219	2
06133	**Copper**	7440-50-8	**23.2**	0.117	0.875	2
06135	**Lead**	7439-92-1	**15.9**	0.0243	0.438	2
06139	**Nickel**	7440-02-0	**24.0**	0.218	0.875	2
06141	**Selenium**	7782-49-2	**2.15**	0.109	0.875	2
06142	**Silver**	7440-22-4	**11.4**	0.0319	0.219	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199870
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06145	**Thallium**	7440-28-0	**0.659**	0.0273	0.219	2
06148	**Vanadium**	7440-62-2	**26.6**	0.0466	0.219	2
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00118	**Moisture**	n.a.	**12.1**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/26/2017 00:02	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:14	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:14	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 20:02	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:43	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 13:55	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:43	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199870
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:43	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199871
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,270**	10.2	45.5	1
01650	**Calcium**	7440-70-2	**335**	3.79	45.5	1
01654	**Iron**	7439-89-6	**17,000**	9.16	45.5	1
01657	**Magnesium**	7439-95-4	**1,730**	2.76	22.8	1
06958	**Manganese**	7439-96-5	**357**	0.0944	1.14	1
01662	**Potassium**	7440-09-7	**1,540**	19.0	114	1
01667	**Sodium**	7440-23-5	**145 J**	19.0	228	1
06972	**Zinc**	7440-66-6	**32.4**	0.273	4.55	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.118 J**	0.106	0.455	2
06125	**Arsenic**	7440-38-2	**5.28**	0.146	0.910	2
06126	**Barium**	7440-39-3	**52.4**	0.207	0.910	2
06127	**Beryllium**	7440-41-7	**0.441**	0.0119	0.228	2
06128	**Cadmium**	7440-43-9	**0.0856 J**	0.0391	0.228	2
06131	**Chromium**	7440-47-3	**7.76**	0.198	0.910	2
06132	**Cobalt**	7440-48-4	**7.19**	0.0355	0.228	2
06133	**Copper**	7440-50-8	**10.8**	0.122	0.910	2
06135	**Lead**	7439-92-1	**10.1**	0.0253	0.455	2
06139	**Nickel**	7440-02-0	**11.6**	0.227	0.910	2
06141	Selenium	7782-49-2	0.114 U	0.114	0.910	2
06142	Silver	7440-22-4	0.0332 U	0.0332	0.228	2
06145	**Thallium**	7440-28-0	**0.142 J**	0.0284	0.228	2
06148	**Vanadium**	7440-62-2	**11.1**	0.0485	0.228	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	220 U	220	659	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.69**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.1**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**12.6**	0.50	0.50	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199871
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 09:06	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 09:06	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 19:56	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 17:36	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 13:51	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 17:36	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 17:36	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 14:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17264039401B	09/21/2017 20:00	Jeremy L Bolf	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-8-9 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199871
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:35 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-5 SDG#: SGB29-05DUP

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1
00121	Moisture Duplicate	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-18-19 Soil
SGPP - North Bennington

ELLE Sample # SW 9199872
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:00 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-6 SDG#: SGB29-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,900**		7.92	35.4	1
01650	**Calcium**	7440-70-2	**36,100**		2.95	35.4	1
01654	**Iron**	7439-89-6	**8,140**		7.13	35.4	1
01657	**Magnesium**	7439-95-4	**16,400**		2.15	17.7	1
06958	**Manganese**	7439-96-5	**216**		0.0735	0.886	1
01662	**Potassium**	7440-09-7	**860**		14.8	88.6	1
01667	**Sodium**	7440-23-5	**101**	**J**	14.8	177	1
06972	**Zinc**	7440-66-6	**18.3**		0.213	3.54	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0826	U	0.0826	0.354	2
06125	**Arsenic**	7440-38-2	**2.46**		0.113	0.709	2
06126	**Barium**	7440-39-3	**21.9**		0.161	0.709	2
06127	**Beryllium**	7440-41-7	**0.155**	**J**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.0485**	**J**	0.0305	0.177	2
06131	**Chromium**	7440-47-3	**3.75**		0.154	0.709	2
06132	**Cobalt**	7440-48-4	**3.42**		0.0276	0.177	2
06133	**Copper**	7440-50-8	**4.78**		0.0950	0.709	2
06135	**Lead**	7439-92-1	**4.44**		0.0197	0.354	2
06139	**Nickel**	7440-02-0	**6.10**		0.176	0.709	2
06141	Selenium	7782-49-2	0.0886	U	0.0886	0.709	2
06142	Silver	7440-22-4	0.0259	U	0.0259	0.177	2
06145	**Thallium**	7440-28-0	**0.0470**	**J**	0.0221	0.177	2
06148	**Vanadium**	7440-62-2	**5.01**		0.0377	0.177	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-18-19 Soil
SGPP - North Bennington

ELLE Sample # SW 9199872
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:00 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-6 SDG#: SGB29-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,790**	233	698	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.79**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**9.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 05:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:31	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:31	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 21:06	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:37	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-18-19 Soil
SGPP - North Bennington

ELLE Sample # SW 9199872
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:00 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-6 SDG#: SGB29-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:19	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:37	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:37	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 14:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-28-29 Soil
SGPP - North Bennington

ELLE Sample # SW 9199873
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:05 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-7 SDG#: SGB29-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,500**		7.80	34.9	1
01650	**Calcium**	7440-70-2	**36,300**		2.91	34.9	1
01654	**Iron**	7439-89-6	**19,100**		7.02	34.9	1
01657	**Magnesium**	7439-95-4	**9,200**		2.12	17.4	1
06958	**Manganese**	7439-96-5	**574**		0.0724	0.872	1
01662	**Potassium**	7440-09-7	**1,370**		14.6	87.2	1
01667	**Sodium**	7440-23-5	**81.8**	**J**	14.6	174	1
06972	**Zinc**	7440-66-6	**38.2**		0.209	3.49	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.122**	**J**	0.0813	0.349	2
06125	**Arsenic**	7440-38-2	**4.50**		0.112	0.698	2
06126	**Barium**	7440-39-3	**61.4**		0.158	0.698	2
06127	**Beryllium**	7440-41-7	**0.377**		0.0091	0.174	2
06128	**Cadmium**	7440-43-9	**0.101**	**J**	0.0300	0.174	2
06131	**Chromium**	7440-47-3	**6.19**		0.152	0.698	2
06132	**Cobalt**	7440-48-4	**12.7**		0.0272	0.174	2
06133	**Copper**	7440-50-8	**13.8**		0.0935	0.698	2
06135	**Lead**	7439-92-1	**8.17**		0.0194	0.349	2
06139	**Nickel**	7440-02-0	**11.3**		0.174	0.698	2
06141	**Selenium**	7782-49-2	**0.103**	**J**	0.0872	0.698	2
06142	Silver	7440-22-4	0.0255	U	0.0255	0.174	2
06145	**Thallium**	7440-28-0	**0.146**	**J**	0.0218	0.174	2
06148	**Vanadium**	7440-62-2	**7.21**		0.0372	0.174	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-28-29 Soil
SGPP - North Bennington

ELLE Sample # SW 9199873
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:05 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-7 SDG#: SGB29-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,050**	285	854	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.86**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/25/2017 05:32	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:35	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:35	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 21:09	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:40	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-28-29 Soil
SGPP - North Bennington

ELLE Sample # SW 9199873
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 10:05 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-7 SDG#: SGB29-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:40	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:40	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 11:34	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-38-39 Soil
SGPP - North Bennington

ELLE Sample # SW 9199874
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 11:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-8 SDG#: SGB29-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098	U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098	U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29	U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,830**		8.77	39.2	1
01650	**Calcium**	7440-70-2	**15,700**		3.27	39.2	1
01654	**Iron**	7439-89-6	**13,900**		7.89	39.2	1
01657	**Magnesium**	7439-95-4	**8,570**		2.38	19.6	1
06958	**Manganese**	7439-96-5	**374**		0.0814	0.981	1
01662	**Potassium**	7440-09-7	**1,360**		16.4	98.1	1
01667	**Sodium**	7440-23-5	**35.8**	**J**	16.4	196	1
06972	**Zinc**	7440-66-6	**31.3**		0.235	3.92	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.120**	**J**	0.0914	0.392	2
06125	**Arsenic**	7440-38-2	**6.24**		0.126	0.785	2
06126	**Barium**	7440-39-3	**42.4**		0.178	0.785	2
06127	**Beryllium**	7440-41-7	**0.494**		0.0103	0.196	2
06128	**Cadmium**	7440-43-9	**0.111**	**J**	0.0337	0.196	2
06131	**Chromium**	7440-47-3	**5.48**		0.171	0.785	2
06132	**Cobalt**	7440-48-4	**7.38**		0.0306	0.196	2
06133	**Copper**	7440-50-8	**9.69**		0.105	0.785	2
06135	**Lead**	7439-92-1	**11.5**		0.0218	0.392	2
06139	**Nickel**	7440-02-0	**11.2**		0.195	0.785	2
06141	Selenium	7782-49-2	0.0981	U	0.0981	0.785	2
06142	Silver	7440-22-4	0.0286	U	0.0286	0.196	2
06145	**Thallium**	7440-28-0	**0.228**		0.0245	0.196	2
06148	**Vanadium**	7440-62-2	**8.57**		0.0418	0.196	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-38-39 Soil
SGPP - North Bennington

ELLE Sample # SW 9199874
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 11:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-8 SDG#: SGB29-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	501	U	501	1,500	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.70**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17270006	09/28/2017 12:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17270006	09/27/2017 07:50	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:39	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:39	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 21:12	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-38-39 Soil
SGPP - North Bennington

ELLE Sample # SW 9199874
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 11:10 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-8 SDG#: SGB29-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:43	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:29	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:43	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:43	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031A	09/26/2017 14:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-48-49 Soil
SGPP - North Bennington

ELLE Sample # SW 9199875
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 13:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-9 SDG#: SGB29-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard 13C4-PFBA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and extraction standard 13C4-PFBA is again outside of QC acceptance limits. The data reported is from the initial trial of the sample and comparable results were observed.

Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,340**		9.37	41.9	1
01650	**Calcium**	7440-70-2	**9,940**		3.49	41.9	1
01654	**Iron**	7439-89-6	**11,800**		8.44	41.9	1
01657	**Magnesium**	7439-95-4	**5,240**		2.55	21.0	1
06958	**Manganese**	7439-96-5	**275**		0.0870	1.05	1
01662	**Potassium**	7440-09-7	**1,200**		17.5	105	1
01667	**Sodium**	7440-23-5	**29.0**	**J**	17.5	210	1
06972	**Zinc**	7440-66-6	**23.8**		0.252	4.19	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.101**	**J**	0.0977	0.419	2
06125	**Arsenic**	7440-38-2	**4.95**		0.134	0.839	2
06126	**Barium**	7440-39-3	**36.7**		0.190	0.839	2
06127	**Beryllium**	7440-41-7	**0.420**		0.0110	0.210	2
06128	**Cadmium**	7440-43-9	**0.0797**	**J**	0.0361	0.210	2
06131	**Chromium**	7440-47-3	**9.30**		0.182	0.839	2
06132	**Cobalt**	7440-48-4	**6.10**		0.0327	0.210	2
06133	**Copper**	7440-50-8	**8.30**		0.112	0.839	2
06135	**Lead**	7439-92-1	**9.62**		0.0233	0.419	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-48-49 Soil
SGPP - North Bennington

ELLE Sample # SW 9199875
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 13:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-9 SDG#: SGB29-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**8.93**	0.209	0.839	2
06141	Selenium	7782-49-2	0.105 U	0.105	0.839	2
06142	Silver	7440-22-4	0.0306 U	0.0306	0.210	2
06145	**Thallium**	7440-28-0	**0.154 J**	0.0262	0.210	2
06148	**Vanadium**	7440-62-2	**7.24**	0.0447	0.210	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	216 U	216	648	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265013	09/26/2017 16:08	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265013	09/23/2017 10:40	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172541063702	09/16/2017 10:42	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172541063702	09/16/2017 10:42	Eric L Eby	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-48-49 Soil
SGPP - North Bennington

ELLE Sample # SW 9199875
ELLE Group # 1848233
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 13:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/29/2017 14:28

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D07-9 SDG#: SGB29-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172541063702	09/13/2017 21:15	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172541063702D	09/15/2017 18:46	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172541063702A	09/19/2017 14:31	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172541063702B	09/15/2017 18:46	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172541063702A	09/15/2017 18:46	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172541063702	09/12/2017 17:35	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 14:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17256039403A	09/13/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004A	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

Group Number: 1848233

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17265013	Sample number(s): 9199864-9199870,9199872-9199873,9199875			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17270006	Sample number(s): 9199874			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	mg/kg		mg/kg	mg/kg
Batch number: 172541063702	Sample number(s): 9199864-9199875			
Aluminum	8.94	U	8.94	40.0
Calcium	12.6	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	8.08	J	2.43	20.0
Manganese	0.110	J	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.785	J	0.240	4.00

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

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Method Blank (continued)

Analysis Name	Result mg/kg		MDL** mg/kg	LOQ mg/kg
Batch number: 172541063702A	Sample number(s): 9199864-9199875			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.185	J	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172541063702B	Sample number(s): 9199864-9199875			
Selenium	0.100	U	0.100	0.800
Batch number: 172541063702D	Sample number(s): 9199864-9199875			
Barium	0.182	U	0.182	0.800
Batch number: 17269245031A	Sample number(s): 9199864-9199866,9199868-9199869,9199871-9199872,9199874			
TOC	100	U	100	300
Batch number: 17269245031B	Sample number(s): 9199875			
TOC	100	U	100	300
Batch number: 17270245031A	Sample number(s): 9199867,9199873			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17265013	Sample number(s): 9199864-9199870,9199872-9199873,9199875								
Perfluorobutanesulfonate	1.20	1.27			106		70-130		
Perfluorobutanoic acid	1.36	1.57			115		70-130		
Perfluorodecanoic acid	1.36	1.44			106		70-130		
Perfluorododecanoic acid	1.36	1.57			116		70-130		
Perfluoroheptanoic acid	1.36	1.43			105		70-130		
Perfluorohexanesulfonate	1.29	1.36			106		70-130		
Perfluorohexanoic acid	1.36	1.50			110		70-130		
Perfluorononanoic acid	1.36	1.41			104		70-130		
Perfluoro-octanesulfonate	1.30	1.45			112		70-130		
Perfluorooctanoic acid	1.36	1.61			119		70-130		
Perfluoropentanoic acid	1.36	1.37			101		70-130		
Perfluorotetradecanoic acid	1.36	1.57			115		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

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LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	1.36	1.43			105		70-130		
Perfluoroundecanoic acid	1.36	1.63			120		70-130		
Batch number: 17270006	Sample number(s): 9199874								
Perfluorobutanesulfonate	1.20	1.20	1.20	1.26	100	105	70-130	5	30
Perfluorobutanoic acid	1.36	1.48	1.36	1.49	109	109	70-130	0	30
Perfluorodecanoic acid	1.36	1.32	1.36	1.29	97	95	70-130	2	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.46	109	107	70-130	2	30
Perfluoroheptanoic acid	1.36	1.53	1.36	1.49	113	109	70-130	3	30
Perfluorohexanesulfonate	1.29	1.34	1.29	1.24	104	96	70-130	8	30
Perfluorohexanoic acid	1.36	1.47	1.36	1.37	108	101	70-130	7	30
Perfluorononanoic acid	1.36	1.25	1.36	1.50	92	111	70-130	18	30
Perfluoro-octanesulfonate	1.30	1.16	1.30	1.27	89	98	70-130	9	30
Perfluorooctanoic acid	1.36	1.41	1.36	1.45	104	107	70-130	3	30
Perfluoropentanoic acid	1.36	1.48	1.36	1.52	109	112	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.51	1.36	1.36	111	100	70-130	11	30
Perfluorotridecanoic acid	1.36	1.45	1.36	1.48	106	109	70-130	2	30
Perfluoroundecanoic acid	1.36	1.55	1.36	1.52	114	112	70-130	2	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172541063702	Sample number(s): 9199864-9199875								
Aluminum	200	211.13			106		80-120		
Calcium	400	408.32			102		80-120		
Iron	100	100.32			100		80-120		
Magnesium	200	209.03			105		80-120		
Manganese	50	50.88			102		80-120		
Potassium	1000	983.36			98		80-120		
Sodium	1000	1018.2			102		80-120		
Zinc	50	49.47			99		80-120		
Batch number: 172541063702A	Sample number(s): 9199864-9199875								
Antimony	0.600	0.615			103		80-120		
Arsenic	1.00	1.04			104		80-120		
Beryllium	0.400	0.398			100		80-120		
Cadmium	0.500	0.534			107		80-120		
Chromium	5.00	5.23			105		80-120		
Cobalt	25	25.38			102		80-120		
Copper	5.00	5.32			106		80-120		
Lead	1.50	1.53			102		80-120		
Nickel	5.00	5.65			113		80-120		
Silver	5.00	5.47			109		80-120		
Thallium	0.200	0.191			95		80-120		
Vanadium	5.00	5.09			102		80-120		
Batch number: 172541063702B	Sample number(s): 9199864-9199875								
Selenium	1.00	0.948			95		80-120		
Batch number: 172541063702D	Sample number(s): 9199864-9199875								
Barium	5.00	5.74			115		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

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LCS/LCSD (continued)

Analysis Name	LCS Spike Added		LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg		mg/kg	mg/kg	mg/kg					
	mg/kg		mg/kg	mg/kg	mg/kg					
Batch number: 17269245031A	Sample number(s): 9199864-9199866,9199868-9199869,9199871-9199872,9199874									
TOC	7150		5349.21			75		47-143		
Batch number: 17269245031B	Sample number(s): 9199875									
TOC	7150		5349.21			75		47-143		
Batch number: 17270245031A	Sample number(s): 9199867,9199873									
TOC	7150		5571.21			78		47-143		
	Std. Units		Std. Units	Std. Units	Std. Units					
Batch number: 17256039403A	Sample number(s): 9199864-9199867,9199872-9199875									
pH	7.00		7.02			100		95-105		
Batch number: 17264039401B	Sample number(s): 9199868,9199871									
pH	7.00		6.96			99		95-105		
	%		%	%	%					
Batch number: 17257820004A	Sample number(s): 9199864-9199875									
Moisture	89.5		89.42			100		99-101		
Moisture	89.5		89.42			100		99-101		
Moisture Duplicate	89.5		89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17265013	Sample number(s): 9199864-9199870,9199872-9199873,9199875 UNSPK: 9199868										
Perfluorobutanesulfonate	0.19	U	1.20	1.34	1.15	1.21	112	105	70-130	10	30
Perfluorobutanoic acid	0.19	U	1.35	1.52	1.30	1.40	113	108	70-130	8	30
Perfluorodecanoic acid	0.19	U	1.35	1.36	1.30	1.32	100	102	70-130	3	30
Perfluorododecanoic acid	0.19	U	1.35	1.41	1.30	1.54	104	118	70-130	9	30
Perfluoroheptanoic acid	0.19	U	1.35	1.42	1.30	1.44	105	111	70-130	2	30
Perfluorohexanesulfonate	0.19	U	1.28	1.29	1.23	1.24	101	101	70-130	4	30
Perfluorohexanoic acid	0.094	U	1.35	1.43	1.30	1.41	105	108	70-130	1	30
Perfluorononanoic acid	0.094	U	1.35	1.32	1.30	1.52	98	117	70-130	14	30
Perfluoro-octanesulfonate	0.28	U	1.29	1.22	1.24	1.28	95	103	70-130	4	30
Perfluorooctanoic acid	0.19	U	1.35	1.39	1.30	1.51	103	116	70-130	9	30
Perfluoropentanoic acid	0.19	U	1.35	1.30	1.30	1.35	96	104	70-130	4	30
Perfluorotetradecanoic acid	0.19	U	1.35	1.45	1.30	1.40	107	107	70-130	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

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MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	0.19 U	1.35	1.26	1.30	1.48	93	114	70-130	17	30
Perfluoroundecanoic acid	0.19 U	1.35	1.51	1.30	1.38	112	106	70-130	10	30
Batch number: 17270006	Sample number(s): 9199874 UNSPK: 9199874									
Perfluorobutanesulfonate	0.18 U	1.16	1.22			105		70-130		
Perfluorobutanoic acid	0.18 U	1.31	1.46			111		70-130		
Perfluorodecanoic acid	0.18 U	1.31	1.29			98		70-130		
Perfluorododecanoic acid	0.18 U	1.31	1.42			108		70-130		
Perfluoroheptanoic acid	0.18 U	1.31	1.51			115		70-130		
Perfluorohexanesulfonate	0.18 U	1.24	1.36			110		70-130		
Perfluorohexanoic acid	0.091 U	1.31	1.49			113		70-130		
Perfluorononanoic acid	0.091 U	1.31	1.44			110		70-130		
Perfluoro-octanesulfonate	0.27 U	1.26	0.983			78		70-130		
Perfluorooctanoic acid	0.18 U	1.31	1.63			125		70-130		
Perfluoropentanoic acid	0.18 U	1.31	1.38			105		70-130		
Perfluorotetradecanoic acid	0.18 U	1.31	1.31			100		70-130		
Perfluorotridecanoic acid	0.18 U	1.31	1.51			115		70-130		
Perfluoroundecanoic acid	0.18 U	1.31	1.59			121		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172541063702	Sample number(s): 9199864-9199875 UNSPK: 9199868									
Aluminum	9183.17	192.31	18877.61	192.31	13444.12	5041 (2)	2216 (2)	75-125	34*	20
Calcium	312.09	384.62	878.77	384.62	733.37	147*	110	75-125	18	20
Iron	16199.14	96.15	23118.76	96.15	17878.2	7196 (2)	1746 (2)	75-125	26*	20
Magnesium	1501.09	192.31	2717.49	192.31	1924.21	633 (2)	220 (2)	75-125	34*	20
Manganese	360.4	48.08	494.16	48.08	364.34	278 (2)	8 (2)	75-125	30*	20
Potassium	1432.31	961.54	3840.37	961.54	3199.66	250*	184*	75-125	18	20
Sodium	134.66	961.54	1171.69	961.54	1118.08	108	102	75-125	5	20
Zinc	30.49	48.08	87.3	48.08	75.69	118	94	75-125	14	20
Batch number: 172541063702A	Sample number(s): 9199864-9199875 UNSPK: 9199868									
Antimony	0.114	1.15	0.945	1.15	1.02	72*	79	75-125	8	20
Arsenic	4.91	1.92	7.03	1.92	7.01	110	109	75-125	0	20
Beryllium	0.428	0.769	1.26	0.769	1.25	108	107	75-125	1	20
Cadmium	0.0803	0.962	1.10	0.962	0.976	106	93	75-125	12	20
Chromium	7.05	9.62	17.86	9.62	18.73	112	121	75-125	5	20
Cobalt	7.26	48.08	54.54	48.08	54.29	98	98	75-125	0	20
Copper	10.5	9.62	19.88	9.62	20.37	98	103	75-125	2	20
Lead	9.83	2.88	13.54	2.88	14	129*	145*	75-125	3	20
Nickel	11.36	9.62	19.75	9.62	21.06	87	101	75-125	6	20
Silver	0.0256 U	9.62	10.02	9.62	10.02	104	104	75-125	0	20
Thallium	0.156	0.385	0.549	0.385	0.579	102	110	75-125	5	20
Vanadium	10.17	9.62	21.98	9.62	23.37	123	137*	75-125	6	20
Batch number: 172541063702B	Sample number(s): 9199864-9199875 UNSPK: 9199868									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

Group Number: 1848233

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Selenium	0.0995	1.92	1.97	1.92	1.89	97	93	75-125	4	20
Batch number: 172541063702D	Sample number(s): 9199864-9199875 UNSPK: 9199868									
Barium	56.35	9.62	67.33	9.62	74.92	114 (2)	193 (2)	75-125	11	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17269245031A	Sample number(s): 9199864-9199866,9199868-9199869,9199871-9199872,9199874 UNSPK: 9199868									
TOC	205 U	12930	10021.54			78		47-143		
Batch number: 17269245031B	Sample number(s): 9199875 UNSPK: P199876									
TOC	279 U	19470	14010.38			72		47-143		
Batch number: 17270245031A	Sample number(s): 9199867,9199873 UNSPK: P201354									
TOC	1664.24	14550	12257.28			73		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172541063702	Sample number(s): 9199864-9199875 BKG: 9199868			
Aluminum	9183.17	8151.19	12	20
Calcium	312.09	294.59	6	20
Iron	16199.14	14913.91	8	20
Magnesium	1501.09	1520.23	1	20
Manganese	360.4	313.38	14	20
Potassium	1432.31	1351.83	6	20
Sodium	134.66	127.79	5 (1)	20
Zinc	30.49	28.46	7	20
Batch number: 172541063702A	Sample number(s): 9199864-9199875 BKG: 9199868			
Antimony	0.114	0.104	9 (1)	20
Arsenic	4.91	4.64	6	20
Beryllium	0.428	0.388	10 (1)	20
Cadmium	0.0803	0.0753	6 (1)	20
Chromium	7.05	6.82	3	20
Cobalt	7.26	6.32	14	20
Copper	10.5	9.49	10	20
Lead	9.83	8.90	10	20
Nickel	11.36	10.19	11	20
Silver	0.0256 U	0.0292 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:28

Group Number: 1848233

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Thallium	0.156	0.125	22* (1)	20
Vanadium	10.17	9.77	4	20
Batch number: 172541063702B	Sample number(s): 9199864-9199875 BKG: 9199868			
Selenium	0.0995	0.100 U	200* (1)	20
Batch number: 172541063702D	Sample number(s): 9199864-9199875 BKG: 9199868			
Barium	56.35	46.06	20	20
	mg/kg	mg/kg		
Batch number: 17269245031A	Sample number(s): 9199864-9199866,9199868-9199869,9199871-9199872,9199874 BKG: 9199868			
TOC	205 U	193 U	0 (1)	7
Batch number: 17269245031B	Sample number(s): 9199875 BKG: P199876			
TOC	279 U	285 U	0 (1)	7
Batch number: 17270245031A	Sample number(s): 9199867,9199873 BKG: P201354			
TOC	1664.24	1895.4	13* (1)	7
	Std. Units	Std. Units		
Batch number: 17256039403A	Sample number(s): 9199864-9199867,9199872-9199875 BKG: 9199867			
pH	8.42	8.39	0	3
Batch number: 17264039401B	Sample number(s): 9199868,9199871 BKG: 9199868			
pH	7.74	7.69	1	3
	%	%		
Batch number: 17257820004A	Sample number(s): 9199864-9199875 BKG: 9199868, P199868			
Moisture	12.08	12.61	4	5
Moisture	12.08	12.61	4	5
Moisture Duplicate	12.08	12.61	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17265013

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848233
Reported: 09/29/2017 14:28

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17265013

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199864	59	50*	56	70	69	71
9199865	62	61*	66	67	62	64
9199866	67	64*	66	71	72	68
9199867	68	65*	63	73	72	69
9199868	62	57*	66	65	72	68
9199869	66	68*	68	77	76	72
9199870	56	52*	54	59	62	58
9199872	72	69*	71	71	72	69
9199873	61	59*	63	68	69	58
9199875	49*	44*	55	62	70	54
Blank	78	74	74	80	77	79
LCS	71	73	76	72	73	78
MS	66	68*	68	77	76	72
MSD	56	52*	54	59	62	58
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9199864	61	62	61	58	56	56
9199865	61	62	69	63	68	62
9199866	63	66	72	69	66	70
9199867	69	65	68	66	69	71
9199868	61	64	64	66	66	63
9199869	69	67	65	67	72	66
9199870	56	62	54	56	59	56
9199872	73	69	77	69	71	70
9199873	59	68	71	60	61	60
9199875	53	69	48	59	52	48
Blank	76	80	74	80	83	81
LCS	67	74	77	65	73	69
MS	69	67	65	67	72	66
MSD	56	62	54	56	59	56
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9199864	70
9199865	71
9199866	70
9199867	66
9199868	61
9199869	58

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848233
Reported: 09/29/2017 14:28

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17265013

	13C2-PFTeDA
9199870	56
9199872	63
9199873	56
9199875	61
Blank	72
LCS	60
MS	58
MSD	56
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17270006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199874	55	49*	53	62	75	55
Blank	79	74	67	96	90	88
LCS	75	72	79	85	77	77
LCSD	79	70	76	83	74	71
MS	65	58*	63	70	68	61
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9199874	58	72	69	63	58	59
Blank	83	71	77	90	87	97
LCS	77	77	84	81	75	75
LCSD	77	74	70	83	88	84
MS	59	82	61	66	65	73
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9199874	68
Blank	97
LCS	70
LCSD	86
MS	81
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1848233 9179864-75

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52270
COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL Trip Blank	Soil: 250 mL Plastic (14) PFCs	Soil: 4 oz glass TOC, pH, moist	% Solids	Preservative Code	Field Filtered Y/N
									1	1	1		A	A
1. SG3-D07-0-0.5	0	0.5	ft	09/08/an	0910	Soil	N	2		1	1			
2. SG3-D07-0.5-1	0.5	1	ft	9-8-17	0915	S	N	2		1	1			
3. SG3-D07-1-1.5	1	1.5	ft	9-8-17	0920	S	N	2		1	1			
4. SG3-D07-3-4	3	4	ft	9-8-17	0930	S	N	2		1	1			
5. SG3-D07-8-9	8	9	ft	9-8-17	0935	S	Y	6		1	1			
6. SG3-D07-18-19	18	19	ft	9-8-17	1000	S	N	2		1	1			
7. SG3-D07-28-29	28	29	ft	9-8-17	1005	S	N	2		1	1			
8. SG3-D07-38-39	38	39	ft	9-8-17	1110	S	N	2		1	1			
9. SG3-D07-48-49	48	49	ft	9-8-17	1340	S	N	2		1	1			
10. SG3-D07-58-59	58	59	ft	9-8-17	1440	S	Y	6		1	1			

(14) PFCs TOC, pH, moisture content, TAL metals except Hg + cations

Samples in 3 coolers

BARR USE ONLY

Sampled by: DZ KMT2
Barr Proj. Manager: JTC
Barr DQ Manager: MDP
Lab Name: ELLE
Lab Location: Lancaster PA

Relinquished by: Derek Zaldy — On Ice? Y N — Date 9-8-17 — Time 1700
Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time
Received by: — Date 9/9/17 — Time 955

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.5-5.3 Custody Seal Intact? ☒ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193962

Group Number(s): 1848233

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/09/2017 9:45
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	5
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Trip Blank Type(s): 3 Unpres. + 2 Trizma

Unpacked by Simon Nies (25112) at 11:32 on 09/09/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.5	DT	Wet	Y	Bagged	N
2	DT42-01	1.7	DT	Wet	Y	Bagged	N
3	DT42-01	5.3	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-LTB23-170908	2	1	

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-LTB23-170908	9/08/2017 14:45	Only 1 bottle time labeled 1445

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 28, 2017

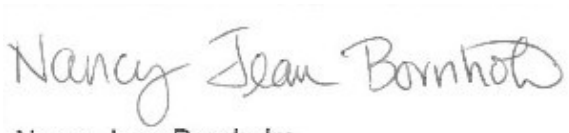
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1848234
SDG: SGB30
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D07-58-59 Soil	09/08/2017 14:40	9199876
SG3-D07-58-59 MS Soil	09/08/2017 14:40	9199877
SG3-D07-58-59 MSD Soil	09/08/2017 14:40	9199878
SG3-D07-58-59 Dupl Soil	09/08/2017 14:40	9199879
SG3-S03-0-0.5' Soil	09/07/2017 16:05	9199880
SG3-S03-0.5-1' Soil	09/07/2017 16:15	9199881
SG3-S03-1-1.5' Soil	09/07/2017 16:25	9199882
SG3-S03-3-4' Soil	09/07/2017 16:45	9199883
SG3-S03-6.6-7.6' Soil	09/07/2017 17:00	9199884
SG3-S08-0-0.5' Soil	09/08/2017 12:20	9199885
SG3-S08-0.5-1' Soil	09/08/2017 12:40	9199886
SG3-S08-1-1.5' Soil	09/08/2017 12:45	9199887
SG3-S08-1.5-2.2' Soil	09/08/2017 12:50	9199888
SG3-LTB21-170908 Blank Water	09/08/2017	9199889
SG3-LTB22-170908 Blank Water	09/08/2017	9199890
SG3-S03-170908 Groundwater	09/08/2017 09:45	9199891
SG3-LTB23-170908 Blank Water	09/08/2017 09:45	9199892
SG3-S08-170908 Groundwater	09/08/2017 14:45	9199893
SG3-S08-170908 MS Groundwater	09/08/2017 14:45	9199894
SG3-S08-170908 MSD Groundwater	09/08/2017 14:45	9199895
SG3-S08-170908 Dupl Groundwater	09/08/2017 14:45	9199896
SG3-LTB24-170908 Blank Water	09/08/2017	9199897

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1848234

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9199885, 9199886, 9199887, 9199888, 9199894, 9199895

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9199891, 9199892, 9199893, 9199897

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample #s: 9199876

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike and matrix spike duplicate and comparable results were observed.

Sample #s: 9199878

The stated QC limits are advisory only until sufficient data points

can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike and the background and comparable results were observed.

Sample #s: 9199877

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike duplicate and the background and comparable results were observed.

Batch #: 17253001 (Sample number(s): 9199889-9199895, 9199897 UNSPK: 9199893)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9199891, 9199892, 9199893, 9199894, 9199895, 9199897, Blank, LCS, MS, MSD

Batch #: 17263002 (Sample number(s): 9199880-9199884 UNSPK: 9199880)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorododecanoic acid, Perfluoroheptanoic acid

Batch #: 17265015 (Sample number(s): 9199876-9199878, 9199885-9199888 UNSPK: 9199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9199876, 9199877, 9199878, 9199885, 9199886, 9199887, 9199888, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 172541063505 (Sample number(s): 9199891, 9199893-9199896 UNSPK: 9199893 BKG: 9199893)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

Batch #: 172551063702 (Sample number(s): 9199876-9199879 UNSPK: 9199876 BKG: 9199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172541063906A (Sample number(s): 9199891, 9199893-9199896 UNSPK: 9199893 BKG: 9199893)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper, Nickel, Vanadium

Batch #: 172551063702A (Sample number(s): 9199876-9199879 UNSPK: 9199876 BKG: 9199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium

Batch #: 172551063702B (Sample number(s): 9199876-9199879 UNSPK: 9199876 BKG: 9199876)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172551063702D (Sample number(s): 9199876-9199879 UNSPK: 9199876 BKG: 9199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

EPA 300.0, Wet Chemistry

Batch #: 17252987106B (Sample number(s): 9199891, 9199893-9199894, 9199896 UNSPK: 9199893 BKG: 9199893)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Nitrate Nitrogen

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Nitrite Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 17261108102A (Sample number(s): 9199891, 9199893-9199894, 9199896 UNSPK: 9199893 BKG: 9199893)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9199876, 9199879

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17270245031A (Sample number(s): 9199888 UNSPK: P201354 BKG: P201354)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9199880, 9199881

The pH was measured in water at 19.8 C.

Sample #s: 9199876, 9199879

The pH was measured in water at 19.9 C.

Sample #s: 9199882

The pH was measured in water at 20.1 C.

Sample #s: 9199883, 9199884, 9199885, 9199886, 9199887

The pH was measured in water at 20.3 C.

Sample #s: 9199888

The pH was measured in water at 20.4 C.

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17257820004B (Sample number(s): 9199876-9199888 BKG: 9199876)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-D07-58-59 Soil
SGPP - North Bennington

ELLE Sample # SW 9199876
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike and matrix spike duplicate and comparable results were observed.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,610**		8.88	39.7	1
01650	**Calcium**	7440-70-2	**18,500**		3.31	39.7	1
01654	**Iron**	7439-89-6	**14,600**		8.00	39.7	1
01657	**Magnesium**	7439-95-4	**7,630**		2.41	19.9	1
06958	**Manganese**	7439-96-5	**317**		0.0825	0.994	1
01662	**Potassium**	7440-09-7	**1,200**		16.6	99.4	1
01667	**Sodium**	7440-23-5	**21.8**	**J**	16.6	199	1
06972	**Zinc**	7440-66-6	**30.5**		0.238	3.97	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0926	U	0.0926	0.397	2
06125	**Arsenic**	7440-38-2	**4.85**		0.127	0.795	2
06126	**Barium**	7440-39-3	**36.4**		0.180	0.795	2
06127	**Beryllium**	7440-41-7	**0.504**		0.0104	0.199	2
06128	**Cadmium**	7440-43-9	**0.103**	**J**	0.0342	0.199	2
06131	**Chromium**	7440-47-3	**8.93**		0.173	0.795	2
06132	**Cobalt**	7440-48-4	**7.89**		0.0310	0.199	2
06133	**Copper**	7440-50-8	**10.6**		0.107	0.795	2
06135	**Lead**	7439-92-1	**13.0**		0.0221	0.397	2
06139	**Nickel**	7440-02-0	**11.7**		0.198	0.795	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 Soil
SGPP - North Bennington

ELLE Sample # SW 9199876
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06141	Selenium	7782-49-2	0.0994 U	0.0994	0.795	2
06142	Silver	7440-22-4	0.0290 U	0.0290	0.199	2
06145	**Thallium**	7440-28-0	**0.227**	0.0248	0.199	2
06148	**Vanadium**	7440-62-2	**7.34**	0.0423	0.199	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	305 U	305	915	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.70**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/26/2017 08:15	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 Soil
SGPP - North Bennington

ELLE Sample # SW 9199876
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:25	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 08:58	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 08:58	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 08:58	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 14:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17263039402B	09/20/2017 20:30	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199877
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.9**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike duplicate and the background and comparable results were observed.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**11,500**	9.31	41.6	1
01650	**Calcium**	7440-70-2	**16,000**	3.47	41.6	1
01654	**Iron**	7439-89-6	**12,700**	8.38	41.6	1
01657	**Magnesium**	7439-95-4	**7,540**	2.53	20.8	1
06958	**Manganese**	7439-96-5	**307**	0.0864	1.04	1
01662	**Potassium**	7440-09-7	**3,000**	17.4	104	1
01667	**Sodium**	7440-23-5	**1,050**	17.4	208	1
06972	**Zinc**	7440-66-6	**74.8**	0.250	4.16	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.743**	0.0970	0.416	2
06125	**Arsenic**	7440-38-2	**6.32**	0.133	0.833	2
06126	**Barium**	7440-39-3	**50.8**	0.189	0.833	2
06127	**Beryllium**	7440-41-7	**1.32**	0.0109	0.208	2
06128	**Cadmium**	7440-43-9	**1.14**	0.0358	0.208	2
06131	**Chromium**	7440-47-3	**18.3**	0.181	0.833	2
06132	**Cobalt**	7440-48-4	**56.5**	0.0325	0.208	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199877
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06133	**Copper**	7440-50-8	**19.8**	0.112	0.833	2
06135	**Lead**	7439-92-1	**16.9**	0.0231	0.416	2
06139	**Nickel**	7440-02-0	**21.8**	0.207	0.833	2
06141	**Selenium**	7782-49-2	**2.03**	0.104	0.833	2
06142	**Silver**	7440-22-4	**10.2**	0.0304	0.208	2
06145	**Thallium**	7440-28-0	**0.629**	0.0260	0.208	2
06148	**Vanadium**	7440-62-2	**19.7**	0.0443	0.208	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**15,300**	709	2,130	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00118	**Moisture**	n.a.	**8.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/26/2017 07:13	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:34	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MS Soil
SGPP - North Bennington

ELLE Sample # SW 9199877
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:07	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:07	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:07	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 14:58	Drew M Gerhart	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199878
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.4**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.6**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.6**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.3**	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was analyzed as the matrix spike and the background and comparable results were observed.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**11,700**	9.13	40.9	1
01650	**Calcium**	7440-70-2	**11,600**	3.40	40.9	1
01654	**Iron**	7439-89-6	**12,300**	8.22	40.9	1
01657	**Magnesium**	7439-95-4	**5,950**	2.48	20.4	1
06958	**Manganese**	7439-96-5	**294**	0.0848	1.02	1
01662	**Potassium**	7440-09-7	**2,740**	17.1	102	1
01667	**Sodium**	7440-23-5	**1,020**	17.1	204	1
06972	**Zinc**	7440-66-6	**74.1**	0.245	4.09	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.757**	0.0952	0.409	2
06125	**Arsenic**	7440-38-2	**6.43**	0.131	0.817	2
06126	**Barium**	7440-39-3	**52.2**	0.185	0.817	2
06127	**Beryllium**	7440-41-7	**1.33**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**1.17**	0.0351	0.204	2
06131	**Chromium**	7440-47-3	**20.7**	0.178	0.817	2
06132	**Cobalt**	7440-48-4	**56.9**	0.0319	0.204	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199878
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06133	**Copper**	7440-50-8	**20.3**	0.109	0.817	2
06135	**Lead**	7439-92-1	**15.8**	0.0227	0.409	2
06139	**Nickel**	7440-02-0	**21.9**	0.203	0.817	2
06141	**Selenium**	7782-49-2	**2.00**	0.102	0.817	2
06142	**Silver**	7440-22-4	**10.5**	0.0298	0.204	2
06145	**Thallium**	7440-28-0	**0.685**	0.0255	0.204	2
06148	**Vanadium**	7440-62-2	**20.1**	0.0435	0.204	2
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00118	**Moisture**	n.a.	**8.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/26/2017 07:34	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:38	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:10	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9199878
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:10	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:10	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199879
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,940**	7.13	31.9	1
01650	**Calcium**	7440-70-2	**17,400**	2.66	31.9	1
01654	**Iron**	7439-89-6	**15,500**	6.42	31.9	1
01657	**Magnesium**	7439-95-4	**8,430**	1.94	16.0	1
06958	**Manganese**	7439-96-5	**313**	0.0662	0.798	1
01662	**Potassium**	7440-09-7	**1,130**	13.3	79.8	1
01667	**Sodium**	7440-23-5	**20.7 J**	13.3	160	1
06972	**Zinc**	7440-66-6	**31.9**	0.191	3.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0743 U	0.0743	0.319	2
06125	**Arsenic**	7440-38-2	**5.50**	0.102	0.638	2
06126	**Barium**	7440-39-3	**34.4**	0.145	0.638	2
06127	**Beryllium**	7440-41-7	**0.480**	0.0084	0.160	2
06128	**Cadmium**	7440-43-9	**0.116 J**	0.0274	0.160	2
06131	**Chromium**	7440-47-3	**7.16**	0.139	0.638	2
06132	**Cobalt**	7440-48-4	**8.92**	0.0249	0.160	2
06133	**Copper**	7440-50-8	**10.5**	0.0855	0.638	2
06135	**Lead**	7439-92-1	**12.8**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**12.9**	0.159	0.638	2
06141	**Selenium**	7782-49-2	**0.0990 J**	0.0798	0.638	2
06142	Silver	7440-22-4	0.0233 U	0.0233	0.160	2
06145	**Thallium**	7440-28-0	**0.223**	0.0199	0.160	2
06148	**Vanadium**	7440-62-2	**7.88**	0.0340	0.160	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	311 U	311	934	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**8.5**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**8.0**	0.50	0.50	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199879
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:31	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:04	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:04	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:04	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 15:07	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-58-59 Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9199879
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:40 by DJZ

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D7101 SDG#: SGB30-01DUP

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00394	pH	SW-846 9045D modified	1	17263039402B	09/20/2017 20:30	Jeremy L Bolf	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1
00121	Moisture Duplicate	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199880
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:05 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-1 SDG#: SGB30-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.77	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.77	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**0.22**	**J**	0.13	0.51	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.76**	**J**	0.38	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.0**		0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.77	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,900**		541	1,620	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263002	09/22/2017 12:20	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199880
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:05 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-1 SDG#: SGB30-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263002	09/20/2017 13:55	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 15:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17261039401A	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9199881
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:15 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-2 SDG#: SGB30-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.34**	**J**	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**0.23**	**J**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.0**	**J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.8**		0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,800**		724	2,170	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.97**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263002	09/25/2017 06:19	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9199881
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:15 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-2 SDG#: SGB30-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263002	09/20/2017 13:55	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 15:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17261039401A	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199882
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:25 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-3 SDG#: SGB30-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.18**	**J**	0.12	0.48	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.84**	**J**	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.4**		0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.72	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		458	1,370	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263002	09/22/2017 13:01	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199882
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:25 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-3 SDG#: SGB30-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263002	09/20/2017 13:55	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 15:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9199883
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-4 SDG#: SGB30-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.75	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.75	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.75	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.75	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.75	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37	U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.86**		0.25	0.75	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.75	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.75	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.75	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,400**		345	1,030	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.29**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263002	09/22/2017 13:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263002	09/20/2017 13:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9199883
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 16:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-4 SDG#: SGB30-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 16:14	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-6.6-7.6' Soil
SGPP - North Bennington

ELLE Sample # SW 9199884
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 17:00 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-5 SDG#: SGB30-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.78**		0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,280**		375	1,130	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263002	09/25/2017 06:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263002	09/20/2017 13:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-6.6-7.6' Soil
SGPP - North Bennington

ELLE Sample # SW 9199884
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 17:00 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03-5 SDG#: SGB30-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 16:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199885
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:20 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-1 SDG#: SGB30-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26	U	0.26	0.78	1
14027	Perfluorobutanoic acid	375-22-4	0.26	U	0.26	0.78	1
14027	Perfluorodecanoic acid	335-76-2	0.26	U	0.26	0.78	1
14027	Perfluorododecanoic acid	307-55-1	0.26	U	0.26	0.78	1
14027	Perfluoroheptanoic acid	375-85-9	0.26	U	0.26	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.26	U	0.26	0.78	1
14027	Perfluorohexanoic acid	307-24-4	0.13	U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13	U	0.13	0.52	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**		0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.89**		0.26	0.78	1
14027	Perfluoropentanoic acid	2706-90-3	0.26	U	0.26	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26	U	0.26	0.78	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26	U	0.26	0.78	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26	U	0.26	0.78	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,300**		478	1,440	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.88**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/26/2017 08:35	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199885
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:20 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-1 SDG#: SGB30-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 16:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9199886
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:40 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-2 SDG#: SGB30-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.8**		0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,040**		392	1,180	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.97**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/25/2017 09:39	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9199886
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:40 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-2 SDG#: SGB30-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 16:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199887
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-3 SDG#: SGB30-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**		0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.56**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,940**		383	1,150	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/26/2017 08:56	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9199887
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-3 SDG#: SGB30-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17269245031B	09/26/2017 17:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-1.5-2.2' Soil
SGPP - North Bennington

ELLE Sample # SW 9199888
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:50 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-4 SDG#: SGB30-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.73	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.73	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.73	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.94**	**J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.71**	**J**	0.24	0.73	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.73	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		584	1,750	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.65**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/25/2017 10:20	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-1.5-2.2' Soil
SGPP - North Bennington

ELLE Sample # SW 9199888
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 12:50 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08-4 SDG#: SGB30-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 11:43	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17257039402A	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820004B	09/14/2017 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB21-170908 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9199889
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB21 SDG#: SGB30-11TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 04:44	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB22-170908 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9199890
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB22 SDG#: SGB30-12TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 05:05	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199891
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03GW SDG#: SGB30-13

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**3**	**J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**3**	**J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**1**	**J**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**8**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**3**		0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**23**		2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**26**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**10**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
	The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.131**	**J**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0218**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**78.1**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.158**	**J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**23.3**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0090**	**J**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.71**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**59.6**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.00082**	**J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0156**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199891
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03GW SDG#: SGB30-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00016 J**	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00020 J**	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00026 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**88.6**	4.0	8.0	20
00368	**Nitrate Nitrogen**	14797-55-8	**2.2**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**10.5**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**295**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**295**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.052 J**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S03-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199891
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S03GW SDG#: SGB30-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 05:25	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 10:15	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/19/2017 00:03	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/21/2017 06:17	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/19/2017 00:03	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/19/2017 00:03	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/21/2017 06:17	Sarah L Burt	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17252987106B	09/10/2017 00:27	Clinton M Wilson	5
00224	Chloride	EPA 300.0	2	17252987106B	09/10/2017 23:49	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17252987106B	09/10/2017 00:27	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17252987106B	09/10/2017 00:27	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17252987106B	09/10/2017 00:27	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17264107101A	09/21/2017 19:16	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17261108102A	09/20/2017 12:37	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17261108102A	09/18/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17254003203A	09/11/2017 22:28	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 22:28	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 22:28	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17252022602A	09/09/2017 11:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB23-170908 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9199892
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 09:45

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB23 SDG#: SGB30-14TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 05:46	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199893
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**0.8**	**J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**6**	**J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**	**J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.7**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**4**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**27**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**2**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
	The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.748**		0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0171**	**J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**210**		0.0600	0.400	1
01754	**Iron**	7439-89-6	**2.73**		0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**37.5**		0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.14**		0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.35**		0.179	1.00	1
01767	**Sodium**	7440-23-5	**115**		0.321	2.00	1
07072	Zinc	7440-66-6	0.0065	U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045	U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0018**	**J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0797**		0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071	U	0.000071	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199893
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0024**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0010 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0018 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0012 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00031 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**3.3**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**345**	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**21.7**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**0.63 J**	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**396**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**396**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199893
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 06:07	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:04	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:21	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:21	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:21	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17252987106B	09/09/2017 23:38	Clinton M Wilson	5
00224	Chloride	EPA 300.0	3	17252987106B	09/10/2017 22:38	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17252987106B	09/09/2017 23:38	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17252987106B	09/09/2017 23:38	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17252987106B	09/09/2017 23:38	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17264107101A	09/21/2017 19:10	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17261108102A	09/20/2017 12:39	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17261108102A	09/18/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17254003203A	09/11/2017 21:05	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 21:05	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17254003203A	09/11/2017 21:05	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17252022602A	09/09/2017 11:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MS Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199894
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**13**	3	10	1
10954	**8:2 fluorotelomersulfonate**	39108-34-4	**12**	4	10	1
10954	**NEtFOSAA**	2991-50-6	**14**	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	**NMeFOSAA**	2355-31-9	**16**	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**12**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**19**	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**12**	0.5	2	1
10954	**Perfluorododecanoic acid**	307-55-1	**13**	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**14**	0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**12**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**14**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**15**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**18**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**42**	0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**14**	0.5	2	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**12**	0.5	2	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**13**	0.5	2	1
10954	**Perfluoroundecanoic acid**	2058-94-8	**12**	1	3	1
10954	**PFOSA**	754-91-6	**12**	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.86**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**1.97**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**211**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**3.43**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**39.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.63**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**11.7**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**123**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.510**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0062**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0123**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.134**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0040**	0.000071	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MS Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199894
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06028	**Cadmium**	7440-43-9	**0.0051**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0497**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.265**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0533**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0174**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0530**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0100**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0464**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0023**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0519**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**29.8**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**562**	20.0	40.0	100
00368	**Nitrate Nitrogen**	14797-55-8	**2.8**	0.25	0.50	5
01506	**Nitrite Nitrogen**	14797-65-0	**2.0**	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**48.1**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.97**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**6.2**	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**557**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.40**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MS Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199894
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 23:36	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:14	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:30	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:30	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:30	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17252987106B	09/10/2017 00:11	Clinton M Wilson	5
00224	Chloride	EPA 300.0	3	17252987106B	09/10/2017 23:35	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17252987106B	09/10/2017 00:11	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17252987106B	09/10/2017 00:11	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17252987106B	09/10/2017 00:11	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17264107101A	09/21/2017 19:13	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17261108102A	09/20/2017 12:40	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17261108102A	09/18/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	2	17254003203A	09/11/2017 21:14	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17252022602A	09/09/2017 11:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MSD Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199895
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**16**	3	10	1
10954	**8:2 fluorotelomersulfonate**	39108-34-4	**16**	4	10	1
10954	**NEtFOSAA**	2991-50-6	**15**	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	**NMeFOSAA**	2355-31-9	**15**	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**12**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**18**	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**14**	0.5	2	1
10954	**Perfluorododecanoic acid**	307-55-1	**12**	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**14**	0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**12**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**15**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**13**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**17**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**42**	0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**13**	0.5	2	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**12**	0.5	2	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**13**	0.5	2	1
10954	**Perfluoroundecanoic acid**	2058-94-8	**13**	1	3	1
10954	**PFOSA**	754-91-6	**14**	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.98**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**2.00**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**216**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**3.68**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**40.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.69**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**11.8**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**125**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.510**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0058**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0137**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.142**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0044**	0.000071	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MSD Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199895
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06028	**Cadmium**	7440-43-9	**0.0049**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0488**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.262**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0527**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0178**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0530**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0115**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0480**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0021**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0508**	0.00021	0.0010	1
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.98**	0.050	0.10	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**560**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.41**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 23:57	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:17	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 MSD Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199895
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:33	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:33	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:33	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
12892	Ammonia Nitrogen	EPA 350.1	1	17264107101A	09/21/2017 19:15	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17254003203A	09/11/2017 21:23	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17252022602A	09/09/2017 11:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Dupl Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199896
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.748**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0145 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**208**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**2.74**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**37.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.14**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.37**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**115**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0019 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0904**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0028**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.00077 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0020 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0016 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00024 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**3.1**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**345**	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**21.9**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**397**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**397**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Dupl Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199896
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172541063505	09/14/2017 09:11	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172541063906D	09/18/2017 23:27	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172541063906B	09/18/2017 23:27	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172541063906A	09/18/2017 23:27	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172541063505	09/13/2017 06:15	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172541063906	09/13/2017 05:10	Lisa J Cooke	1
01505	Bromide	EPA 300.0	1	17252987106B	09/09/2017 23:55	Clinton M Wilson	5
00224	Chloride	EPA 300.0	2	17252987106B	09/10/2017 22:52	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17252987106B	09/09/2017 23:55	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17252987106B	09/09/2017 23:55	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17252987106B	09/09/2017 23:55	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17264107101A	09/21/2017 19:12	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17261108102A	09/20/2017 14:27	Brianna A White	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S08-170908 Dupl Groundwater
SGPP - North Bennington

ELLE Sample # GW 9199896
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 14:45 by RAK

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S08GW SDG#: SGB30-15DUP

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17261108102A	09/18/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	2	17254003203A	09/11/2017 21:43	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	2	17254003203A	09/11/2017 21:43	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	2	17254003203A	09/11/2017 21:43	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17252022602A	09/09/2017 11:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB24-170908 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9199897
ELLE Group # 1848234
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017

Submitted: 09/09/2017 09:45
Reported: 09/28/2017 11:40

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB24 SDG#: SGB30-16TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17253001	09/12/2017 06:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17253001	09/11/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848234
Reported: 09/28/2017 11:40

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17263002	Sample number(s): 9199880-9199884			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17265015	Sample number(s): 9199876-9199878,9199885-9199888			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17253001	Sample number(s): 9199889-9199895,9199897			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
	mg/kg		mg/kg	mg/kg
Batch number: 172551063702	Sample number(s): 9199876-9199879			
Aluminum	8.94	U	8.94	40.0
Calcium	12.5	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.60	J	2.43	20.0
Manganese	0.292	J	0.0830	1.00
Potassium	31.8	J	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.984	J	0.240	4.00
Batch number: 172551063702A	Sample number(s): 9199876-9199879			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.189	J	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172551063702B	Sample number(s): 9199876-9199879			
Selenium	0.100	U	0.100	0.800
Batch number: 172551063702D	Sample number(s): 9199876-9199879			
Barium	0.182	U	0.182	0.800
	mg/l		mg/l	mg/l
Batch number: 172541063505	Sample number(s): 9199891,9199893-9199896			
Aluminum	0.0894	U	0.0894	0.400
Boron	0.0101	U	0.0101	0.100
Calcium	0.0600	U	0.0600	0.400
Iron	0.0805	U	0.0805	0.400
Magnesium	0.0374	U	0.0374	0.200

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848234
Reported: 09/28/2017 11:40

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172541063906A	Sample number(s): 9199891,9199893-9199896		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172541063906B	Sample number(s): 9199891,9199893-9199896		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172541063906D	Sample number(s): 9199891,9199893-9199896		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17269245031B	Sample number(s): 9199876-9199877,9199879-9199887		
TOC	100 U	100	300
Batch number: 17270245031A	Sample number(s): 9199888		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17252987106B	Sample number(s): 9199891,9199893-9199894,9199896		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17261108102A	Sample number(s): 9199891,9199893-9199894,9199896		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17264107101A	Sample number(s): 9199891,9199893-9199896		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17252022602A	Sample number(s): 9199891,9199893-9199896		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17254003203A	Sample number(s): 9199891,9199893-9199896		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17263002	Sample number(s): 9199880-9199884								
Perfluorobutanesulfonate	1.20	1.32	1.20	1.33	110	110	70-130	0	30
Perfluorobutanoic acid	1.36	1.39	1.36	1.51	102	111	70-130	8	30
Perfluorodecanoic acid	1.36	1.46	1.36	1.63	107	120	70-130	11	30
Perfluorododecanoic acid	1.36	1.53	1.36	1.60	113	117	70-130	4	30
Perfluoroheptanoic acid	1.36	1.61	1.36	1.53	118	112	70-130	5	30
Perfluorohexanesulfonate	1.29	1.25	1.29	1.35	97	105	70-130	7	30
Perfluorohexanoic acid	1.36	1.30	1.36	1.39	95	102	70-130	7	30
Perfluorononanoic acid	1.36	1.50	1.36	1.53	111	113	70-130	2	30
Perfluoro-octanesulfonate	1.30	1.40	1.30	1.31	108	101	70-130	6	30
Perfluorooctanoic acid	1.36	1.38	1.36	1.49	102	110	70-130	7	30
Perfluoropentanoic acid	1.36	1.39	1.36	1.53	102	112	70-130	9	30
Perfluorotetradecanoic acid	1.36	1.55	1.36	1.65	114	121	70-130	6	30
Perfluorotridecanoic acid	1.36	1.46	1.36	1.46	108	108	70-130	0	30
Perfluoroundecanoic acid	1.36	1.58	1.36	1.72	116	126	70-130	8	30
Batch number: 17265015	Sample number(s): 9199876-9199878,9199885-9199888								
Perfluorobutanesulfonate	1.20	1.38			115		70-130		
Perfluorobutanoic acid	1.36	1.61			118		70-130		
Perfluorodecanoic acid	1.36	1.39			103		70-130		
Perfluorododecanoic acid	1.36	1.53			113		70-130		
Perfluoroheptanoic acid	1.36	1.68			124		70-130		
Perfluorohexanesulfonate	1.29	1.35			105		70-130		
Perfluorohexanoic acid	1.36	1.50			111		70-130		
Perfluorononanoic acid	1.36	1.66			122		70-130		
Perfluoro-octanesulfonate	1.30	1.42			109		70-130		
Perfluorooctanoic acid	1.36	1.51			111		70-130		
Perfluoropentanoic acid	1.36	1.53			112		70-130		
Perfluorotetradecanoic acid	1.36	1.48			109		70-130		
Perfluorotridecanoic acid	1.36	1.72			126		70-130		
Perfluoroundecanoic acid	1.36	1.55			114		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17253001	Sample number(s): 9199889-9199895,9199897								
6:2 fluorotelomersulfonate	12.89	12.89			100		70-130		
8:2 fluorotelomersulfonate	13.03	15.8			121		70-130		
NEtFOSAA	13.6	13.49			99		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
NMeFOSAA	13.6	14.05			103		70-130		
Perfluorobutanesulfonate	12.03	10			83		70-130		
Perfluorobutanoic Acid	13.6	13.05			96		70-130		
Perfluorodecanoic acid	13.6	11.42			84		70-130		
Perfluorododecanoic acid	13.6	11.08			81		70-130		
Perfluoroheptanoic acid	13.6	12.03			88		70-130		
Perfluorohexanesulfonate	12.86	11.37			88		70-130		
Perfluorohexanoic acid	13.6	11.67			86		70-130		
Perfluorononanoic acid	13.6	13.93			102		70-130		
Perfluoro-octanesulfonate	13	12.55			96		70-130		
Perfluorooctanoic acid	13.6	12.3			90		70-130		
Perfluoropentanoic Acid	13.6	11.93			88		70-130		
Perfluorotetradecanoic acid	13.6	12.02			88		70-130		
Perfluorotridecanoic acid	13.6	12.92			95		70-130		
Perfluoroundecanoic acid	13.6	12.34			91		70-130		
PFOSA	13.6	12.12			89		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172551063702	Sample number(s): 9199876-9199879								
Aluminum	200	199.52			100		80-120		
Calcium	400	403.79			101		80-120		
Iron	100	98.9			99		80-120		
Magnesium	200	200.91			100		80-120		
Manganese	50	48.83			98		80-120		
Potassium	1000	971.79			97		80-120		
Sodium	1000	998.86			100		80-120		
Zinc	50	50.75			101		80-120		
Batch number: 172551063702A	Sample number(s): 9199876-9199879								
Antimony	0.600	0.574			96		80-120		
Arsenic	1.00	1.01			101		80-120		
Beryllium	0.400	0.457			114		80-120		
Cadmium	0.500	0.491			98		80-120		
Chromium	5.00	5.48			110		80-120		
Cobalt	25	24			96		80-120		
Copper	5.00	5.17			103		80-120		
Lead	1.50	1.58			105		80-120		
Nickel	5.00	5.07			101		80-120		
Silver	5.00	5.13			103		80-120		
Thallium	0.200	0.221			110		80-120		
Vanadium	5.00	5.23			105		80-120		
Batch number: 172551063702B	Sample number(s): 9199876-9199879								
Selenium	1.00	1.02			102		80-120		
Batch number: 172551063702D	Sample number(s): 9199876-9199879								
Barium	5.00	5.14			103		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172541063505	Sample number(s): 9199891,9199893-9199896								
Aluminum	2.00	2.06			103		80-120		
Boron	2.00	1.90			95		80-120		
Calcium	4.00	4.00			100		80-120		
Iron	1.00	0.983			98		80-120		
Magnesium	2.00	2.03			101		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	10.05			100		80-120		
Sodium	10	9.97			100		80-120		
Zinc	0.500	0.502			100		80-120		
Batch number: 172541063906A	Sample number(s): 9199891,9199893-9199896								
Antimony	0.00600	0.00581			97		80-120		
Arsenic	0.0100	0.0109			109		80-120		
Beryllium	0.00400	0.00411			103		80-120		
Cadmium	0.00500	0.00498			100		80-120		
Chromium	0.0500	0.0483			97		80-120		
Cobalt	0.250	0.253			101		80-120		
Copper	0.0500	0.0497			99		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0506			101		80-120		
Silver	0.0500	0.0490			98		80-120		
Thallium	0.00200	0.00188			94		80-120		
Vanadium	0.0500	0.0472			94		80-120		
Batch number: 172541063906B	Sample number(s): 9199891,9199893-9199896								
Selenium	0.0100	0.0106			106		80-120		
Batch number: 172541063906D	Sample number(s): 9199891,9199893-9199896								
Barium	0.0500	0.0526			105		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17269245031B	Sample number(s): 9199876-9199877,9199879-9199887								
TOC	7150	5349.21			75		47-143		
Batch number: 17270245031A	Sample number(s): 9199888								
TOC	7150	5571.21			78		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17252987106B	Sample number(s): 9199891,9199893-9199894,9199896								
Bromide	7.50	7.01			93		90-110		
Chloride	3.00	2.96			99		90-110		
Nitrate Nitrogen	0.750	0.673			90		90-110		
Nitrite Nitrogen	0.750	0.724			96		90-110		
Sulfate	7.50	7.35			98		90-110		
Batch number: 17261108102A	Sample number(s): 9199891,9199893-9199894,9199896								
Kjeldahl Nitrogen	5.00	5.42			108		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17264107101A	Sample number(s): 9199891,9199893-9199896								
Ammonia Nitrogen	1.50	1.35	1.50	1.36	90	91	90-110	1	15
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17252022602A	Sample number(s): 9199891,9199893-9199896								
Ortho-Phosphate as P	0.400	0.406			102		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17254003203A	Sample number(s): 9199891,9199893-9199896								
Total Alkalinity to pH 4.5	188	180.53			96		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17257039402A	Sample number(s): 9199882-9199886,9199888								
pH	7.00	6.95			99		95-105		
Batch number: 17257039402B	Sample number(s): 9199887								
pH	7.00	6.95			99		95-105		
Batch number: 17261039401A	Sample number(s): 9199880-9199881								
pH	7.00	6.96			99		95-105		
Batch number: 17263039402B	Sample number(s): 9199876,9199879								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17257820004B	Sample number(s): 9199876-9199888								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17263002	Sample number(s): 9199880-9199884 UNSPK: 9199880										
Perfluorobutanesulfonate	0.20	U	1.17	1.25			107		70-130		
Perfluorobutanoic acid	0.20	U	1.32	1.51			115		70-130		
Perfluorodecanoic acid	0.20	U	1.32	1.63			124		70-130		
Perfluorododecanoic acid	0.20	U	1.32	1.74			132*		70-130		
Perfluoroheptanoic acid	0.20	U	1.32	1.78			135*		70-130		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848234
Reported: 09/28/2017 11:40

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	0.20	U	1.25	1.40			113		70-130		
Perfluorohexanoic acid	0.10	U	1.32	1.51			114		70-130		
Perfluorononanoic acid	0.174		1.32	1.65			112		70-130		
Perfluoro-octanesulfonate	0.596		1.26	2.03			113		70-130		
Perfluorooctanoic acid	1.59		1.32	2.67			82		70-130		
Perfluoropentanoic acid	0.20	U	1.32	1.56			118		70-130		
Perfluorotetradecanoic acid	0.20	U	1.32	1.68			128		70-130		
Perfluorotridecanoic acid	0.20	U	1.32	1.47			111		70-130		
Perfluoroundecanoic acid	0.20	U	1.32	1.65			125		70-130		
Batch number: 17265015	Sample number(s): 9199876-9199878,9199885-9199888 UNSPK: 9199876										
Perfluorobutanesulfonate	0.19	U	1.14	1.31	1.14	1.33	115	117	70-130	2	30
Perfluorobutanoic acid	0.19	U	1.29	1.55	1.29	1.54	120	120	70-130	1	30
Perfluorodecanoic acid	0.19	U	1.29	1.39	1.29	1.30	108	101	70-130	7	30
Perfluorododecanoic acid	0.19	U	1.29	1.61	1.29	1.45	125	112	70-130	11	30
Perfluoroheptanoic acid	0.19	U	1.29	1.75	1.29	1.54	135*	119	70-130	13	30
Perfluorohexanesulfonate	0.19	U	1.22	1.37	1.22	1.23	112	101	70-130	11	30
Perfluorohexanoic acid	0.095	U	1.29	1.48	1.29	1.49	115	116	70-130	1	30
Perfluorononanoic acid	0.095	U	1.29	1.53	1.29	1.47	118	114	70-130	4	30
Perfluoro-octanesulfonate	0.28	U	1.23	1.30	1.23	1.22	106	99	70-130	7	30
Perfluorooctanoic acid	0.19	U	1.29	1.66	1.29	1.48	129	115	70-130	12	30
Perfluoropentanoic acid	0.19	U	1.29	1.52	1.29	1.40	118	108	70-130	9	30
Perfluorotetradecanoic acid	0.19	U	1.29	1.45	1.29	1.53	113	119	70-130	5	30
Perfluorotridecanoic acid	0.19	U	1.29	1.45	1.29	1.48	112	115	70-130	2	30
Perfluoroundecanoic acid	0.19	U	1.29	1.54	1.29	1.50	119	117	70-130	2	30
	ng/l		ng/l	ng/l	ng/l	ng/l					
Batch number: 17253001	Sample number(s): 9199889-9199895,9199897 UNSPK: 9199893										
6:2 fluorotelomersulfonate	3	U	12.9	12.51	12.88	15.98	97	124	70-130	24	30
8:2 fluorotelomersulfonate	4	U	13.03	11.57	13.01	16.42	89	126	70-130	35*	30
NEtFOSAA	1	U	13.6	14.26	13.58	15.14	105	111	70-130	6	30
NMeFOSAA	1	U	13.6	15.56	13.58	14.94	114	110	70-130	4	30
Perfluorobutanesulfonate	0.841		12.03	12.1	12.02	11.5	94	89	70-130	5	30
Perfluorobutanoic Acid	6.28		13.6	18.65	13.58	18.34	91	89	70-130	2	30
Perfluorodecanoic acid	0.5	U	13.6	12.1	13.58	14.01	89	103	70-130	15	30
Perfluorododecanoic acid	0.5	U	13.6	12.78	13.58	11.69	94	86	70-130	9	30
Perfluoroheptanoic acid	2.13		13.6	13.76	13.58	14.42	85	90	70-130	5	30
Perfluorohexanesulfonate	1	U	12.86	12.42	12.84	11.53	97	90	70-130	7	30
Perfluorohexanoic acid	1.93		13.6	13.79	13.58	14.55	87	93	70-130	5	30
Perfluorononanoic acid	0.749		13.6	14.5	13.58	12.58	101	87	70-130	14	30
Perfluoro-octanesulfonate	3.64		13.01	17.57	12.99	16.82	107	102	70-130	4	30
Perfluorooctanoic acid	27.34		13.6	42.02	13.58	42.02	108	108	70-130	0	30
Perfluoropentanoic Acid	2.33		13.6	13.86	13.58	13.24	85	80	70-130	5	30
Perfluorotetradecanoic acid	0.5	U	13.6	12.43	13.58	12.23	91	90	70-130	2	30
Perfluorotridecanoic acid	0.5	U	13.6	12.91	13.58	12.99	95	96	70-130	1	30
Perfluoroundecanoic acid	1	U	13.6	11.79	13.58	12.54	87	92	70-130	6	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
PFOSA	3 U	13.6	12.34	13.58	13.79	91	101	70-130	11	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172551063702	Sample number(s): 9199876-9199879 UNSPK: 9199876									
Aluminum	6045.16	190.48	10505.57	186.92	10698.82	2342 (2)	2490 (2)	75-125	2	20
Calcium	16897.54	380.95	14616.3	373.83	10643.22	-599 (2)	-1673 (2)	75-125	31*	20
Iron	13331.19	95.24	11610.25	93.46	11222.55	-1807 (2)	-2256 (2)	75-125	3	20
Magnesium	6982.83	190.48	6894.97	186.92	5445.01	-46 (2)	-823 (2)	75-125	24*	20
Manganese	290.22	47.62	280.57	46.73	268.85	-20 (2)	-46 (2)	75-125	4	20
Potassium	1101.47	952.38	2740.98	934.58	2504.76	172*	150*	75-125	9	20
Sodium	19.94	952.38	960.69	934.58	935.95	99	98	75-125	3	20
Zinc	27.89	47.62	68.46	46.73	67.77	85	85	75-125	1	20
Batch number: 172551063702A	Sample number(s): 9199876-9199879 UNSPK: 9199876									
Antimony	0.0847 U	1.14	0.679	1.12	0.693	59*	62*	75-125	2	20
Arsenic	4.44	1.90	5.78	1.87	5.88	71*	77	75-125	2	20
Beryllium	0.461	0.762	1.21	0.748	1.21	98	101	75-125	0	20
Cadmium	0.0943	0.952	1.04	0.935	1.07	99	104	75-125	3	20
Chromium	8.17	9.52	16.71	9.35	18.95	90	115	75-125	13	20
Cobalt	7.22	47.62	51.68	46.73	52.04	93	96	75-125	1	20
Copper	9.70	9.52	18.11	9.35	18.53	88	95	75-125	2	20
Lead	11.87	2.86	15.49	2.80	14.43	127 (2)	91 (2)	75-125	7	20
Nickel	10.7	9.52	19.96	9.35	20.06	97	100	75-125	0	20
Silver	0.0265 U	9.52	9.29	9.35	9.63	98	103	75-125	4	20
Thallium	0.208	0.381	0.575	0.374	0.627	96	112	75-125	9	20
Vanadium	6.72	9.52	18.06	9.35	18.41	119	125	75-125	2	20
Batch number: 172551063702B	Sample number(s): 9199876-9199879 UNSPK: 9199876									
Selenium	0.0909 U	1.90	1.86	1.87	1.83	98	98	75-125	2	20
Batch number: 172551063702D	Sample number(s): 9199876-9199879 UNSPK: 9199876									
Barium	33.29	9.52	46.48	9.35	47.78	138*	155*	75-125	3	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172541063505	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Aluminum	0.748	2.00	2.86	2.00	2.98	106	112	75-125	4	20
Boron	0.0171	2.00	1.97	2.00	2.00	98	99	75-125	1	20
Calcium	209.94	4.00	210.67	4.00	216.14	18 (2)	155 (2)	75-125	3	20
Iron	2.73	1.00	3.43	1.00	3.68	70*	95	75-125	7	20
Magnesium	37.49	2.00	39.05	2.00	40.25	78 (2)	138 (2)	75-125	3	20
Manganese	1.14	0.500	1.63	0.500	1.69	98	109	75-125	3	20
Potassium	1.35	10	11.7	10	11.75	104	104	75-125	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Sodium	114.97	10	123.27	10	125.25	83 (2)	103 (2)	75-125	2	20
Zinc	0.0065 U	0.500	0.510	0.500	0.510	102	102	75-125	0	20
Batch number: 172541063906A	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Antimony	0.00045 U	0.00600	0.00621	0.00600	0.00579	103	96	75-125	7	20
Arsenic	0.00182	0.0100	0.0123	0.0100	0.0137	105	118	75-125	10	20
Beryllium	0.000071 U	0.00400	0.00403	0.00400	0.00439	101	110	75-125	9	20
Cadmium	0.00015 U	0.00500	0.00506	0.00500	0.00488	101	98	75-125	4	20
Chromium	0.00087 U	0.0500	0.0497	0.0500	0.0488	99	98	75-125	2	20
Cobalt	0.00240	0.250	0.265	0.250	0.262	105	104	75-125	1	20
Copper	0.00104	0.0500	0.0533	0.0500	0.0527	105	103	75-125	1	20
Lead	0.00180	0.0150	0.0174	0.0150	0.0178	104	106	75-125	2	20
Nickel	0.00122	0.0500	0.0530	0.0500	0.0530	104	104	75-125	0	20
Silver	0.00015 U	0.0500	0.0464	0.0500	0.0480	93	96	75-125	3	20
Thallium	0.00012 U	0.00200	0.00230	0.00200	0.00206	115	103	75-125	11	20
Vanadium	0.000306	0.0500	0.0519	0.0500	0.0508	103	101	75-125	2	20
Batch number: 172541063906B	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Selenium	0.00050 U	0.0100	0.0100	0.0100	0.0115	100	115	75-125	14	20
Batch number: 172541063906D	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Barium	0.0797	0.0500	0.134	0.0500	0.142	108	125	75-125	6	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17269245031B	Sample number(s): 9199876-9199877,9199879-9199887 UNSPK: 9199876									
TOC	279 U	19470	14010.38			72		47-143		
Batch number: 17270245031A	Sample number(s): 9199888 UNSPK: P201354									
TOC	1664.24	14550	12257.28			73		47-143		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17252987106B	Sample number(s): 9199891,9199893-9199894,9199896 UNSPK: 9199893									
Bromide	3.31	25	29.8			106		90-110		
Chloride	344.73	200	561.53			108		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.79			112*		90-110		
Nitrite Nitrogen	0.25 U	2.50	1.96			78*		90-110		
Sulfate	21.72	25	48.06			105		90-110		
Batch number: 17261108102A	Sample number(s): 9199891,9199893-9199894,9199896 UNSPK: 9199893									
Kjeldahl Nitrogen	0.626	5.00	6.22			112*		90-110		
Batch number: 17264107101A	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Ammonia Nitrogen	0.050 U	1.00	0.966	1.00	0.977	97	98	90-110	1	8
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17252022602A	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Ortho-Phosphate as P	0.030 U	0.400	0.405	0.400	0.406	101	101	69-131	0	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/28/2017 11:40

Group Number: 1848234

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17254003203A	Sample number(s): 9199891,9199893-9199896 UNSPK: 9199893									
Total Alkalinity to pH 4.5	396.02	188	556.78	188	559.9	86	87	77-114	1	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172551063702	Sample number(s): 9199876-9199879 BKG: 9199876			
Aluminum	6045.16	6350.85	5	20
Calcium	16897.54	15889.89	6	20
Iron	13331.19	14196.04	6	20
Magnesium	6982.83	7716.12	10	20
Manganese	290.22	286.45	1	20
Potassium	1101.47	1032.31	6	20
Sodium	19.94	18.95	5 (1)	20
Zinc	27.89	29.22	5	20
Batch number: 172551063702A	Sample number(s): 9199876-9199879 BKG: 9199876			
Antimony	0.0847 U	0.0680 U	0 (1)	20
Arsenic	4.44	5.03	13	20
Beryllium	0.461	0.439	5 (1)	20
Cadmium	0.0943	0.106	11 (1)	20
Chromium	8.17	6.55	22*	20
Cobalt	7.22	8.16	12	20
Copper	9.70	9.62	1	20
Lead	11.87	11.69	2	20
Nickel	10.7	11.77	10	20
Silver	0.0265 U	0.0213 U	0 (1)	20
Thallium	0.208	0.204	2 (1)	20
Vanadium	6.72	7.21	7	20
Batch number: 172551063702B	Sample number(s): 9199876-9199879 BKG: 9199876			
Selenium	0.0909 U	0.0906	200* (1)	20
Batch number: 172551063702D	Sample number(s): 9199876-9199879 BKG: 9199876			
Barium	33.29	31.49	6	20
	mg/l	mg/l		
Batch number: 172541063505	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848234
Reported: 09/28/2017 11:40

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Aluminum	0.748	0.748	0 (1)	20
Boron	0.0171	0.0145	17 (1)	20
Calcium	209.94	207.72	1	20
Iron	2.73	2.74	0	20
Magnesium	37.49	37.06	1	20
Manganese	1.14	1.14	0	20
Potassium	1.35	1.37	1 (1)	20
Sodium	114.97	114.74	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172541063906A	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00182	0.00192	5 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00240	0.00275	14 (1)	20
Copper	0.00104	0.000773	29* (1)	20
Lead	0.00180	0.00200	10 (1)	20
Nickel	0.00122	0.00164	29* (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000306	0.000241	24* (1)	20
Batch number: 172541063906B	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172541063906D	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Barium	0.0797	0.0904	13	20
	mg/kg	mg/kg		
Batch number: 17269245031B	Sample number(s): 9199876-9199877,9199879-9199887 BKG: 9199876			
TOC	279 U	285 U	0 (1)	7
Batch number: 17270245031A	Sample number(s): 9199888 BKG: P201354			
TOC	1664.24	1895.4	13* (1)	7
	mg/l	mg/l		
Batch number: 17252987106B	Sample number(s): 9199891,9199893-9199894,9199896 BKG: 9199893			
Bromide	3.31	3.12	6 (1)	15
Chloride	344.73	345.32	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	21.72	21.9	1 (1)	15
Batch number: 17261108102A	Sample number(s): 9199891,9199893-9199894,9199896 BKG: 9199893			
Kjeldahl Nitrogen	0.626	0.50 U	200* (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848234
Reported: 09/28/2017 11:40

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17264107101A	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17252022602A	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17254003203A	Sample number(s): 9199891,9199893-9199896 BKG: 9199893			
Total Alkalinity to pH 4.5	396.02	396.51	0	5
	Std. Units	Std. Units		
Batch number: 17257039402A	Sample number(s): 9199882-9199886,9199888 BKG: P201874			
pH	8.08	8.06	0	3
Batch number: 17257039402B	Sample number(s): 9199887 BKG: 9199887			
pH	7.94	7.96	0	3
Batch number: 17261039401A	Sample number(s): 9199880-9199881 BKG: P189751			
pH	8.19	8.11	1	3
Batch number: 17263039402B	Sample number(s): 9199876,9199879 BKG: 9199876			
pH	8.70	8.73	0	3
	%	%		
Batch number: 17257820004B	Sample number(s): 9199876-9199888 BKG: 9199876, P199876			
Moisture	8.53	7.96	7*	5
Moisture	8.53	7.96	7*	5
Moisture Duplicate	8.53	7.96	7*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199889	86	89	84	89	72	83
9199890	82	89	74	92	76	84
9199891	75	76	73	77	71	73

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848234
Reported: 09/28/2017 11:40

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199892	84	91	82	91	76	75
9199893	77	101	105	83	74	79
9199894	79	106	100	75	68	75
9199895	79	106	110	75	70	72
9199897	77	81	76	83	74	84
Blank	87	88	79	94	88	93
LCS	76	79	73	78	69	75
MS	79	106	100	75	68	75
MSD	79	106	110	75	70	72
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9199889		88	89	86	86	
9199890		86	93	89	94	
9199891	57	79	77	77	80	46
9199892	56	80	88	95	96	53
9199893	59	81	71	71	79	53
9199894	96	77	74	79	75	58
9199895	80	77	79	86	75	61
9199897	60	81	76	85	85	50
Blank	80	91	80	78	88	53
LCS	64	74	69	73	78	52
MS	96	77	74	79	75	58
MSD	80	77	79	86	75	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9199889		87		80	77	
9199890		88		89	86	
9199891	64	76	76	75	79	60*
9199892	72	82	75	74	80	62*
9199893	57	69	62	65	59	55*
9199894	77	76	79	67	63	11*
9199895	74	73	72	70	68	26*
9199897	61	75	67	73	66	63*
Blank	79	84	87	76	74	41*
LCS	75	81	74	76	72	54*
MS	77	76	79	67	63	11*
MSD	74	73	72	70	68	26*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848234
Reported: 09/28/2017 11:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17253001

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17263002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199880	76	77	77	89	83	82
9199881	71	73	72	78	76	72
9199882	73	77	68	72	73	69
9199883	84	79	76	83	84	81
9199884	82	84	78	82	85	78
Blank	76	75	72	78	81	84
LCS	82	81	73	81	79	68
LCSD	78	80	79	87	84	79
MS	79	76	74	76	79	70
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9199880	84	81	84	77	85	95
9199881	75	77	80	69	71	72
9199882	72	74	78	81	83	77
9199883	85	83	84	80	85	80
9199884	94	82	80	86	82	86
Blank	81	68	72	78	84	83
LCS	79	77	78	85	84	83
LCSD	91	79	79	85	86	84
MS	84	77	92	74	81	79
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9199880	86
9199881	75
9199882	80
9199883	91
9199884	95
Blank	86
LCS	94
LCSD	93
MS	78

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848234
Reported: 09/28/2017 11:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17263002

Limits: 20-127

Analysis Name: 14 PFCs
Batch number: 17265015

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9199876	53*	46*	61	60	72	52
9199877	48*	42*	51	58	71	49
9199878	51*	47*	59	61	79	56
9199885	60	56*	58	61	63	57
9199886	59	51*	54	58	62	58
9199887	55	47*	53	64	65	58
9199888	58	54*	52	69	63	60
Blank	60	55*	56	67	59	63
LCS	68	59*	63	71	76	68
MS	48*	42*	51	58	71	49
MSD	51*	47*	59	61	79	56
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9199876	58	70	51	52	59	52
9199877	53	59	49	54	56	55
9199878	57	63	48	53	55	49
9199885	63	65	74	62	57	56
9199886	54	61	60	68	57	62
9199887	54	55	63	52	56	55
9199888	59	65	64	53	55	56
Blank	58	63	63	62	62	62
LCS	64	65	76	69	70	66
MS	53	59	49	54	56	55
MSD	57	63	48	53	55	49
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9199876	54
9199877	58
9199878	45
9199885	64
9199886	65
9199887	57
9199888	61

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1848234
Reported: 09/28/2017 11:40

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17265015

	13C2-PFTeDA
Blank	56
LCS	63
MS	58
MSD	45
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1848234 9199876-97

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52270
COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael DuPay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 mL Trip Blank	Soil: 250 mL plastic / PFCs (14)	Soil: 4 oz glass / TOC, pH, moist	% Solids
Preservative Code									A	A	A	
Field Filtered Y/N												
1. SG3-D07-0-0.5	0	0.5	ft	09/08/2017	0910	Soil	N	2		1	1	
2. SG3-D07-0.5-1	0.5	1	ft	9-8-17	0915	S	N	2		1	1	
3. SG3-D07-1-1.5	1	1.5	ft	9-8-17	0920	S	N	2		1	1	
4. SG3-D07-3-4	3	4	ft	9-8-17	0930	S	N	2		1	1	
5. SG3-D07-8-9	8	9	ft	9-8-17	0935	S	Y	6		1	1	
6. SG3-D07-18-19	18	19	ft	9-8-17	1000	S	N	2		1	1	
7. SG3-D07-28-29	28	29	ft	9-8-17	1005	S	N	2		1	1	
8. SG3-D07-38-39	38	39	ft	9-8-17	1110	S	N	2		1	1	
9. SG3-D07-48-49	48	49	ft	9-8-17	1340	S	N	2		1	1	
10. SG3-D07-58-59	58	59	ft	9-8-17	1440	S	Y	6		1	1	

(14) PFCs TOC, pH, moisture content, TAL metals except Hg + cations

Samples in 3 coolers

BARR USE ONLY

Sampled by: DJZ KMTZ
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster PA

Relinquished by: Derek Zgoda — On Ice? ☒ Y ☐ N — Date 9-8-17 — Time 1700
Relinquished by: — On Ice? ☐ Y ☐ N — Date — Time

Received by: — Date — Time
Received by: — Date 9/9/17 — Time 945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.5-5.3 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 184834 9199876-97

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52317

COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Dr;
Name: Michael DuPay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 23421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml plastic Trip Blank	Soil: 250ml plastic PFC's	Soil: 4oz glass, TOC, %Moist, pH	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-SΦ3-0-0.5'	0	0.5	ft	09/07/2017	1605	S	N	2		1	1			
2. SG3-SΦ3-0.5-1'	0.5	1	ft	09/07/2017	1615	S	N	2		1	1			
3. SG3-SΦ3-1-1.5'	1	1.5	ft	09/07/2017	1625	S	N	2		1	1			
4. SG3-SΦ3-3-4'	3	4	ft	09/07/2017	1645	S	N	2		1	1			
5. SG3-SΦ3-6.6-7.6'	6.6	7.6	ft	09/07/2017	1700	S	N	2		1	1			
6. SG3-SΦ8-0-0.5'	0	0.5	ft	09/08/2017	1220	S	N	2		1	1			
7. SG3-SΦ8-0.5-1'	0.5	1	ft	09/08/2017	1240	S	N	2		1	1			
8. SG3-SΦ8-1-1.5	1	1.5	ft	09/08/2017	1245	S	N	2		1	1			
9. SG3-SΦ8-1.5-2.2'	1.5	2.2	ft	09/08/2017	1250	S	N	2		1	1			
10. SG3-LTB21-170908	—	—	—	09/08/2017	AM	W	N	1	1				Blank Prepared by ELLE 8.16.17	
11. SG3-LTB22-170908	—	—	—	09/08/2017	AM	W	N	1	1				Blank Prepared by ELLE 8.31.17	

BARR USE ONLY

Sampled by: BAK/RS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kurlusky — On Ice? Y ☒ N ☐ — Date: 9.8.17 — Time: 1700

Relinquished by: — On Ice? Y ☐ N ☐ — Date — Time

Received by: — Date — Time

Received by: — Date: 9/9/17 — Time: 945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.5-5.3 Custody Seal Intact? ☒ Y ☐ N ☐ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1848234 9199876-97

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52309

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: C.T. MALE
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Plastic - TRIZMA	500 ml Plastic	250 ml Plastic (Unfiltered)	250 ml Plastic - Nitric	40 ml Glass	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
															O	N	
															D	N	
															A	Y	
															C	N	
															A	N	
1. SG3-S03-170908	—	—	—	09/08/2017	0945	GW	N	8	2	1	2	1	2				
2. SG3-LTB23-170908	—	—	—	09/08/2017	0945	W	N	1	1								Trizma Trip Blank Prepared by ELLE 8-11-17
3. SG3-S08-170908	—	—	—	09/08/2017	1445	GW	Y	24	6	3	6	3	6				MS/MSD
4. SG3-LTB24-170908	—	—	—	09/08/2017	AM	W	N	1									Blank prepared by ELLE 8-31-17
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

BARR USE ONLY

Sampled by: RAK/JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kimberly — On Ice? (Y) N — Date: 9.8.17 — Time: 1700

Received by: — Date — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date: 9/9/17 — Time: 945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.5, 5.3 Custody Seal Intact? ☒ Y ☐ N ☐ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193962

Group Number(s): 1848234

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/09/2017 9:45
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	5
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Trip Blank Type(s): 3 Unpres. + 2 Trizma

Unpacked by Simon Nies (25112) at 11:32 on 09/09/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.5	DT	Wet	Y	Bagged	N
2	DT42-01	1.7	DT	Wet	Y	Bagged	N
3	DT42-01	5.3	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-LTB23-170908	2	1	

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-LTB23-170908	9/08/2017 14:45	Only 1 bottle time labeled 1445

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1848531
SDG: SGB31
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

REVISED

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S02-0-0.5' Soil	09/07/2017 09:00	9201351
SG3-S02-0.5-1' Soil	09/07/2017 09:10	9201352
SG3-S02-1-1.5' Soil	09/07/2017 09:20	9201353
SG3-S02-3-4' Soil	09/07/2017 09:45	9201354
SG3-S02-8-9' Soil	09/07/2017 10:10	9201355
SG3-S11-0-0.5' Soil	09/07/2017 12:00	9201356
SG3-S11-0.5-1' Soil	09/07/2017 12:10	9201357
SG3-S11-1-1.5' Soil	09/07/2017 12:20	9201358
SG3-S11-3-4' Soil	09/07/2017 12:40	9201359
SG3-S11-7.4-8.4' Soil	09/07/2017 13:10	9201360
SG3-D23-0-0.5' Soil	09/07/2017 12:43	9201361
SG3-D23-0.5-1' Soil	09/07/2017 12:40	9201362
SG3-D23-1-1.5' Soil	09/07/2017 12:35	9201363
SG3-D23-6-7' Soil	09/07/2017 10:20	9201364
SG3-D23-12-13' Soil	09/07/2017 10:40	9201365
SG3-D23-18-19' Soil	09/07/2017 10:45	9201366
SG3-D23-28-29' Soil	09/07/2017 11:10	9201367
SG3-D23-36-37' Soil	09/07/2017 11:40	9201368
SG3-D23-41-42' Soil	09/07/2017 13:00	9201369
SG3-D23-48-49' Soil	09/07/2017 13:50	9201370
SG3-FDS05-170907 Soil	09/07/2017	9201371
SG3-FBS05-170907 Blank Water	09/07/2017 13:30	9201372
SG3-LTB19-170907 Water	09/07/2017	9201373
SG3-LTB20-170907 Water	09/07/2017	9201374

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1848531

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9201373

The recovery for injection internal 13C2-PFBA was outside of QC acceptance limits marginally high. Since the recovery for the extraction standards were within QC acceptance limits, the data is reported.

Sample #s: 9201352, 9201357, 9201358, 9201359, 9201360, 9201361, 9201362, 9201363, 9201364, 9201365, 9201366, 9201367, 9201368, 9201369, 9201370, 9201371

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9201351, 9201353, 9201354, 9201355, 9201356

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Batch #: 17263012 (Sample number(s): 9201351-9201370 UNSPK: 9201351)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9201351, 9201352, 9201354, 9201355, 9201356, 9201357, 9201360, 9201361, 9201362, 9201363, 9201364, 9201365, 9201366, 9201367, 9201369, 9201370, Blank, LCS, LCSD, MS

Batch #: 17265015 (Sample number(s): 9201371 UNSPK: P199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluoroheptanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9201371, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 172551063702 (Sample number(s): 9201361-9201370 UNSPK: P199876 BKG: P199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172551063702A (Sample number(s): 9201361-9201370 UNSPK: P199876 BKG: P199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium

Batch #: 172551063702B (Sample number(s): 9201361-9201370 UNSPK: P199876 BKG: P199876)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172551063702D (Sample number(s): 9201361-9201370 UNSPK: P199876 BKG: P199876)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17270245031A (Sample number(s): 9201351-9201357 UNSPK: 9201354 BKG: 9201354)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17271667632A (Sample number(s): 9201368-9201371 UNSPK: P203380 BKG: P203380)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9201368

The pH was measured in water at 20 C.

Sample #s: 9201359, 9201360, 9201361, 9201362, 9201363

The pH was measured in water at 20.1 C.

Sample #s: 9201366, 9201367, 9201369, 9201370

The pH was measured in water at 20.2 C.

Sample #s: 9201355, 9201356, 9201357, 9201364, 9201365, 9201371

The pH was measured in water at 20.3 C.

Sample #s: 9201351, 9201352, 9201353, 9201354, 9201358

The pH was measured in water at 20.4 C.

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17257820009A (Sample number(s): 9201351-9201360 BKG: 9201357)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Batch #: 17257820009B (Sample number(s): 9201361-9201370 BKG: 9201362)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: SG3-S02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201351
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-1 SDG#: SGB31-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,700**		536	1,610	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.76**		0.0100	0.0100	1

The pH was measured in water at 20.4 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.2**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201351
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-1 SDG#: SGB31-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 12:58	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 12:00	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201352
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-2 SDG#: SGB31-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,000**		456	1,370	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 03:27	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201352
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-2 SDG#: SGB31-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 17:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201353
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-3 SDG#: SGB31-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.43**	**J**	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,600**		691	2,070	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.44**		0.0100	0.0100	1

The pH was measured in water at 20.4 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201353
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-3 SDG#: SGB31-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 13:39	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 17:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201354
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:45 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-4 SDG#: SGB31-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097	U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097	U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29	U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.19	U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**	**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,750**	218	655	1
	SW-846 9045D modified	**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.10**	0.0100	0.0100	1

The pH was measured in water at 20.4 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**	**%**		**%**	**%**	
00111	**Moisture**	n.a.	**4.8**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201354
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 09:45 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-4 SDG#: SGB31-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 14:00	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 12:34	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9201355
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-5 SDG#: SGB31-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.34**	**J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,230**		248	743	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.77**		0.0100	0.0100	1

The pH was measured in water at 20.3 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9201355
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02-5 SDG#: SGB31-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 14:20	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 13:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201356
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S111 SDG#: SGB31-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.54**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA was outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,520**		345	1,040	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.39**		0.0100	0.0100	1

The pH was measured in water at 20.3 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201356
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S111 SDG#: SGB31-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 14:41	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 14:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201357
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S112 SDG#: SGB31-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36	U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.83**		0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.72	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,540**		286	857	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 15:43	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201357
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S112 SDG#: SGB31-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031A	09/27/2017 14:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201358
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S113 SDG#: SGB31-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**		0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,530**		180	540	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.24**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 03:48	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201358
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S113 SDG#: SGB31-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 14:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17257039402B	09/14/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201359
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S114 SDG#: SGB31-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**		0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,810**		242	725	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 16:24	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201359
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S114 SDG#: SGB31-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 14:46	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-7.4-8.4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201360
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S115 SDG#: SGB31-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,790**		372	1,120	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 16:44	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S11-7.4-8.4' Soil
SGPP - North Bennington

ELLE Sample # SW 9201360
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

-S115 SDG#: SGB31-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 15:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009A	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201361
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:43 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-1 SDG#: SGB31-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,000**		7.98	35.7	1
01650	**Calcium**	7440-70-2	**6,360**		2.97	35.7	1
01654	**Iron**	7439-89-6	**29,400**		35.9	179	5
01657	**Magnesium**	7439-95-4	**6,470**		2.17	17.9	1
06958	**Manganese**	7439-96-5	**479**		0.0741	0.893	1
01662	**Potassium**	7440-09-7	**1,450**		14.9	89.3	1
01667	**Sodium**	7440-23-5	**93.2**	**J**	14.9	179	1
06972	**Zinc**	7440-66-6	**82.9**		0.214	3.57	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0924**	**J**	0.0832	0.357	2
06125	**Arsenic**	7440-38-2	**7.17**		0.114	0.714	2
06126	**Barium**	7440-39-3	**52.6**		0.162	0.714	2
06127	**Beryllium**	7440-41-7	**0.402**		0.0094	0.179	2
06128	**Cadmium**	7440-43-9	**0.211**		0.0307	0.179	2
06131	**Chromium**	7440-47-3	**16.4**		0.155	0.714	2
06132	**Cobalt**	7440-48-4	**12.1**		0.0279	0.179	2
06133	**Copper**	7440-50-8	**20.4**		0.0957	0.714	2
06135	**Lead**	7439-92-1	**31.2**		0.0198	0.357	2
06139	**Nickel**	7440-02-0	**25.7**		0.178	0.714	2
06141	**Selenium**	7782-49-2	**0.147**	**J**	0.0893	0.714	2
06142	**Silver**	7440-22-4	**0.0462**	**J**	0.0261	0.179	2
06145	**Thallium**	7440-28-0	**0.102**	**J**	0.0223	0.179	2
06148	**Vanadium**	7440-62-2	**14.4**		0.0380	0.179	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201361
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:43 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-1 SDG#: SGB31-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**5,010**	281	843	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.91**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**12.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 17:05	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:31	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:44	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:17	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201361
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:43 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-1 SDG#: SGB31-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 15:45	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201362
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-2 SDG#: SGB31-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.50**	**J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,400**		7.19	32.2	1
01650	**Calcium**	7440-70-2	**14,700**		2.68	32.2	1
01654	**Iron**	7439-89-6	**29,100**		32.4	161	5
01657	**Magnesium**	7439-95-4	**11,100**		1.96	16.1	1
06958	**Manganese**	7439-96-5	**541**		0.0668	0.805	1
01662	**Potassium**	7440-09-7	**1,170**		13.4	80.5	1
01667	**Sodium**	7440-23-5	**121**	**J**	13.4	161	1
06972	**Zinc**	7440-66-6	**70.9**		0.193	3.22	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0750	U	0.0750	0.322	2
06125	**Arsenic**	7440-38-2	**6.31**		0.103	0.644	2
06126	**Barium**	7440-39-3	**49.7**		0.146	0.644	2
06127	**Beryllium**	7440-41-7	**0.435**		0.0084	0.161	2
06128	**Cadmium**	7440-43-9	**0.176**		0.0277	0.161	2
06131	**Chromium**	7440-47-3	**12.8**		0.140	0.644	2
06132	**Cobalt**	7440-48-4	**9.55**		0.0251	0.161	2
06133	**Copper**	7440-50-8	**14.8**		0.0863	0.644	2
06135	**Lead**	7439-92-1	**26.6**		0.0179	0.322	2
06139	**Nickel**	7440-02-0	**18.9**		0.160	0.644	2
06141	**Selenium**	7782-49-2	**0.124**	**J**	0.0805	0.644	2
06142	**Silver**	7440-22-4	**0.0433**	**J**	0.0235	0.161	2
06145	**Thallium**	7440-28-0	**0.0887**	**J**	0.0201	0.161	2
06148	**Vanadium**	7440-62-2	**12.6**		0.0343	0.161	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201362
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-2 SDG#: SGB31-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**9,840**	478	1,440	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.01**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**14.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 17:25	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:34	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:47	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:20	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9201362
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-2 SDG#: SGB31-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:20	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:20	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 16:14	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201363
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:35 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-3 SDG#: SGB31-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**10,500**		6.72	30.1	1
01650	**Calcium**	7440-70-2	**36,400**		2.50	30.1	1
01654	**Iron**	7439-89-6	**22,200**		30.2	150	5
01657	**Magnesium**	7439-95-4	**19,600**		1.83	15.0	1
06958	**Manganese**	7439-96-5	**390**		0.0624	0.751	1
01662	**Potassium**	7440-09-7	**1,630**		12.5	75.1	1
01667	**Sodium**	7440-23-5	**377**		12.5	150	1
06972	**Zinc**	7440-66-6	**57.9**		0.180	3.01	1
	SW-846 6020A		mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.0873**	**J**	0.0700	0.301	2
06125	**Arsenic**	7440-38-2	**5.41**		0.0962	0.601	2
06126	**Barium**	7440-39-3	**44.6**		0.136	0.601	2
06127	**Beryllium**	7440-41-7	**0.413**		0.0079	0.150	2
06128	**Cadmium**	7440-43-9	**0.147**	**J**	0.0258	0.150	2
06131	**Chromium**	7440-47-3	**12.8**		0.131	0.601	2
06132	**Cobalt**	7440-48-4	**8.51**		0.0234	0.150	2
06133	**Copper**	7440-50-8	**17.2**		0.0805	0.601	2
06135	**Lead**	7439-92-1	**21.2**		0.0167	0.301	2
06139	**Nickel**	7440-02-0	**17.1**		0.150	0.601	2
06141	**Selenium**	7782-49-2	**0.0976**	**J**	0.0751	0.601	2
06142	**Silver**	7440-22-4	**0.0270**	**J**	0.0219	0.150	2
06145	**Thallium**	7440-28-0	**0.104**	**J**	0.0188	0.150	2
06148	**Vanadium**	7440-62-2	**17.8**		0.0320	0.150	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201363
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:35 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-3 SDG#: SGB31-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**5,430**	247	742	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.79**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**8.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 04:08	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:37	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 15:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:30	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9201363
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 12:35 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-3 SDG#: SGB31-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:30	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:30	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 16:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-6-7' Soil
SGPP - North Bennington

ELLE Sample # SW 9201364
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-4 SDG#: SGB31-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,500**		7.19	32.2	1
01650	**Calcium**	7440-70-2	**31,400**		2.68	32.2	1
01654	**Iron**	7439-89-6	**26,400**		32.4	161	5
01657	**Magnesium**	7439-95-4	**16,800**		1.96	16.1	1
06958	**Manganese**	7439-96-5	**881**		0.0668	0.805	1
01662	**Potassium**	7440-09-7	**2,210**		13.4	80.5	1
01667	**Sodium**	7440-23-5	**591**		13.4	161	1
06972	**Zinc**	7440-66-6	**65.2**		0.193	3.22	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.156**	**J**	0.0750	0.322	2
06125	**Arsenic**	7440-38-2	**13.9**		0.103	0.644	2
06126	**Barium**	7440-39-3	**107**		0.146	0.644	2
06127	**Beryllium**	7440-41-7	**0.636**		0.0084	0.161	2
06128	**Cadmium**	7440-43-9	**0.228**		0.0277	0.161	2
06131	**Chromium**	7440-47-3	**14.0**		0.140	0.644	2
06132	**Cobalt**	7440-48-4	**13.1**		0.0251	0.161	2
06133	**Copper**	7440-50-8	**22.0**		0.0863	0.644	2
06135	**Lead**	7439-92-1	**15.5**		0.0179	0.322	2
06139	**Nickel**	7440-02-0	**24.0**		0.160	0.644	2
06141	Selenium	7782-49-2	0.0805	U	0.0805	0.644	2
06142	**Silver**	7440-22-4	**0.0452**	**J**	0.0235	0.161	2
06145	**Thallium**	7440-28-0	**0.267**		0.0201	0.161	2
06148	**Vanadium**	7440-62-2	**17.7**		0.0343	0.161	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-6-7' Soil
SGPP - North Bennington

ELLE Sample # SW 9201364
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-4 SDG#: SGB31-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**720**	129	387	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.44**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**13.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 04:29	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:40	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:00	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:33	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-6-7' Soil
SGPP - North Bennington

ELLE Sample # SW 9201364
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:20 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-4 SDG#: SGB31-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:33	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:33	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 18:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-12-13' Soil
SGPP - North Bennington

ELLE Sample # SW 9201365
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-5 SDG#: SGB31-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,200**		6.92	31.0	1
01650	**Calcium**	7440-70-2	**42,800**		12.9	155	5
01654	**Iron**	7439-89-6	**28,400**		31.2	155	5
01657	**Magnesium**	7439-95-4	**19,800**		1.88	15.5	1
06958	**Manganese**	7439-96-5	**470**		0.0642	0.774	1
01662	**Potassium**	7440-09-7	**2,850**		12.9	77.4	1
01667	**Sodium**	7440-23-5	**87.2**	**J**	12.9	155	1
06972	**Zinc**	7440-66-6	**70.6**		0.186	3.10	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.130**	**J**	0.0721	0.310	2
06125	**Arsenic**	7440-38-2	**7.22**		0.0991	0.619	2
06126	**Barium**	7440-39-3	**97.5**		0.141	0.619	2
06127	**Beryllium**	7440-41-7	**0.647**		0.0081	0.155	2
06128	**Cadmium**	7440-43-9	**0.130**	**J**	0.0266	0.155	2
06131	**Chromium**	7440-47-3	**19.6**		0.135	0.619	2
06132	**Cobalt**	7440-48-4	**10.1**		0.0241	0.155	2
06133	**Copper**	7440-50-8	**24.8**		0.0830	0.619	2
06135	**Lead**	7439-92-1	**13.5**		0.0172	0.310	2
06139	**Nickel**	7440-02-0	**24.7**		0.154	0.619	2
06141	**Selenium**	7782-49-2	**0.101**	**J**	0.0774	0.619	2
06142	**Silver**	7440-22-4	**0.0655**	**J**	0.0226	0.155	2
06145	**Thallium**	7440-28-0	**0.146**	**J**	0.0193	0.155	2
06148	**Vanadium**	7440-62-2	**21.5**		0.0330	0.155	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-12-13' Soil
SGPP - North Bennington

ELLE Sample # SW 9201365
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-5 SDG#: SGB31-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,000**	212	637	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.22**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**11.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 04:49	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/18/2017 08:43	Patrick J Engle	5
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:43	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:04	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:36	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-12-13' Soil
SGPP - North Bennington

ELLE Sample # SW 9201365
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-5 SDG#: SGB31-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:36	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:36	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 19:03	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9201366
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:45 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-6 SDG#: SGB31-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**17,300**		7.77	34.8	1
01650	**Calcium**	7440-70-2	**38,300**		2.89	34.8	1
01654	**Iron**	7439-89-6	**28,800**		35.0	174	5
01657	**Magnesium**	7439-95-4	**19,800**		2.11	17.4	1
06958	**Manganese**	7439-96-5	**659**		0.0721	0.869	1
01662	**Potassium**	7440-09-7	**3,100**		14.5	86.9	1
01667	**Sodium**	7440-23-5	**94.3**	**J**	14.5	174	1
06972	**Zinc**	7440-66-6	**74.6**		0.209	3.48	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.128**	**J**	0.0810	0.348	2
06125	**Arsenic**	7440-38-2	**6.09**		0.111	0.695	2
06126	**Barium**	7440-39-3	**112**		0.158	0.695	2
06127	**Beryllium**	7440-41-7	**0.690**		0.0091	0.174	2
06128	**Cadmium**	7440-43-9	**0.180**		0.0299	0.174	2
06131	**Chromium**	7440-47-3	**19.2**		0.151	0.695	2
06132	**Cobalt**	7440-48-4	**13.6**		0.0271	0.174	2
06133	**Copper**	7440-50-8	**26.3**		0.0932	0.695	2
06135	**Lead**	7439-92-1	**17.8**		0.0193	0.348	2
06139	**Nickel**	7440-02-0	**28.2**		0.173	0.695	2
06141	**Selenium**	7782-49-2	**0.185**	**J**	0.0869	0.695	2
06142	**Silver**	7440-22-4	**0.0504**	**J**	0.0254	0.174	2
06145	**Thallium**	7440-28-0	**0.160**	**J**	0.0217	0.174	2
06148	**Vanadium**	7440-62-2	**21.9**		0.0370	0.174	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9201366
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:45 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-6 SDG#: SGB31-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,720**	416	1,250	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**11.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/23/2017 18:47	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:46	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:07	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:39	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9201366
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 10:45 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-6 SDG#: SGB31-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:39	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:39	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 17:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9201367
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-7 SDG#: SGB31-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**17,500**		8.58	38.4	1
01650	**Calcium**	7440-70-2	**29,300**		3.20	38.4	1
01654	**Iron**	7439-89-6	**31,400**		38.6	192	5
01657	**Magnesium**	7439-95-4	**16,900**		2.33	19.2	1
06958	**Manganese**	7439-96-5	**697**		0.0797	0.960	1
01662	**Potassium**	7440-09-7	**2,980**		16.0	96.0	1
01667	**Sodium**	7440-23-5	**80.2**	**J**	16.0	192	1
06972	**Zinc**	7440-66-6	**78.7**		0.230	3.84	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.162**	**J**	0.0894	0.384	2
06125	**Arsenic**	7440-38-2	**7.81**		0.123	0.768	2
06126	**Barium**	7440-39-3	**113**		0.174	0.768	2
06127	**Beryllium**	7440-41-7	**0.683**		0.0101	0.192	2
06128	**Cadmium**	7440-43-9	**0.197**		0.0330	0.192	2
06131	**Chromium**	7440-47-3	**20.2**		0.167	0.768	2
06132	**Cobalt**	7440-48-4	**14.0**		0.0299	0.192	2
06133	**Copper**	7440-50-8	**28.1**		0.103	0.768	2
06135	**Lead**	7439-92-1	**18.3**		0.0213	0.384	2
06139	**Nickel**	7440-02-0	**30.9**		0.191	0.768	2
06141	**Selenium**	7782-49-2	**0.174**	**J**	0.0960	0.768	2
06142	**Silver**	7440-22-4	**0.0468**	**J**	0.0280	0.192	2
06145	**Thallium**	7440-28-0	**0.132**	**J**	0.0240	0.192	2
06148	**Vanadium**	7440-62-2	**22.5**		0.0409	0.192	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9201367
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-7 SDG#: SGB31-17

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,100**	191	574	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.26**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**11.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 05:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:49	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:10	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:42	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9201367
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:10 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-7 SDG#: SGB31-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:42	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:42	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17270245031B	09/27/2017 19:12	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-36-37' Soil
SGPP - North Bennington

ELLE Sample # SW 9201368
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-8 SDG#: SGB31-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,100**		8.03	35.9	1
01650	**Calcium**	7440-70-2	**41,700**		2.99	35.9	1
01654	**Iron**	7439-89-6	**28,100**		36.1	180	5
01657	**Magnesium**	7439-95-4	**18,400**		2.18	18.0	1
06958	**Manganese**	7439-96-5	**671**		0.0745	0.898	1
01662	**Potassium**	7440-09-7	**2,840**		15.0	89.8	1
01667	**Sodium**	7440-23-5	**86.4**	**J**	15.0	180	1
06972	**Zinc**	7440-66-6	**72.7**		0.215	3.59	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.131**	**J**	0.0837	0.359	2
06125	**Arsenic**	7440-38-2	**6.95**		0.115	0.718	2
06126	**Barium**	7440-39-3	**108**		0.163	0.718	2
06127	**Beryllium**	7440-41-7	**0.709**		0.0094	0.180	2
06128	**Cadmium**	7440-43-9	**0.189**		0.0309	0.180	2
06131	**Chromium**	7440-47-3	**18.6**		0.156	0.718	2
06132	**Cobalt**	7440-48-4	**12.3**		0.0280	0.180	2
06133	**Copper**	7440-50-8	**24.1**		0.0962	0.718	2
06135	**Lead**	7439-92-1	**16.7**		0.0199	0.359	2
06139	**Nickel**	7440-02-0	**25.7**		0.179	0.718	2
06141	**Selenium**	7782-49-2	**0.103**	**J**	0.0898	0.718	2
06142	**Silver**	7440-22-4	**0.0578**	**J**	0.0262	0.180	2
06145	**Thallium**	7440-28-0	**0.179**	**J**	0.0224	0.180	2
06148	**Vanadium**	7440-62-2	**20.7**		0.0382	0.180	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-36-37' Soil
SGPP - North Bennington

ELLE Sample # SW 9201368
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-8 SDG#: SGB31-18

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**13,400**	234	702	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.19**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**11.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 05:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 08:52	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:45	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-36-37' Soil
SGPP - North Bennington

ELLE Sample # SW 9201368
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 11:40 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-8 SDG#: SGB31-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:45	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:45	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 19:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402A	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-41-42' Soil
SGPP - North Bennington

ELLE Sample # SW 9201369
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-9 SDG#: SGB31-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,100**		9.33	41.7	1
01650	**Calcium**	7440-70-2	**6,980**		3.48	41.7	1
01654	**Iron**	7439-89-6	**39,200**		42.0	209	5
01657	**Magnesium**	7439-95-4	**11,700**		2.54	20.9	1
06958	**Manganese**	7439-96-5	**408**		0.0866	1.04	1
01662	**Potassium**	7440-09-7	**1,960**		17.4	104	1
01667	**Sodium**	7440-23-5	**74.8**	**J**	17.4	209	1
06972	**Zinc**	7440-66-6	**99.3**		0.250	4.17	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0973	U	0.0973	0.417	2
06125	**Arsenic**	7440-38-2	**5.70**		0.134	0.835	2
06126	**Barium**	7440-39-3	**71.2**		0.190	0.835	2
06127	**Beryllium**	7440-41-7	**0.366**		0.0109	0.209	2
06128	**Cadmium**	7440-43-9	**0.170**	**J**	0.0359	0.209	2
06131	**Chromium**	7440-47-3	**24.8**		0.182	0.835	2
06132	**Cobalt**	7440-48-4	**19.7**		0.0326	0.209	2
06133	**Copper**	7440-50-8	**48.4**		0.112	0.835	2
06135	**Lead**	7439-92-1	**22.6**		0.0232	0.417	2
06139	**Nickel**	7440-02-0	**44.6**		0.208	0.835	2
06141	**Selenium**	7782-49-2	**0.162**	**J**	0.104	0.835	2
06142	**Silver**	7440-22-4	**0.0399**	**J**	0.0305	0.209	2
06145	**Thallium**	7440-28-0	**0.0670**	**J**	0.0261	0.209	2
06148	**Vanadium**	7440-62-2	**24.6**		0.0445	0.209	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-41-42' Soil
SGPP - North Bennington

ELLE Sample # SW 9201369
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-9 SDG#: SGB31-19

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,370**	195	584	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.40**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**18.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 05:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 09:01	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:17	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:48	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-41-42' Soil
SGPP - North Bennington

ELLE Sample # SW 9201369
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:00 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D23-9 SDG#: SGB31-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:48	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:48	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 19:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9201370
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:50 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2310 SDG#: SGB31-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,600**		8.45	37.8	1
01650	**Calcium**	7440-70-2	**2,360**		3.15	37.8	1
01654	**Iron**	7439-89-6	**33,900**		38.1	189	5
01657	**Magnesium**	7439-95-4	**9,990**		2.30	18.9	1
06958	**Manganese**	7439-96-5	**287**		0.0785	0.945	1
01662	**Potassium**	7440-09-7	**2,020**		15.8	94.5	1
01667	**Sodium**	7440-23-5	**75.5**	**J**	15.8	189	1
06972	**Zinc**	7440-66-6	**95.9**		0.227	3.78	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.125**	**J**	0.0881	0.378	2
06125	**Arsenic**	7440-38-2	**7.70**		0.121	0.756	2
06126	**Barium**	7440-39-3	**109**		0.172	0.756	2
06127	**Beryllium**	7440-41-7	**0.350**		0.0099	0.189	2
06128	**Cadmium**	7440-43-9	**0.314**		0.0325	0.189	2
06131	**Chromium**	7440-47-3	**23.4**		0.164	0.756	2
06132	**Cobalt**	7440-48-4	**20.1**		0.0295	0.189	2
06133	**Copper**	7440-50-8	**43.9**		0.101	0.756	2
06135	**Lead**	7439-92-1	**39.9**		0.0210	0.378	2
06139	**Nickel**	7440-02-0	**45.7**		0.188	0.756	2
06141	**Selenium**	7782-49-2	**0.169**	**J**	0.0945	0.756	2
06142	**Silver**	7440-22-4	**0.0421**	**J**	0.0276	0.189	2
06145	**Thallium**	7440-28-0	**0.0700**	**J**	0.0236	0.189	2
06148	**Vanadium**	7440-62-2	**24.3**		0.0403	0.189	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9201370
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:50 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2310 SDG#: SGB31-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**506**	**J**	214	642	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17263012	09/26/2017 06:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17263012	09/21/2017 11:10	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172551063702	09/18/2017 09:04	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172551063702	09/14/2017 16:21	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172551063702D	09/19/2017 09:51	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D23-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9201370
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:50 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2310 SDG#: SGB31-20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172551063702B	09/19/2017 09:51	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172551063702A	09/19/2017 09:51	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172551063702	09/12/2017 23:15	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 19:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820009B	09/14/2017 22:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FDS05-170907 Soil
SGPP - North Bennington

ELLE Sample # SW 9201371
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FDS05 SDG#: SGB31-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,070**		242	726	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.42**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17265015	09/25/2017 10:41	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FDS05-170907 Soil
SGPP - North Bennington

ELLE Sample # SW 9201371
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FDS05 SDG#: SGB31-21FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17265015	09/23/2017 10:50	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 20:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17257820008A	09/15/2017 02:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-FBS05-170907 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9201372
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 13:30 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FBS05 SDG#: SGB31-22FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/18/2017 19:22	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB19-170907 Water
SGPP - North Bennington

ELLE Sample # WW 9201373
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB19 SDG#: SGB31-23TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

The recovery for injection internal 13C2-PFBA was outside of QC acceptance limits marginally high. Since the recovery for the extraction standards were within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/18/2017 19:42	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB20-170907 Water
SGPP - North Bennington

ELLE Sample # WW 9201374
ELLE Group # 1848531
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by RAK

Submitted: 09/11/2017 09:40
Reported: 10/12/2017 10:55

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB20 SDG#: SGB31-24TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17256006	09/15/2017 17:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17256006	09/13/2017 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848531
Reported: 10/12/2017 10:55

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17263012	Sample number(s): 9201351-9201370			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17265015	Sample number(s): 9201371			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17256006	Sample number(s): 9201372-9201374			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172551063702	Sample number(s): 9201361-9201370			
Aluminum	8.94	U	8.94	40.0
Calcium	12.5	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.60	J	2.43	20.0
Manganese	0.292	J	0.0830	1.00
Potassium	31.8	J	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.984	J	0.240	4.00
Batch number: 172551063702A	Sample number(s): 9201361-9201370			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.189	J	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172551063702B	Sample number(s): 9201361-9201370			
Selenium	0.100	U	0.100	0.800
Batch number: 172551063702D	Sample number(s): 9201361-9201370			
Barium	0.182	U	0.182	0.800
Batch number: 17270245031A	Sample number(s): 9201351-9201357			
TOC	100	U	100	300
Batch number: 17270245031B	Sample number(s): 9201358-9201367			
TOC	100	U	100	300
Batch number: 17271667632A	Sample number(s): 9201368-9201371			
TOC	100	U	100	300

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17263012	Sample number(s): 9201351-9201370								
Perfluorobutanesulfonate	1.20	1.34	1.20	1.36	112	113	70-130	1	30
Perfluorobutanoic acid	1.36	1.63	1.36	1.56	120	115	70-130	4	30
Perfluorodecanoic acid	1.36	1.29	1.36	1.50	95	110	70-130	15	30
Perfluorododecanoic acid	1.36	1.51	1.36	1.45	111	107	70-130	4	30
Perfluoroheptanoic acid	1.36	1.40	1.36	1.58	103	116	70-130	12	30
Perfluorohexanesulfonate	1.29	1.49	1.29	1.28	116	99	70-130	15	30
Perfluorohexanoic acid	1.36	1.44	1.36	1.57	106	115	70-130	8	30
Perfluorononanoic acid	1.36	1.35	1.36	1.58	100	116	70-130	15	30
Perfluoro-octanesulfonate	1.30	1.33	1.30	1.34	102	103	70-130	1	30
Perfluorooctanoic acid	1.36	1.48	1.36	1.64	109	120	70-130	10	30
Perfluoropentanoic acid	1.36	1.46	1.36	1.53	107	113	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.46	1.36	1.50	107	110	70-130	3	30
Perfluorotridecanoic acid	1.36	1.73	1.36	1.54	127	113	70-130	11	30
Perfluoroundecanoic acid	1.36	1.60	1.36	1.69	117	124	70-130	6	30
Batch number: 17265015	Sample number(s): 9201371								
Perfluorobutanesulfonate	1.20	1.38			115		70-130		
Perfluorobutanoic acid	1.36	1.61			118		70-130		
Perfluorodecanoic acid	1.36	1.39			103		70-130		
Perfluorododecanoic acid	1.36	1.53			113		70-130		
Perfluoroheptanoic acid	1.36	1.68			124		70-130		
Perfluorohexanesulfonate	1.29	1.35			105		70-130		
Perfluorohexanoic acid	1.36	1.50			111		70-130		
Perfluorononanoic acid	1.36	1.66			122		70-130		
Perfluoro-octanesulfonate	1.30	1.42			109		70-130		
Perfluorooctanoic acid	1.36	1.51			111		70-130		
Perfluoropentanoic acid	1.36	1.53			112		70-130		
Perfluorotetradecanoic acid	1.36	1.48			109		70-130		
Perfluorotridecanoic acid	1.36	1.72			126		70-130		
Perfluoroundecanoic acid	1.36	1.55			114		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17256006	Sample number(s): 9201372-9201374								
Perfluorobutanesulfonate	12.03	10.68	12.03	12.74	89	106	70-130	18	30
Perfluorobutanoic Acid	13.6	13.49	13.6	14.56	99	107	70-130	8	30
Perfluorodecanoic acid	13.6	12.83	13.6	14.19	94	104	70-130	10	30
Perfluorododecanoic acid	13.6	13.77	13.6	15.3	101	112	70-130	10	30
Perfluoroheptanoic acid	13.6	13.39	13.6	14.17	98	104	70-130	6	30
Perfluorohexanesulfonate	12.86	12.18	12.86	12.28	95	96	70-130	1	30
Perfluorohexanoic acid	13.6	13.28	13.6	14.23	98	105	70-130	7	30
Perfluorononanoic acid	13.6	13.36	13.6	15.48	98	114	70-130	15	30
Perfluoro-octanesulfonate	13	12.51	13	13.58	96	104	70-130	8	30
Perfluorooctanoic acid	13.6	13.1	13.6	14.27	96	105	70-130	9	30
Perfluoropentanoic Acid	13.6	13.08	13.6	13.28	96	98	70-130	2	30
Perfluorotetradecanoic acid	13.6	13.73	13.6	14.5	101	107	70-130	5	30
Perfluorotridecanoic acid	13.6	13.6	13.6	14.17	100	104	70-130	4	30
Perfluoroundecanoic acid	13.6	13.83	13.6	14.91	102	110	70-130	8	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172551063702	Sample number(s): 9201361-9201370								
Aluminum	200	199.52			100		80-120		
Calcium	400	403.79			101		80-120		
Iron	100	98.9			99		80-120		
Magnesium	200	200.91			100		80-120		
Manganese	50	48.83			98		80-120		
Potassium	1000	971.79			97		80-120		
Sodium	1000	998.86			100		80-120		
Zinc	50	50.75			101		80-120		
Batch number: 172551063702A	Sample number(s): 9201361-9201370								
Antimony	0.600	0.574			96		80-120		
Arsenic	1.00	1.01			101		80-120		
Beryllium	0.400	0.457			114		80-120		
Cadmium	0.500	0.491			98		80-120		
Chromium	5.00	5.48			110		80-120		
Cobalt	25	24			96		80-120		
Copper	5.00	5.17			103		80-120		
Lead	1.50	1.58			105		80-120		
Nickel	5.00	5.07			101		80-120		
Silver	5.00	5.13			103		80-120		
Thallium	0.200	0.221			110		80-120		
Vanadium	5.00	5.23			105		80-120		
Batch number: 172551063702B	Sample number(s): 9201361-9201370								
Selenium	1.00	1.02			102		80-120		
Batch number: 172551063702D	Sample number(s): 9201361-9201370								
Barium	5.00	5.14			103		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17270245031A	Sample number(s): 9201351-9201357								
TOC	7150	5571.21			78		47-143		
Batch number: 17270245031B	Sample number(s): 9201358-9201367								
TOC	7150	5571.21			78		47-143		
Batch number: 17271667632A	Sample number(s): 9201368-9201371								
TOC	7150	6631.82			93		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17257039402B	Sample number(s): 9201351-9201358								
pH	7.00	6.95			99		95-105		
Batch number: 17258039402A	Sample number(s): 9201359-9201368								
pH	7.00	6.95			99		95-105		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17258039402B	Sample number(s): 9201369-9201371								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17257820008A	Sample number(s): 9201371								
Moisture	89.5	89.42			100		99-101		
Batch number: 17257820009A	Sample number(s): 9201351-9201360								
Moisture	89.5	89.4			100		99-101		
Batch number: 17257820009B	Sample number(s): 9201361-9201370								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17263012	Sample number(s): 9201351-9201370 UNSPK: 9201351										
Perfluorobutanesulfonate	0.18	U	1.17	1.15			98		70-130		
Perfluorobutanoic acid	0.18	U	1.33	1.53			115		70-130		
Perfluorodecanoic acid	0.18	U	1.33	1.42			107		70-130		
Perfluorododecanoic acid	0.18	U	1.33	1.53			115		70-130		
Perfluoroheptanoic acid	0.18	U	1.33	1.35			102		70-130		
Perfluorohexanesulfonate	0.18	U	1.25	1.31			105		70-130		
Perfluorohexanoic acid	0.092	U	1.33	1.35			102		70-130		
Perfluorononanoic acid	0.092	U	1.33	1.56			118		70-130		
Perfluoro-octanesulfonate	0.28	U	1.27	1.60			126		70-130		
Perfluorooctanoic acid	0.18	U	1.33	1.56			117		70-130		
Perfluoropentanoic acid	0.18	U	1.33	1.40			106		70-130		
Perfluorotetradecanoic acid	0.18	U	1.33	1.46			110		70-130		
Perfluorotridecanoic acid	0.18	U	1.33	1.64			124		70-130		
Perfluoroundecanoic acid	0.18	U	1.33	1.52			115		70-130		
Batch number: 17265015	Sample number(s): 9201371 UNSPK: P199876										
Perfluorobutanesulfonate	0.19	U	1.14	1.31	1.14	1.33	115	117	70-130	2	30
Perfluorobutanoic acid	0.19	U	1.29	1.55	1.29	1.54	120	120	70-130	1	30
Perfluorodecanoic acid	0.19	U	1.29	1.39	1.29	1.30	108	101	70-130	7	30
Perfluorododecanoic acid	0.19	U	1.29	1.61	1.29	1.45	125	112	70-130	11	30
Perfluoroheptanoic acid	0.19	U	1.29	1.75	1.29	1.54	135*	119	70-130	13	30
Perfluorohexanesulfonate	0.19	U	1.22	1.37	1.22	1.23	112	101	70-130	11	30
Perfluorohexanoic acid	0.095	U	1.29	1.48	1.29	1.49	115	116	70-130	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorononanoic acid	0.095 U	1.29	1.53	1.29	1.47	118	114	70-130	4	30
Perfluoro-octanesulfonate	0.28 U	1.23	1.30	1.23	1.22	106	99	70-130	7	30
Perfluorooctanoic acid	0.19 U	1.29	1.66	1.29	1.48	129	115	70-130	12	30
Perfluoropentanoic acid	0.19 U	1.29	1.52	1.29	1.40	118	108	70-130	9	30
Perfluorotetradecanoic acid	0.19 U	1.29	1.45	1.29	1.53	113	119	70-130	5	30
Perfluorotridecanoic acid	0.19 U	1.29	1.45	1.29	1.48	112	115	70-130	2	30
Perfluoroundecanoic acid	0.19 U	1.29	1.54	1.29	1.50	119	117	70-130	2	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172551063702	Sample number(s): 9201361-9201370 UNSPK: P199876									
Aluminum	6045.16	190.48	10505.57	186.92	10698.82	2342 (2)	2490 (2)	75-125	2	20
Calcium	16897.54	380.95	14616.3	373.83	10643.22	-599 (2)	-1673 (2)	75-125	31*	20
Iron	13331.19	95.24	11610.25	93.46	11222.55	-1807 (2)	-2256 (2)	75-125	3	20
Magnesium	6982.83	190.48	6894.97	186.92	5445.01	-46 (2)	-823 (2)	75-125	24*	20
Manganese	290.22	47.62	280.57	46.73	268.85	-20 (2)	-46 (2)	75-125	4	20
Potassium	1101.47	952.38	2740.98	934.58	2504.76	172*	150*	75-125	9	20
Sodium	19.94	952.38	960.69	934.58	935.95	99	98	75-125	3	20
Zinc	27.89	47.62	68.46	46.73	67.77	85	85	75-125	1	20
Batch number: 172551063702A	Sample number(s): 9201361-9201370 UNSPK: P199876									
Antimony	0.0847 U	1.14	0.679	1.12	0.693	59*	62*	75-125	2	20
Arsenic	4.44	1.90	5.78	1.87	5.88	71*	77	75-125	2	20
Beryllium	0.461	0.762	1.21	0.748	1.21	98	101	75-125	0	20
Cadmium	0.0943	0.952	1.04	0.935	1.07	99	104	75-125	3	20
Chromium	8.17	9.52	16.71	9.35	18.95	90	115	75-125	13	20
Cobalt	7.22	47.62	51.68	46.73	52.04	93	96	75-125	1	20
Copper	9.70	9.52	18.11	9.35	18.53	88	95	75-125	2	20
Lead	11.87	2.86	15.49	2.80	14.43	127 (2)	91 (2)	75-125	7	20
Nickel	10.7	9.52	19.96	9.35	20.06	97	100	75-125	0	20
Silver	0.0265 U	9.52	9.29	9.35	9.63	98	103	75-125	4	20
Thallium	0.208	0.381	0.575	0.374	0.627	96	112	75-125	9	20
Vanadium	6.72	9.52	18.06	9.35	18.41	119	125	75-125	2	20
Batch number: 172551063702B	Sample number(s): 9201361-9201370 UNSPK: P199876									
Selenium	0.0909 U	1.90	1.86	1.87	1.83	98	98	75-125	2	20
Batch number: 172551063702D	Sample number(s): 9201361-9201370 UNSPK: P199876									
Barium	33.29	9.52	46.48	9.35	47.78	138*	155*	75-125	3	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17270245031A	Sample number(s): 9201351-9201357 UNSPK: 9201354									
TOC	1664.24	14550	12257.28			73		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17270245031B	Sample number(s): 9201358-9201367 UNSPK: 9201359									
TOC	4378.85	13470	12875.73			63		47-143		
Batch number: 17271667632A	Sample number(s): 9201368-9201371 UNSPK: P203380									
TOC	27923.8	33149	60872.93			99		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172551063702	Sample number(s): 9201361-9201370 BKG: P199876			
Aluminum	6045.16	6350.85	5	20
Calcium	16897.54	15889.89	6	20
Iron	13331.19	14196.04	6	20
Magnesium	6982.83	7716.12	10	20
Manganese	290.22	286.45	1	20
Potassium	1101.47	1032.31	6	20
Sodium	19.94	18.95	5 (1)	20
Zinc	27.89	29.22	5	20
Batch number: 172551063702A	Sample number(s): 9201361-9201370 BKG: P199876			
Antimony	0.0847 U	0.0680 U	0 (1)	20
Arsenic	4.44	5.03	13	20
Beryllium	0.461	0.439	5 (1)	20
Cadmium	0.0943	0.106	11 (1)	20
Chromium	8.17	6.55	22*	20
Cobalt	7.22	8.16	12	20
Copper	9.70	9.62	1	20
Lead	11.87	11.69	2	20
Nickel	10.7	11.77	10	20
Silver	0.0265 U	0.0213 U	0 (1)	20
Thallium	0.208	0.204	2 (1)	20
Vanadium	6.72	7.21	7	20
Batch number: 172551063702B	Sample number(s): 9201361-9201370 BKG: P199876			
Selenium	0.0909 U	0.0906	200* (1)	20
Batch number: 172551063702D	Sample number(s): 9201361-9201370 BKG: P199876			
Barium	33.29	31.49	6	20
	mg/kg	mg/kg		
Batch number: 17270245031A	Sample number(s): 9201351-9201357 BKG: 9201354			

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 10:55

Group Number: 1848531

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	1664.24	1895.4	13* (1)	7
Batch number: 17270245031B	Sample number(s): 9201358-9201367 BKG: 9201359			
TOC	4378.85	4464.46	2	7
Batch number: 17271667632A	Sample number(s): 9201368-9201371 BKG: P203380			
TOC	27923.8	30200.41	8*	7
	Std. Units	Std. Units		
Batch number: 17257039402B	Sample number(s): 9201351-9201358 BKG: P199887			
pH	7.94	7.96	0	3
Batch number: 17258039402A	Sample number(s): 9201359-9201368 BKG: 9201359			
pH	8.49	8.50	0	3
Batch number: 17258039402B	Sample number(s): 9201369-9201371 BKG: P203380			
pH	7.89	7.90	0	3
	%	%		
Batch number: 17257820008A	Sample number(s): 9201371 BKG: P201999			
Moisture	14.36	14.73	3	5
Batch number: 17257820009A	Sample number(s): 9201351-9201360 BKG: 9201357			
Moisture	16.99	14.59	15*	5
Batch number: 17257820009B	Sample number(s): 9201361-9201370 BKG: 9201362			
Moisture	14.28	16.3	13*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9201372	75	70	68	73	67	74
9201373	83	73	76	88	84	83
9201374	82	86	87	87	85	89
Blank	82	81	83	89	91	88
LCS	91	90	98	82	82	86
LCSD	76	79	79	86	86	80

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848531
Reported: 10/12/2017 10:55

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17256006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
9201372	70	79	89	74	88	90
9201373	85	89	96	84	96	101
9201374	77	75	99	81	83	87
Blank	79	83	81	77	74	77
LCS	84	79	83	86	80	78
LCSD	77	71	74	77	73	70
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9201372	103
9201373	119
9201374	82
Blank	72
LCS	75
LCSD	69
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17263012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9201351	65	61*	69	66	71	70
9201352	64	58*	62	77	70	68
9201353	85	75	76	88	82	83
9201354	65	61*	65	66	64	60
9201355	69	62*	66	74	77	65
9201356	66	59*	72	72	73	66
9201357	65	59*	67	70	69	66
9201358	74	70	74	83	74	73
9201359	78	74	77	85	79	82
9201360	67	58*	66	68	84	76
9201361	66	59*	62	63	64	61
9201362	66	61*	64	62	67	65
9201363	78	69*	69	80	85	84
9201364	69	62*	69	74	73	76
9201365	54	48*	63	61	78	66
9201366	59	59*	66	60	66	57
9201367	72	66*	65	81	83	81

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848531
Reported: 10/12/2017 10:55

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17263012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9201368	74	70	66	84	86	81
9201369	69	58*	64	71	80	83
9201370	65	58*	55	78	82	75
Blank	67	66*	80	87	86	84
LCS	45*	54*	73	71	82	74
LCSD	57	60*	77	69	84	75
MS	67	62*	73	71	74	70
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9201351	61	62	71	66	69	70
9201352	71	64	74	68	77	77
9201353	78	85	95	82	95	92
9201354	62	66	61	62	71	65
9201355	65	65	64	71	70	67
9201356	66	72	73	77	70	71
9201357	68	76	76	71	67	64
9201358	82	82	89	75	72	78
9201359	79	77	70	86	82	83
9201360	73	77	67	71	65	66
9201361	64	64	66	71	69	64
9201362	67	73	72	64	62	60
9201363	75	88	79	78	87	83
9201364	72	80	72	69	77	70
9201365	61	82	67	71	72	75
9201366	59	70	62	66	67	56
9201367	79	77	75	68	70	71
9201368	71	71	69	84	82	87
9201369	74	71	75	76	79	77
9201370	73	74	66	63	63	61
Blank	79	84	76	79	76	67
LCS	77	72	81	74	72	71
LCSD	73	85	82	81	81	77
MS	67	71	70	71	69	71
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9201351	76
9201352	80
9201353	108

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848531
Reported: 10/12/2017 10:55

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17263012

	13C2-PFTeDA
9201354	74
9201355	66
9201356	67
9201357	71
9201358	72
9201359	81
9201360	63
9201361	68
9201362	64
9201363	96
9201364	77
9201365	76
9201366	51
9201367	67
9201368	72
9201369	69
9201370	64
Blank	63
LCS	67
LCSD	70
MS	77
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17265015

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9201371	66	65*	64	72	71	70
Blank	60	55*	56	67	59	63
LCS	68	59*	63	71	76	68
MS	48*	42*	51	58	71	49
MSD	51*	47*	59	61	79	56
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9201371	70	67	67	71	80	68
Blank	58	63	63	62	62	62
LCS	64	65	76	69	70	66
MS	53	59	49	54	56	55
MSD	57	63	48	53	55	49

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1848531
Reported: 10/12/2017 10:55

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17265015

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9201371	71
Blank	56
LCS	63
MS	58
MSD	45
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1848531/9201351-74

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52318

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic Trip Blank	Soil: 250ml Plastic (PFC's)	Soil: 50Z C-Lass-TOC, %H2O, pH	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A		A	N	
										N	N		N	N	
1. SG3-SO2-0-0.5	0	0.5	ft	09/07/2017	0900	S	N	2		1	1				PFC's (14), TOC, plt, Moist. Content
2. SG3-SO2-0.5-1	0.5	1	ft	09/07/2017	0910	S	N	2		1	1				Petroleum odor
3. SG3-SO2-1-1.5	1	1.5	ft	09/07/2017	0920	S	N	2		1	1				Petroleum Stain & odor
4. SG3-SO2-3-4'	3	4	ft	09/07/2017	0945	S	N	2		1	1				
5. SG3-SO2-8-9'	8	9	ft	09/07/2017	1010	S	N	2		1	1				
6. SG3-S11-0-0.5'	0	0.5	ft	09/07/2017	1200	S	N	2		1	1				Samples in 2 coolers
7. SG3-S11-0.5-1'	0.5	1	ft	09/07/2017	1210	S	N	2		1	1				
8. SG3-S11-1-1.5'	1	1.5	ft	09/07/2017	1220	S	N	2		1	1				
9. SG3-S11-3-4'	3	4	ft	09/07/2017	1240	S	N	2		1	1				
10. SG3-S11-7.4-8.4'	7.4	8.4	ft	09/07/2017	1310	S	N	2		1	1				

BARR USE ONLY

Sampled by: RAK/RS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kosbusky — On Ice? (Y) N — Date: 9.7.17 — Time: 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: Timothy Culberson — Date: 9/11/17 — Time: 0940

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 / 1848531 / 9201351-74

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

COC Number: 52278

COC 2 of 3

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic trip blank	Soil: 250 mL plastic (PFCs)	Soil: 8 oz glass - TOC, % H2O, pH	% Solids
	Preservative Code									NA	A	A	
	Field Filtered Y/N									N	N	N	
1.	SG3-D23-0-0.5'	0	0.5	ft	09/07/2017	1243	Soil	N	2		1	1	
2.	SG3-D23-0.5-1'	0.5	1	ft	9-7-17	1240	S	N	2		1	1	
3.	SG3-D23-1-1.5'	1	1.5	ft	9-7-17	1235	S	N	2		1	1	
4.	SG3-D23-6-7'	6	7	ft	9-7-17	1020	S	N	2		1	1	
5.	SG3-D23-12-13'	12	13	ft	9-7-17	1040	S	N	2		1	1	
6.	SG3-D23-18-19'	18	19	ft	9-7-17	1045	S	N	2		1	1	
7.	SG3-D23-28-29'	28	29	ft	9-7-17	1110	S	N	2		1	1	
8.	SG3-D23-36-37'	36	37	ft	9-7-17	1140	S	N	2		1	1	
9.	SG3-D23-41-42'	41	42	ft	9-7-17	1300	S	N	2		1	1	
10.	SG3-D23-48-49'	48	49	ft	9-7-17	1350	S	N	2		1	1	

(14) PFC's TOC, pH, moist content, TAL metals/cations excluding Hg

Samples in 2 Coolers

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	NJZ KMJ2	Mark Zander	Y	9-7-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: DSN 9/11/17 Timothy Cubberley	Date 9/11/17	Time 0940
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location:	Lancaster PA							

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 / 1848531 / 9201351-74

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52277

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic trip blank	Soil: 250 mL Plastic (PFCs)	Soil: 8oz glass jar-Tot%, Ha0, pH	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-FDS05-170907				09/07/2017	~~10:12~~ (KMJ)	S		2		1	1			PFC's @17, Tot, pH, Moist.
2. SG3-FBS05-170907				09/07/2017	13:30	water		2	1	1				
3. SG3-LTB19-170907				09/07/2017	AM	water		2	1	1				
4. SG3-LTB20-170907				09/07/2017	AM	water		2	1	1				
5.														samples in 2 coolers
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY

Sampled by: JJZ KMJ2

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Derek Zander — On Ice? ☒ Y ☐ N — Date: 9-7-17 — Time: 1700

Relinquished by: — On Ice? ☐ Y ☐ N — Date — Time

Received by: — Date — Time

Received by: DZ 9/11/17 Timothy Cubberley — Date: 9/11/17 — Time: 0940

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 193868

Group Number(s):

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/08/2017 9:30
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	N/A
Custody Seal Present:	Yes	Sample Date/Times match COC:	N/A
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	No	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	N/A		

Trip Blank Type(s): Unpreserved

Unpacked by Cory Jeremiah (10469) at 17:32 on 09/08/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 193868

Group Number(s): 1848531

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/08/2017 9:30
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	N/A
Custody Seal Present:	Yes	Sample Date/Times match COC:	N/A
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	No	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	N/A		

Trip Blank Type(s): Unpreserved

Unpacked by Cory Jeremiah (10469) at 17:32 on 09/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

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Sample Administration Receipt Documentation Log

Doc Log ID: 193868

Group Number(s): 1848531

Client: Barr Engineering

Paperwork Not Enclosed Details

Sample ID on Label	No. of Containers	Date on Label	Comments
SG3-S02-0-0.5	1	9/07/2017 09:00	60 ml glass jar
SG3-S02-0.5-1	1	9/07/2017 09:10	60 ml glass jar
SG3-S02-1-1.5	1	9/07/2017 09:20	60 ml glass jar
SG3-S02-3-4	1	9/07/2017 09:45	60 ml glass jar
SG3-S02-8-9	1	9/07/2017 10:10	60 ml glass jar
SG3-D23-6-7	1	9/07/2017 10:20	60 ml glass jar
SG3-D23-12-13	1	9/07/2017 10:40	60 ml glass jar
SG3-D23-18-19	1	9/07/2017 10:45	60 ml glass jar
SG3-D23-28-29	1	9/07/2017 11:10	60 ml glass jar
SG3-D23-36-39	1	9/07/2017 11:40	60 ml glass jar
SG3-S11-0-0.5	1	9/07/2017 12:00	60 ml glass jar
SG3-S11-0.5-1	1	9/07/2017 12:10	60 ml glass jar
SG3-S11-1-1.5	1	9/07/2017 12:20	60 ml glass jar
SG3-S11-1-1.5	1	9/07/2017 12:35	60 ml glass jar
SG3-S11-3-5	1	9/07/2017 12:40	60 ml glass jar
SG3-D23-0.5-1	1	9/07/2017 12:40	60 ml glass jar
SG3-D23-0.0-0.5	1	9/07/2017 12:43	60 ml glass jar
SG3-S11-7.4-8.4	1	9/07/2017 12:43	60 ml glass jar
SG3-D23-41-42	1	9/07/2017 13:00	60 ml glass jar
SG3-FBS05-170907	1	9/07/2017 13:30	250 ml unpres plastic
SG3-D23-48-49	1	9/07/2017 13:50	60 ml glass jar
SG3-FDS05-170907	1	9/07/2017 --	60 ml glass jar
SG3-LTB20-170907	1	9/07/2017 --	250 ml unpres plastic

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 194007

Group Number(s): 1848531

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/11/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL unpreserved plastic (LTB19-170907)

Unpacked by Timothy Cubberley (6520) at 11:15 on 09/11/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	4.8	DT	Wet	N	Loose/Bag	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-S11-3-4'	SG3-S11-3-5'	
SG3-D23-36-37'	SG3-D23-36-39'	

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG-3-S11-1-1.5'	9/07/2017 12:23	
SG-3-S11-7.4-8.4'	9/07/2017 12:43	

General Comments: Rec'd all missing PFC soil bottles from 9/8/17

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 15, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1849026
SDG: SGB32
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FW2-170911 Water	09/11/2017 16:00	9203374
SG3-LTB28-170911 Blank Water	09/11/2017	9203375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1849026

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9203375

A Method Detection Limit (MDL) standard is required to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). There was no MDL standard analyzed in the tune period containing this sample and the %D was -29% for dichlorodifluoromethane.

Sample Description: SG3-FW2-170911 Water
SGPP - North Bennington

ELLE Sample # PW 9203374
ELLE Group # 1849026
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 16:00 by RAK

Submitted: 09/12/2017 09:45
Reported: 09/15/2017 16:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FW2 SDG#: SGB32-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FW2-170911 Water
SGPP - North Bennington

ELLE Sample # PW 9203374
ELLE Group # 1849026
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 16:00 by RAK

Submitted: 09/12/2017 09:45
Reported: 09/15/2017 16:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FW2 SDG#: SGB32-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172581AA	09/15/2017 13:04	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172581AA	09/15/2017 13:04	Daniel H Heller	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB28-170911 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9203375
ELLE Group # 1849026
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017

Submitted: 09/12/2017 09:45
Reported: 09/15/2017 16:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB28 SDG#: SGB32-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB28-170911 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9203375
ELLE Group # 1849026
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017

Submitted: 09/12/2017 09:45
Reported: 09/15/2017 16:50

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB28 SDG#: SGB32-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1

A Method Detection Limit (MDL) standard is required to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). There was no MDL standard analyzed in the tune period containing this sample and the %D was -29% for dichlorodifluoromethane.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172554AA	09/13/2017 03:24	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172554AA	09/13/2017 03:24	Kevin D Kelly	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l		MDL** ug/l	LOQ ug/l
Batch number: L172554AA	Sample number(s): 9203375			
Acetone	6	U	6	20
Benzene	0.5	U	0.5	1
Bromochloromethane	1	U	1	5
Bromodichloromethane	0.5	U	0.5	1
Bromoform	0.5	U	0.5	4
Bromomethane	0.5	U	0.5	1
2-Butanone	3	U	3	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	0.5	U	0.5	1
Chlorobenzene	0.5	U	0.5	1
Chloroethane	0.5	U	0.5	1
Chloroform	0.5	U	0.5	1
Chloromethane	0.5	U	0.5	1
Cyclohexane	2	U	2	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	0.5	U	0.5	1
1,2-Dibromoethane	0.5	U	0.5	1
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	0.5	U	0.5	1
1,1-Dichloroethane	0.5	U	0.5	1
1,2-Dichloroethane	0.5	U	0.5	1
1,1-Dichloroethene	0.5	U	0.5	1
cis-1,2-Dichloroethene	0.5	U	0.5	1
trans-1,2-Dichloroethene	0.5	U	0.5	1
1,2-Dichloropropane	0.5	U	0.5	1
cis-1,3-Dichloropropene	0.5	U	0.5	1
trans-1,3-Dichloropropene	0.5	U	0.5	1
Ethylbenzene	0.5	U	0.5	1
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	1	U	1	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	1
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	4
Styrene	1	U	1	5
1,1,2,2-Tetrachloroethane	0.5	U	0.5	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

Method Blank (continued)

Analysis Name	Result ug/l		MDL** ug/l	LOQ ug/l
Tetrachloroethene	0.5	U	0.5	1
Toluene	0.5	U	0.5	1
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	0.5	U	0.5	1
1,1,2-Trichloroethane	0.5	U	0.5	1
Trichloroethene	0.5	U	0.5	1
Trichlorofluoromethane	0.5	U	0.5	1
Vinyl Chloride	0.5	U	0.5	1
m+p-Xylene	0.5	U	0.5	1
o-Xylene	0.5	U	0.5	1
Xylene (Total)	0.5	U	0.5	1
Batch number: L172581AA	Sample number(s): 9203374			
Acetone	6	U	6	20
Benzene	0.5	U	0.5	1
Bromochloromethane	1	U	1	5
Bromodichloromethane	0.5	U	0.5	1
Bromoform	0.5	U	0.5	4
Bromomethane	0.5	U	0.5	1
2-Butanone	3	U	3	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	0.5	U	0.5	1
Chlorobenzene	0.5	U	0.5	1
Chloroethane	0.5	U	0.5	1
Chloroform	0.5	U	0.5	1
Chloromethane	0.5	U	0.5	1
Cyclohexane	2	U	2	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	0.5	U	0.5	1
1,2-Dibromoethane	0.5	U	0.5	1
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	0.5	U	0.5	1
1,1-Dichloroethane	0.5	U	0.5	1
1,2-Dichloroethane	0.5	U	0.5	1
1,1-Dichloroethene	0.5	U	0.5	1
cis-1,2-Dichloroethene	0.5	U	0.5	1
trans-1,2-Dichloroethene	0.5	U	0.5	1
1,2-Dichloropropane	0.5	U	0.5	1
cis-1,3-Dichloropropene	0.5	U	0.5	1
trans-1,3-Dichloropropene	0.5	U	0.5	1
Ethylbenzene	0.5	U	0.5	1
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	1	U	1	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	1

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

Method Blank (continued)

Analysis Name	Result ug/l		MDL** ug/l	LOQ ug/l
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	4
Styrene	1	U	1	5
1,1,2,2-Tetrachloroethane	0.5	U	0.5	1
Tetrachloroethene	0.5	U	0.5	1
Toluene	0.5	U	0.5	1
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	0.5	U	0.5	1
1,1,2-Trichloroethane	0.5	U	0.5	1
Trichloroethene	0.5	U	0.5	1
Trichlorofluoromethane	0.5	U	0.5	1
Vinyl Chloride	0.5	U	0.5	1
m+p-Xylene	0.5	U	0.5	1
o-Xylene	0.5	U	0.5	1
Xylene (Total)	0.5	U	0.5	1

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L172554AA	Sample number(s): 9203375								
Acetone	150	180.48	150	180.97	120	121	44-177	0	30
Benzene	20	21.43	20	21.51	107	108	78-120	0	30
Bromochloromethane	20	20.53	20	20.56	103	103	80-125	0	30
Bromodichloromethane	20	18.14	20	18.39	91	92	71-120	1	30
Bromoform	20	14.36	20	14.72	72	74	59-120	2	30
Bromomethane	20	18.66	20	18.98	93	95	44-139	2	30
2-Butanone	150	140.13	150	140.89	93	94	53-140	1	30
Carbon Disulfide	20	20.49	20	20.76	102	104	65-128	1	30
Carbon Tetrachloride	20	17.53	20	17.79	88	89	68-128	2	30
Chlorobenzene	20	20.78	20	20.89	104	104	80-120	0	30
Chloroethane	20	18.13	20	18.17	91	91	52-127	0	30
Chloroform	20	20.61	20	20.67	103	103	80-120	0	30
Chloromethane	20	16.75	20	16.58	84	83	57-120	1	30
Cyclohexane	20	17.74	20	17.97	89	90	67-121	1	30
1,2-Dibromo-3-chloropropane	20	18.16	20	18.36	91	92	64-120	1	30
Dibromochloromethane	20	17.4	20	17.83	87	89	71-120	2	30
1,2-Dibromoethane	20	20.84	20	21.05	104	105	75-120	1	30
1,2-Dichlorobenzene	20	20.63	20	20.91	103	105	80-120	1	30
1,3-Dichlorobenzene	20	20.68	20	20.65	103	103	80-120	0	30
1,4-Dichlorobenzene	20	21.03	20	21.36	105	107	80-120	2	30
Dichlorodifluoromethane	20	12.9	20	13.11	64	66	47-124	2	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1-Dichloroethane	20	20.53	20	20.65	103	103	80-120	1	30
1,2-Dichloroethane	20	19.25	20	19.13	96	96	73-124	1	30
1,1-Dichloroethene	20	22.86	20	22.74	114	114	76-124	1	30
cis-1,2-Dichloroethene	20	21.73	20	21.7	109	109	80-120	0	30
trans-1,2-Dichloroethene	20	21.87	20	22.02	109	110	80-120	1	30
1,2-Dichloropropane	20	20.77	20	21.32	104	107	80-120	3	30
cis-1,3-Dichloropropene	20	18.98	20	19.22	95	96	75-120	1	30
trans-1,3-Dichloropropene	20	17.99	20	18.15	90	91	76-120	1	30
Ethylbenzene	20	20.93	20	21.25	105	106	78-120	1	30
Freon 113	20	19.17	20	19.43	96	97	68-137	1	30
2-Hexanone	100	92.8	100	93.24	93	93	60-134	0	30
Isopropylbenzene	20	21.07	20	21.27	105	106	80-120	1	30
Methyl Acetate	20	20.54	20	20.58	103	103	61-137	0	30
Methyl Tertiary Butyl Ether	20	20.43	20	20.84	102	104	75-120	2	30
4-Methyl-2-pentanone	100	93.74	100	94.67	94	95	67-128	1	30
Methylcyclohexane	20	18.43	20	18.39	92	92	66-126	0	30
Methylene Chloride	20	21.72	20	21.71	109	109	80-120	0	30
Styrene	20	20.8	20	20.91	104	105	80-120	1	30
1,1,2,2-Tetrachloroethane	20	21.25	20	21.48	106	107	72-120	1	30
Tetrachloroethene	20	20.23	20	20.84	101	104	80-129	3	30
Toluene	20	20.93	20	21.07	105	105	80-120	1	30
1,2,3-Trichlorobenzene	20	18.98	20	19.28	95	96	66-120	2	30
1,2,4-Trichlorobenzene	20	18.69	20	19.27	93	96	70-120	3	30
1,1,1-Trichloroethane	20	17.62	20	17.7	88	88	67-120	0	30
1,1,2-Trichloroethane	20	21.74	20	21.68	109	108	80-120	0	30
Trichloroethene	20	20.74	20	20.86	104	104	80-120	1	30
Trichlorofluoromethane	20	16.31	20	16.43	82	82	52-143	1	30
Vinyl Chloride	20	16.96	20	17.28	85	86	63-121	2	30
m+p-Xylene	40	42.37	40	42.71	106	107	80-120	1	30
o-Xylene	20	20.42	20	20.61	102	103	80-120	1	30
Xylene (Total)	60	62.79	60	63.32	105	106	80-120	1	30
Batch number: L172581AA	Sample number(s): 9203374								
Acetone	150	164.85			110		44-177		
Benzene	20	20.6			103		78-120		
Bromochloromethane	20	19.25			96		80-125		
Bromodichloromethane	20	18.34			92		71-120		
Bromoform	20	15.68			78		59-120		
Bromomethane	20	16.44			82		44-139		
2-Butanone	150	159.32			106		53-140		
Carbon Disulfide	20	17.97			90		65-128		
Carbon Tetrachloride	20	17.23			86		68-128		
Chlorobenzene	20	19.98			100		80-120		
Chloroethane	20	17.32			87		52-127		
Chloroform	20	20.31			102		80-120		
Chloromethane	20	17.98			90		57-120		
Cyclohexane	20	20.26			101		67-121		
1,2-Dibromo-3-chloropropane	20	18.68			93		64-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Dibromochloromethane	20	17.74			89		71-120		
1,2-Dibromoethane	20	19.79			99		75-120		
1,2-Dichlorobenzene	20	19.67			98		80-120		
1,3-Dichlorobenzene	20	19.54			98		80-120		
1,4-Dichlorobenzene	20	19.97			100		80-120		
Dichlorodifluoromethane	20	16.02			80		47-124		
1,1-Dichloroethane	20	20.63			103		80-120		
1,2-Dichloroethane	20	20.15			101		73-124		
1,1-Dichloroethene	20	20.99			105		76-124		
cis-1,2-Dichloroethene	20	20.48			102		80-120		
trans-1,2-Dichloroethene	20	20.35			102		80-120		
1,2-Dichloropropane	20	21.16			106		80-120		
cis-1,3-Dichloropropene	20	18.81			94		75-120		
trans-1,3-Dichloropropene	20	18.4			92		76-120		
Ethylbenzene	20	20.64			103		78-120		
Freon 113	20	20.12			101		68-137		
2-Hexanone	100	108.86			109		60-134		
Isopropylbenzene	20	20.63			103		80-120		
Methyl Acetate	20	21.52			108		61-137		
Methyl Tertiary Butyl Ether	20	20.13			101		75-120		
4-Methyl-2-pentanone	100	109.08			109		67-128		
Methylcyclohexane	20	20.4			102		66-126		
Methylene Chloride	20	20.17			101		80-120		
Styrene	20	20.04			100		80-120		
1,1,2,2-Tetrachloroethane	20	19.97			100		72-120		
Tetrachloroethene	20	19.54			98		80-129		
Toluene	20	20.25			101		80-120		
1,2,3-Trichlorobenzene	20	18.75			94		66-120		
1,2,4-Trichlorobenzene	20	18.39			92		70-120		
1,1,1-Trichloroethane	20	16.57			83		67-120		
1,1,2-Trichloroethane	20	20.94			105		80-120		
Trichloroethene	20	19.61			98		80-120		
Trichlorofluoromethane	20	18.58			93		52-143		
Vinyl Chloride	20	18.13			91		63-121		
m+p-Xylene	40	40.66			102		80-120		
o-Xylene	20	19.78			99		80-120		
Xylene (Total)	60	60.44			101		80-120		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L172554AA	Sample number(s): 9203375 UNSPK: P185867										
Acetone	120	U	3000	4389.25	3000	4112.71	146	137	44-177	7	30
Benzene	10	U	400	431.31	400	427.92	108	107	78-120	1	30
Bromochloromethane	20	U	400	408.03	400	401.74	102	100	80-125	2	30
Bromodichloromethane	10	U	400	344.57	400	347.12	86	87	71-120	1	30
Bromoform	10	U	400	246.43	400	248.96	62	62	59-120	1	30
Bromomethane	10	U	400	339.19	400	337.36	85	84	44-139	1	30
2-Butanone	60	U	3000	2965.08	3000	2879.06	99	96	53-140	3	30
Carbon Disulfide	20	U	400	370.14	400	371.74	93	93	65-128	0	30
Carbon Tetrachloride	10	U	400	365.69	400	364.36	91	91	68-128	0	30
Chlorobenzene	10	U	400	419.9	400	418.08	105	105	80-120	0	30
Chloroethane	10	U	400	350.87	400	347.61	88	87	52-127	1	30
Chloroform	10	U	400	410.71	400	408.82	103	102	80-120	0	30
Chloromethane	10	U	400	376.96	400	375.78	94	94	57-120	0	30
Cyclohexane	40	U	400	444.77	400	444.98	111	111	67-121	0	30
1,2-Dibromo-3-chloropropane	40	U	400	331.56	400	348.44	83	87	64-120	5	30
Dibromochloromethane	10	U	400	320.17	400	323.61	80	81	71-120	1	30
1,2-Dibromoethane	10	U	400	401.09	400	398.29	100	100	75-120	1	30
1,2-Dichlorobenzene	20	U	400	403.31	400	423.76	101	106	80-120	5	30
1,3-Dichlorobenzene	20	U	400	405.76	400	425.41	101	106	80-120	5	30
1,4-Dichlorobenzene	20	U	400	418.47	400	435.36	105	109	80-120	4	30
Dichlorodifluoromethane	10	U	400	379.48	400	369.97	95	92	47-124	3	30
1,1-Dichloroethane	10	U	400	409.27	400	407.66	102	102	80-120	0	30
1,2-Dichloroethane	10	U	400	375.65	400	372.65	94	93	73-124	1	30
1,1-Dichloroethene	10	U	400	451.38	400	452.04	113	113	76-124	0	30
cis-1,2-Dichloroethene	10	U	400	433.6	400	430.6	108	108	80-120	1	30
trans-1,2-Dichloroethene	10	U	400	436.09	400	430.66	109	108	80-120	1	30
1,2-Dichloropropane	10	U	400	418.57	400	417.96	105	104	80-120	0	30
cis-1,3-Dichloropropene	10	U	400	355.28	400	359.75	89	90	75-120	1	30
trans-1,3-Dichloropropene	10	U	400	329.66	400	336.18	82	84	76-120	2	30
Ethylbenzene	60.3		400	497.74	400	493.45	109	108	78-120	1	30
Freon 113	40	U	400	448.78	400	443.02	112	111	68-137	1	30
2-Hexanone	60	U	2000	1876.2	2000	1859.56	94	93	60-134	1	30
Isopropylbenzene	20	U	400	453.28	400	453.92	113	113	80-120	0	30
Methyl Acetate	35.79		400	416.62	400	406.9	95	93	61-137	2	30
Methyl Tertiary Butyl Ether	10	U	400	378.36	400	378.5	95	95	75-120	0	30
4-Methyl-2-pentanone	60	U	2000	1896.88	2000	1878.72	95	94	67-128	1	30
Methylcyclohexane	21.8		400	488.33	400	480.75	117	115	66-126	2	30
Methylene Chloride	40	U	400	425.44	400	416.74	106	104	80-120	2	30
Styrene	20	U	400	418.61	400	415.23	105	104	80-120	1	30
1,1,2,2-Tetrachloroethane	10	U	400	402.11	400	418.44	101	105	72-120	4	30
Tetrachloroethene	10	U	400	426.44	400	427.36	107	107	80-129	0	30
Toluene	10	U	400	432.1	400	428.04	108	107	80-120	1	30
1,2,3-Trichlorobenzene	20	U	400	368.94	400	395.25	92	99	66-120	7	30
1,2,4-Trichlorobenzene	20	U	400	372.46	400	391.18	93	98	70-120	5	30
1,1,1-Trichloroethane	10	U	400	358.19	400	357.82	90	89	67-120	0	30

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1849026
Reported: 09/15/2017 16:50

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	10	U	400	432.59	400	424.64	108	106	80-120	2	30
Trichloroethene	10	U	400	422.85	400	420.06	106	105	80-120	1	30
Trichlorofluoromethane	10	U	400	407.84	400	399.57	102	100	52-143	2	30
Vinyl Chloride	10	U	400	400.88	400	400.75	100	100	63-121	0	30
m+p-Xylene	129.76		800	1010.38	800	1009.91	110	110	80-120	0	30
o-Xylene	12.4		400	430.51	400	429.26	105	104	80-120	0	30
Xylene (Total)	142.16		1200	1440.88	1200	1439.17	108	108	80-120	0	30
Batch number: L172581AA	Sample number(s): 9203374 UNSPK: P206095										
Acetone	6	U	150	163.41	150	159.73	109	106	44-177	2	30
Benzene	0.5	U	20	21.5	20	22.17	108	111	78-120	3	30
Bromochloromethane	1	U	20	19.21	20	19.98	96	100	80-125	4	30
Bromodichloromethane	0.5	U	20	18.14	20	18.8	91	94	71-120	4	30
Bromoform	0.5	U	20	14.5	20	15	73	75	59-120	3	30
Bromomethane	0.5	U	20	17.35	20	16.79	87	84	44-139	3	30
2-Butanone	3	U	150	155.67	150	160.97	104	107	53-140	3	30
Carbon Disulfide	1	U	20	19.28	20	19.92	96	100	65-128	3	30
Carbon Tetrachloride	0.5	U	20	18.62	20	19.15	93	96	68-128	3	30
Chlorobenzene	0.5	U	20	20.29	20	20.83	101	104	80-120	3	30
Chloroethane	0.5	U	20	19.03	20	18.04	95	90	52-127	5	30
Chloroform	0.5	U	20	20.86	20	21.33	104	107	80-120	2	30
Chloromethane	0.5	U	20	20.08	20	19.02	100	95	57-120	5	30
Cyclohexane	2	U	20	22.44	20	22.93	112	115	67-121	2	30
1,2-Dibromo-3-chloropropane	2	U	20	17.53	20	18.02	88	90	64-120	3	30
Dibromochloromethane	0.5	U	20	16.95	20	17.66	85	88	71-120	4	30
1,2-Dibromoethane	0.5	U	20	19.27	20	19.81	96	99	75-120	3	30
1,2-Dichlorobenzene	1	U	20	19.32	20	20.05	97	100	80-120	4	30
1,3-Dichlorobenzene	1	U	20	19.69	20	20.36	98	102	80-120	3	30
1,4-Dichlorobenzene	1	U	20	20.09	20	20.73	100	104	80-120	3	30
Dichlorodifluoromethane	0.5	U	20	18.65	20	17.47	93	87	47-124	7	30
1,1-Dichloroethane	0.5	U	20	21.54	20	22.14	108	111	80-120	3	30
1,2-Dichloroethane	0.5	U	20	20.42	20	20.92	102	105	73-124	2	30
1,1-Dichloroethene	0.5	U	20	22.63	20	23.07	113	115	76-124	2	30
cis-1,2-Dichloroethene	0.709		20	21.79	20	22.2	105	107	80-120	2	30
trans-1,2-Dichloroethene	0.5	U	20	21.61	20	21.91	108	110	80-120	1	30
1,2-Dichloropropane	0.5	U	20	21.45	20	22.05	107	110	80-120	3	30
cis-1,3-Dichloropropene	0.5	U	20	18.83	20	19.52	94	98	75-120	4	30
trans-1,3-Dichloropropene	0.5	U	20	18.06	20	18.58	90	93	76-120	3	30
Ethylbenzene	0.5	U	20	21.41	20	21.89	107	109	78-120	2	30
Freon 113	2	U	20	22.3	20	22.82	112	114	68-137	2	30
2-Hexanone	3	U	100	107.04	100	109.92	107	110	60-134	3	30
Isopropylbenzene	1	U	20	21.4	20	21.95	107	110	80-120	3	30
Methyl Acetate	1	U	20	21.49	20	21.88	107	109	61-137	2	30
Methyl Tertiary Butyl Ether	13.86		20	34.74	20	34.7	104	104	75-120	0	30
4-Methyl-2-pentanone	3	U	100	106.07	100	110.14	106	110	67-128	4	30
Methylcyclohexane	1	U	20	23.19	20	23.95	116	120	66-126	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/15/2017 16:50

Group Number: 1849026

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Methylene Chloride	2	U	20	20.75	20	21.28	104	106	80-120	3	30
Styrene	1	U	20	20.39	20	20.88	102	104	80-120	2	30
1,1,2,2-Tetrachloroethane	0.5	U	20	19.01	20	20.15	95	101	72-120	6	30
Tetrachloroethene	0.5	U	20	21.03	20	21.58	105	108	80-129	3	30
Toluene	0.5	U	20	20.83	20	21.45	104	107	80-120	3	30
1,2,3-Trichlorobenzene	1	U	20	18.45	20	19.31	92	97	66-120	5	30
1,2,4-Trichlorobenzene	1	U	20	18.54	20	19.14	93	96	70-120	3	30
1,1,1-Trichloroethane	0.5	U	20	18.29	20	19.04	91	95	67-120	4	30
1,1,2-Trichloroethane	0.5	U	20	20.43	20	20.62	102	103	80-120	1	30
Trichloroethene	0.5	U	20	21.03	20	21.54	105	108	80-120	2	30
Trichlorofluoromethane	0.5	U	20	21.2	20	20.36	106	102	52-143	4	30
Vinyl Chloride	0.5	U	20	20.53	20	19.68	103	98	63-121	4	30
m+p-Xylene	0.5	U	40	42.08	40	43.06	105	108	80-120	2	30
o-Xylene	0.5	U	20	20.24	20	20.42	101	102	80-120	1	30
Xylene (Total)	0.5	U	60	62.31	60	63.48	104	106	80-120	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172554AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9203375	95	99	100	97
Blank	95	100	100	97
LCS	97	104	99	99
LCSD	97	99	100	99
MS	97	101	100	99
MSD	96	100	101	98
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SOM02.2 Volatiles
Batch number: L172581AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9203374	95	100	101	99
Blank	97	100	100	99
LCS	96	98	101	101
MS	97	98	101	100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1849026
Reported: 09/15/2017 16:50

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172581AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
MSD	98	99	100	101
Limits:	80-120	80-120	80-120	80-120

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1849026 9203374-75

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52319
COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: C.T. MALE
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael DuPay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 23421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other (CTV Trizma)

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic - Trizma	500ml Plastic - H_2SO_4	250ml Plastic - unpres.	250ml Plastic - HNO_3	250ml Glass	Soil: 40ml Glass - HCl (water)	% Solids
									O	D	A	A	C	A	B	
									N	N	N	Y	N	N	N	
1. SG3-534-170911	—	—	—	9.11.2017	1145	GW	N	8	2	1	1	1	2			
2. SG3-FB12-170911	—	—	—	9.11.2017	1215	W	N	1			1					
3. SG3-LTB27-170911	—	—	—	9.11.2017	AM	W	N	1	1		X					
4. SG3-FW2-170911	—	—	—	9.11.2017	1600	W	N	3						3		
5. SG3-LTB28-170911	—	—	—	9.11.2017	AM	W	N	1						1		
6.																
7.																
8.																
9.																
10.																

Preservative Code:
Field Filtered Y/N:

1. Prepared by ELLE 9.11.17 — Trip Blank - Trizma
2. Equipment Blank
3. Filtered water tank 2 for VOC analysis.
4. RUSH TURNAROUND VOC Trip Blank by ELLE 9.6.17
5. Samples in 2 Coolers

BARR USE ONLY

Sampled by: RAK / JMS
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster

Relinquished by: Robert Kurlusky — On Ice? (Y) N — Date 9.11.17 — Time 1700
Relinquished by: — On Ice? Y N — Date — Time
Received by: — Date — Time
Received by: — Date 9/12/17 — Time 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:
Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.1 | 1.9 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☒ Rush SG3-FW2-170911 (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 194082

Group Number(s): 1849026

Client: BARR ENGINEERING

ST. GOBAIN BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/12/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	No
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	4
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 UNPRESERVED, 1 HCL, 1 TRIZMA

Unpacked by Nicole Reiff (25684) at 10:39 on 09/12/2017

Samples Chilled Details: ST. GOBAIN BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.9	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 31, 2017 13:56

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1849028
SDG: SGB33
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S34-170911 Groundwater	09/11/2017 11:45	9203377
SG3-FB12-170911 Blank Water	09/11/2017 12:15	9203378
SG3-LTB27-170911 Blank Water	09/11/2017	9203379
SG3-S34-0-0.5' Soil	09/11/2017 10:00	9203380
SG3-S34-0-0.5' MS Soil	09/11/2017 10:00	9203381
SG3-S34-0-0.5' MSD Soil	09/11/2017 10:00	9203382
SG3-S34-0-0.5' Dupl Soil	09/11/2017 10:00	9203383
SG3-S34-0.5-1' Soil	09/11/2017 10:20	9203384
SG3-S34-1-1.5' Soil	09/11/2017 10:25	9203385
SG3-LTB25-170911 Blank Water	09/11/2017	9203386
SG3-LTB26-170911 Blank Water	09/11/2017	9203387
SG3-S34-2.2-3.2' Soil	09/11/2017 10:45	9203388
SG3-D07-68-69' Soil	09/09/2017 09:05	9203389
SG3-D07-77-78' Soil	09/09/2017 10:10	9203390
SG3-D07-86-87' Soil	09/09/2017 12:40	9203391
SG3-D07-98-99' Soil	09/09/2017 14:00	9203392
SG3-D07-107-108' Soil	09/09/2017 15:15	9203393
SG3-D07-118-119' Soil	09/10/2017 09:20	9203394
SG3-D07-128-129' Soil	09/10/2017 11:00	9203395
SG3-D07-138-139' Soil	09/10/2017 13:00	9203396
SG3-D07-148-149' Soil	09/10/2017 13:40	9203397
SG3-D07-158-159' Soil	09/11/2017 09:00	9203398
SG3-D07-168-169' Soil	09/11/2017 10:00	9203399
SG3-D07-178-179' Soil	09/11/2017 12:15	9203400
SG3-D07-188-189' Soil	09/11/2017 13:20	9203401
SG3-D07-198-199' Soil	09/11/2017 15:30	9203402

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1849028

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9203380, 9203381, 9203382, 9203384, 9203385, 9203388, 9203389, 9203391, 9203392, 9203393, 9203394, 9203395, 9203396

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9203377, 9203378, 9203379

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample #s: 9203390, 9203400

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards is outside of QC acceptance limits. The recovery for labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike.

Sample #s: 9203398, 9203399, 9203402

The stated QC limits are advisory only until sufficient data points

can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial and comparable results were observed.

Sample #s: 9203401

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial.

Batch #: 17258007 (Sample number(s): 9203377-9203379 UNSPK: 9203377)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorododecanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate, Perfluoroundecanoic acid, Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluoroundecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9203377, 9203378, 9203379, Blank, LCS, LCSD, MS

Batch #: 17258008 (Sample number(s): 9203386-9203387)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

Batch #: 17266004 (Sample number(s): 9203380-9203382, 9203384-9203385, 9203388-9203389, 9203391-9203395, 9203399, 9203401-9203402 UNSPK: 9203380)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9203380, 9203381, 9203382, 9203385, 9203389, 9203391, 9203392, 9203393, 9203394, 9203395, 9203399, 9203401, 9203402, LCS, MS, MSD

Batch #: 17269017 (Sample number(s): 9203396-9203398 UNSPK: 9203396)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9203398

Batch #: 17270009 (Sample number(s): 9203400 UNSPK: 9203400)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9203400, MS

Batch #: 17272007 (Sample number(s): 9203390 UNSPK: 9203390)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9203390, MS

SW-846 6010C, Metals

Batch #: 172561063501 (Sample number(s): 9203377 UNSPK: P200266 BKG: P200266)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Sodium

SW-846 6020A, Metals

Batch #: 172561063902A (Sample number(s): 9203377 UNSPK: P203957 BKG: P203957)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Vanadium

EPA 300.0, Wet Chemistry

Batch #: 17255249115A (Sample number(s): 9203377 UNSPK: 9203377 BKG: 9203377)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Bromide, Nitrite Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 17261108102A (Sample number(s): 9203377 UNSPK: P199893 BKG: P199893)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9203390, 9203391, 9203392, 9203393, 9203394, 9203395, 9203396, 9203397, 9203398, 9203399, 9203400, 9203401, 9203402

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17271667632A (Sample number(s): 9203380-9203381, 9203383-9203385, 9203388-9203389 UNSPK: 9203380 BKG: 9203380)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17271667633A (Sample number(s): 9203400-9203402 UNSPK: 9203402 BKG: 9203402)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9203390, 9203391

The pH was measured in water at 19.7 C.

Sample #s: 9203393, 9203399

The pH was measured in water at 19.8 C.

Sample #s: 9203392, 9203394, 9203395, 9203398, 9203400

The pH was measured in water at 19.9 C.

Sample #s: 9203383, 9203396, 9203397, 9203401, 9203402

The pH was measured in water at 20 C.

Sample #s: 9203380, 9203388

The pH was measured in water at 20.1 C.

Sample #s: 9203384

The pH was measured in water at 20.2 C.

Sample #s: 9203385, 9203389

The pH was measured in water at 20.3 C.

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17258820005A (Sample number(s): 9203380-9203385, 9203388-9203393 BKG: 9203380)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Batch #: 17258820005B (Sample number(s): 9203394-9203402 BKG: 9203394)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

eurofins | Lancaster Laboratories Environmental

October 12, 2017

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - North Bennington
Group No.: 1849028 **SDG NO.: SGB33**

ELLE Sample No.	Client Sample Identification	Collection Date
9203380	SG3-S34-0-0.5' Soil	9/11/2017
9203381	SG3-S34-0-0.5' MS Soil	9/11/2017
9203383	SG3-S34-0-0.5' Dupl Soil	9/11/2017
9203384	SG3-S34-0.5-1' Soil	9/11/2017
9203385	SG3-S34-1-1.5' Soil	9/11/2017
9203388	SG3-S34-2.2-3.2' Soil	9/11/2017
9203389	SG3-D07-68-69' Soil	9/11/2017

The correction to the data affects the TOC Solids/Sludges Combustion analysis only.

During an additional review of the data by Environmental Standards, Inc., it was determined that the incorrect calculation was used to determine the TOC QC blank value. The original reported result of 50,000 mg/kg should be 50 mg/kg, less than the result of the MDL.

This change will be reflected on the revised QC Summary.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1512. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Nicole Veety
Senior Chemist/Group Leader
Instrumental Water Quality

Enclosures
NV/mc

cc: Nancy Bornholm

REVISED

Sample Description: **SG3-S34-170911 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 11:45
SDG#: SGB33-01

C. T. Male Associates
ELLE Sample #: GW 9203377
ELLE Group #: 1849028
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**0.8 J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**10 J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**35**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**21**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**2 J**	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**850**	0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**10**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**8.95**	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**77.8**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**17.9**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**28.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.980**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.87**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**6.05**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0462**	0.0065	0.0400	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-170911 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 11:45
SDG#: SGB33-01

C. T. Male Associates
ELLE Sample #: GW 9203377
ELLE Group #: 1849028
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0123**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0836**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00082 J**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00042 J**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0193**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0204**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0362**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0236**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0261**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.00057 J**	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00029 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0163**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**6.2**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**8.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**226**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**226**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-170911 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 11:45
SDG#: SGB33-01

C. T. Male Associates
ELLE Sample #: GW 9203377
ELLE Group #: 1849028
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17258007	09/22/2017 21:14	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258007	09/17/2017 09:50	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172561063501	09/18/2017 17:54	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
01750	Calcium	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
01754	Iron	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
01762	Potassium	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
01767	Sodium	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
07072	Zinc	SW-846 6010C	1	172561063501	09/14/2017 14:07	Eric L Eby	1
06024	Antimony	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172561063902D	09/20/2017 14:48	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172561063902B	09/20/2017 14:48	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172561063902A	09/20/2017 14:48	Choon Y Tian	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172561063501	09/13/2017 22:23	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172561063902	09/13/2017 22:30	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17255249115A	09/12/2017 18:04	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17255249115A	09/12/2017 18:04	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17255249115A	09/12/2017 18:04	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17255249115A	09/12/2017 18:04	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17255249115A	09/12/2017 18:04	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17264107103B	09/21/2017 22:06	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17261108102A	09/20/2017 14:29	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17261108102A	09/18/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17256003202A	09/13/2017 22:48	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17256003202A	09/13/2017 22:48	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17256003202A	09/13/2017 22:48	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17255022601A	09/12/2017 23:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FB12-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 12:15
SDG#: SGB33-02EB

C. T. Male Associates
ELLE Sample #: WW 9203378
ELLE Group #: 1849028
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17258007	09/22/2017 21:34	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FB12-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 12:15
SDG#: SGB33-02EB

C. T. Male Associates
ELLE Sample #: WW 9203378
ELLE Group #: 1849028
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258007	09/17/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB27-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017
SDG#: SGB33-03TB

C. T. Male Associates
ELLE Sample #: WW 9203379
ELLE Group #: 1849028
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17258007	09/22/2017 21:55	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB27-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017
SDG#: SGB33-03TB

C. T. Male Associates
ELLE Sample #: WW 9203379
ELLE Group #: 1849028
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258007	09/17/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-04BKG

C. T. Male Associates
ELLE Sample #: SW 9203380
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.77	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.77	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.52	1
14027	**Perfluorononanoic acid**	375-95-1	**0.26 J**	0.13	0.52	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.63 J**	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.7**	0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.77	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**37,400**	740	2,220	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**25.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 18:52	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-04BKG

C. T. Male Associates
ELLE Sample #: SW 9203380
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 20:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0-0.5' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-04MS

C. T. Male Associates
ELLE Sample #: SW 9203381
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.26	0.77	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.9**	0.26	0.77	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.1**	0.26	0.77	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.26	0.77	1
14027	**Perfluoroheptanoic acid**	375-85-9	**2.0**	0.26	0.77	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.26	0.77	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.8**	0.13	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**2.1**	0.13	0.51	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.2**	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.0**	0.26	0.77	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.9**	0.26	0.77	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.9**	0.26	0.77	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.0**	0.26	0.77	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.1**	0.26	0.77	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**81,600**	1,480	4,440	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**25.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 17:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 20:46	Drew M Gerhart	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0-0.5' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-04MSD

C. T. Male Associates
ELLE Sample #: SW 9203382
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**	0.25	0.74	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.25	0.74	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.0**	0.25	0.74	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.25	0.74	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.9**	0.25	0.74	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.25	0.74	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.12	0.49	1
14027	**Perfluorononanoic acid**	375-95-1	**2.0**	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.0**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.3**	0.25	0.74	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.25	0.74	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.8**	0.25	0.74	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.1**	0.25	0.74	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.0**	0.25	0.74	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**25.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 17:50	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0-0.5' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-04DUP

C. T. Male Associates
ELLE Sample #: SW 9203383
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**40,500**	689	2,070	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.90**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**25.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**27.7**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 20:59	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00118	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1
00121	Moisture Duplicate	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:20
SDG#: SGB33-05

C. T. Male Associates
ELLE Sample #: SW 9203384
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.79	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.79	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.79	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.79	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.79	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.53	1
14027	**Perfluorononanoic acid**	375-95-1	**0.18 J**	0.13	0.53	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.57 J**	0.39	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**	0.26	0.79	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.79	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.79	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.79	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,400**	280	840	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**25.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 05:58	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:20
SDG#: SGB33-05

C. T. Male Associates
ELLE Sample #: SW 9203384
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 21:12	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:25
SDG#: SGB33-06

C. T. Male Associates
ELLE Sample #: SW 9203385
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.77	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.77	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.51	1
14027	**Perfluorononanoic acid**	375-95-1	**0.17 J**	0.13	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**	0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.77	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,100**	380	1,140	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 19:33	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:25
SDG#: SGB33-06

C. T. Male Associates
ELLE Sample #: SW 9203385
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 21:25	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB25-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017
SDG#: SGB33-07TB

C. T. Male Associates
ELLE Sample #: WW 9203386
ELLE Group #: 1849028
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 01:00	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB26-170911 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017
SDG#: SGB33-08TB

C. T. Male Associates
ELLE Sample #: WW 9203387
ELLE Group #: 1849028
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 01:20	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S34-2.2-3.2' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:45
SDG#: SGB33-09

C. T. Male Associates
ELLE Sample #: SW 9203388
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.81**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,680**	206	617	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.12**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 06:18	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S34-2.2-3.2' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:45
SDG#: SGB33-09

C. T. Male Associates
ELLE Sample #: SW 9203388
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 22:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-68-69' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 09:05
SDG#: SGB33-10

C. T. Male Associates
ELLE Sample #: SW 9203389
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,390**	128	385	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.54**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 20:14	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 09:05
SDG#: SGB33-10

C. T. Male Associates
ELLE Sample #: SW 9203389
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632A	09/28/2017 22:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17258039402B	09/15/2017 20:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-77-78' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 10:10
SDG#: SGB33-11

C. T. Male Associates
ELLE Sample #: SW 9203390
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards is outside of QC acceptance limits. The recovery for labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**250 J**	117	351	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-77-78' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 10:10
SDG#: SGB33-11

C. T. Male Associates
ELLE Sample #: SW 9203390
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272007	10/03/2017 05:45	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17272007	10/01/2017 17:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 22:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401A	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-86-87' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 12:40
SDG#: SGB33-12

C. T. Male Associates
ELLE Sample #: SW 9203391
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**190 J**	124	372	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.14**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-86-87' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 12:40
SDG#: SGB33-12

C. T. Male Associates
ELLE Sample #: SW 9203391
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 07:00	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 22:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401A	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-98-99' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 14:00
SDG#: SGB33-13

C. T. Male Associates
ELLE Sample #: SW 9203392
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	127 U	127	381	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 14:00
SDG#: SGB33-13

C. T. Male Associates
ELLE Sample #: SW 9203392
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 21:57	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 22:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-107-108' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 15:15
SDG#: SGB33-14

C. T. Male Associates
ELLE Sample #: SW 9203393
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**213 J**	143	429	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-107-108' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/09/2017 15:15
SDG#: SGB33-14

C. T. Male Associates
ELLE Sample #: SW 9203393
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 22:17	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 23:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005A	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-118-119' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 09:20
SDG#: SGB33-15

C. T. Male Associates
ELLE Sample #: SW 9203394
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**140 J**	115	344	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 09:20
SDG#: SGB33-15

C. T. Male Associates
ELLE Sample #: SW 9203394
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 22:38	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 23:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-128-129' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 11:00
SDG#: SGB33-16

C. T. Male Associates
ELLE Sample #: SW 9203395
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	129 U	129	386	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.79**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**19.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 11:00
SDG#: SGB33-16

C. T. Male Associates
ELLE Sample #: SW 9203395
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/26/2017 22:58	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 23:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-138-139' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 13:00
SDG#: SGB33-17

C. T. Male Associates
ELLE Sample #: SW 9203396
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	119 U	119	358	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.93**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 13:00
SDG#: SGB33-17

C. T. Male Associates
ELLE Sample #: SW 9203396
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17269017	09/27/2017 11:52	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17269017	09/26/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/28/2017 23:47	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 13:40
SDG#: SGB33-18

C. T. Male Associates
ELLE Sample #: SW 9203397
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	125 U	125	375	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17269017	09/27/2017 12:13	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/10/2017 13:40
SDG#: SGB33-18

C. T. Male Associates
ELLE Sample #: SW 9203397
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17269017	09/26/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/29/2017 00:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 09:00
SDG#: SGB33-19

C. T. Male Associates
ELLE Sample #: SW 9203398
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial and comparable results were observed.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**144 J**	114	341	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.52**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 09:00
SDG#: SGB33-19

C. T. Male Associates
ELLE Sample #: SW 9203398
ELLE Group #: 1849028
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17269017	09/27/2017 13:14	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17269017	09/26/2017 15:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/29/2017 01:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-20

C. T. Male Associates
ELLE Sample #: SW 9203399
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.75	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.75	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.75	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.75	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.75	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.75	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25 U	0.25	0.75	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.75	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.75	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.75	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.75	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial and comparable results were observed.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	168 U	168	503	1

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1

The pH was measured in water at 19.8 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.5**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 10:00
SDG#: SGB33-20

C. T. Male Associates
ELLE Sample #: SW 9203399
ELLE Group #: 1849028
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 07:20	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667632B	09/29/2017 01:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039401B	09/18/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D07-178-179' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 12:15
SDG#: SGB33-21

C. T. Male Associates
ELLE Sample #: SW 9203400
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25 U	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards is outside of QC acceptance limits. The recovery for labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**322 J**	163	488	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.87**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 12:15
SDG#: SGB33-21

C. T. Male Associates
ELLE Sample #: SW 9203400
ELLE Group #: 1849028
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17270009	09/28/2017 15:27	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17270009	09/27/2017 07:55	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 01:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 13:20
SDG#: SGB33-22

C. T. Male Associates
ELLE Sample #: SW 9203401
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.73	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.69 J**	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.73	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.73	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.79**	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.98**	0.24	0.73	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.73	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**319 J**	129	388	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**20.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 13:20
SDG#: SGB33-22

C. T. Male Associates
ELLE Sample #: SW 9203401
ELLE Group #: 1849028
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 07:41	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 01:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 15:30
SDG#: SGB33-23

C. T. Male Associates
ELLE Sample #: SW 9203402
ELLE Group #: 1849028
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the QC is again outside of the acceptance limits. The data is reported from the initial trial and comparable results were observed.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**227 J**	136	409	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.85**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D07-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/12/2017 09:45
Collection Date/Time: 09/11/2017 15:30
SDG#: SGB33-23

C. T. Male Associates
ELLE Sample #: SW 9203402
ELLE Group #: 1849028
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17266004	09/28/2017 08:01	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17266004	09/24/2017 13:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 01:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17258820005B	09/15/2017 21:48	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17266004	Sample number(s): 9203380-9203382,9203384-9203385,9203388-9203389,9203391-9203395,9203399,9203401-9203402		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17269017	Sample number(s): 9203396-9203398		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17270009	Sample number(s): 9203400		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17272007	Sample number(s): 9203390		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17258007	Sample number(s): 9203377-9203379		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17258008	Sample number(s): 9203386-9203387		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/l	mg/l	mg/l
Batch number: 172561063501	Sample number(s): 9203377		
Aluminum	0.108 J	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172561063902A	Sample number(s): 9203377		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172561063902B	Sample number(s): 9203377		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172561063902D	Sample number(s): 9203377		
Barium	0.00072 U	0.00072	0.0040

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
	mg/kg	mg/kg	mg/kg
Batch number: 17271667632A	Sample number(s): 9203380-9203381,9203383-9203385,9203388-9203389		
TOC	100 U	100	300
Batch number: 17271667632B	Sample number(s): 9203390-9203399		
TOC	100 U	100	300
Batch number: 17271667633A	Sample number(s): 9203400-9203402		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17255249115A	Sample number(s): 9203377		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17261108102A	Sample number(s): 9203377		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17264107103B	Sample number(s): 9203377		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17255022601A	Sample number(s): 9203377		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17256003202A	Sample number(s): 9203377		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17266004	Sample number(s): 9203380-9203382,9203384-9203385,9203388-9203389,9203391-9203395,9203399,9203401-9203402								
Perfluorobutanesulfonate	1.20	1.05			87		70-130		
Perfluorobutanoic acid	1.36	1.33			97		70-130		
Perfluorodecanoic acid	1.36	1.27			93		70-130		
Perfluorododecanoic acid	1.36	1.41			104		70-130		
Perfluoroheptanoic acid	1.36	1.42			104		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	1.29	1.13			88		70-130		
Perfluorohexanoic acid	1.36	1.20			88		70-130		
Perfluorononanoic acid	1.36	1.51			111		70-130		
Perfluoro-octanesulfonate	1.30	1.26			97		70-130		
Perfluorooctanoic acid	1.36	1.13			83		70-130		
Perfluoropentanoic acid	1.36	1.23			90		70-130		
Perfluorotetradecanoic acid	1.36	1.30			96		70-130		
Perfluorotridecanoic acid	1.36	1.63			120		70-130		
Perfluoroundecanoic acid	1.36	1.30			96		70-130		
Batch number: 17269017	Sample number(s): 9203396-9203398								
Perfluorobutanesulfonate	1.20	1.41	1.20	1.35	117	112	70-130	5	30
Perfluorobutanoic acid	1.36	1.51	1.36	1.39	111	102	70-130	8	30
Perfluorodecanoic acid	1.36	1.79	1.36	1.62	131*	119	70-130	10	30
Perfluorododecanoic acid	1.36	1.60	1.36	1.57	118	115	70-130	2	30
Perfluoroheptanoic acid	1.36	1.54	1.36	1.68	114	123	70-130	8	30
Perfluorohexanesulfonate	1.29	1.37	1.29	1.26	107	98	70-130	9	30
Perfluorohexanoic acid	1.36	1.41	1.36	1.34	104	98	70-130	5	30
Perfluorononanoic acid	1.36	1.68	1.36	1.42	123	104	70-130	17	30
Perfluoro-octanesulfonate	1.30	1.28	1.30	1.21	98	93	70-130	6	30
Perfluorooctanoic acid	1.36	1.69	1.36	1.47	124	108	70-130	14	30
Perfluoropentanoic acid	1.36	1.50	1.36	1.45	110	107	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.64	1.36	1.65	120	121	70-130	1	30
Perfluorotridecanoic acid	1.36	1.43	1.36	1.45	105	106	70-130	1	30
Perfluoroundecanoic acid	1.36	1.72	1.36	1.52	127	111	70-130	13	30
Batch number: 17270009	Sample number(s): 9203400								
Perfluorobutanesulfonate	1.20	1.24	1.20	1.21	103	100	70-130	3	30
Perfluorobutanoic acid	1.36	1.44	1.36	1.51	106	111	70-130	5	30
Perfluorodecanoic acid	1.36	1.28	1.36	1.34	94	99	70-130	5	30
Perfluorododecanoic acid	1.36	1.39	1.36	1.33	102	98	70-130	5	30
Perfluoroheptanoic acid	1.36	1.42	1.36	1.52	104	112	70-130	7	30
Perfluorohexanesulfonate	1.29	1.18	1.29	1.48	91	115	70-130	23	30
Perfluorohexanoic acid	1.36	1.37	1.36	1.53	101	113	70-130	11	30
Perfluorononanoic acid	1.36	1.41	1.36	1.50	104	110	70-130	6	30
Perfluoro-octanesulfonate	1.30	1.10	1.30	1.37	85	105	70-130	21	30
Perfluorooctanoic acid	1.36	1.37	1.36	1.51	101	111	70-130	9	30
Perfluoropentanoic acid	1.36	1.37	1.36	1.43	100	105	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.37	1.36	1.45	101	106	70-130	5	30
Perfluorotridecanoic acid	1.36	1.33	1.36	1.55	98	114	70-130	15	30
Perfluoroundecanoic acid	1.36	1.48	1.36	1.54	109	113	70-130	4	30
Batch number: 17272007	Sample number(s): 9203390								
Perfluorobutanesulfonate	1.20	1.24	1.20	1.24	103	103	70-130	0	30
Perfluorobutanoic acid	1.36	1.46	1.36	1.49	107	109	70-130	2	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorodecanoic acid	1.36	1.58	1.36	1.53	116	112	70-130	3	30
Perfluorododecanoic acid	1.36	1.44	1.36	1.43	106	105	70-130	0	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.66	111	122	70-130	10	30
Perfluorohexanesulfonate	1.29	1.30	1.29	1.44	101	112	70-130	10	30
Perfluorohexanoic acid	1.36	1.46	1.36	1.39	107	103	70-130	5	30
Perfluorononanoic acid	1.36	1.48	1.36	1.47	109	108	70-130	1	30
Perfluoro-octanesulfonate	1.30	1.34	1.30	1.26	103	97	70-130	6	30
Perfluorooctanoic acid	1.36	1.51	1.36	1.46	111	107	70-130	3	30
Perfluoropentanoic acid	1.36	1.40	1.36	1.64	103	120	70-130	16	30
Perfluorotetradecanoic acid	1.36	1.43	1.36	1.45	105	106	70-130	1	30
Perfluorotridecanoic acid	1.36	1.38	1.36	1.44	102	106	70-130	4	30
Perfluoroundecanoic acid	1.36	1.54	1.36	1.53	113	113	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17258007	Sample number(s): 9203377-9203379								
6:2 fluorotelomersulfonate	12.89	18.16	12.89	17.6	141*	137*	70-130	3	30
8:2 fluorotelomersulfonate	13.03	18.86	13.03	19.72	145*	151*	70-130	4	30
NEtFOSAA	13.6	18.65	13.6	18.85	137*	139*	70-130	1	30
NMeFOSAA	13.6	17.2	13.6	17.37	126	128	70-130	1	30
Perfluorobutanesulfonate	12.03	13.4	12.03	14.64	111	122	70-130	9	30
Perfluorobutanoic Acid	13.6	15.15	13.6	15.64	111	115	70-130	3	30
Perfluorodecanoic acid	13.6	16.23	13.6	16.38	119	120	70-130	1	30
Perfluorododecanoic acid	13.6	16.35	13.6	18.03	120	133*	70-130	10	30
Perfluoroheptanoic acid	13.6	16.8	13.6	15.69	124	115	70-130	7	30
Perfluorohexanesulfonate	12.86	14.24	12.86	14	111	109	70-130	2	30
Perfluorohexanoic acid	13.6	14.3	13.6	16.71	105	123	70-130	16	30
Perfluorononanoic acid	13.6	15.81	13.6	16.29	116	120	70-130	3	30
Perfluoro-octanesulfonate	13	13.89	13	14.02	107	108	70-130	1	30
Perfluorooctanoic acid	13.6	16.2	13.6	15.05	119	111	70-130	7	30
Perfluoropentanoic Acid	13.6	14.68	13.6	15.11	108	111	70-130	3	30
Perfluorotetradecanoic acid	13.6	17.78	13.6	17.68	131*	130	70-130	1	30
Perfluorotridecanoic acid	13.6	15.14	13.6	14.86	111	109	70-130	2	30
Perfluoroundecanoic acid	13.6	18.11	13.6	16.86	133*	124	70-130	7	30
PFOSA	13.6	14.55	13.6	15.9	107	117	70-130	9	30
Batch number: 17258008	Sample number(s): 9203386-9203387								
Perfluorobutanesulfonate	12.03	12.53	12.03	12.1	104	101	70-130	4	30
Perfluorobutanoic Acid	13.6	13.16	13.6	14.24	97	105	70-130	8	30
Perfluorodecanoic acid	13.6	14.2	13.6	18.29	104	135*	70-130	25	30
Perfluorododecanoic acid	13.6	13.31	13.6	15.57	98	115	70-130	16	30
Perfluoroheptanoic acid	13.6	13.29	13.6	14.67	98	108	70-130	10	30
Perfluorohexanesulfonate	12.86	10.53	12.86	12.57	82	98	70-130	18	30
Perfluorohexanoic acid	13.6	14.23	13.6	14.52	105	107	70-130	2	30
Perfluorononanoic acid	13.6	14.17	13.6	16.24	104	119	70-130	14	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	13	12.46	13	11.5	96	88	70-130	8	30
Perfluorooctanoic acid	13.6	14.51	13.6	14.02	107	103	70-130	3	30
Perfluoropentanoic Acid	13.6	13.64	13.6	13.73	100	101	70-130	1	30
Perfluorotetradecanoic acid	13.6	13.6	13.6	15.88	100	117	70-130	15	30
Perfluorotridecanoic acid	13.6	11.31	13.6	13.91	83	102	70-130	21	30
Perfluoroundecanoic acid	13.6	16.37	13.6	16.99	120	125	70-130	4	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172561063501	Sample number(s): 9203377								
Aluminum	2.00	2.02			101		80-120		
Boron	2.00	1.98			99		80-120		
Calcium	4.00	4.17			104		80-120		
Iron	1.00	1.00			100		80-120		
Magnesium	2.00	2.11			105		80-120		
Manganese	0.500	0.544			109		80-120		
Potassium	10	10.12			101		80-120		
Sodium	10	10.45			105		80-120		
Zinc	0.500	0.505			101		80-120		
Batch number: 172561063902A	Sample number(s): 9203377								
Antimony	0.00600	0.00532			89		80-120		
Arsenic	0.0100	0.00963			96		80-120		
Beryllium	0.00400	0.00406			101		80-120		
Cadmium	0.00500	0.00481			96		80-120		
Chromium	0.0500	0.0514			103		80-120		
Cobalt	0.250	0.253			101		80-120		
Copper	0.0500	0.0514			103		80-120		
Lead	0.0150	0.0154			102		80-120		
Nickel	0.0500	0.0499			100		80-120		
Silver	0.0500	0.0489			98		80-120		
Thallium	0.00200	0.00212			106		80-120		
Vanadium	0.0500	0.0504			101		80-120		
Batch number: 172561063902B	Sample number(s): 9203377								
Selenium	0.0100	0.0103			103		80-120		
Batch number: 172561063902D	Sample number(s): 9203377								
Barium	0.0500	0.0478			96		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17271667632A	Sample number(s): 9203380-9203381,9203383-9203385,9203388-9203389								
TOC	7150	6631.82			93		47-143		
Batch number: 17271667632B	Sample number(s): 9203390-9203399								
TOC	7150	6631.82			93		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17271667633A	Sample number(s): 9203400-9203402								
TOC	7150	6786.94			95		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17255249115A	Sample number(s): 9203377								
Bromide	7.50	7.84			105		90-110		
Chloride	3.00	3.03			101		90-110		
Nitrate Nitrogen	0.750	0.758			101		90-110		
Nitrite Nitrogen	0.750	0.757			101		90-110		
Sulfate	7.50	7.84			105		90-110		
Batch number: 17261108102A	Sample number(s): 9203377								
Kjeldahl Nitrogen	5.00	5.42			108		90-110		
Batch number: 17264107103B	Sample number(s): 9203377								
Ammonia Nitrogen	1.50	1.53			102		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17255022601A	Sample number(s): 9203377								
Ortho-Phosphate as P	0.400	0.398	0.400	0.404	99	101	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17256003202A	Sample number(s): 9203377								
Total Alkalinity to pH 4.5	188	180.01			96		77-114		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17258039402B	Sample number(s): 9203380,9203383-9203385,9203388-9203389								
pH	7.00	6.95			99		95-105		
Batch number: 17261039401A	Sample number(s): 9203390-9203391								
pH	7.00	6.96			99		95-105		
Batch number: 17261039401B	Sample number(s): 9203392-9203399								
pH	7.00	6.96			99		95-105		
Batch number: 17261039402A	Sample number(s): 9203400-9203402								
pH	7.00	7.04			101		95-105		
	%	**%**	**%**	**%**					
Batch number: 17258820005A	Sample number(s): 9203380-9203385,9203388-9203393								
Moisture	89.5	89.36			100		99-101		
Moisture	89.5	89.36			100		99-101		
Moisture Duplicate	89.5	89.36			100		99-101		
Batch number: 17258820005B	Sample number(s): 9203394-9203402								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Moisture	89.5	89.36			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17266004	Sample number(s): 9203380-9203382,9203384-9203385,9203388-9203389,9203391-9203395,9203399,9203401-9203402 UNSPK: 9203380									
Perfluorobutanesulfonate	0.19 U	1.15	1.09	1.11	1.09	95	99	70-130	0	30
Perfluorobutanoic acid	0.19 U	1.30	1.40	1.25	1.37	107	109	70-130	2	30
Perfluorodecanoic acid	0.19 U	1.30	1.56	1.25	1.47	120	117	70-130	6	30
Perfluorododecanoic acid	0.19 U	1.30	1.32	1.25	1.39	101	111	70-130	5	30
Perfluoroheptanoic acid	0.19 U	1.30	1.47	1.25	1.43	113	115	70-130	2	30
Perfluorohexanesulfonate	0.19 U	1.23	1.21	1.18	1.09	98	92	70-130	10	30
Perfluorohexanoic acid	0.096 U	1.30	1.36	1.25	1.30	104	104	70-130	4	30
Perfluorononanoic acid	0.195	1.30	1.56	1.25	1.49	104	103	70-130	5	30
Perfluoro-octanesulfonate	0.473	1.25	1.66	1.20	1.50	95	86	70-130	10	30
Perfluorooctanoic acid	2.04	1.30	2.95	1.25	3.19	70	92	70-130	8	30
Perfluoropentanoic acid	0.19 U	1.30	1.38	1.25	1.28	106	102	70-130	8	30
Perfluorotetradecanoic acid	0.19 U	1.30	1.40	1.25	1.32	108	105	70-130	6	30
Perfluorotridecanoic acid	0.19 U	1.30	1.51	1.25	1.59	116	127	70-130	5	30
Perfluoroundecanoic acid	0.19 U	1.30	1.56	1.25	1.49	120	119	70-130	5	30
Batch number: 17269017	Sample number(s): 9203396-9203398 UNSPK: 9203396									
Perfluorobutanesulfonate	0.20 U	1.14	1.12			99		70-130		
Perfluorobutanoic acid	0.20 U	1.29	1.36			106		70-130		
Perfluorodecanoic acid	0.20 U	1.29	1.65			129		70-130		
Perfluorododecanoic acid	0.20 U	1.29	1.56			122		70-130		
Perfluoroheptanoic acid	0.20 U	1.29	1.48			115		70-130		
Perfluorohexanesulfonate	0.20 U	1.22	1.20			99		70-130		
Perfluorohexanoic acid	0.099 U	1.29	1.31			102		70-130		
Perfluorononanoic acid	0.099 U	1.29	1.63			127		70-130		
Perfluoro-octanesulfonate	0.30 U	1.23	1.23			100		70-130		
Perfluorooctanoic acid	0.20 U	1.29	1.47			114		70-130		
Perfluoropentanoic acid	0.20 U	1.29	1.39			108		70-130		
Perfluorotetradecanoic acid	0.20 U	1.29	1.58			123		70-130		
Perfluorotridecanoic acid	0.20 U	1.29	1.35			105		70-130		
Perfluoroundecanoic acid	0.20 U	1.29	1.59			124		70-130		

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(2) The unspiked result was more than four times the spike added.
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17270009	Sample number(s): 9203400 UNSPK: 9203400									
Perfluorobutanesulfonate	0.19 U	1.12	1.22			109		70-130		
Perfluorobutanoic acid	0.19 U	1.26	1.38			109		70-130		
Perfluorodecanoic acid	0.19 U	1.26	1.42			112		70-130		
Perfluorododecanoic acid	0.19 U	1.26	1.41			112		70-130		
Perfluoroheptanoic acid	0.19 U	1.26	1.35			107		70-130		
Perfluorohexanesulfonate	0.19 U	1.20	1.22			102		70-130		
Perfluorohexanoic acid	0.097 U	1.26	1.39			110		70-130		
Perfluorononanoic acid	0.097 U	1.26	1.31			104		70-130		
Perfluoro-octanesulfonate	0.29 U	1.21	0.997			83		70-130		
Perfluorooctanoic acid	0.19 U	1.26	1.51			119		70-130		
Perfluoropentanoic acid	0.19 U	1.26	1.37			109		70-130		
Perfluorotetradecanoic acid	0.19 U	1.26	1.37			108		70-130		
Perfluorotridecanoic acid	0.19 U	1.26	1.38			109		70-130		
Perfluoroundecanoic acid	0.19 U	1.26	1.30			103		70-130		
Batch number: 17272007	Sample number(s): 9203390 UNSPK: 9203390									
Perfluorobutanesulfonate	0.18 U	1.17	1.18			100		70-130		
Perfluorobutanoic acid	0.18 U	1.33	1.51			114		70-130		
Perfluorodecanoic acid	0.18 U	1.33	1.49			112		70-130		
Perfluorododecanoic acid	0.18 U	1.33	1.39			105		70-130		
Perfluoroheptanoic acid	0.18 U	1.33	1.42			107		70-130		
Perfluorohexanesulfonate	0.18 U	1.25	1.26			101		70-130		
Perfluorohexanoic acid	0.091 U	1.33	1.49			113		70-130		
Perfluorononanoic acid	0.091 U	1.33	1.32			100		70-130		
Perfluoro-octanesulfonate	0.27 U	1.27	1.38			109		70-130		
Perfluorooctanoic acid	0.18 U	1.33	1.49			112		70-130		
Perfluoropentanoic acid	0.18 U	1.33	1.37			103		70-130		
Perfluorotetradecanoic acid	0.18 U	1.33	1.39			105		70-130		
Perfluorotridecanoic acid	0.18 U	1.33	1.44			109		70-130		
Perfluoroundecanoic acid	0.18 U	1.33	1.42			107		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17258007	Sample number(s): 9203377-9203379 UNSPK: 9203377									
6:2 fluorotelomersulfonate	3 U	12.87	19.61			152*		70-130		
8:2 fluorotelomersulfonate	4 U	13.01	18.62			143*		70-130		
NEtFOSAA	1 U	13.58	18.42			136*		70-130		
NMeFOSAA	1 U	13.58	16.56			122		70-130		
Perfluorobutanesulfonate	0.810	12.01	15.58			123		70-130		
Perfluorobutanoic Acid	9.87	13.58	24.94			111		70-130		
Perfluorodecanoic acid	0.5 U	13.58	17.41			128		70-130		
Perfluorododecanoic acid	0.5 U	13.58	16.24			120		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	34.75	13.58	61.91			200*		70-130		
Perfluorohexanesulfonate	1 U	12.84	12.56			98		70-130		
Perfluorohexanoic acid	21.38	13.58	40.44			140*		70-130		
Perfluorononanoic acid	1.99	13.58	20.21			134*		70-130		
Perfluoro-octanesulfonate	2 U	12.98	14.19			109		70-130		
Perfluorooctanoic acid	848.38	13.58	897.85			364 (2)		70-130		
Perfluoropentanoic Acid	9.56	13.58	26.25			123		70-130		
Perfluorotetradecanoic acid	0.5 U	13.58	16.66			123		70-130		
Perfluorotridecanoic acid	0.5 U	13.58	13.4			99		70-130		
Perfluoroundecanoic acid	1 U	13.58	19.03			140*		70-130		
PFOSA	3 U	13.58	17.71			130		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172561063501	Sample number(s): 9203377 UNSPK: P200266									
Aluminum	0.818	2.00	3.98	2.00	4.31	158*	174*	75-125	8	20
Boron	0.0712	2.00	2.01	2.00	2.08	97	100	75-125	3	20
Calcium	138.47	4.00	142.29	4.00	147.25	96 (2)	220 (2)	75-125	3	20
Iron	23.13	1.00	24.4	1.00	25.44	126 (2)	231 (2)	75-125	4	20
Magnesium	9.74	2.00	11.8	2.00	12.22	103 (2)	124 (2)	75-125	4	20
Manganese	0.977	0.500	1.48	0.500	1.54	101	112	75-125	3	20
Potassium	4.30	10	15.24	10	15.99	109	117	75-125	5	20
Sodium	225.75	10	237.17	10	245.29	114 (2)	195 (2)	75-125	3	20
Zinc	0.0298	0.500	0.532	0.500	0.547	100	103	75-125	3	20
Batch number: 172561063902A	Sample number(s): 9203377 UNSPK: P203957									
Antimony	0.00045 U	0.00600	0.00572	0.00600	0.00576	95	96	75-125	1	20
Arsenic	0.00072 U	0.0100	0.0106	0.0100	0.0103	106	103	75-125	3	20
Beryllium	0.000497	0.00400	0.00438	0.00400	0.00433	97	96	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00487	0.00500	0.00498	97	100	75-125	2	20
Chromium	0.00208	0.0500	0.0536	0.0500	0.0532	103	102	75-125	1	20
Cobalt	0.00166	0.250	0.256	0.250	0.258	102	103	75-125	1	20
Copper	0.00794	0.0500	0.0576	0.0500	0.0587	99	102	75-125	2	20
Lead	0.00816	0.0150	0.0226	0.0150	0.0220	96	92	75-125	2	20
Nickel	0.00429	0.0500	0.0542	0.0500	0.0549	100	101	75-125	1	20
Silver	0.00015 U	0.0500	0.0501	0.0500	0.0498	100	100	75-125	1	20
Thallium	0.00012 U	0.00200	0.00205	0.00200	0.00194	102	97	75-125	5	20
Vanadium	0.00147	0.0500	0.0522	0.0500	0.0526	102	102	75-125	1	20
Batch number: 172561063902B	Sample number(s): 9203377 UNSPK: P203957									
Selenium	0.00050 U	0.0100	0.0105	0.0100	0.0105	105	105	75-125	0	20
Batch number: 172561063902D	Sample number(s): 9203377 UNSPK: P203957									
Barium	0.0539	0.0500	0.0995	0.0500	0.100	91	92	75-125	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17271667632A	Sample number(s): 9203380-9203381,9203383-9203385,9203388-9203389 UNSPK: 9203380									
TOC	27923.8	33149	60872.93			99		47-143		
Batch number: 17271667632B	Sample number(s): 9203390-9203399 UNSPK: 9203396									
TOC	104 U	6649	6376.33			96		47-143		
Batch number: 17271667633A	Sample number(s): 9203400-9203402 UNSPK: 9203402									
TOC	178	10239	8615.02			82		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17255249115A	Sample number(s): 9203377 UNSPK: 9203377									
Bromide	1.3 U	25	29.84			119*		90-110		
Chloride	6.21	10	17.8			116*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.96			118*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.89			116*		90-110		
Sulfate	8.63	25	38.7			120*		90-110		
Batch number: 17261108102A	Sample number(s): 9203377 UNSPK: P199893									
Kjeldahl Nitrogen	0.626	5.00	6.22			112*		90-110		
Batch number: 17264107103B	Sample number(s): 9203377 UNSPK: 9203377									
Ammonia Nitrogen	0.050 U	1.00	0.971			97		90-110		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17256003202A	Sample number(s): 9203377 UNSPK: P205024									
Total Alkalinity to pH 4.5	875.49	188	1030.11			82 (2)		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172561063501	Sample number(s): 9203377 BKG: P200266			
Aluminum	0.818	0.916	11 (1)	20
Boron	0.0712	0.0653	9 (1)	20
Calcium	138.47	136.54	1	20
Iron	23.13	23.11	0	20
Magnesium	9.74	9.65	1	20
Manganese	0.977	0.973	0	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Potassium	4.30	4.32	0 (1)	20
Sodium	225.75	223.84	1	20
Zinc	0.0298	0.0294	1 (1)	20
Batch number: 172561063902A	Sample number(s): 9203377 BKG: P203957			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000497	0.000455	9 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00208	0.00171	19 (1)	20
Cobalt	0.00166	0.00154	7 (1)	20
Copper	0.00794	0.00732	8 (1)	20
Lead	0.00816	0.00739	10 (1)	20
Nickel	0.00429	0.00391	9 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00147	0.00115	24* (1)	20
Batch number: 172561063902B	Sample number(s): 9203377 BKG: P203957			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172561063902D	Sample number(s): 9203377 BKG: P203957			
Barium	0.0539	0.0540	0	20
	mg/kg	mg/kg		
Batch number: 17271667632A	Sample number(s): 9203380-9203381,9203383-9203385,9203388-9203389 BKG: 9203380			
TOC	27923.8	30200.41	8*	7
Batch number: 17271667632B	Sample number(s): 9203390-9203399 BKG: 9203396			
TOC	104 U	104 U	0 (1)	7
Batch number: 17271667633A	Sample number(s): 9203400-9203402 BKG: 9203402			
TOC	178	236.09	28* (1)	7
	mg/l	mg/l		
Batch number: 17255249115A	Sample number(s): 9203377 BKG: 9203377			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	6.21	6.17	1 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	8.63	8.66	0 (1)	15
Batch number: 17261108102A	Sample number(s): 9203377 BKG: P199893			
Kjeldahl Nitrogen	0.626	0.50 U	200* (1)	20
Batch number: 17264107103B	Sample number(s): 9203377 BKG: 9203377			

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17255022601A	Sample number(s): 9203377 BKG: P202356			
Ortho-Phosphate as P	2.32	2.39	3	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17256003202A	Sample number(s): 9203377 BKG: P205024			
Total Alkalinity to pH 4.5	875.49	881.83	1	5
	Std. Units	Std. Units		
Batch number: 17258039402B	Sample number(s): 9203380,9203383-9203385,9203388-9203389 BKG: 9203380			
pH	7.89	7.90	0	3
Batch number: 17261039401A	Sample number(s): 9203390-9203391 BKG: P189751			
pH	8.19	8.11	1	3
Batch number: 17261039401B	Sample number(s): 9203392-9203399 BKG: 9203398			
pH	7.52	7.58	1	3
Batch number: 17261039402A	Sample number(s): 9203400-9203402 BKG: P208708			
pH	5.17	5.07	2	3
	%	%		
Batch number: 17258820005A	Sample number(s): 9203380-9203385,9203388-9203393 BKG: 9203380, P203380			
Moisture	25.37	27.7	9*	5
Moisture	25.37	27.7	9*	5
Moisture Duplicate	25.37	27.7	9*	5
Batch number: 17258820005B	Sample number(s): 9203394-9203402 BKG: 9203394			
Moisture	12.66	13.74	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17258007

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17258007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203377	94	109	110	106	110	106
9203378	83	89	81	81	87	80
9203379	104	104	104	109	102	97
Blank	82	81	75	84	81	81
LCS	94	98	93	103	102	97
LCSD	93	93	85	95	87	94
MS	73	85	83	74	91	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9203377	87	87	92	110	82	69
9203378	74	80	76	83	81	68
9203379	96	102	83	102	100	75
Blank	76	83	78	83	75	61
LCS	96	99	91	111	89	76
LCSD	81	89	95	100	82	70
MS	60	72	70	71	71	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9203377	79	80	97	91	84	47*
9203378	74	77	99	81	73	35*
9203379	75	86	85	87	82	58*
Blank	65	71	78	70	70	59*
LCS	105	96	115	96	95	62*
LCSD	85	90	100	87	87	67*
MS	71	69	76	76	72	12*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17258008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203386	89	90	82	87	91	81
9203387	86	87	80	83	85	89
Blank	84	79	76	78	83	72
LCS	92	86	80	76	88	86

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17258008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCSD	83	82	81	81	85	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9203386	101	93	91	87	94	89
9203387	89	83	88	78	89	85
Blank	86	74	83	76	72	71
LCS	83	85	86	85	85	89
LCSD	81	81	77	77	78	76
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9203386	81
9203387	78
Blank	73
LCS	82
LCSD	83
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17266004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203380	71	64*	61	81	72	63
9203381	56	52*	52	63	58	58
9203382	71	65*	63	69	67	68
9203384	83	78	76	86	86	78
9203385	70	67*	61	70	68	63
9203388	79	74	73	80	79	87
9203389	57	49*	53	63	70	59
9203391	55	53*	70	61	79	62
9203392	58	54*	54	63	67	58
9203393	55	49*	56	56	65	52
9203394	62	57*	61	68	70	71
9203395	65	62*	59	71	65	68
9203399	32*	28*	59	38*	66	37*
9203401	28*	27*	51	27*	50	29*

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17266004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203402	33*	31*	55	37*	61	36*
Blank	85	79	90	93	96	95
LCS	69	65*	64	70	64	64
MS	56	52*	52	63	58	58
MSD	71	65*	63	69	67	68
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9203380	73	65	73	73	88	81
9203381	57	59	61	54	57	60
9203382	62	67	66	63	76	70
9203384	79	92	103	79	93	82
9203385	64	67	68	75	81	86
9203388	78	77	84	78	77	77
9203389	57	67	62	59	69	68
9203391	57	78	58	55	54	56
9203392	57	67	52	57	67	64
9203393	55	66	52	59	59	61
9203394	68	70	62	65	67	67
9203395	69	70	68	70	76	74
9203399	34*	60	34*	35*	37	38
9203401	27*	58	32*	35*	31	34
9203402	37*	57	37	33*	35	32
Blank	88	100	98	89	94	90
LCS	64	66	60	66	74	67
MS	57	59	61	54	57	60
MSD	62	67	66	63	76	70
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9203380	87
9203381	61
9203382	78
9203384	94
9203385	98
9203388	88
9203389	78

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17266004

	13C2-PFTeDA
9203391	54
9203392	78
9203393	60
9203394	62
9203395	74
9203399	39
9203401	37
9203402	34
Blank	94
LCS	70
MS	61
MSD	78
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17269017

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203396	79	73	68	80	85	78
9203397	78	76	69	71	75	71
9203398	25*	24*	46	28*	54	26*
Blank	83	83	75	85	93	83
LCS	83	84	74	87	88	88
LCSD	80	76	69	80	80	76
MS	78	77	72	83	83	77
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9203396	86	71	81	83	87	78
9203397	78	81	77	83	71	71
9203398	28*	55	29*	25*	29	28
Blank	89	76	74	81	82	79
LCS	82	84	84	72	72	76
LCSD	84	80	85	82	83	76
MS	81	77	76	76	77	70
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17269017

	13C2-PFTeDA
9203396	86
9203397	82
9203398	31
Blank	89
LCS	80
LCSD	86
MS	80
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17270009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203400	40*	40*	50	47	73	47
Blank	79	75	68	88	76	78
LCS	74	71	66	84	73	66
LCSD	78	70	67	90	79	81
MS	41*	38*	52	40*	60	41*
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9203400	51	62	46	47	48	51
Blank	78	77	81	87	83	91
LCS	70	80	73	81	83	91
LCSD	83	74	81	79	86	87
MS	39*	64	41	47	56	54
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9203400	58
Blank	106
LCS	98
LCSD	95
MS	56
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 13:56

Group Number: 1849028

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17272007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9203390	47*	49*	76	50	73	53
Blank	91	93	91	86	94	94
LCS	89	90	87	86	92	94
LCSD	93	87	93	92	95	89
MS	51*	53*	75	58	83	58
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9203390	48	72	49	51	49	46
Blank	94	94	93	91	94	91
LCS	91	85	88	89	94	87
LCSD	90	91	91	98	92	89
MS	51	77	56	56	56	52
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9203390	45
Blank	78
LCS	84
LCSD	84
MS	49
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1849028 9203377-402

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52319

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: C.T. MALE
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael DuPay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other (Trizma)

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250ml Plastic - Trizma	500ml Plastic - H_2SO_4	250ml Plastic - Unpres.	250ml Plastic - Unpres.	250ml Plastic - HNO_3	1L Glass	40ml Glass - HCl (water)	Soil	% Solids	Preservative Code	Field Filtered Y/N
									O	D	A	A	C	A	B				
									N	N	N	Y	N	N	N				
1. SG3-534-170911	—	—	—	9.11.2017	1145	GW	N	8	2	1	1	1	1	2					
2. SG3-FB12-170911	—	—	—	9.11.2017	1215	W	N	1			1							Equipment Blank	
3. SG3-LTB27-170911	—	—	—	9.11.2017	AM	W	N	1	1		X							Trip Blank - Trizma Prepared by ELLE 8.11.17	
4. SG3-FW2-170911	—	—	—	9.11.2017	1600	W	N	3							3			Filtered water tank 2 for VOC analysis.	
5. SG3-LTB28-170911	—	—	—	9.11.2017	AM	W	N	1							1			RUSH TURNAROUND VOC Trip Blank by ELLE 9.6.17	
6.																			
7.																			
8.																		Samples in 2 Coolers	
9.																			
10.																			

BARR USE ONLY

Sampled by: BAR / JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: Robert Kuhnly — On Ice? (Y) N — Date 9.11.17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 9.12.17 — Time 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.1 | 1.9 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date:
☑ Standard Turn Around Time
☒ Rush SG3-FW2-170911 (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1849028 9203377-402

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52322

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: C.T. MALE
Address: 4300 Marketpointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 52421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Plastic	Soil: 250ml Plastic	Soil: 4oz. Glass	% Solids	Preservative Code	Field Filtered Y/N
										A	A			
							N			1	1			
1. SG3-S34-0-0.5'	0	0.5	ft	9.11.17	1000	S	Y	6		3	3			
2. SG3-S34-0.5-1'	0.5	1	ft	9.11.17	1020	S	N	2		1	1			
3. SG3-S34-1-1.5'	1	1.5	ft	9.11.17	1025	S	N	2		1	1			
4. SG3-LTB25-170911	—	—	—	9.11.17	AM	W	N	1	1					Trip Blank Prepared by ELLE 8.24.17
5. SG3-LTB26-170911	—	—	—	9.11.17	AM	W	N	1	1					Trip Blank Prepared by ELLE 8.24.17
6. SG3-S34-2.2-3.2'	2.2	3.2	ft.	9.11.17	1045	S	N	2		1	1			
7.														
8.														
9.														
10.														

BARR USE ONLY

Sampled by: RAK/JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: LANCASTER, PA

Relinquished by: Robert Kordosky — On Ice? (Y) N — Date 9.11.17 — Time 1700 — Received by:

Relinquished by: — On Ice? Y N — Date — Time — Received by: — Date 9.12.17 — Time 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.1/1.9 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1849028 9203377-402

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52269

COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL Trip Blank	Soil: 250 mL Plastic (14) PFCs	Soil: 4oz glass TOC, pH, moist	% Solids	Preservative Code	Field Filtered Y/N	Comments
									1	1	1		A		
1. SG3-D07-68-69'	68	69	ft	09/09/207	0905	Soil	N	2		1	1				PFCs (14), TOC, pH
2. SG3-D07-77-78'	77	78	ft	9-9-17	1010	S	N	2		1	1				% H_2O
3. SG3-D07-86-87'	86	87	ft	9-9-17	1240	S	N	2		1	1				
4. SG3-D07-98-99'	98	99	ft	9-9-17	1400	S	N	2		1	1				
5. SG3-D07-107-108'	107	108	ft	9-9-17	1515	S	N	2		1	1				Samples in 2 Coolers
6. SG3-D07-118-119'	118	119	ft	9-10-17	0920	S	N	2		1	1				
7. SG3-D07-128-129'	128	129	ft	9-10-17	1100	S	N	2		1	1				
8. SG3-D07-138-139'	138	139	ft	9-10-17	1300	S	N	2		1	1				
9. SG3-D07-148-149'	148	149	ft	9-10-17	1340	S	N	2		1	1				
10. SG3-D07-158-159'	158	159	ft	9-11-17	0900	S	N	2		1	1				

BARR USE ONLY

Sampled by: DJZ KMJ2

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Alexis Zander — On Ice? Y N: Y — Date: 9-11-17 — Time: 1700

Received by:

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date: 9/12/17 — Time: 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO:

Temperature on Receipt (°C): 1.1/1.9 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

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Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52276

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 2D 250 mL trip blank	3A 350 mL plastic / PFCs (14)	2A 40z glass, TOC, pH, moist	% Solids
1. SG3-D07-168-169'	168	169	ft	09/11/2017	1000	Soil	N	2		1	1	
2. SG3-D07-178-179'	178	179	ft	9-11-17	1215	S	N	2		1	1	
3. SG3-D07-188-189'	188	189	ft	9-11-17	1320	S	N	2		1	1	
4. SG3-D07-198-199'	198	199	ft	9-11-17	1530	S	N	2		1	1	
5.												
6.												
7.												
8.												
9.												
10.												

Preservative Code

Field Filtered Y/N

PFCs (14), TOC, pH

% H_2O

Samples in 2 Coolers

BARR USE ONLY

Sampled by: DJZ / KMJ2

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Derek Zande — On Ice? Y N — Date 9-11-17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 9/12/17 — Time 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.1/1.9 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Sample Administration Receipt Documentation Log

Doc Log ID: 194082

Group Number(s): 1849028

Client: BARR ENGINEERING

ST. GOBAIN BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/12/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	No
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	4
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 UNPRESERVED, 1 HCL, 1 TRIZMA

Unpacked by Nicole Reiff (25684) at 10:39 on 09/12/2017

Samples Chilled Details: ST. GOBAIN BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.9	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 31, 2017 14:10

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1849658
SDG: SGB34
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S45-0-0.5' Soil	09/12/2017 08:45	9205700
SG3-S45-1-1.5' Soil	09/12/2017 09:05	9205701
SG3-S45-0.5-1' Soil	09/12/2017 09:00	9205702
SG3-S45-3-4' Soil	09/12/2017 09:15	9205703
SG3-S45-8-9' Soil	09/12/2017 09:25	9205704
SG3-LTB29-170912 Blank Water	09/12/2017	9205705
SG3-LTB30-170912 Blank Water	09/12/2017	9205706
SG3-S49-0-0.5' Soil	09/12/2017 10:50	9205707
SG3-S49-0.5-1' Soil	09/12/2017 11:05	9205708
SG3-S49-1-1.5' Soil	09/12/2017 11:10	9205709
SG3-S49-3-4' Soil	09/12/2017 11:15	9205710
SG3-S49-8-9' Soil	09/12/2017 11:40	9205711
SG3-S49-5.3-6.3' Soil	09/12/2017 12:20	9205712
SG3-S02-0.5-1' Soil	09/12/2017 15:55	9205713
SG3-S02-1-1.5' Soil	09/12/2017 16:10	9205714
SG3-LTB31-170912 Blank Water	09/12/2017	9205715
SG3-S49-170912 Groundwater	09/12/2017 14:00	9205716

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1849658

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9205713

Reporting limits were raised due to interference from the sample matrix.

SW-846 8270D, GC/MS Semivolatiles

Sample #s: 9205713, 9205714

Reporting limits were raised due to interference from the sample matrix.

Batch #: 17257SLA026 (Sample number(s): 9205713-9205714 UNSPK: P206435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Acenaphthene, Pyrene, Naphthalene, Acenaphthylene, Fluorene, N-Nitrosodiphenylamine, Phenanthrene, Anthracene, Fluoranthene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene, Dibenzofuran, Carbazole

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Hexachlorocyclopentadiene

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Acenaphthylene, Benzo(a)anthracene, Chrysene, Carbazole

SW-846 8081B, Pesticides/PCBs

Sample #s: 9205713, 9205714

The DDT breakdown is outside the acceptance criteria.
Z =The response for a target analyte(s) in the continuing calibration verification standard is outside the QC acceptance limits. The following corrective action was taken:
The analysis was repeated and the DDT breakdown and the

continuing calibration verification standard bracketing the sample
on the second trial is also outside the acceptance limits.
This effect is attributed to the sample matrix and the data is reported.

SW-846 8082A Feb 2007 Rev 1, Pesticides/PCBs

Sample #s: 9205713, 9205714

Z=The response for a target analyte(s) in the continuing
calibration verification standard is outside the QC acceptance
limits. This also applies to the DCB surrogate.
The following corrective action was taken:
The analysis was repeated and the continuing calibration
verification standard bracketing the sample on the second trial
is also outside the acceptance limits. This effect is attributed
to the sample matrix and the data is reported.
The recovery for PCB-1016 and PCB-1260 in the Laboratory Control
Spike(s) is outside the QC acceptance limits as noted on the QC
Summary. Since the recovery is high and the target analyte(s)
was not detected in the sample, the data is reported.

Batch #: 172610003A (Sample number(s): 9205713-9205714 UNSPK: 9205713)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: PCB-1016, PCB-1260

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) LCS, MS, MSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9205716

The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC
acceptance limits in the closing calibration verification standard
(CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control
Spike(s) is outside the QC acceptance limits as noted on the QC
Summary. Since the recovery is high and the target analyte(s)
was not detected in the sample, the data is reported.

Sample #s: 9205700, 9205701, 9205702, 9205703, 9205704, 9205707

The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard
13C2-PFTeDA is outside of QC acceptance limits in the closing
calibration verification standard (CCV) associated with this
sample.

Sample #s: 9205708, 9205709, 9205710, 9205711, 9205712

The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard
13C2-PFTeDA is outside of QC acceptance limits in the opening
calibration verification standard (CCV) associated with this
sample.

Batch #: 17258007 (Sample number(s): 9205716 UNSPK: P203377)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorododecanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate, Perfluoroundecanoic acid, Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluoroundecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9205716, Blank, LCS, LCSD, MS

Batch #: 17258008 (Sample number(s): 9205705-9205706)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

Batch #: 17268003 (Sample number(s): 9205700-9205704, 9205707-9205712 UNSPK: 9205700)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9205709, 9205710, 9205711, 9205712, Blank

SW-846 6010C, Metals

Batch #: 172571063702 (Sample number(s): 9205713-9205714 UNSPK: P202862 BKG: P202862)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Manganese

Batch #: 172581063501 (Sample number(s): 9205716 UNSPK: P206517 BKG: P206517)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum

SW-846 6020A, Metals

Batch #: 172571063702A (Sample number(s): 9205713-9205714 UNSPK: P202862 BKG: P202862)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Chromium, Lead, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Cadmium

Batch #: 172571063702D (Sample number(s): 9205713-9205714 UNSPK: P202862 BKG: P202862)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 172611063901A (Sample number(s): 9205716 UNSPK: P211896 BKG: P211896)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Silver

Batch #: 172611063901D (Sample number(s): 9205716 UNSPK: P211896 BKG: P211896)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

EPA 300.0, Wet Chemistry

Sample #s: 9205716

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9205716

Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) was outside of the 90-110% acceptance window with a recovery of 89%. Sample was reanalyzed past hold on 09/14/2017 with a result of 0.45 mg/l.

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17271667633A (Sample number(s): 9205700-9205704, 9205707-9205708 UNSPK: P203402 BKG: P203402)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17271667633B (Sample number(s): 9205709-9205714 UNSPK: 9205711 BKG: 9205711)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9012A, Wet Chemistry

Batch #: 17265102201A (Sample number(s): 9205713-9205714 UNSPK: P204041 BKG: P204041)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Cyanide (solid)

SW-846 9045D modified, Wet Chemistry

Sample #s: 9205709

The pH was measured in water at 19.6 C.

Sample #s: 9205708

The pH was measured in water at 19.7 C.

Sample #s: 9205711

The pH was measured in water at 19.8 C.

Sample #s: 9205702, 9205703, 9205710, 9205712

The pH was measured in water at 19.9 C.

Sample #s: 9205701, 9205704, 9205707

The pH was measured in water at 20 C.

Sample #s: 9205700

The pH was measured in water at 20.1 C.

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17262820003B (Sample number(s): 9205700-9205704, 9205707-9205712 BKG: 9205708)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Batch #: 17263820023A (Sample number(s): 9205713-9205714 BKG: P176147)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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October 12, 2017

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - North Bennington
Group No.: 1849658 **SDG NO.: SGB34**

ELLE Sample No.	Client Sample Identification	Collection Date
9205700	SG3-S45-0-0.5' Soil	9/12/2017
9205701	SG3-S45-1-1.5' Soil	9/12/2017
9205702	SG3-S45-0.5-1' Soil	9/12/2017
9205703	SG3-S45-3-4' Soil	9/12/2017
9205704	SG3-S45-8-9' Soil	9/12/2017
9205707	SG3-S49-0-0.5' Soil	9/12/2017
9205708	SG3-S49-0.5-1' Soil	9/12/2017

The correction to the data affects the TOC Solids/Sludges Combustion analysis only.

During an additional review of the data by Environmental Standards, Inc., it was determined that the incorrect calculation was used to determine the TOC QC blank value. The original reported result of 50,000 mg/kg should be 50 mg/kg, less than the result of the MDL. This change will be reflected on the revised QC Summary.

The revised analytical report reflects this correction and is enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1512. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Nicole Veety
Senior Chemist/Group Leader
Instrumental Water Quality

NV/mk
Enclosures

cc: Nancy Bornholm

REVISED

Sample Description: **SG3-S45-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 08:45
SDG#: SGB34-01

C. T. Male Associates
ELLE Sample #: SW 9205700
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20 J**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.44 J**	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.31 J**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**27,500**	600	1,800	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.35**	0.0100	0.0100	1

The pH was measured in water at 20.1 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.1**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 08:45
SDG#: SGB34-01

C. T. Male Associates
ELLE Sample #: SW 9205700
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 02:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 02:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:05
SDG#: SGB34-02

C. T. Male Associates
ELLE Sample #: SW 9205701
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.22 J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,300**	877	2,630	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.60**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:05
SDG#: SGB34-02

C. T. Male Associates
ELLE Sample #: SW 9205701
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 03:05	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	10/04/2017 23:54	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S45-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:00
SDG#: SGB34-03

C. T. Male Associates
ELLE Sample #: SW 9205702
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.26 J**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,300**	1,160	3,470	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.71**	0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.1**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:00
SDG#: SGB34-03

C. T. Male Associates
ELLE Sample #: SW 9205702
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 03:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	10/05/2017 00:07	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:15
SDG#: SGB34-04

C. T. Male Associates
ELLE Sample #: SW 9205703
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,330**	760	2,280	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.89**	0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.2**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:15
SDG#: SGB34-04

C. T. Male Associates
ELLE Sample #: SW 9205703
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 03:46	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	10/05/2017 00:20	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:25
SDG#: SGB34-05

C. T. Male Associates
ELLE Sample #: SW 9205704
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,320**	1,110	3,330	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.72**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S45-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 09:25
SDG#: SGB34-05

C. T. Male Associates
ELLE Sample #: SW 9205704
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 04:07	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	10/05/2017 00:33	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402A	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB29-170912 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017
SDG#: SGB34-06TB

C. T. Male Associates
ELLE Sample #: WW 9205705
ELLE Group #: 1849658
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 01:41	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB30-170912 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017
SDG#: SGB34-07TB

C. T. Male Associates
ELLE Sample #: WW 9205706
ELLE Group #: 1849658
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 02:01	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S49-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 10:50
SDG#: SGB34-08

C. T. Male Associates
ELLE Sample #: SW 9205707
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.63 J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,300**	449	1,350	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 10:50
SDG#: SGB34-08

C. T. Male Associates
ELLE Sample #: SW 9205707
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 04:27	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 04:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:05
SDG#: SGB34-09

C. T. Male Associates
ELLE Sample #: SW 9205708
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.64 J**	0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,460**	220	661	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**	0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.3**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:05
SDG#: SGB34-09

C. T. Male Associates
ELLE Sample #: SW 9205708
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 05:29	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633A	09/29/2017 04:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:10
SDG#: SGB34-10

C. T. Male Associates
ELLE Sample #: SW 9205709
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.86**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,000**	394	1,180	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**	0.0100	0.0100	1

The pH was measured in water at 19.6 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.0**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:10
SDG#: SGB34-10

C. T. Male Associates
ELLE Sample #: SW 9205709
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 05:49	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	09/29/2017 04:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:15
SDG#: SGB34-11

C. T. Male Associates
ELLE Sample #: SW 9205710
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,500**	2,560	7,670	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.79**	0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.7**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:15
SDG#: SGB34-11

C. T. Male Associates
ELLE Sample #: SW 9205710
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 06:10	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	10/05/2017 00:46	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:40
SDG#: SGB34-12

C. T. Male Associates
ELLE Sample #: SW 9205711
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,550**	1,280	3,840	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1

The pH was measured in water at 19.8 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.4**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 11:40
SDG#: SGB34-12

C. T. Male Associates
ELLE Sample #: SW 9205711
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 06:30	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	10/05/2017 00:59	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S49-5.3-6.3' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 12:20
SDG#: SGB34-13

C. T. Male Associates
ELLE Sample #: SW 9205712
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.72	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.72	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.72	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,880**	139	417	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.42**	0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.2**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-5.3-6.3' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 12:20
SDG#: SGB34-13

C. T. Male Associates
ELLE Sample #: SW 9205712
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268003	09/27/2017 06:51	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268003	09/25/2017 15:15	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	09/29/2017 06:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17261039402B	09/18/2017 21:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820003B	09/19/2017 21:27	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	320	U	320	930	41.32
11995	Benzene	71-43-2	23	U	23	230	41.32
11995	Bromochloromethane	74-97-5	46	U	46	230	41.32
11995	Bromodichloromethane	75-27-4	46	U	46	230	41.32
11995	Bromoform	75-25-2	46	U	46	230	41.32
11995	Bromomethane	74-83-9	93	U	93	230	41.32
11995	2-Butanone	78-93-3	190	U	190	460	41.32
11995	Carbon Disulfide	75-15-0	46	U	46	230	41.32
11995	Carbon Tetrachloride	56-23-5	46	U	46	230	41.32
11995	Chlorobenzene	108-90-7	46	U	46	230	41.32
11995	Chloroethane	75-00-3	93	U	93	230	41.32
11995	Chloroform	67-66-3	46	U	46	230	41.32
11995	Chloromethane	74-87-3	93	U	93	230	41.32
11995	Cyclohexane	110-82-7	46	U	46	230	41.32
11995	1,2-Dibromo-3-chloropropane	96-12-8	93	U	93	230	41.32
11995	Dibromochloromethane	124-48-1	46	U	46	230	41.32
11995	1,2-Dibromoethane	106-93-4	46	U	46	230	41.32
11995	1,2-Dichlorobenzene	95-50-1	46	U	46	230	41.32
11995	1,3-Dichlorobenzene	541-73-1	46	U	46	230	41.32
11995	1,4-Dichlorobenzene	106-46-7	46	U	46	230	41.32
11995	Dichlorodifluoromethane	75-71-8	93	U	93	230	41.32
11995	1,1-Dichloroethane	75-34-3	46	U	46	230	41.32
11995	1,2-Dichloroethane	107-06-2	46	U	46	230	41.32
11995	1,1-Dichloroethene	75-35-4	46	U	46	230	41.32
11995	cis-1,2-Dichloroethene	156-59-2	46	U	46	230	41.32
11995	trans-1,2-Dichloroethene	156-60-5	46	U	46	230	41.32
11995	1,2-Dichloropropane	78-87-5	46	U	46	230	41.32
11995	cis-1,3-Dichloropropene	10061-01-5	46	U	46	230	41.32
11995	trans-1,3-Dichloropropene	10061-02-6	46	U	46	230	41.32
11995	Ethylbenzene	100-41-4	46	U	46	230	41.32
11995	Freon 113	76-13-1	93	U	93	460	41.32
11995	2-Hexanone	591-78-6	140	U	140	460	41.32
11995	Isopropylbenzene	98-82-8	46	U	46	230	41.32
11995	**Methyl Acetate**	79-20-9	**100**	**J**	93	230	41.32
11995	Methyl Tertiary Butyl Ether	1634-04-4	23	U	23	230	41.32
11995	4-Methyl-2-pentanone	108-10-1	140	U	140	460	41.32
11995	**Methylcyclohexane**	108-87-2	**220**	**J**	46	230	41.32
11995	Methylene Chloride	75-09-2	93	U	93	230	41.32
11995	Styrene	100-42-5	46	U	46	230	41.32
11995	1,1,2,2-Tetrachloroethane	79-34-5	46	U	46	230	41.32
11995	Tetrachloroethene	127-18-4	46	U	46	230	41.32

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Toluene	108-88-3	46	U	46	230	41.32
11995	1,2,3-Trichlorobenzene	87-61-6	46	U	46	230	41.32
11995	1,2,4-Trichlorobenzene	120-82-1	46	U	46	230	41.32
11995	1,1,1-Trichloroethane	71-55-6	46	U	46	230	41.32
11995	1,1,2-Trichloroethane	79-00-5	46	U	46	230	41.32
11995	Trichloroethene	79-01-6	46	U	46	230	41.32
11995	Trichlorofluoromethane	75-69-4	93	U	93	230	41.32
11995	Vinyl Chloride	75-01-4	46	U	46	230	41.32
11995	m+p-Xylene	179601-23-1	46	U	46	230	41.32
11995	o-Xylene	95-47-6	46	U	46	230	41.32
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	37	U	37	190	2
10726	Acenaphthylene	208-96-8	37	U	37	190	2
10726	Acetophenone	98-86-2	190	U	190	370	2
10726	Anthracene	120-12-7	37	U	37	190	2
10726	Atrazine	1912-24-9	370	U	370	1,900	2
10726	Benzaldehyde	100-52-7	740	U	740	1,900	2
10726	Benzo(a)anthracene	56-55-3	37	U	37	190	2
10726	Benzo(a)pyrene	50-32-8	37	U	37	190	2
10726	Benzo(b)fluoranthene	205-99-2	37	U	37	190	2
10726	**Benzo(g,h,i)perylene**	191-24-2	**460**		37	190	2
10726	Benzo(k)fluoranthene	207-08-9	37	U	37	190	2
10726	1,1'-Biphenyl	92-52-4	190	U	190	370	2
10726	4-Bromophenyl-phenylether	101-55-3	190	U	190	370	2
10726	Butylbenzylphthalate	85-68-7	740	U	740	1,900	2
10726	Di-n-butylphthalate	84-74-2	740	U	740	1,900	2
10726	Caprolactam	105-60-2	370	U	370	1,900	2
10726	Carbazole	86-74-8	190	U	190	370	2
10726	4-Chloro-3-methylphenol	59-50-7	190	U	190	370	2
10726	4-Chloroaniline	106-47-8	370	U	370	740	2
10726	bis(2-Chloroethoxy)methane	111-91-1	190	U	190	370	2
10726	bis(2-Chloroethyl)ether	111-44-4	190	U	190	370	2
10726	2-Chloronaphthalene	91-58-7	74	U	74	370	2
10726	2-Chlorophenol	95-57-8	190	U	190	370	2
10726	4-Chlorophenyl-phenylether	7005-72-3	190	U	190	370	2
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	190	U	190	370	2
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**460**		37	190	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	**Dibenz(a,h)anthracene**	53-70-3	**170**	**J**	37	190	2
10726	Dibenzofuran	132-64-9	190	U	190	370	2
10726	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	3,700	2
10726	2,4-Dichlorophenol	120-83-2	190	U	190	370	2
10726	Diethylphthalate	84-66-2	740	U	740	1,900	2
10726	2,4-Dimethylphenol	105-67-9	190	U	190	370	2
10726	Dimethylphthalate	131-11-3	740	U	740	1,900	2
10726	4,6-Dinitro-2-methylphenol	534-52-1	1,900	U	1,900	5,600	2
10726	2,4-Dinitrophenol	51-28-5	3,300	U	3,300	11,000	2
10726	2,4-Dinitrotoluene	121-14-2	740	U	740	1,900	2
10726	2,6-Dinitrotoluene	606-20-2	190	U	190	370	2
10726	1,4-Dioxane	123-91-1	1,100	U	1,100	3,700	2
10726	bis(2-Ethylhexyl)phthalate	117-81-7	740	U	740	1,900	2
10726	**Fluoranthene**	206-44-0	**310**		37	190	2
10726	Fluorene	86-73-7	37	U	37	190	2
10726	Hexachlorobenzene	118-74-1	37	U	37	190	2
10726	Hexachlorobutadiene	87-68-3	190	U	190	370	2
10726	Hexachlorocyclopentadiene	77-47-4	1,900	U	1,900	5,600	2
10726	Hexachloroethane	67-72-1	370	U	370	1,900	2
10726	Indeno(1,2,3-cd)pyrene	193-39-5	37	U	37	190	2
10726	Isophorone	78-59-1	190	U	190	370	2
10726	2-Methylnaphthalene	91-57-6	37	U	37	190	2
10726	2-Methylphenol	95-48-7	190	U	190	370	2
10726	4-Methylphenol	106-44-5	190	U	190	370	2
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	37	U	37	190	2
10726	2-Nitroaniline	88-74-4	190	U	190	370	2
10726	3-Nitroaniline	99-09-2	740	U	740	1,900	2
10726	4-Nitroaniline	100-01-6	740	U	740	1,900	2
10726	Nitrobenzene	98-95-3	190	U	190	370	2
10726	2-Nitrophenol	88-75-5	190	U	190	370	2
10726	4-Nitrophenol	100-02-7	1,900	U	1,900	5,600	2
10726	N-Nitroso-di-n-propylamine	621-64-7	190	U	190	370	2
10726	N-Nitrosodiphenylamine	86-30-6	190	U	190	370	2
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	740	U	740	1,900	2
10726	Pentachlorophenol	87-86-5	370	U	370	1,900	2
10726	**Phenanthrene**	85-01-8	**110**	**J**	37	190	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Phenol	108-95-2	190	U	190	370	2
10726	**Pyrene**	129-00-0	**380**		37	190	2
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	190	U	190	370	2
10726	2,3,4,6-Tetrachlorophenol	58-90-2	740	U	740	1,900	2
10726	2,4,5-Trichlorophenol	95-95-4	190	U	190	370	2
10726	2,4,6-Trichlorophenol	88-06-2	190	U	190	370	2

Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8081B**		**ug/kg**		**ug/kg**	**ug/kg**	
10590	Aldrin	309-00-2	0.19	UD2	0.19	0.92	1
10590	Alpha BHC	319-84-6	0.19	UD2	0.19	0.92	1
10590	Beta BHC	319-85-7	0.33	UD2	0.33	1.1	1
10590	Gamma BHC - Lindane	58-89-9	0.19	UD1	0.19	0.92	1
10590	**Alpha Chlordane**	5103-71-9	**0.38**	**JD1**	0.19	0.92	1
10590	Gamma Chlordane	5103-74-2	0.31	UVD1	0.31	0.92	1
10590	**p,p-DDD**	72-54-8	**1.7**	**JZPD2**	0.37	1.9	1
10590	**p,p-DDE**	72-55-9	**0.45**	**JPD2**	0.37	1.9	1
10590	**p,p-DDT**	50-29-3	**0.42**	**JPD2**	0.40	1.9	1
10590	Delta BHC	319-86-8	0.50	UD1	0.50	1.0	1
10590	Dieldrin	60-57-1	0.37	UD1	0.37	1.9	1
10590	Endosulfan I	959-98-8	0.24	UD1	0.24	0.92	1
10590	Endosulfan II	33213-65-9	0.37	UD1	0.37	1.9	1
10590	Endosulfan Sulfate	1031-07-8	0.37	UD2	0.37	1.9	1
10590	Endrin	72-20-8	0.38	UD1	0.38	1.9	1
10590	Endrin Aldehyde	7421-93-4	0.37	UD2	0.37	1.9	1
10590	Endrin Ketone	53494-70-5	0.66	UD1	0.66	2.0	1
10590	**Heptachlor**	76-44-8	**0.28**	**JPD2**	0.19	0.92	1
10590	Heptachlor Epoxide	1024-57-3	0.19	UD2	0.19	0.92	1
10590	Methoxychlor	72-43-5	1.9	UD1	1.9	7.4	1
10590	Toxaphene	8001-35-2	16	UD1	16	37	1

The DDT breakdown is outside the acceptance criteria.
Z =The response for a target analyte(s) in the continuing calibration verification standard is outside the QC acceptance limits. The following corrective action was taken:
The analysis was repeated and the DDT breakdown and the continuing calibration verification standard bracketing the sample on the second trial is also outside the acceptance limits.
This effect is attributed to the sample matrix and the data is reported.

Pesticides/PCBs	**SW-846 8082A Feb 2007 Rev 1**		**ug/kg**		**ug/kg**	**ug/kg**	
10885	PCB-1016	12674-11-2	4.0	UD1	4.0	19	1
10885	PCB-1221	11104-28-2	5.1	UD1	5.1	19	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082A Feb 2007 Rev 1**		**ug/kg**	**ug/kg**	**ug/kg**	
10885	PCB-1232	11141-16-5	8.9 UD1	8.9	19	1
10885	PCB-1242	53469-21-9	3.7 UD1	3.7	19	1
10885	PCB-1248	12672-29-6	3.7 UD1	3.7	19	1
10885	PCB-1254	11097-69-1	3.7 UZD1	3.7	19	1
10885	PCB-1260	11096-82-5	5.4 UZD1	5.4	19	1
10885	PCB-1262	37324-23-5	3.7 UZD2	3.7	19	1
10885	PCB-1268	11100-14-4	3.7 UZD1	3.7	19	1

Z=The response for a target analyte(s) in the continuing calibration verification standard is outside the QC acceptance limits. This also applies to the DCB surrogate.
The following corrective action was taken:
The analysis was repeated and the continuing calibration verification standard bracketing the sample on the second trial is also outside the acceptance limits. This effect is attributed to the sample matrix and the data is reported.
The recovery for PCB-1016 and PCB-1260 in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,980**	9.91	44.3	1
01650	**Calcium**	7440-70-2	**71,100**	18.5	222	5
01654	**Iron**	7439-89-6	**15,300**	8.93	44.3	1
01657	**Magnesium**	7439-95-4	**29,800**	2.69	22.2	1
06958	**Manganese**	7439-96-5	**253**	0.0920	1.11	1
01662	**Potassium**	7440-09-7	**991**	18.5	111	1
01667	**Sodium**	7440-23-5	**65.2 J**	18.5	222	1
06972	**Zinc**	7440-66-6	**55.8**	0.266	4.43	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.239 J**	0.103	0.443	2
06125	**Arsenic**	7440-38-2	**3.94**	0.142	0.887	2
06126	**Barium**	7440-39-3	**27.8**	0.201	0.887	2
06127	**Beryllium**	7440-41-7	**0.226**	0.0116	0.222	2
06128	**Cadmium**	7440-43-9	**0.152 J**	0.0381	0.222	2
06131	**Chromium**	7440-47-3	**13.4**	0.193	0.887	2
06132	**Cobalt**	7440-48-4	**5.75**	0.0346	0.222	2
06133	**Copper**	7440-50-8	**11.3**	0.119	0.887	2
06135	**Lead**	7439-92-1	**21.4**	0.0246	0.443	2
06139	**Nickel**	7440-02-0	**11.7**	0.221	0.887	2
06141	Selenium	7782-49-2	0.111 U	0.111	0.887	2
06142	Silver	7440-22-4	0.0324 U	0.0324	0.222	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06145	**Thallium**	7440-28-0	**0.0516 J**	0.0277	0.222	2
06148	**Vanadium**	7440-62-2	**16.4**	0.0472	0.222	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0112 U	0.0112	0.112	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**45,700**	10,400	31,100	1
	SW-846 9012A		**mg/kg**	**mg/kg**	**mg/kg**	
05895	Total Cyanide (solid)	57-12-5	0.20 U	0.20	0.55	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.7**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	R172621AA	09/19/2017 22:48	Jeremy C Giffin	41.32
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201725647054	09/12/2017 15:55	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201725647054	09/12/2017 15:55	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201725647054	09/12/2017 15:55	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	17257SLA026	09/20/2017 06:57	Linda M Hartenstine	2
10813	BNA Soil Microwave APP IX	SW-846 3546	1	17257SLA026	09/14/2017 17:30	Ashley R Transue	1
10590	TCL Pesticides	SW-846 8081B	1	172610002A	09/22/2017 08:14	Lisa A Reinert	1
10885	PCBs	SW-846 8082A Feb 2007 Rev 1	1	172610003A	09/21/2017 23:34	Kirby B Turner	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	172610003A	09/18/2017 17:10	Shawn J McMullen	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	172610002A	09/18/2017 17:10	Shawn J McMullen	1
01643	Aluminum	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172571063702	09/26/2017 16:29	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 15:55
SDG#: SGB34-14

C. T. Male Associates
ELLE Sample #: SW 9205713
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172571063702	09/18/2017 10:30	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172571063702D	09/19/2017 10:45	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172571063702B	09/19/2017 10:45	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172571063702A	09/19/2017 10:45	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	172571063803	09/17/2017 06:50	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172571063702	09/15/2017 18:00	Barbara A Kane	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172571063803	09/15/2017 20:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	10/05/2017 01:38	James S Mathiot	1
05895	Total Cyanide (solid)	SW-846 9012A	1	17265102201A	09/22/2017 13:08	Brianna A White	1
05896	Cyanide Solid Distillation	SW-846 9012A	1	17265102201A	09/22/2017 08:50	Nancy J Shoop	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17263820023A	09/20/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**	**ug/kg**	**ug/kg**	
11995	Acetone	67-64-1	270 U	270	780	36.18
11995	Benzene	71-43-2	20 U	20	200	36.18
11995	Bromochloromethane	74-97-5	39 U	39	200	36.18
11995	Bromodichloromethane	75-27-4	39 U	39	200	36.18
11995	Bromoform	75-25-2	39 U	39	200	36.18
11995	Bromomethane	74-83-9	78 U	78	200	36.18
11995	2-Butanone	78-93-3	160 U	160	390	36.18
11995	Carbon Disulfide	75-15-0	39 U	39	200	36.18
11995	Carbon Tetrachloride	56-23-5	39 U	39	200	36.18
11995	Chlorobenzene	108-90-7	39 U	39	200	36.18
11995	Chloroethane	75-00-3	78 U	78	200	36.18
11995	Chloroform	67-66-3	39 U	39	200	36.18
11995	Chloromethane	74-87-3	78 U	78	200	36.18
11995	**Cyclohexane**	110-82-7	**190 J**	39	200	36.18
11995	1,2-Dibromo-3-chloropropane	96-12-8	78 U	78	200	36.18
11995	Dibromochloromethane	124-48-1	39 U	39	200	36.18
11995	1,2-Dibromoethane	106-93-4	39 U	39	200	36.18
11995	1,2-Dichlorobenzene	95-50-1	39 U	39	200	36.18
11995	1,3-Dichlorobenzene	541-73-1	39 U	39	200	36.18
11995	1,4-Dichlorobenzene	106-46-7	39 U	39	200	36.18
11995	Dichlorodifluoromethane	75-71-8	78 U	78	200	36.18
11995	1,1-Dichloroethane	75-34-3	39 U	39	200	36.18
11995	1,2-Dichloroethane	107-06-2	39 U	39	200	36.18
11995	1,1-Dichloroethene	75-35-4	39 U	39	200	36.18
11995	cis-1,2-Dichloroethene	156-59-2	39 U	39	200	36.18
11995	trans-1,2-Dichloroethene	156-60-5	39 U	39	200	36.18
11995	1,2-Dichloropropane	78-87-5	39 U	39	200	36.18
11995	cis-1,3-Dichloropropene	10061-01-5	39 U	39	200	36.18
11995	trans-1,3-Dichloropropene	10061-02-6	39 U	39	200	36.18
11995	Ethylbenzene	100-41-4	39 U	39	200	36.18
11995	Freon 113	76-13-1	78 U	78	390	36.18
11995	2-Hexanone	591-78-6	120 U	120	390	36.18
11995	Isopropylbenzene	98-82-8	39 U	39	200	36.18
11995	Methyl Acetate	79-20-9	78 U	78	200	36.18
11995	Methyl Tertiary Butyl Ether	1634-04-4	20 U	20	200	36.18
11995	4-Methyl-2-pentanone	108-10-1	120 U	120	390	36.18
11995	**Methylcyclohexane**	108-87-2	**1,200**	39	200	36.18
11995	Methylene Chloride	75-09-2	78 U	78	200	36.18
11995	Styrene	100-42-5	39 U	39	200	36.18
11995	1,1,2,2-Tetrachloroethane	79-34-5	39 U	39	200	36.18
11995	Tetrachloroethene	127-18-4	39 U	39	200	36.18

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	Toluene	108-88-3	39	U	39	200	36.18
11995	1,2,3-Trichlorobenzene	87-61-6	39	U	39	200	36.18
11995	1,2,4-Trichlorobenzene	120-82-1	39	U	39	200	36.18
11995	1,1,1-Trichloroethane	71-55-6	39	U	39	200	36.18
11995	1,1,2-Trichloroethane	79-00-5	39	U	39	200	36.18
11995	Trichloroethene	79-01-6	39	U	39	200	36.18
11995	Trichlorofluoromethane	75-69-4	78	U	78	200	36.18
11995	Vinyl Chloride	75-01-4	39	U	39	200	36.18
11995	**m+p-Xylene**	179601-23-1	**52**	**J**	39	200	36.18
11995	**o-Xylene**	95-47-6	**89**	**J**	39	200	36.18
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	**Acenaphthene**	83-32-9	**220**		36	180	2
10726	Acenaphthylene	208-96-8	36	U	36	180	2
10726	Acetophenone	98-86-2	180	U	180	360	2
10726	Anthracene	120-12-7	36	U	36	180	2
10726	Atrazine	1912-24-9	360	U	360	1,800	2
10726	Benzaldehyde	100-52-7	710	U	710	1,800	2
10726	Benzo(a)anthracene	56-55-3	36	U	36	180	2
10726	Benzo(a)pyrene	50-32-8	36	U	36	180	2
10726	Benzo(b)fluoranthene	205-99-2	36	U	36	180	2
10726	Benzo(g,h,i)perylene	191-24-2	36	U	36	180	2
10726	Benzo(k)fluoranthene	207-08-9	36	U	36	180	2
10726	1,1'-Biphenyl	92-52-4	180	U	180	360	2
10726	4-Bromophenyl-phenylether	101-55-3	180	U	180	360	2
10726	Butylbenzylphthalate	85-68-7	710	U	710	1,800	2
10726	Di-n-butylphthalate	84-74-2	710	U	710	1,800	2
10726	Caprolactam	105-60-2	360	U	360	1,800	2
10726	Carbazole	86-74-8	180	U	180	360	2
10726	4-Chloro-3-methylphenol	59-50-7	180	U	180	360	2
10726	4-Chloroaniline	106-47-8	360	U	360	710	2
10726	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	360	2
10726	bis(2-Chloroethyl)ether	111-44-4	180	U	180	360	2
10726	2-Chloronaphthalene	91-58-7	71	U	71	350	2
10726	2-Chlorophenol	95-57-8	180	U	180	360	2
10726	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	360	2
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	180	U	180	360	2
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	**Chrysene**	218-01-9	**280**		36	180	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Dibenz(a,h)anthracene	53-70-3	36	U	36	180	2
10726	Dibenzofuran	132-64-9	180	U	180	360	2
10726	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	3,600	2
10726	2,4-Dichlorophenol	120-83-2	180	U	180	360	2
10726	Diethylphthalate	84-66-2	710	U	710	1,800	2
10726	2,4-Dimethylphenol	105-67-9	180	U	180	360	2
10726	Dimethylphthalate	131-11-3	710	U	710	1,800	2
10726	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	5,300	2
10726	2,4-Dinitrophenol	51-28-5	3,200	U	3,200	11,000	2
10726	2,4-Dinitrotoluene	121-14-2	710	U	710	1,800	2
10726	2,6-Dinitrotoluene	606-20-2	180	U	180	360	2
10726	1,4-Dioxane	123-91-1	1,100	U	1,100	3,600	2
10726	bis(2-Ethylhexyl)phthalate	117-81-7	710	U	710	1,800	2
10726	**Fluoranthene**	206-44-0	**91**	**J**	36	180	2
10726	**Fluorene**	86-73-7	**180**	**J**	36	180	2
10726	Hexachlorobenzene	118-74-1	36	U	36	180	2
10726	Hexachlorobutadiene	87-68-3	180	U	180	360	2
10726	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	5,300	2
10726	Hexachloroethane	67-72-1	360	U	360	1,800	2
10726	Indeno(1,2,3-cd)pyrene	193-39-5	36	U	36	180	2
10726	Isophorone	78-59-1	180	U	180	360	2
10726	**2-Methylnaphthalene**	91-57-6	**670**		36	180	2
10726	2-Methylphenol	95-48-7	180	U	180	360	2
10726	4-Methylphenol	106-44-5	180	U	180	360	2
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	36	U	36	180	2
10726	2-Nitroaniline	88-74-4	180	U	180	360	2
10726	3-Nitroaniline	99-09-2	710	U	710	1,800	2
10726	4-Nitroaniline	100-01-6	710	U	710	1,800	2
10726	Nitrobenzene	98-95-3	180	U	180	360	2
10726	2-Nitrophenol	88-75-5	180	U	180	360	2
10726	4-Nitrophenol	100-02-7	1,800	U	1,800	5,300	2
10726	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	360	2
10726	N-Nitrosodiphenylamine	86-30-6	180	U	180	360	2
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	710	U	710	1,800	2
10726	Pentachlorophenol	87-86-5	360	U	360	1,800	2
10726	**Phenanthrene**	85-01-8	**400**		36	180	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Phenol	108-95-2	180	U	180	360	2
10726	**Pyrene**	129-00-0	**200**		36	180	2
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	180	U	180	360	2
10726	2,3,4,6-Tetrachlorophenol	58-90-2	710	U	710	1,800	2
10726	2,4,5-Trichlorophenol	95-95-4	180	U	180	360	2
10726	2,4,6-Trichlorophenol	88-06-2	180	U	180	360	2

Reporting limits were raised due to interference from the sample matrix.

Pesticides/PCBs	**SW-846 8081B**		**ug/kg**		**ug/kg**	**ug/kg**	
10590	Aldrin	309-00-2	0.18	UD2	0.18	0.90	1
10590	Alpha BHC	319-84-6	0.18	UD2	0.18	0.90	1
10590	Beta BHC	319-85-7	0.32	UD2	0.32	1.1	1
10590	Gamma BHC - Lindane	58-89-9	0.18	UD1	0.18	0.90	1
10590	Alpha Chlordane	5103-71-9	0.18	UD2	0.18	0.90	1
10590	Gamma Chlordane	5103-74-2	0.27	UD1	0.27	0.90	1
10590	**p,p-DDD**	72-54-8	**0.74**	**JZPD2**	0.36	1.8	1
10590	p,p-DDE	72-55-9	0.36	UD2	0.36	1.8	1
10590	p,p-DDT	50-29-3	0.39	UD2	0.39	1.8	1
10590	Delta BHC	319-86-8	0.49	UD1	0.49	0.97	1
10590	Dieldrin	60-57-1	0.36	UD1	0.36	1.8	1
10590	Endosulfan I	959-98-8	0.24	UD1	0.24	0.90	1
10590	Endosulfan II	33213-65-9	0.36	UD1	0.36	1.8	1
10590	Endosulfan Sulfate	1031-07-8	0.36	UD2	0.36	1.8	1
10590	Endrin	72-20-8	0.37	UD2	0.37	1.8	1
10590	**Endrin Aldehyde**	7421-93-4	**0.84**	**JD1**	0.36	1.8	1
10590	Endrin Ketone	53494-70-5	0.65	UD2	0.65	1.9	1
10590	Heptachlor	76-44-8	0.18	UD2	0.18	0.90	1
10590	Heptachlor Epoxide	1024-57-3	0.18	UD1	0.18	0.90	1
10590	Methoxychlor	72-43-5	1.8	UD1	1.8	7.2	1
10590	Toxaphene	8001-35-2	15	UD1	15	36	1

The DDT breakdown is outside the acceptance criteria.
Z =The response for a target analyte(s) in the continuing calibration verification standard is outside the QC acceptance limits. The following corrective action was taken:
The analysis was repeated and the DDT breakdown and the continuing calibration verification standard bracketing the sample on the second trial is also outside the acceptance limits.
This effect is attributed to the sample matrix and the data is reported.

Pesticides/PCBs	**SW-846 8082A Feb 2007 Rev 1**		**ug/kg**		**ug/kg**	**ug/kg**	
10885	PCB-1016	12674-11-2	3.9	UD1	3.9	18	1
10885	PCB-1221	11104-28-2	5.0	UD1	5.0	18	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082A Feb 2007 Rev 1**		**ug/kg**	**ug/kg**	**ug/kg**	
10885	PCB-1232	11141-16-5	8.6 UD1	8.6	18	1
10885	PCB-1242	53469-21-9	3.6 UD1	3.6	18	1
10885	PCB-1248	12672-29-6	3.6 UD1	3.6	18	1
10885	PCB-1254	11097-69-1	3.6 UZD1	3.6	18	1
10885	PCB-1260	11096-82-5	5.3 UZD1	5.3	18	1
10885	PCB-1262	37324-23-5	3.6 UZD1	3.6	18	1
10885	PCB-1268	11100-14-4	3.6 UZD1	3.6	18	1

Z=The response for a target analyte(s) in the continuing calibration verification standard is outside the QC acceptance limits. This also applies to the DCB surrogate.
The following corrective action was taken:
The analysis was repeated and the continuing calibration verification standard bracketing the sample on the second trial is also outside the acceptance limits. This effect is attributed to the sample matrix and the data is reported.
The recovery for PCB-1016 and PCB-1260 in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,320**	6.58	29.4	1
01650	**Calcium**	7440-70-2	**31,500**	2.45	29.4	1
01654	**Iron**	7439-89-6	**19,400**	5.93	29.4	1
01657	**Magnesium**	7439-95-4	**17,800**	1.79	14.7	1
06958	**Manganese**	7439-96-5	**421**	0.0611	0.736	1
01662	**Potassium**	7440-09-7	**593**	12.3	73.6	1
01667	**Sodium**	7440-23-5	**47.6 J**	12.3	147	1
06972	**Zinc**	7440-66-6	**52.1**	0.177	2.94	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.131 J**	0.0686	0.294	2
06125	**Arsenic**	7440-38-2	**6.72**	0.0942	0.589	2
06126	**Barium**	7440-39-3	**25.8**	0.134	0.589	2
06127	**Beryllium**	7440-41-7	**0.293**	0.0077	0.147	2
06128	**Cadmium**	7440-43-9	**0.150**	0.0253	0.147	2
06131	**Chromium**	7440-47-3	**10.0**	0.128	0.589	2
06132	**Cobalt**	7440-48-4	**6.47**	0.0230	0.147	2
06133	**Copper**	7440-50-8	**15.2**	0.0789	0.589	2
06135	**Lead**	7439-92-1	**33.4**	0.0163	0.294	2
06139	**Nickel**	7440-02-0	**15.1**	0.147	0.589	2
06141	**Selenium**	7782-49-2	**0.149 J**	0.0736	0.589	2
06142	**Silver**	7440-22-4	**0.0260 J**	0.0215	0.147	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S02-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06145	**Thallium**	7440-28-0	**0.0740 J**	0.0184	0.147	2
06148	**Vanadium**	7440-62-2	**11.3**	0.0314	0.147	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0196 J**	0.0105	0.105	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,200**	1,140	3,420	1
	SW-846 9012A		**mg/kg**	**mg/kg**	**mg/kg**	
05895	Total Cyanide (solid)	57-12-5	0.19 U	0.19	0.52	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.6**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	R172621AA	09/19/2017 23:12	Jeremy C Giffin	36.18
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201725647054	09/12/2017 16:10	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201725647054	09/12/2017 16:10	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201725647054	09/12/2017 16:10	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	17257SLA026	09/20/2017 07:23	Linda M Hartenstine	2
10813	BNA Soil Microwave APP IX	SW-846 3546	1	17257SLA026	09/14/2017 17:30	Ashley R Transue	1
10590	TCL Pesticides	SW-846 8081B	1	172610002A	09/22/2017 08:55	Lisa A Reinert	1
10885	PCBs	SW-846 8082A Feb 2007 Rev 1	1	172610003A	09/22/2017 00:08	Kirby B Turner	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	172610003A	09/18/2017 17:10	Shawn J McMullen	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	172610002A	09/18/2017 17:10	Shawn J McMullen	1
01643	Aluminum	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S02-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 16:10
SDG#: SGB34-15

C. T. Male Associates
ELLE Sample #: SW 9205714
ELLE Group #: 1849658
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172571063702	09/18/2017 10:34	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172571063702D	09/19/2017 10:48	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172571063702B	09/19/2017 10:48	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172571063702A	09/19/2017 10:48	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	172571063803	09/17/2017 06:52	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172571063702	09/15/2017 18:00	Barbara A Kane	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172571063803	09/15/2017 20:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17271667633B	09/29/2017 06:28	Drew M Gerhart	1
05895	Total Cyanide (solid)	SW-846 9012A	1	17265102201A	09/22/2017 13:10	Brianna A White	1
05896	Cyanide Solid Distillation	SW-846 9012A	1	17265102201A	09/22/2017 08:50	Nancy J Shoop	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17263820023A	09/20/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB31-170912 Blank Water
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017
SDG#: SGB34-16TB

C. T. Male Associates
ELLE Sample #: WW 9205715
ELLE Group #: 1849658
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	2 U	2	4	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB31-170912 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017
SDG#: SGB34-16TB

C. T. Male Associates
ELLE Sample #: WW 9205715
ELLE Group #: 1849658
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172614AA	09/19/2017 04:17	Patrick T Herres	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172614AA	09/19/2017 04:17	Patrick T Herres	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-170912 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 14:00
SDG#: SGB34-17

C. T. Male Associates
ELLE Sample #: GW 9205716
ELLE Group #: 1849658
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**15**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**3.01**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0123 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**163**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**5.35**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**52.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.185**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.72**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**472**	1.61	10.0	5
07072	**Zinc**	7440-66-6	**0.0152 J**	0.0065	0.0400	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-170912 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 14:00
SDG#: SGB34-17

C. T. Male Associates
ELLE Sample #: GW 9205716
ELLE Group #: 1849658
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0017 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.111**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00015 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0040 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0031**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0052**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0033**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0057**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.00024 J**	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0036**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**881**	100	200	500
00368	**Nitrate Nitrogen**	14797-55-8	**0.41 J**	0.25	0.50	5
	Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) was outside of the 90-110% acceptance window with a recovery of 89%. Sample was reanalyzed past hold on 09/14/2017 with a result of 0.45 mg/l.					
01506	Nitrite Nitrogen	14797-65-0	25.0 U	25.0	50.0	500
	Reporting limits were raised due to interference from the sample matrix.					
00228	**Sulfate**	14808-79-8	**39.3**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.052 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**429**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**429**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S49-170912 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/13/2017 09:35
Collection Date/Time: 09/12/2017 14:00
SDG#: SGB34-17

C. T. Male Associates
ELLE Sample #: GW 9205716
ELLE Group #: 1849658
Matrix: Groundwater

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17258007	09/22/2017 22:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258007	09/17/2017 09:50	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172581063501	09/26/2017 00:58	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	172581063501	09/26/2017 01:01	Jonathan J Allen	5
07072	Zinc	SW-846 6010C	1	172581063501	09/20/2017 01:27	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	172611063901D	09/20/2017 21:37	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	172611063901A	09/21/2017 16:06	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	172611063901A	09/21/2017 16:06	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172611063901B	09/20/2017 21:37	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	172611063901A	09/20/2017 21:37	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172611063901A	09/21/2017 16:06	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172581063501	09/17/2017 21:38	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172611063901	09/20/2017 06:03	James L Mertz	1
01505	Bromide	EPA 300.0	1	17256249106A	09/13/2017 21:18	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17256249106A	09/13/2017 22:07	Zachary W Enck	500
00368	Nitrate Nitrogen	EPA 300.0	1	17256249106A	09/13/2017 21:18	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	2	17256249106A	09/13/2017 22:07	Zachary W Enck	500
00228	Sulfate	EPA 300.0	1	17256249106A	09/13/2017 21:18	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17265107102B	09/22/2017 21:01	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17262108101A	09/23/2017 12:27	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17262108101A	09/19/2017 09:05	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17258002204A	09/16/2017 04:42	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17258002204A	09/16/2017 04:42	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17258002204A	09/16/2017 04:42	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17256022601A	09/13/2017 22:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
Batch number: R172621AA	Sample number(s): 9205713-9205714			
Acetone	350	U	350	1,000
Benzene	25	U	25	250
Bromochloromethane	50	U	50	250
Bromodichloromethane	50	U	50	250
Bromoform	50	U	50	250
Bromomethane	100	U	100	250
2-Butanone	200	U	200	500
Carbon Disulfide	50	U	50	250
Carbon Tetrachloride	50	U	50	250
Chlorobenzene	50	U	50	250
Chloroethane	100	U	100	250
Chloroform	50	U	50	250
Chloromethane	100	U	100	250
Cyclohexane	50	U	50	250
1,2-Dibromo-3-chloropropane	100	U	100	250
Dibromochloromethane	50	U	50	250
1,2-Dibromoethane	50	U	50	250
1,2-Dichlorobenzene	50	U	50	250
1,3-Dichlorobenzene	50	U	50	250
1,4-Dichlorobenzene	50	U	50	250
Dichlorodifluoromethane	100	U	100	250
1,1-Dichloroethane	50	U	50	250
1,2-Dichloroethane	50	U	50	250
1,1-Dichloroethene	50	U	50	250
cis-1,2-Dichloroethene	50	U	50	250
trans-1,2-Dichloroethene	50	U	50	250
1,2-Dichloropropane	50	U	50	250
cis-1,3-Dichloropropene	50	U	50	250
trans-1,3-Dichloropropene	50	U	50	250
Ethylbenzene	50	U	50	250
Freon 113	100	U	100	500
2-Hexanone	150	U	150	500
Isopropylbenzene	50	U	50	250
Methyl Acetate	100	U	100	250
Methyl Tertiary Butyl Ether	25	U	25	250
4-Methyl-2-pentanone	150	U	150	500
Methylcyclohexane	50	U	50	250
Methylene Chloride	100	U	100	250
Styrene	50	U	50	250

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
1,1,2,2-Tetrachloroethane	50 U	50	250
Tetrachloroethene	50 U	50	250
Toluene	50 U	50	250
1,2,3-Trichlorobenzene	50 U	50	250
1,2,4-Trichlorobenzene	50 U	50	250
1,1,1-Trichloroethane	50 U	50	250
1,1,2-Trichloroethane	50 U	50	250
Trichloroethene	50 U	50	250
Trichlorofluoromethane	100 U	100	250
Vinyl Chloride	50 U	50	250
m+p-Xylene	50 U	50	250
o-Xylene	50 U	50	250
	ug/l	ug/l	ug/l
Batch number: L172614AA	Sample number(s): 9205715		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	2 U	2	4
Styrene	1 U	1	5
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
	ug/kg	ug/kg	ug/kg
Batch number: 17257SLA026	Sample number(s): 9205713-9205714		
Acenaphthene	3 U	3	17
Acenaphthylene	3 U	3	17
Acetophenone	17 U	17	33
Anthracene	3 U	3	17
Atrazine	33 U	33	170
Benzaldehyde	67 U	67	170
Benzo(a)anthracene	3 U	3	17
Benzo(a)pyrene	3 U	3	17
Benzo(b)fluoranthene	3 U	3	17
Benzo(g,h,i)perylene	3 U	3	17
Benzo(k)fluoranthene	3 U	3	17
1,1'-Biphenyl	17 U	17	33
4-Bromophenyl-phenylether	17 U	17	33
Butylbenzylphthalate	67 U	67	170
Di-n-butylphthalate	67 U	67	170
Caprolactam	33 U	33	170
Carbazole	17 U	17	33
4-Chloro-3-methylphenol	17 U	17	33
4-Chloroaniline	33 U	33	67
bis(2-Chloroethoxy)methane	17 U	17	33
bis(2-Chloroethyl)ether	17 U	17	33

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2-Chloronaphthalene	7 U	7	33
2-Chlorophenol	17 U	17	33
4-Chlorophenyl-phenylether	17 U	17	33
2,2'-oxybis(1-Chloropropane)	17 U	17	33
Chrysene	3 U	3	17
Dibenz(a,h)anthracene	3 U	3	17
Dibenzofuran	17 U	17	33
3,3'-Dichlorobenzidine	100 U	100	330
2,4-Dichlorophenol	17 U	17	33
Diethylphthalate	67 U	67	170
2,4-Dimethylphenol	17 U	17	33
Dimethylphthalate	67 U	67	170
4,6-Dinitro-2-methylphenol	170 U	170	500
2,4-Dinitrophenol	300 U	300	1,000
2,4-Dinitrotoluene	67 U	67	170
2,6-Dinitrotoluene	17 U	17	33
1,4-Dioxane	100 U	100	330
bis(2-Ethylhexyl)phthalate	67 U	67	170
Fluoranthene	3 U	3	17
Fluorene	3 U	3	17
Hexachlorobenzene	3 U	3	17
Hexachlorobutadiene	17 U	17	33
Hexachlorocyclopentadiene	170 U	170	500
Hexachloroethane	33 U	33	170
Indeno(1,2,3-cd)pyrene	3 U	3	17
Isophorone	17 U	17	33
2-Methylnaphthalene	3 U	3	17
2-Methylphenol	17 U	17	33
4-Methylphenol	17 U	17	33
Naphthalene	3 U	3	17
2-Nitroaniline	17 U	17	33
3-Nitroaniline	67 U	67	170
4-Nitroaniline	67 U	67	170
Nitrobenzene	17 U	17	33
2-Nitrophenol	17 U	17	33
4-Nitrophenol	170 U	170	500
N-Nitroso-di-n-propylamine	17 U	17	33
N-Nitrosodiphenylamine	17 U	17	33
Di-n-octylphthalate	67 U	67	170
Pentachlorophenol	33 U	33	170
Phenanthrene	3 U	3	17
Phenol	17 U	17	33
Pyrene	3 U	3	17
1,2,4,5-Tetrachlorobenzene	17 U	17	33
2,3,4,6-Tetrachlorophenol	67 U	67	170

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/kg	ug/kg	ug/kg
2,4,5-Trichlorophenol	17 U	17	33
2,4,6-Trichlorophenol	17 U	17	33
Batch number: 172610002A	Sample number(s): 9205713-9205714		
Aldrin	0.17 U	0.17	0.83
Alpha BHC	0.17 U	0.17	0.83
Beta BHC	0.30 U	0.30	1.0
Gamma BHC - Lindane	0.17 U	0.17	0.83
Alpha Chlordane	0.17 U	0.17	0.83
Gamma Chlordane	0.25 U	0.25	0.83
p,p-DDD	0.33 U	0.33	1.7
p,p-DDE	0.33 U	0.33	1.7
p,p-DDT	0.36 U	0.36	1.7
Delta BHC	0.45 U	0.45	0.90
Dieldrin	0.33 U	0.33	1.7
Endosulfan I	0.22 U	0.22	0.83
Endosulfan II	0.33 U	0.33	1.7
Endosulfan Sulfate	0.33 U	0.33	1.7
Endrin	0.34 U	0.34	1.7
Endrin Aldehyde	0.33 U	0.33	1.7
Endrin Ketone	0.60 U	0.60	1.8
Heptachlor	0.17 U	0.17	0.83
Heptachlor Epoxide	0.17 U	0.17	0.83
Methoxychlor	1.7 U	1.7	6.7
Toxaphene	14 U	14	33
Batch number: 172610003A	Sample number(s): 9205713-9205714		
PCB-1016	3.6 U	3.6	17
PCB-1221	4.6 U	4.6	17
PCB-1232	8.0 U	8.0	17
PCB-1242	3.3 U	3.3	17
PCB-1248	3.3 U	3.3	17
PCB-1254	3.3 U	3.3	17
PCB-1260	4.9 U	4.9	17
PCB-1262	3.3 U	3.3	17
PCB-1268	3.3 U	3.3	17
	ng/g	ng/g	ng/g
Batch number: 17268003	Sample number(s): 9205700-9205704,9205707-9205712		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17258007	Sample number(s): 9205716		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
Batch number: 17258008	Sample number(s): 9205705-9205706		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Batch number: 172571063702	Sample number(s): 9205713-9205714		
Aluminum	8.94 U	8.94	40.0
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172571063702A	Sample number(s): 9205713-9205714		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172571063702B	Sample number(s): 9205713-9205714		
Selenium	0.100 U	0.100	0.800
Batch number: 172571063702D	Sample number(s): 9205713-9205714		
Barium	0.182 U	0.182	0.800
Batch number: 172571063803	Sample number(s): 9205713-9205714		
Mercury	0.0100 U	0.0100	0.100
	mg/l	mg/l	mg/l
Batch number: 172581063501	Sample number(s): 9205716		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.144 J	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172611063901A	Sample number(s): 9205716		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172611063901B	Sample number(s): 9205716		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172611063901D	Sample number(s): 9205716		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17265102201A	Sample number(s): 9205713-9205714		
Total Cyanide (solid)	0.18 U	0.18	0.50
Batch number: 17271667633A	Sample number(s): 9205700-9205704,9205707-9205708		
TOC	100 U	100	300
Batch number: 17271667633B	Sample number(s): 9205709-9205714		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17256249106A	Sample number(s): 9205716		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17262108101A	Sample number(s): 9205716		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17265107102B	Sample number(s): 9205716		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17256022601A	Sample number(s): 9205716		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17258002204A	Sample number(s): 9205716		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: R172621AA	Sample number(s): 9205713-9205714								
Acetone	7500	7727.26	7500	7459.77	103	99	32-144	4	30
Benzene	1000	1007.91	1000	1017.13	101	102	80-120	1	30
Bromochloromethane	1000	1133.1	1000	1152.08	113	115	80-120	2	30
Bromodichloromethane	1000	1050.44	1000	1028.48	105	103	70-120	2	30
Bromoform	1000	1000.97	1000	963.24	100	96	54-120	4	30
Bromomethane	1000	1026.43	1000	1030.38	103	103	31-160	0	30
2-Butanone	7500	6291.62	7500	6081.49	84	81	49-128	3	30
Carbon Disulfide	1000	940.04	1000	922.87	94	92	60-128	2	30
Carbon Tetrachloride	1000	1040.02	1000	1098.69	104	110	62-129	5	30
Chlorobenzene	1000	909.09	1000	913.73	91	91	80-120	1	30
Chloroethane	1000	1015	1000	991.97	102	99	43-137	2	30
Chloroform	1000	1052.29	1000	1050.46	105	105	80-120	0	30
Chloromethane	1000	747.28	1000	728.92	75	73	56-120	2	30
Cyclohexane	1000	686.12	1000	766.64	69	77	58-126	11	30
1,2-Dibromo-3-chloropropane	1000	800.15	1000	750.49	80	75	47-126	6	30
Dibromochloromethane	1000	967.49	1000	988.72	97	99	65-120	2	30
1,2-Dibromoethane	1000	912.14	1000	926.71	91	93	74-120	2	30
1,2-Dichlorobenzene	1000	885.78	1000	857.31	89	86	80-120	3	30
1,3-Dichlorobenzene	1000	855.4	1000	850.67	86	85	80-120	1	30
1,4-Dichlorobenzene	1000	876.79	1000	869.55	88	87	80-120	1	30
Dichlorodifluoromethane	1000	432.26	1000	439.41	43	44	10-133	2	30
1,1-Dichloroethane	1000	977.62	1000	970.23	98	97	77-120	1	30
1,2-Dichloroethane	1000	996.23	1000	983.52	100	98	71-128	1	30
1,1-Dichloroethene	1000	1069.69	1000	1086.82	107	109	73-129	2	30
cis-1,2-Dichloroethene	1000	1090.63	1000	1091.15	109	109	80-120	0	30
trans-1,2-Dichloroethene	1000	1091.84	1000	1085.48	109	109	80-125	1	30
1,2-Dichloropropane	1000	951.75	1000	966.11	95	97	76-120	1	30
cis-1,3-Dichloropropene	1000	1016.57	1000	1006.63	102	101	66-120	1	30
trans-1,3-Dichloropropene	1000	847.1	1000	857.46	85	86	63-124	1	30
Ethylbenzene	1000	824.65	1000	830.12	82	83	80-120	1	30
Freon 113	1000	872.98	1000	923.16	87	92	59-139	6	30
2-Hexanone	5000	4143.6	5000	4194.58	83	84	51-131	1	30
Isopropylbenzene	1000	823.01	1000	821	82	82	76-120	0	30
Methyl Acetate	1000	956.57	1000	967.62	96	97	54-146	1	30
Methyl Tertiary Butyl Ether	1000	947.2	1000	948	95	95	66-123	0	30
4-Methyl-2-pentanone	5000	4743.41	5000	4807.35	95	96	53-134	1	30
Methylcyclohexane	1000	699.21	1000	753.86	70	75	61-124	8	30
Methylene Chloride	1000	1026.89	1000	1039.84	103	104	76-122	1	30
Styrene	1000	927.23	1000	948.5	93	95	76-120	2	30
1,1,2,2-Tetrachloroethane	1000	819.03	1000	805.4	82	81	61-131	2	30
Tetrachloroethene	1000	904.39	1000	911.35	90	91	73-120	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Toluene	1000	870.4	1000	897.86	87	90	80-120	3	30
1,2,3-Trichlorobenzene	1000	818.11	1000	780.7	82	78	63-128	5	30
1,2,4-Trichlorobenzene	1000	785.4	1000	733.53	79	73	62-127	7	30
1,1,1-Trichloroethane	1000	966.2	1000	974.69	97	97	61-125	1	30
1,1,2-Trichloroethane	1000	921.99	1000	940.76	92	94	80-120	2	30
Trichloroethene	1000	1027.08	1000	1023.84	103	102	80-120	0	30
Trichlorofluoromethane	1000	905.23	1000	978.27	91	98	47-132	8	30
Vinyl Chloride	1000	923.92	1000	892.73	92	89	59-120	3	30
m+p-Xylene	2000	1739.45	2000	1750.82	87	88	80-120	1	30
o-Xylene	1000	822.23	1000	845.61	82	85	75-120	3	30
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: L172614AA	Sample number(s): 9205715								
Acetone	150	170.26	150	173.44	114	116	44-177	2	30
Benzene	20	20.98	20	20.89	105	104	78-120	0	30
Bromochloromethane	20	19.35	20	19.12	97	96	80-125	1	30
Bromodichloromethane	20	17.83	20	17.79	89	89	71-120	0	30
Bromoform	20	14.11	20	13.74	71	69	59-120	3	30
Bromomethane	20	15.7	20	16.09	78	80	44-139	2	30
2-Butanone	150	159.2	150	157.83	106	105	53-140	1	30
Carbon Disulfide	20	18.71	20	18.82	94	94	65-128	1	30
Carbon Tetrachloride	20	17.22	20	17.33	86	87	68-128	1	30
Chlorobenzene	20	20.37	20	20.12	102	101	80-120	1	30
Chloroethane	20	16.64	20	16.97	83	85	52-127	2	30
Chloroform	20	20.3	20	20.49	102	102	80-120	1	30
Chloromethane	20	17.95	20	17.79	90	89	57-120	1	30
Cyclohexane	20	20.82	20	20.87	104	104	67-121	0	30
1,2-Dibromo-3-chloropropane	20	18	20	17.56	90	88	64-120	2	30
Dibromochloromethane	20	16.76	20	16.56	84	83	71-120	1	30
1,2-Dibromoethane	20	19.99	20	19.66	100	98	75-120	2	30
1,2-Dichlorobenzene	20	20.14	20	19.71	101	99	80-120	2	30
1,3-Dichlorobenzene	20	20.24	20	19.75	101	99	80-120	2	30
1,4-Dichlorobenzene	20	20.57	20	20.33	103	102	80-120	1	30
Dichlorodifluoromethane	20	17.12	20	17.32	86	87	47-124	1	30
1,1-Dichloroethane	20	21.09	20	21.1	105	106	80-120	0	30
1,2-Dichloroethane	20	20.29	20	19.88	101	99	73-124	2	30
1,1-Dichloroethene	20	21.45	20	21.42	107	107	76-124	0	30
cis-1,2-Dichloroethene	20	20.83	20	20.82	104	104	80-120	0	30
trans-1,2-Dichloroethene	20	20.64	20	20.87	103	104	80-120	1	30
1,2-Dichloropropane	20	21.49	20	21.48	107	107	80-120	0	30
cis-1,3-Dichloropropene	20	18.54	20	18.44	93	92	75-120	1	30
trans-1,3-Dichloropropene	20	18.08	20	17.72	90	89	76-120	2	30
Ethylbenzene	20	20.96	20	20.6	105	103	78-120	2	30
Freon 113	20	20.93	20	20.78	105	104	68-137	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Hexanone	100	107.27	100	105.95	107	106	60-134	1	30
Isopropylbenzene	20	20.95	20	20.71	105	104	80-120	1	30
Methyl Acetate	20	22.14	20	21.78	111	109	61-137	2	30
Methyl Tertiary Butyl Ether	20	20.3	20	20.11	102	101	75-120	1	30
4-Methyl-2-pentanone	100	106.41	100	105.48	106	105	67-128	1	30
Methylcyclohexane	20	21.18	20	20.84	106	104	66-126	2	30
Methylene Chloride	20	20.67	20	20.73	103	104	80-120	0	30
Styrene	20	20.34	20	20.12	102	101	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.51	20	20.06	103	100	72-120	2	30
Tetrachloroethene	20	20.28	20	19.9	101	99	80-129	2	30
Toluene	20	20.74	20	20.4	104	102	80-120	2	30
1,2,3-Trichlorobenzene	20	19.54	20	19.3	98	96	66-120	1	30
1,2,4-Trichlorobenzene	20	19.18	20	18.95	96	95	70-120	1	30
1,1,1-Trichloroethane	20	17.26	20	17.44	86	87	67-120	1	30
1,1,2-Trichloroethane	20	20.96	20	20.4	105	102	80-120	3	30
Trichloroethene	20	20.17	20	19.91	101	100	80-120	1	30
Trichlorofluoromethane	20	18.87	20	18.79	94	94	52-143	0	30
Vinyl Chloride	20	18.2	20	18.08	91	90	63-121	1	30
m+p-Xylene	40	41.21	40	40.87	103	102	80-120	1	30
o-Xylene	20	20.02	20	19.81	100	99	80-120	1	30
	ug/kg	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 17257SLA026	Sample number(s): 9205713-9205714								
Acenaphthene	1666.67	1670.04			100		78-119		
Acenaphthylene	1666.67	1576.74			95		76-119		
Acetophenone	1666.67	1548.38			93		68-115		
Anthracene	1666.67	1610.52			97		82-118		
Atrazine	1666.67	1424.38			85		58-126		
Benzaldehyde	1666.67	1457.53			87		17-129		
Benzo(a)anthracene	1666.67	1590.47			95		76-119		
Benzo(a)pyrene	1666.67	1623			97		78-117		
Benzo(b)fluoranthene	1666.67	1580.55			95		74-127		
Benzo(g,h,i)perylene	1666.67	1537.36			92		72-118		
Benzo(k)fluoranthene	1666.67	1755.41			105		71-123		
1,1'-Biphenyl	1666.67	1577.35			95		78-115		
4-Bromophenyl-phenylether	1666.67	1530.13			92		78-122		
Butylbenzylphthalate	1666.67	1602.56			96		75-123		
Di-n-butylphthalate	1666.67	1622.42			97		77-121		
Caprolactam	1666.67	1553.73			93		63-121		
Carbazole	1666.67	1543.81			93		74-118		
4-Chloro-3-methylphenol	1666.67	1745.62			105		70-128		
4-Chloroaniline	1666.67	923.54			55		10-112		
bis(2-Chloroethoxy)methane	1666.67	1638.97			98		69-122		
bis(2-Chloroethyl)ether	1666.67	1475.36			89		68-115		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chloronaphthalene	1666.67	1826.99			110		51-150		
2-Chlorophenol	1666.67	1775.35			107		75-124		
4-Chlorophenyl-phenylether	1666.67	1598.8			96		73-119		
2,2'-oxybis(1-Chloropropane)	1666.67	1604.24			96		53-121		
Chrysene	1666.67	1545.76			93		72-121		
Dibenz(a,h)anthracene	1666.67	1587.59			95		72-129		
Dibenzofuran	1666.67	1612.67			97		79-114		
3,3'-Dichlorobenzidine	1666.67	1351.71			81		20-121		
2,4-Dichlorophenol	1666.67	1727.08			104		79-125		
Diethylphthalate	1666.67	1628.59			98		74-120		
2,4-Dimethylphenol	1666.67	1355.86			81		57-102		
Dimethylphthalate	1666.67	1578.81			95		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1480.99			89		60-128		
2,4-Dinitrophenol	3333.33	3223.37			97		27-136		
2,4-Dinitrotoluene	1666.67	1626.97			98		72-127		
2,6-Dinitrotoluene	1666.67	1670.44			100		80-120		
1,4-Dioxane	1666.67	1209.99			73		40-76		
bis(2-Ethylhexyl)phthalate	1666.67	1554.87			93		73-123		
Fluoranthene	1666.67	1567.54			94		72-120		
Fluorene	1666.67	1668.84			100		75-118		
Hexachlorobenzene	1666.67	1500.68			90		73-120		
Hexachlorobutadiene	1666.67	1460.4			88		72-120		
Hexachlorocyclopentadiene	3333.33	2390.08			72		30-133		
Hexachloroethane	1666.67	1460.19			88		69-116		
Indeno(1,2,3-cd)pyrene	1666.67	1600.08			96		69-125		
Isophorone	1666.67	1487.7			89		65-120		
2-Methylnaphthalene	1666.67	1591.62			95		77-116		
2-Methylphenol	1666.67	1799.99			108		74-128		
4-Methylphenol	1666.67	1717.14			103		66-121		
Naphthalene	1666.67	1601.97			96		75-113		
2-Nitroaniline	1666.67	1715.38			103		75-130		
3-Nitroaniline	1666.67	1572.01			94		60-125		
4-Nitroaniline	1666.67	1454.41			87		50-112		
Nitrobenzene	1666.67	1540.51			92		70-122		
2-Nitrophenol	1666.67	1715.61			103		77-123		
4-Nitrophenol	1666.67	1430.11			86		44-131		
N-Nitroso-di-n-propylamine	1666.67	1548.78			93		60-123		
N-Nitrosodiphenylamine	1666.67	1576.83			95		83-118		
Di-n-octylphthalate	1666.67	1746.28			105		76-135		
Pentachlorophenol	1666.67	1577.7			95		33-141		
Phenanthrene	1666.67	1539.15			92		74-114		
Phenol	1666.67	1729.86			104		63-125		
Pyrene	1666.67	1487.4			89		74-112		
1,2,4,5-Tetrachlorobenzene	1666.67	1479.75			89		76-116		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,3,4,6-Tetrachlorophenol	1666.67	1743.92			105		65-123		
2,4,5-Trichlorophenol	1666.67	1680.24			101		79-123		
2,4,6-Trichlorophenol	1666.67	1696.05			102		81-123		
	ug/kg	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 172610002A	Sample number(s): 9205713-9205714								
Aldrin	3.33	3.38			102		60-117		
Alpha BHC	3.27	3.70			113		65-124		
Beta BHC	3.27	3.40			104		68-129		
Gamma BHC - Lindane	3.27	3.57			109		47-140		
Alpha Chlordane	3.33	3.69			111		73-131		
Gamma Chlordane	3.33	4.02			121		76-134		
p,p-DDD	6.53	7.59			116		69-138		
p,p-DDE	6.60	7.00			106		68-146		
p,p-DDT	6.53	7.35			113		67-135		
Delta BHC	3.27	3.63			111		45-151		
Dieldrin	6.47	7.64			118		63-126		
Endosulfan I	3.27	3.17			97		62-119		
Endosulfan II	6.67	6.81			102		65-126		
Endosulfan Sulfate	6.60	7.41			112		71-132		
Endrin	6.53	7.67			117		65-125		
Endrin Aldehyde	6.60	6.94			105		59-122		
Endrin Ketone	6.60	7.20			109		64-121		
Heptachlor	3.27	3.32			101		66-118		
Heptachlor Epoxide	3.33	3.57			107		74-128		
Methoxychlor	32.8	37.89			116		65-131		
Batch number: 172610003A	Sample number(s): 9205713-9205714								
PCB-1016	167	323.53			194*		76-121		
PCB-1260	167	312.54			187*		79-130		
	ng/g	**ng/g**	**ng/g**	**ng/g**					
Batch number: 17268003	Sample number(s): 9205700-9205704,9205707-9205712								
Perfluorobutanesulfonate	1.20	1.13	1.20	1.24	94	103	70-130	10	30
Perfluorobutanoic acid	1.36	1.49	1.36	1.44	110	106	70-130	4	30
Perfluorodecanoic acid	1.36	1.33	1.36	1.41	98	103	70-130	6	30
Perfluorododecanoic acid	1.36	1.33	1.36	1.51	98	111	70-130	13	30
Perfluoroheptanoic acid	1.36	1.47	1.36	1.60	108	118	70-130	9	30
Perfluorohexanesulfonate	1.29	1.18	1.29	0.991	92	77	70-130	17	30
Perfluorohexanoic acid	1.36	1.41	1.36	1.30	103	96	70-130	8	30
Perfluorononanoic acid	1.36	1.50	1.36	1.45	110	107	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.19	1.30	1.29	92	99	70-130	8	30
Perfluorooctanoic acid	1.36	1.34	1.36	1.31	98	97	70-130	2	30
Perfluoropentanoic acid	1.36	1.35	1.36	1.43	99	105	70-130	6	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	1.36	1.39	1.36	1.48	102	109	70-130	6	30
Perfluorotridecanoic acid	1.36	1.66	1.36	1.85	122	136*	70-130	11	30
Perfluoroundecanoic acid	1.36	1.37	1.36	1.57	101	115	70-130	13	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17258007	Sample number(s): 9205716								
6:2 fluorotelomersulfonate	12.89	18.16	12.89	17.6	141*	137*	70-130	3	30
8:2 fluorotelomersulfonate	13.03	18.86	13.03	19.72	145*	151*	70-130	4	30
NEtFOSAA	13.6	18.65	13.6	18.85	137*	139*	70-130	1	30
NMeFOSAA	13.6	17.2	13.6	17.37	126	128	70-130	1	30
Perfluorobutanesulfonate	12.03	13.4	12.03	14.64	111	122	70-130	9	30
Perfluorobutanoic Acid	13.6	15.15	13.6	15.64	111	115	70-130	3	30
Perfluorodecanoic acid	13.6	16.23	13.6	16.38	119	120	70-130	1	30
Perfluorododecanoic acid	13.6	16.35	13.6	18.03	120	133*	70-130	10	30
Perfluoroheptanoic acid	13.6	16.8	13.6	15.69	124	115	70-130	7	30
Perfluorohexanesulfonate	12.86	14.24	12.86	14	111	109	70-130	2	30
Perfluorohexanoic acid	13.6	14.3	13.6	16.71	105	123	70-130	16	30
Perfluorononanoic acid	13.6	15.81	13.6	16.29	116	120	70-130	3	30
Perfluoro-octanesulfonate	13	13.89	13	14.02	107	108	70-130	1	30
Perfluorooctanoic acid	13.6	16.2	13.6	15.05	119	111	70-130	7	30
Perfluoropentanoic Acid	13.6	14.68	13.6	15.11	108	111	70-130	3	30
Perfluorotetradecanoic acid	13.6	17.78	13.6	17.68	131*	130	70-130	1	30
Perfluorotridecanoic acid	13.6	15.14	13.6	14.86	111	109	70-130	2	30
Perfluoroundecanoic acid	13.6	18.11	13.6	16.86	133*	124	70-130	7	30
PFOSA	13.6	14.55	13.6	15.9	107	117	70-130	9	30
Batch number: 17258008	Sample number(s): 9205705-9205706								
Perfluorobutanesulfonate	12.03	12.53	12.03	12.1	104	101	70-130	4	30
Perfluorobutanoic Acid	13.6	13.16	13.6	14.24	97	105	70-130	8	30
Perfluorodecanoic acid	13.6	14.2	13.6	18.29	104	135*	70-130	25	30
Perfluorododecanoic acid	13.6	13.31	13.6	15.57	98	115	70-130	16	30
Perfluoroheptanoic acid	13.6	13.29	13.6	14.67	98	108	70-130	10	30
Perfluorohexanesulfonate	12.86	10.53	12.86	12.57	82	98	70-130	18	30
Perfluorohexanoic acid	13.6	14.23	13.6	14.52	105	107	70-130	2	30
Perfluorononanoic acid	13.6	14.17	13.6	16.24	104	119	70-130	14	30
Perfluoro-octanesulfonate	13	12.46	13	11.5	96	88	70-130	8	30
Perfluorooctanoic acid	13.6	14.51	13.6	14.02	107	103	70-130	3	30
Perfluoropentanoic Acid	13.6	13.64	13.6	13.73	100	101	70-130	1	30
Perfluorotetradecanoic acid	13.6	13.6	13.6	15.88	100	117	70-130	15	30
Perfluorotridecanoic acid	13.6	11.31	13.6	13.91	83	102	70-130	21	30
Perfluoroundecanoic acid	13.6	16.37	13.6	16.99	120	125	70-130	4	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172571063702	Sample number(s): 9205713-9205714								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Aluminum	200	208.37			104		80-120		
Calcium	400	395.56			99		80-120		
Iron	100	99.39			99		80-120		
Magnesium	200	199.47			100		80-120		
Manganese	50	52.23			104		80-120		
Potassium	1000	983.74			98		80-120		
Sodium	1000	979.58			98		80-120		
Zinc	50	52.16			104		80-120		
Batch number: 172571063702A	Sample number(s): 9205713-9205714								
Antimony	0.600	0.630			105		80-120		
Arsenic	1.00	0.962			96		80-120		
Beryllium	0.400	0.431			108		80-120		
Cadmium	0.500	0.470			94		80-120		
Chromium	5.00	5.35			107		80-120		
Cobalt	25	23.1			92		80-120		
Copper	5.00	4.90			98		80-120		
Lead	1.50	1.55			103		80-120		
Nickel	5.00	4.94			99		80-120		
Silver	5.00	4.87			97		80-120		
Thallium	0.200	0.208			104		80-120		
Vanadium	5.00	5.11			102		80-120		
Batch number: 172571063702B	Sample number(s): 9205713-9205714								
Selenium	1.00	0.982			98		80-120		
Batch number: 172571063702D	Sample number(s): 9205713-9205714								
Barium	5.00	5.09			102		80-120		
Batch number: 172571063803	Sample number(s): 9205713-9205714								
Mercury	0.100	0.0987			99		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172581063501	Sample number(s): 9205716								
Aluminum	2.00	2.08			104		80-120		
Boron	2.00	1.91			95		80-120		
Calcium	4.00	4.10			102		80-120		
Iron	1.00	0.972			97		80-120		
Magnesium	2.00	2.05			102		80-120		
Manganese	0.500	0.528			106		80-120		
Potassium	10	10.07			101		80-120		
Sodium	10	10.33			103		80-120		
Zinc	0.500	0.507			101		80-120		
Batch number: 172611063901A	Sample number(s): 9205716								
Antimony	0.00600	0.00599			100		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Arsenic	0.0100	0.00998			100		80-120		
Beryllium	0.00400	0.00411			103		80-120		
Cadmium	0.00500	0.00495			99		80-120		
Chromium	0.0500	0.0513			103		80-120		
Cobalt	0.250	0.269			107		80-120		
Copper	0.0500	0.0544			109		80-120		
Lead	0.0150	0.0152			102		80-120		
Nickel	0.0500	0.0529			106		80-120		
Silver	0.0500	0.0518			104		80-120		
Thallium	0.00200	0.00199			99		80-120		
Vanadium	0.0500	0.0507			101		80-120		
Batch number: 172611063901B	Sample number(s): 9205716								
Selenium	0.0100	0.0105			105		80-120		
Batch number: 172611063901D	Sample number(s): 9205716								
Barium	0.0500	0.0499			100		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17265102201A	Sample number(s): 9205713-9205714								
Total Cyanide (solid)	10	9.84			98		90-110		
Batch number: 17271667633A	Sample number(s): 9205700-9205704,9205707-9205708								
TOC	7150	6786.94			95		47-143		
Batch number: 17271667633B	Sample number(s): 9205709-9205714								
TOC	7150	6786.94			95		47-143		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17256249106A	Sample number(s): 9205716								
Bromide	7.50	6.90			92		90-110		
Chloride	3.00	2.78			93		90-110		
Nitrate Nitrogen	0.750	0.782			104		90-110		
Nitrite Nitrogen	0.750	0.683			91		90-110		
Sulfate	7.50	7.02			94		90-110		
Batch number: 17262108101A	Sample number(s): 9205716								
Kjeldahl Nitrogen	5.00	5.38			108		90-110		
Batch number: 17265107102B	Sample number(s): 9205716								
Ammonia Nitrogen	1.50	1.52			101		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17256022601A	Sample number(s): 9205716								
Ortho-Phosphate as P	0.400	0.404			101		95-105		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l as CaCO3	LCS Conc mg/l as CaCO3	LCSD Spike Added mg/l as CaCO3	LCSD Conc mg/l as CaCO3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17258002204A	Sample number(s): 9205716								
Total Alkalinity to pH 4.5	188	181.58			97		77-114		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17261039402A	Sample number(s): 9205700-9205704								
pH	7.00	7.04			101		95-105		
Batch number: 17261039402B	Sample number(s): 9205707-9205712								
pH	7.00	7.04			101		95-105		
	%	**%**	**%**	**%**					
Batch number: 17262820003B	Sample number(s): 9205700-9205704,9205707-9205712								
Moisture	89.5	89.43			100		99-101		
Batch number: 17263820023A	Sample number(s): 9205713-9205714								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17257SLA026	Sample number(s): 9205713-9205714 UNSPK: P206435									
Acenaphthene	2175.91	1653.99	7209.24	1655.63	6506.61	304*	262*	78-119	10	30
Acenaphthylene	535.84	1653.99	2155.06	1655.63	5566.29	98	304*	76-119	88*	30
Acetophenone	83 U	1653.99	1367.6	1655.63	1403.35	83	85	68-115	3	30
Anthracene	3073.18	1653.99	11644.19	1655.63	15237.71	518*	735*	82-118	27	30
Atrazine	170 U	1653.99	1585.89	1655.63	1705.77	96	103	58-126	7	30
Benzaldehyde	330 U	1653.99	1427.74	1655.63	1523.04	86	92	17-129	6	30
Benzo(a)anthracene	10208.16	1653.99	26260.12	1655.63	37047	971 (2)	1621 (2)	76-119	34*	30
Benzo(a)pyrene	10525.23	1653.99	23024.48	1655.63	27771.06	756 (2)	1042 (2)	78-117	19	30
Benzo(b)fluoranthene	12405.25	1653.99	26054.35	1655.63	33951.93	825 (2)	1301 (2)	74-127	26	30
Benzo(g,h,i)perylene	7454.55	1653.99	15886.84	1655.63	16979.84	510 (2)	575 (2)	72-118	7	30
Benzo(k)fluoranthene	6052.65	1653.99	12048.09	1655.63	12837.53	362*	410*	71-123	6	30
1,1'-Biphenyl	87.15	1653.99	1657.57	1655.63	1758.64	95	101	78-115	6	30
4-Bromophenyl-phenylether	83 U	1653.99	1499.47	1655.63	1536.42	91	93	78-122	2	30
Butylbenzylphthalate	330 U	1653.99	1512.35	1655.63	1522.69	91	92	75-123	1	30
Di-n-butylphthalate	330 U	1653.99	1567.72	1655.63	1632.89	95	99	77-121	4	30
Caprolactam	170 U	1653.99	1183.94	1655.63	1179.26	72	71	63-121	0	30
Carbazole	1409.88	1653.99	5569.41	1655.63	3486.09	251*	125*	74-118	46*	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
4-Chloro-3-methylphenol	83 U	1653.99	1361.04	1655.63	1354.97	82	82	70-128	0	30
4-Chloroaniline	170 U	1653.99	1069.59	1655.63	1076.36	65	65	10-112	1	30
bis(2-Chloroethoxy)methane	83 U	1653.99	1422.09	1655.63	1438.76	86	87	69-122	1	30
bis(2-Chloroethyl)ether	83 U	1653.99	1398.56	1655.63	1373.68	85	83	68-115	2	30
2-Chloronaphthalene	33 U	1653.99	1774.71	1655.63	1696.31	107	102	51-150	5	30
2-Chlorophenol	83 U	1653.99	1482.35	1655.63	1472.87	90	89	75-124	1	30
4-Chlorophenyl-phenylether	83 U	1653.99	1420.4	1655.63	1457.25	86	88	73-119	3	30
2,2'-oxybis(1-Chloropropane)	83 U	1653.99	1401.5	1655.63	1445.38	85	87	53-121	3	30
Chrysene	10852.18	1653.99	25452.35	1655.63	35426.55	883 (2)	1484 (2)	72-121	33*	30
Dibenz(a,h)anthracene	1515.48	1653.99	4202.35	1655.63	5660.49	162*	250*	72-129	30	30
Dibenzofuran	466.34	1653.99	2803.27	1655.63	2910.52	141*	148*	79-114	4	30
3,3'-Dichlorobenzidine	500 U	1653.99	918.79	1655.63	983.05	56	59	20-121	7	30
2,4-Dichlorophenol	83 U	1653.99	1454.13	1655.63	1426.65	88	86	79-125	2	30
Diethylphthalate	330 U	1653.99	1407.2	1655.63	1368.08	85	83	74-120	3	30
2,4-Dimethylphenol	83 U	1653.99	1046.09	1655.63	1104.69	63	67	57-102	5	30
Dimethylphthalate	330 U	1653.99	1379.15	1655.63	1407.69	83	85	77-116	2	30
4,6-Dinitro-2-methylphenol	830 U	1653.99	830 U	1655.63	830 U	0*	0*	60-128	0	30
2,4-Dinitrophenol	1,500 U	3307.97	1,500 U	3311.26	1,500 U	0*	0*	27-136	0	30
2,4-Dinitrotoluene	330 U	1653.99	1244.58	1655.63	1400.06	75	85	72-127	12	30
2,6-Dinitrotoluene	83 U	1653.99	1387.13	1655.63	1346.79	84	81	80-120	3	30
1,4-Dioxane	500 U	1653.99	935.27	1655.63	950.55	57	57	40-76	2	30
bis(2-Ethylhexyl)phthalate	330 U	1653.99	1615.71	1655.63	1729.57	98	104	73-123	7	30
Fluoranthene	21776.7	1653.99	39297.66	1655.63	42447.13	1059 (2)	1248 (2)	72-120	8	30
Fluorene	1159.05	1653.99	4789.41	1655.63	5928.39	219*	288*	75-118	21	30
Hexachlorobenzene	17 U	1653.99	1397.12	1655.63	1435.54	84	87	73-120	3	30
Hexachlorobutadiene	83 U	1653.99	1429.98	1655.63	1467.87	86	89	72-120	3	30
Hexachlorocyclopentadiene	830 U	3307.97	830 U	3311.26	830 U	0*	0*	30-133	0	30
Hexachloroethane	170 U	1653.99	1239.76	1655.63	1244.44	75	75	69-116	0	30
Indeno(1,2,3-cd)pyrene	6565.99	1653.99	14428.13	1655.63	15637.34	475*	548*	69-125	8	30
Isophorone	83 U	1653.99	1342.26	1655.63	1364.94	81	82	65-120	2	30
2-Methylnaphthalene	303.86	1653.99	1860.71	1655.63	2041.62	94	105	77-116	9	30
2-Methylphenol	83 U	1653.99	1479.41	1655.63	1455.92	89	88	74-128	2	30
4-Methylphenol	83 U	1653.99	1365.62	1655.63	1505.67	83	91	66-121	10	30
Naphthalene	550.46	1653.99	2383.71	1655.63	2663.17	111	128*	75-113	11	30
2-Nitroaniline	83 U	1653.99	1477.98	1655.63	1465.04	89	88	75-130	1	30
3-Nitroaniline	330 U	1653.99	1417.19	1655.63	1571.25	86	95	60-125	10	30
4-Nitroaniline	330 U	1653.99	1267.89	1655.63	1229.5	77	74	50-112	3	30
Nitrobenzene	83 U	1653.99	1412.68	1655.63	1439.77	85	87	70-122	2	30
2-Nitrophenol	83 U	1653.99	1524.95	1655.63	1528.15	92	92	77-123	0	30
4-Nitrophenol	830 U	1653.99	1281.95	1655.63	1466.44	78	89	44-131	13	30
N-Nitroso-di-n-propylamine	83 U	1653.99	1376.05	1655.63	1393.17	83	84	60-123	1	30
N-Nitrosodiphenylamine	83 U	1653.99	1726.58	1655.63	2034.36	104	123*	83-118	16	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Di-n-octylphthalate	330 U	1653.99	1448.95	1655.63	1287.02	88	78	76-135	12	30
Pentachlorophenol	170 U	1653.99	1304.91	1655.63	1402.36	79	85	33-141	7	30
Phenanthrene	13170.31	1653.99	31805.99	1655.63	32386.55	1127 (2)	1161 (2)	74-114	2	30
Phenol	83 U	1653.99	1391.55	1655.63	1507.05	84	91	63-125	8	30
Pyrene	19816.52	1653.99	37439.49	1655.63	42836.52	1065 (2)	1390 (2)	74-112	13	30
1,2,4,5-Tetrachlorobenzene	83 U	1653.99	1530.95	1655.63	1498.93	93	91	76-116	2	30
2,3,4,6-Tetrachlorophenol	330 U	1653.99	1311.81	1655.63	1379.56	79	83	65-123	5	30
2,4,5-Trichlorophenol	83 U	1653.99	1422.72	1655.63	1500.57	86	91	79-123	5	30
2,4,6-Trichlorophenol	83 U	1653.99	1521.31	1655.63	1595.65	92	96	81-123	5	30
	ug/kg	**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 172610002A	Sample number(s): 9205713-9205714 UNSPK: P210689									
Aldrin	0.17 U	3.29	2.77	3.29	2.84	84	86	60-117	3	50
Alpha BHC	0.17 U	3.23	3.17	3.22	3.28	98	102	65-124	3	50
Beta BHC	0.48 U	3.23	2.70	3.22	2.74	84	85	68-129	1	50
Gamma BHC - Lindane	0.17 U	3.23	3.29	3.22	3.43	102	106	47-140	4	50
Alpha Chlordane	0.17 U	3.29	2.74	3.29	2.85	83	87	73-131	4	50
Gamma Chlordane	0.25 U	3.29	2.70	3.29	2.73	82	83	76-134	1	50
p,p-DDD	0.32 U	6.45	6.52	6.45	6.62	101	103	69-138	2	50
p,p-DDE	0.32 U	6.52	5.47	6.52	5.60	84	86	68-146	2	50
p,p-DDT	0.35 U	6.45	4.65	6.45	4.99	72	77	67-135	7	50
Delta BHC	0.647	3.23	4.35	3.22	4.91	115	132	45-151	12	50
Dieldrin	0.32 U	6.39	5.41	6.38	5.54	85	87	63-126	2	50
Endosulfan I	0.22 U	3.23	2.22	3.22	2.30	69	71	62-119	4	50
Endosulfan II	0.32 U	6.58	4.71	6.58	4.81	72	73	65-126	2	50
Endosulfan Sulfate	0.32 U	6.52	4.88	6.52	5.21	75	80	71-132	7	50
Endrin	0.33 U	6.45	5.80	6.45	5.94	90	92	65-125	2	50
Endrin Aldehyde	0.32 U	6.52	4.68	6.52	4.77	72	73	59-122	2	50
Endrin Ketone	0.59 U	6.52	4.75	6.52	4.94	73	76	64-121	4	50
Heptachlor	0.27 U	3.23	2.76	3.22	2.78	85	86	66-118	1	50
Heptachlor Epoxide	0.53 U	3.29	2.55	3.29	2.57	78	78	74-128	1	50
Methoxychlor	1.7 U	32.4	26.97	32.4	28.94	83	89	65-131	7	50
Batch number: 172610003A	Sample number(s): 9205713-9205714 UNSPK: 9205713									
PCB-1016	3.6 U	167	197.79	166	137.71	118	83	76-121	36	50
PCB-1260	4.8 U	167	185.66	166	130.54	111	79	79-130	35	50
	ng/g	**ng/g**	**ng/g**	**ng/g**	**ng/g**					
Batch number: 17268003	Sample number(s): 9205700-9205704,9205707-9205712 UNSPK: 9205700									
Perfluorobutanesulfonate	0.19 U	1.15	1.17			102		70-130		
Perfluorobutanoic acid	0.19 U	1.30	1.42			110		70-130		
Perfluorodecanoic acid	0.19 U	1.30	1.28			99		70-130		
Perfluorododecanoic acid	0.19 U	1.30	1.51			116		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	0.19 U	1.30	1.33			102		70-130		
Perfluorohexanesulfonate	0.19 U	1.23	0.972			79		70-130		
Perfluorohexanoic acid	0.094 U	1.30	1.32			102		70-130		
Perfluorononanoic acid	0.173	1.30	1.57			108		70-130		
Perfluoro-octanesulfonate	0.382	1.24	1.48			89		70-130		
Perfluorooctanoic acid	0.266	1.30	1.75			115		70-130		
Perfluoropentanoic acid	0.19 U	1.30	1.32			102		70-130		
Perfluorotetradecanoic acid	0.19 U	1.30	1.44			111		70-130		
Perfluorotridecanoic acid	0.19 U	1.30	1.73			134*		70-130		
Perfluoroundecanoic acid	0.19 U	1.30	1.46			113		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17258007	Sample number(s): 9205716 UNSPK: P203377									
6:2 fluorotelomersulfonate	3 U	12.87	19.61			152*		70-130		
8:2 fluorotelomersulfonate	4 U	13.01	18.62			143*		70-130		
NEtFOSAA	1 U	13.58	18.42			136*		70-130		
NMeFOSAA	1 U	13.58	16.56			122		70-130		
Perfluorobutanesulfonate	0.810	12.01	15.58			123		70-130		
Perfluorobutanoic Acid	9.87	13.58	24.94			111		70-130		
Perfluorodecanoic acid	0.5 U	13.58	17.41			128		70-130		
Perfluorododecanoic acid	0.5 U	13.58	16.24			120		70-130		
Perfluoroheptanoic acid	34.75	13.58	61.91			200*		70-130		
Perfluorohexanesulfonate	1 U	12.84	12.56			98		70-130		
Perfluorohexanoic acid	21.38	13.58	40.44			140*		70-130		
Perfluorononanoic acid	1.99	13.58	20.21			134*		70-130		
Perfluoro-octanesulfonate	2 U	12.98	14.19			109		70-130		
Perfluorooctanoic acid	848.38	13.58	897.85			364 (2)		70-130		
Perfluoropentanoic Acid	9.56	13.58	26.25			123		70-130		
Perfluorotetradecanoic acid	0.5 U	13.58	16.66			123		70-130		
Perfluorotridecanoic acid	0.5 U	13.58	13.4			99		70-130		
Perfluoroundecanoic acid	1 U	13.58	19.03			140*		70-130		
PFOSA	3 U	13.58	17.71			130		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172571063702	Sample number(s): 9205713-9205714 UNSPK: P202862									
Aluminum	10762.56	186.92	16065.58	200	16737.75	2837 (2)	2988 (2)	75-125	4	20
Calcium	12866.38	373.83	13234.56	400	13166.5	98 (2)	75 (2)	75-125	1	20
Iron	18294	93.46	19291.99	100	19680.06	1068 (2)	1386 (2)	75-125	2	20
Magnesium	6545.16	186.92	7289.96	200	7382.88	398 (2)	419 (2)	75-125	1	20
Manganese	385.94	46.73	443.12	50	450.59	122 (2)	129 (2)	75-125	2	20
Potassium	2922.28	934.58	6203.51	1000	6614.4	351*	369*	75-125	6	20
Sodium	55.98	934.58	974.1	1000	1060.57	98	100	75-125	8	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Zinc	50.58	46.73	95.76	50	100.13	97	99	75-125	4	20
Batch number: 172571063702A	Sample number(s): 9205713-9205714 UNSPK: P202862									
Antimony	0.159	1.12	0.886	1.20	0.909	65*	62*	75-125	3	20
Arsenic	4.87	1.87	6.73	2.00	7.67	100	140*	75-125	13	20
Beryllium	0.591	0.748	1.41	0.800	1.53	110	117	75-125	8	20
Cadmium	0.175	0.935	1.03	1.00	1.12	92	94	75-125	8	20
Chromium	13.86	9.35	27.07	10	27.94	141*	141*	75-125	3	20
Cobalt	7.11	46.73	52.64	50	56.12	97	98	75-125	6	20
Copper	16.97	9.35	26.02	10	27.62	97	107	75-125	6	20
Lead	9.44	2.80	12.74	3.00	13.58	118	138*	75-125	6	20
Nickel	16.45	9.35	26.5	10	28.14	108	117	75-125	6	20
Silver	0.0316	9.35	9.37	10	10.0	100	100	75-125	6	20
Thallium	0.106	0.374	0.529	0.400	0.581	113	119	75-125	9	20
Vanadium	19.18	9.35	34.47	10	36.88	164*	177*	75-125	7	20
Batch number: 172571063702B	Sample number(s): 9205713-9205714 UNSPK: P202862									
Selenium	0.244	1.87	1.97	2.00	2.06	93	91	75-125	4	20
Batch number: 172571063702D	Sample number(s): 9205713-9205714 UNSPK: P202862									
Barium	94.98	9.35	133.91	10	138.14	416 (2)	432 (2)	75-125	3	20
Batch number: 172571063803	Sample number(s): 9205713-9205714 UNSPK: P205490									
Mercury	0.0154	0.156	0.187	0.156	0.183	110	108	80-120	2	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172581063501	Sample number(s): 9205716 UNSPK: P206517									
Aluminum	0.190	2.00	2.26	2.00	2.22	103	101	75-125	2	20
Boron	0.0910	2.00	2.04	2.00	2.03	98	97	75-125	0	20
Calcium	121.36	4.00	119.2	4.00	117.43	-54 (2)	-98 (2)	75-125	2	20
Iron	5.08	1.00	6.61	1.00	7.10	152 (2)	202 (2)	75-125	7	20
Magnesium	37.07	2.00	38.32	2.00	37.86	62 (2)	39 (2)	75-125	1	20
Manganese	4.00	0.500	4.49	0.500	4.52	99 (2)	105 (2)	75-125	1	20
Potassium	1.50	10	11.89	10	11.65	104	101	75-125	2	20
Sodium	14.35	10	24.68	10	24.35	103	100	75-125	1	20
Zinc	0.0065 U	0.500	0.510	0.500	0.496	102	99	75-125	3	20
Batch number: 172611063901A	Sample number(s): 9205716 UNSPK: P211896									
Antimony	0.00045 U	0.00600	0.00581	0.00600	0.00562	97	94	75-125	3	20
Arsenic	0.223	0.0100	0.230	0.0100	0.235	68 (2)	124 (2)	75-125	2	20
Beryllium	0.000269	0.00400	0.00427	0.00400	0.00446	100	105	75-125	4	20
Cadmium	0.000184	0.00500	0.00550	0.00500	0.00544	106	105	75-125	1	20
Chromium	0.0140	0.0500	0.0653	0.0500	0.0681	103	108	75-125	4	20
Cobalt	0.00792	0.250	0.272	0.250	0.279	105	108	75-125	3	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Copper	0.00784	0.0500	0.0598	0.0500	0.0619	104	108	75-125	3	20
Lead	0.00937	0.0150	0.0247	0.0150	0.0256	102	108	75-125	4	20
Nickel	0.0171	0.0500	0.0672	0.0500	0.0693	100	104	75-125	3	20
Silver	0.000358	0.0500	0.0489	0.0500	0.0507	97	101	75-125	4	20
Thallium	0.00012 U	0.00200	0.00221	0.00200	0.00237	110	118	75-125	7	20
Vanadium	0.00950	0.0500	0.0617	0.0500	0.0640	104	109	75-125	4	20
Batch number: 172611063901B	Sample number(s): 9205716 UNSPK: P211896									
Selenium	0.00050 U	0.0100	0.0108	0.0100	0.0106	108	106	75-125	2	20
Batch number: 172611063901D	Sample number(s): 9205716 UNSPK: P211896									
Barium	0.283	0.0500	0.309	0.0500	0.332	52 (2)	97 (2)	75-125	7	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17265102201A	Sample number(s): 9205713-9205714 UNSPK: P204041									
Total Cyanide (solid)	0.264	4.85	5.06			99		41-145		
Batch number: 17271667633A	Sample number(s): 9205700-9205704,9205707-9205708 UNSPK: P203402									
TOC	178	10239	8615.02			82		47-143		
Batch number: 17271667633B	Sample number(s): 9205709-9205714 UNSPK: 9205711									
TOC	5473.47	66519	96746.03			137		47-143		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17256249106A	Sample number(s): 9205716 UNSPK: 9205716									
Bromide	1.3 U	50	53.67			107		90-110		
Chloride	881.18	1000	1908.1			103		90-110		
Nitrate Nitrogen	0.414	5.00	5.22			96		90-110		
Nitrite Nitrogen	25.0 U	250	247.08			99		90-110		
Sulfate	39.31	50	93.39			108		90-110		
Batch number: 17262108101A	Sample number(s): 9205716 UNSPK: P206201									
Kjeldahl Nitrogen	1.29	5.00	6.69			108		90-110		
Batch number: 17265107102B	Sample number(s): 9205716 UNSPK: P204694									
Ammonia Nitrogen	28.33	20	48.68			102		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17256022601A	Sample number(s): 9205716 UNSPK: P205740									
Ortho-Phosphate as P	0.156	0.400	0.564	0.400	0.569	102	103	69-131	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17258002204A	Sample number(s): 9205716 UNSPK: P206527									

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l as CaCO3	MS Spike Added mg/l as CaCO3	MS Conc mg/l as CaCO3	MSD Spike Added mg/l as CaCO3	MSD Conc mg/l as CaCO3	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Total Alkalinity to pH 4.5	991.62	188	1135.95			77 (2)		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172571063702	Sample number(s): 9205713-9205714 BKG: P202862			
Aluminum	10762.56	11290.51	5	20
Calcium	12866.38	12489.03	3	20
Iron	18294	19183.78	5	20
Magnesium	6545.16	6652.88	2	20
Manganese	385.94	400.52	4	20
Potassium	2922.28	2990.76	2	20
Sodium	55.98	64.69	14 (1)	20
Zinc	50.58	50.58	0	20
Batch number: 172571063702A	Sample number(s): 9205713-9205714 BKG: P202862			
Antimony	0.159	0.116	31* (1)	20
Arsenic	4.87	5.01	3	20
Beryllium	0.591	0.607	3 (1)	20
Cadmium	0.175	0.129	30* (1)	20
Chromium	13.86	14.31	3	20
Cobalt	7.11	7.37	4	20
Copper	16.97	17.01	0	20
Lead	9.44	9.31	1	20
Nickel	16.45	17.3	5	20
Silver	0.0316	0.0376	17 (1)	20
Thallium	0.106	0.109	3 (1)	20
Vanadium	19.18	19.19	0	20
Batch number: 172571063702B	Sample number(s): 9205713-9205714 BKG: P202862			
Selenium	0.244	0.207	16 (1)	20
Batch number: 172571063702D	Sample number(s): 9205713-9205714 BKG: P202862			
Barium	94.98	103.3	8	20
Batch number: 172571063803	Sample number(s): 9205713-9205714 BKG: P205490			
Mercury	0.0154	0.0159	3 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172581063501	Sample number(s): 9205716 BKG: P206517			
Aluminum	0.190	0.126	41* (1)	20
Boron	0.0910	0.0861	6 (1)	20
Calcium	121.36	115.54	5	20
Iron	5.08	4.91	3	20
Magnesium	37.07	36.42	2	20
Manganese	4.00	3.94	1	20
Potassium	1.50	1.60	6 (1)	20
Sodium	14.35	14.17	1	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172611063901A	Sample number(s): 9205716 BKG: P211896			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.223	0.212	5	20
Beryllium	0.000269	0.000236	13 (1)	20
Cadmium	0.000184	0.000234	24* (1)	20
Chromium	0.0140	0.0132	6 (1)	20
Cobalt	0.00792	0.00751	5	20
Copper	0.00784	0.00708	10 (1)	20
Lead	0.00937	0.00907	3 (1)	20
Nickel	0.0171	0.0153	11 (1)	20
Silver	0.000358	0.00015 U	200* (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00950	0.00797	18	20
Batch number: 172611063901B	Sample number(s): 9205716 BKG: P211896			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172611063901D	Sample number(s): 9205716 BKG: P211896			
Barium	0.283	0.260	8	20
	mg/kg	mg/kg		
Batch number: 17265102201A	Sample number(s): 9205713-9205714 BKG: P204041			
Total Cyanide (solid)	0.264	0.368	33* (1)	20
Batch number: 17271667633A	Sample number(s): 9205700-9205704,9205707-9205708 BKG: P203402			
TOC	178	236.09	28* (1)	7
Batch number: 17271667633B	Sample number(s): 9205709-9205714 BKG: 9205711			
TOC	5473.47	30137.62	139* (1)	7
	mg/l	mg/l		
Batch number: 17256249106A	Sample number(s): 9205716 BKG: 9205716			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	881.18	862.06	2 (1)	15

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Nitrate Nitrogen	0.414	0.410	1 (1)	15
Nitrite Nitrogen	25.0 U	25.0 U	0 (1)	15
Sulfate	39.31	38.61	2	15
Batch number: 17262108101A	Sample number(s): 9205716 BKG: P206201			
Kjeldahl Nitrogen	1.29	1.32	2 (1)	20
Batch number: 17265107102B	Sample number(s): 9205716 BKG: P204694			
Ammonia Nitrogen	28.33	28.39	0	20
	mg/l	mg/l		
Batch number: 17256022601A	Sample number(s): 9205716 BKG: P205740			
Ortho-Phosphate as P	0.156	0.156	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17258002204A	Sample number(s): 9205716 BKG: P206527			
Total Alkalinity to pH 4.5	991.62	990.54	0	5
	Std. Units	Std. Units		
Batch number: 17261039402A	Sample number(s): 9205700-9205704 BKG: P208708			
pH	5.17	5.07	2	3
Batch number: 17261039402B	Sample number(s): 9205707-9205712 BKG: 9205707			
pH	8.52	8.54	0	3
	%	%		
Batch number: 17262820003B	Sample number(s): 9205700-9205704,9205707-9205712 BKG: 9205708			
Moisture	18.32	15.54	16*	5
Batch number: 17263820023A	Sample number(s): 9205713-9205714 BKG: P176147			
Moisture	14.36	16.44	13*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172614AA

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172614AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9205715	95	100	101	97
Blank	95	98	102	98
LCS	98	99	102	100
LCSD	98	100	101	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SOM02.2 Volatiles
Batch number: R172621AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9205713	86	85	60	68
9205714	81	83	61	83
Blank	107	109	83	76
LCS	109	109	84	84
LCSD	108	109	86	83
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 17257SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9205713	85	90	80	93	90	90
9205714	53	57	51	68	62	63
Blank	83	91	101	86	98	100
LCS	98	100	96	88	90	92
MS	79	83	71	82	88	85
MSD	81	84	74	85	88	85
Limits:	46-125	51-123	34-129	49-118	57-116	55-118

Analysis Name: TCL Pesticides
Batch number: 172610002A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
9205713	63	104	59	110
9205714	66	80	60	84
Blank	63	111	63	122
LCS	69	118	70	127
MS	84	64	67	62
MSD	86	70	69	68

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: TCL Pesticides
Batch number: 172610002A

Limits:	26-145	39-152	26-145	39-152

Analysis Name: PCBs
Batch number: 172610003A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
9205713	70	61	74	60
9205714	69	50	71	52
Blank	112	99	109	97
LCS	8*	5*	4*	6*
MS	5*	3*	3*	3*
MSD	4*	2*	2*	2*
Limits:	53-140	45-143	53-140	45-143

Analysis Name: 19 PFCs
Batch number: 17258007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9205716	83	94	96	87	87	80
Blank	82	81	75	84	81	81
LCS	94	98	93	103	102	97
LCSD	93	93	85	95	87	94
MS	73	85	83	74	91	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9205716	88	84	81	91	75	62
Blank	76	83	78	83	75	61
LCS	96	99	91	111	89	76
LCSD	81	89	95	100	82	70
MS	60	72	70	71	71	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9205716	63	74	77	78	67	9*
Blank	65	71	78	70	70	59*
LCS	105	96	115	96	95	62*
LCSD	85	90	100	87	87	67*
MS	71	69	76	76	72	12*

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17258007

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17258008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9205705	81	82	77	85	93	81
9205706	89	89	80	85	98	86
Blank	84	79	76	78	83	72
LCS	92	86	80	76	88	86
LCSD	83	82	81	81	85	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9205705	82	81	90	86	81	85
9205706	94	97	89	84	99	96
Blank	86	74	83	76	72	71
LCS	83	85	86	85	85	89
LCSD	81	81	77	77	78	76
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9205705	78
9205706	86
Blank	73
LCS	82
LCSD	83
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17268003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9205700	82	77	69	97	100	90
9205701	86	80	77	94	90	89
9205702	84	72	75	93	87	82
9205703	81	75	71	88	85	82
9205704	83	75	80	99	109	105
9205707	81	73	75	93	94	90

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1849658
Reported: 10/31/2017 14:10

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17268003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9205708	86	76	83	102	99	97
9205709	79	69*	65	86	82	83
9205710	71	67*	67	80	73	68
9205711	75	68*	65	86	82	78
9205712	77	69*	72	84	92	83
Blank	68	63*	66	79	84	87
LCS	76	72	80	90	91	81
LCSD	78	74	82	105	109	93
MS	78	72	67	87	87	83
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9205700	85	80	79	80	89	81
9205701	87	88	86	89	94	94
9205702	74	76	81	76	89	92
9205703	76	87	87	87	84	96
9205704	91	92	95	81	93	92
9205707	87	78	76	87	80	78
9205708	88	92	77	89	88	89
9205709	78	76	79	82	73	73
9205710	70	76	77	83	88	91
9205711	71	77	77	77	82	84
9205712	76	88	79	80	73	84
Blank	76	72	69	88	89	80
LCS	84	81	70	76	86	84
LCSD	98	91	88	91	97	95
MS	77	75	74	72	72	71
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9205700	91
9205701	95
9205702	101
9205703	105
9205704	90
9205707	91
9205708	99

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 14:10

Group Number: 1849658

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17268003

	13C2-PFTeDA
9205709	87
9205710	102
9205711	90
9205712	88
Blank	84
LCS	85
LCSD	92
MS	86
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1849658 9205700-16

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ~~NY~~VT ☐ MN ☐ SD

COC Number: **52320**

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr, Latham, NY 12110
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3 - St Gobain Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic	Soil: 250 mL Plastic	Soil: 4 oz glass	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A		A	N	
1. SG3-S45-0-0.5' ~~SG3-S45-0.5-1'~~ JMS 9/12	0 ~~0.5~~	0.5 ~~1~~ JMS 9/12	ft	9-12-17	0845	S	N	2		1	1				(14) PFCs, moisture content, TOC, pH
2. SG3-S45-1-1.5'	1	1.5	ft	9-12-17	0905	S	N	2		1	1				
3. SG3-S45-0.5-1'	0.5	1	ft	9-12-17	0900	S	N	2		1	1				
4. SG3-S45-3-4'	3	4	ft	9-12-17	0915	S	N	2		1	1				
5. SG3-S45-8-9'	8	9	ft	9-12-17	0925	S	N	2		1	1				
6. SG3-LTB29-170912	—	—	—	9-12-17	AM	W	N	1	1						LTB prepared by ELLE 08-28-17
7. SG3-LTB30-170912	—	—	—	09-12-17	AM	W	N	1	1						LTB prepared by ELLE 08-15-17
8. SG3-S49-0-0.5'	0	0.5	ft	09-12-17	1050	S	N	2		1	1				
9. SG3-S49-0.5-1'	0.5	1	ft	09-12-17	1105	S	N	2		1	1				
10. SG3-S49-1-1.5'	1	1.5	ft	09-12-17	1110	S	N	2		1	1				SAMPLES IN 2 COOLERS

BARR USE ONLY

Sampled by: RAK/JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 9-12-17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 9/13/17 Time 930

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.5 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1849658 920570-16

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **52288**

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 market Pointe Dr	Address: 50 Century Hill Dr, Latham, NY 12110
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3-St Gobain Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 mL plastic	Water: 40 mL Vial	Soil: 250 mL plastic	Soil: 4 oz glass	Soil: 250 mL w/ methanol	Soil: 500 mL w/ methanol + 2 SB/MeOH Vials	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
																A	N	
1. SG3-S49-3-4'	3	4	ft	09-12-17	1115	S	N	2			1	1						(14) PFCs, moist. content, TOC, pH
2. SG3-S49-8-9'	8	9	ft	09-12-17	1140	S	N	2			1	1						
3. SG3-S49-5.3-6.3'	5.3	6.3	ft	09-12-17	1220	S	N	2			1	1						
4. SG3-S02-0.5-1'	0.5	1	ft	9-12-17	1555	S	N	5					1	1	3			Moist, PCB, TAL metals, TCL Pesticides
5. SG3-S02-1-1.5'	1	1.5	ft	9-12-17	1610	S	N	5					1	1	3			TCL SVOCs, TOC, total CN, grain size
6. SG3-LTB31-170912	—	—	—	9-12-17	AM	W	N	2	2									Prepared by ELLE 8-10-17 for TCL Volatiles
7.																		
8.																		
9.																		
10.																		SAMPLES IN 2 COOLERS

BARR USE ONLY		Relinquished by	On Ice? (Y) N	Date	Time	Received by	Date	Time
Sampled by:	RAK/JMS							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/13/17	Time 9:30
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.6			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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37191 1849658 9205700-16

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **52321**

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr, Latham, NY 12110
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3-St Gobain Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 500 mL	250 mL	250 mL	250 mL	250 mL (TriZma)	40 mL	Soil % Solids	Preservative Code	Field Filtered Y/N
									D	C	A	A	O	A			
									N	N	Y	N	N	N			
1. SG3-S49-170912	—	—	—	09-12-17	1400	GW	N	8	1	1	1	1	2	2			
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

Preservative Code: (19) PFCs, metals/cations (excluding Cr & Hg), anions, ammonia, orthophosphate, TKN

SAMPLES IN 2 COOLERS

BARR USE ONLY							
Sampled by: RAK/JMS	Relinquished by:	On Ice? (Y) N	Date 9-12-17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date 9/13/17	Time 930
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.6			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 194223

Group Number(s): 1849658

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/13/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 HCl + 2 Unpres.

Unpacked by Wendy Wakeley (1669) at 10:51 on 09/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.6	DT	Wet	Y	Bagged	N
2	DT42-01	1.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 29, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1849661
SDG: SGB35
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S02-0.5-1' Soil	09/12/2017 15:55	9205724
SG3-S02-1-1.5' Soil	09/12/2017 16:10	9205725

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1849661

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: SG3-S02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9205724
ELLE Group # 1849661
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/12/2017 15:55 by RAK

Submitted: 09/13/2017 09:35
Reported: 09/29/2017 13:25

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02G1 SDG#: SGB35-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**60.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**49.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**40.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**32.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**26.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**19.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**11.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17258710301A	09/15/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9205725
ELLE Group # 1849661
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/12/2017 16:10 by RAK

Submitted: 09/13/2017 09:35
Reported: 09/29/2017 13:25

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S02G2 SDG#: SGB35-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**83.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**55.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**48.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**43.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**38.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**31.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**22.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**16.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**12.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17258710301A	09/15/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1849661
Reported: 09/29/2017 13:25

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1849661 9205724-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52288

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT mail
Address: 4300 market Pointe Dr	Address: 50 Century Hill Dr, Latham, NY 12110
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3 - St Gobain Bennington	Barr Project No: 324210001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 mL plastic	40 mL Vial	Soil: 250 mL plastic	4 oz glass	8 oz wide mouth glass	500 mL wide mouth plastic	HLVial kit 2 SB/MeOH	% Solids
Preservative Code									A		A	A	A	A	E	
Field Filtered Y/N									N	Z	N	N	N	N	N	
1. SG3-S49-3-4'	3	4	ft	09-12-17	1115	S	N	2			1	1				
2. SG3-S49-8-9'	8	9	ft	09-12-17	1140	S	N	2			1	1				
3. SG3-S49-5.3-6.3'	5.3	6.3	ft	09-12-17	1220	S	N	2			1	1				
4. SG3-SS02-0.5-1'	0.5	1	ft	9-12-17	1555	S	N	5					1	1	3	
5. SG3-SS02-1-1.5'	1	1.5	ft	9-12-17	1610	S	N	5					1	1	3	
6. SG3-LTB31-170912	—	—	—	9-12-17	PM	W	N	2		2						
7.																
8.																
9.																
10.																

Analysis Requested

(14) PFCs, moist. content, TOC, pH

Moist, PCB, TAL metals, TCL Pesticides, TCL SVOCs, TOC, total CN, grain size

Prepared by ELLE 8-10-17 for TCL Volatiles

SAMPLES IN 2 COOLERS

BARR USE ONLY	
Sampled by:	RAK/JMS
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
		9-12-17	1700			
Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
					9/13/17	9:5

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.6 Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 194223

Group Number(s): 1849661

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/13/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 HCl + 2 Unpres.

Unpacked by Wendy Wakeley (1669) at 10:51 on 09/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.6	DT	Wet	Y	Bagged	N
2	DT42-01	1.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 15:01

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1850184
SDG: SGB36
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB34-170913 Blank Water	09/13/2017	9207729
SG3-S21-170913 Grab Groundwater	09/13/2017 14:30	9207730

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1850184

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: L172621AA (Sample number(s): 9207729-9207730 UNSPK: P203340)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1,2-Trichloroethane, Cyclohexane

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9207730

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17262WAH026 (Sample number(s): 9207730)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9207730, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9207730

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch #: 17258007 (Sample number(s): 9207730 UNSPK: P203377)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorododecanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate, Perfluoroundecanoic acid, Perfluorotetradecanoic acid

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluoroundecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, 8:2 fluorotelomersulfonate, NEtFOSAA, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9207730, Blank, LCS, LCSD, MS

SW-846 6010C, Metals

Batch #: 172581063502 (Sample number(s): 9207730 UNSPK: 9207730 BKG: 9207730)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

EPA 300.0, Wet Chemistry

Batch #: 17257987113A (Sample number(s): 9207730 UNSPK: 9207730 BKG: 9207730)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Nitrite Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 17268107105B (Sample number(s): 9207730 UNSPK: P209076 BKG: P209076)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 17263108101A (Sample number(s): 9207730 UNSPK: P208148 BKG: P208148)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17258002205A (Sample number(s): 9207730 UNSPK: 9207730 BKG: 9207730)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

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Sample Description: **SG3-LTB34-170913 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017
SDG#: SGB36-01TB

C. T. Male Associates
ELLE Sample #: WW 9207729
ELLE Group #: 1850184
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	2 U	2	4	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB34-170913 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017
SDG#: SGB36-01TB

C. T. Male Associates
ELLE Sample #: WW 9207729
ELLE Group #: 1850184
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172621AA	09/19/2017 12:34	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172621AA	09/19/2017 12:34	Jason M Long	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S21-170913 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017 14:30
SDG#: SGB36-02

C. T. Male Associates
ELLE Sample #: GW 9207730
ELLE Group #: 1850184
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	2 U	2	4	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S21-170913 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017 14:30
SDG#: SGB36-02

C. T. Male Associates
ELLE Sample #: GW 9207730
ELLE Group #: 1850184
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.98**	0.052	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**4**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**42**	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**2 J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**20**	0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**2 J**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**24**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**5**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**8**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**140**	0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**15**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S21-170913 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017 14:30
SDG#: SGB36-02

C. T. Male Associates
ELLE Sample #: GW 9207730
ELLE Group #: 1850184
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.					
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0422 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**136**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**3.48**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**27.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.56**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**14.8**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**25.1**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0015 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.847**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0020 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0099**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0011 J**	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0051**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00035 J**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**43.0**	2.0	4.0	10
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**16.7**	1.5	5.0	5

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S21-170913 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017 14:30
SDG#: SGB36-02

C. T. Male Associates
ELLE Sample #: GW 9207730
ELLE Group #: 1850184
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.64**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**1.0**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**456**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**456**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172621AA	09/19/2017 12:56	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172621AA	09/19/2017 12:56	Jason M Long	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17262WAH026	09/21/2017 10:19	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17262WAH026	09/19/2017 16:55	Christine E Gleim	1
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17258007	09/22/2017 22:36	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258007	09/17/2017 09:50	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172581063502	09/20/2017 21:58	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S21-170913 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/14/2017 09:35
Collection Date/Time: 09/13/2017 14:30
SDG#: SGB36-02

C. T. Male Associates
ELLE Sample #: GW 9207730
ELLE Group #: 1850184
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06026	Barium	SW-846 6020A	1	172581063902D	09/22/2017 02:18	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172581063902B	09/22/2017 02:18	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172581063902A	09/22/2017 02:18	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	172580571308	09/23/2017 10:00	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172581063502	09/18/2017 22:12	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172581063902	09/19/2017 17:00	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172580571308	09/22/2017 00:30	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17257987113A	09/14/2017 20:44	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17257987113A	09/15/2017 05:40	Clinton M Wilson	10
00368	Nitrate Nitrogen	EPA 300.0	1	17257987113A	09/14/2017 20:44	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17257987113A	09/14/2017 20:44	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17257987113A	09/14/2017 20:44	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17268107105B	09/25/2017 22:26	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17263108101A	09/23/2017 13:01	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17269117101A	09/26/2017 14:05	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17263108101A	09/20/2017 17:15	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17269117101A	09/26/2017 10:40	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17258002205A	09/16/2017 05:58	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17258002205A	09/16/2017 05:58	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17258002205A	09/16/2017 05:58	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17257022602A	09/14/2017 21:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L172621AA	Sample number(s): 9207729-9207730		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	2 U	2	4
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17262WAH026	Sample number(s): 9207730		
1,4-Dioxane	0.083 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17258007	Sample number(s): 9207730		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
	mg/l	mg/l	mg/l
Batch number: 172580571308	Sample number(s): 9207730		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 172581063502	Sample number(s): 9207730		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172581063902A	Sample number(s): 9207730		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172581063902B	Sample number(s): 9207730		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172581063902D	Sample number(s): 9207730		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17257987113A	Sample number(s): 9207730		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17263108101A	Sample number(s): 9207730		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17268107105B	Sample number(s): 9207730		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17269117101A	Sample number(s): 9207730		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17257022602A	Sample number(s): 9207730		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17258002205A	Sample number(s): 9207730		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L172621AA	Sample number(s): 9207729-9207730								
Acetone	150	182.51			122		44-177		
Benzene	20	21			105		78-120		
Bromochloromethane	20	19.19			96		80-125		
Bromodichloromethane	20	17.5			88		71-120		
Bromoform	20	13.33			67		59-120		
Bromomethane	20	15.91			80		44-139		
2-Butanone	150	162.57			108		53-140		
Carbon Disulfide	20	17.81			89		65-128		
Carbon Tetrachloride	20	17.19			86		68-128		
Chlorobenzene	20	20.17			101		80-120		
Chloroethane	20	16.46			82		52-127		
Chloroform	20	20.58			103		80-120		
Chloromethane	20	17.62			88		57-120		
Cyclohexane	20	20.38			102		67-121		
1,2-Dibromo-3-chloropropane	20	17.29			86		64-120		
Dibromochloromethane	20	16.29			81		71-120		
1,2-Dibromoethane	20	19.76			99		75-120		
1,2-Dichlorobenzene	20	20.15			101		80-120		
1,3-Dichlorobenzene	20	19.95			100		80-120		
1,4-Dichlorobenzene	20	20.65			103		80-120		
Dichlorodifluoromethane	20	17.16			86		47-124		
1,1-Dichloroethane	20	20.89			104		80-120		
1,2-Dichloroethane	20	20.36			102		73-124		
1,1-Dichloroethene	20	20.79			104		76-124		
cis-1,2-Dichloroethene	20	20.59			103		80-120		
trans-1,2-Dichloroethene	20	20.41			102		80-120		
1,2-Dichloropropane	20	21.42			107		80-120		
cis-1,3-Dichloropropene	20	18.29			91		75-120		
trans-1,3-Dichloropropene	20	17.27			86		76-120		
Ethylbenzene	20	20.88			104		78-120		
Freon 113	20	20.23			101		68-137		
2-Hexanone	100	108.49			108		60-134		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	20.7			104		80-120		
Methyl Acetate	20	22.2			111		61-137		
Methyl Tertiary Butyl Ether	20	20.19			101		75-120		
4-Methyl-2-pentanone	100	108.6			109		67-128		
Methylcyclohexane	20	20.9			105		66-126		
Methylene Chloride	20	20.67			103		80-120		
Styrene	20	20.28			101		80-120		
1,1,2,2-Tetrachloroethane	20	20.76			104		72-120		
Tetrachloroethene	20	19.97			100		80-129		
Toluene	20	20.71			104		80-120		
1,2,3-Trichlorobenzene	20	19.73			99		66-120		
1,2,4-Trichlorobenzene	20	19.15			96		70-120		
1,1,1-Trichloroethane	20	16.95			85		67-120		
1,1,2-Trichloroethane	20	21.05			105		80-120		
Trichloroethene	20	19.95			100		80-120		
Trichlorofluoromethane	20	18.8			94		52-143		
Vinyl Chloride	20	17.68			88		63-121		
m+p-Xylene	40	41.44			104		80-120		
o-Xylene	20	19.81			99		80-120		
Xylene (Total)	60	61.24			102		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17262WAH026	Sample number(s): 9207730								
1,4-Dioxane	1.00	1.25	1.00	1.22	125	122	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17258007	Sample number(s): 9207730								
6:2 fluorotelomersulfonate	12.89	18.16	12.89	17.6	141*	137*	70-130	3	30
8:2 fluorotelomersulfonate	13.03	18.86	13.03	19.72	145*	151*	70-130	4	30
NEtFOSAA	13.6	18.65	13.6	18.85	137*	139*	70-130	1	30
NMeFOSAA	13.6	17.2	13.6	17.37	126	128	70-130	1	30
Perfluorobutanesulfonate	12.03	13.4	12.03	14.64	111	122	70-130	9	30
Perfluorobutanoic Acid	13.6	15.15	13.6	15.64	111	115	70-130	3	30
Perfluorodecanoic acid	13.6	16.23	13.6	16.38	119	120	70-130	1	30
Perfluorododecanoic acid	13.6	16.35	13.6	18.03	120	133*	70-130	10	30
Perfluoroheptanoic acid	13.6	16.8	13.6	15.69	124	115	70-130	7	30
Perfluorohexanesulfonate	12.86	14.24	12.86	14	111	109	70-130	2	30
Perfluorohexanoic acid	13.6	14.3	13.6	16.71	105	123	70-130	16	30
Perfluorononanoic acid	13.6	15.81	13.6	16.29	116	120	70-130	3	30
Perfluoro-octanesulfonate	13	13.89	13	14.02	107	108	70-130	1	30
Perfluorooctanoic acid	13.6	16.2	13.6	15.05	119	111	70-130	7	30
Perfluoropentanoic Acid	13.6	14.68	13.6	15.11	108	111	70-130	3	30
Perfluorotetradecanoic acid	13.6	17.78	13.6	17.68	131*	130	70-130	1	30
Perfluorotridecanoic acid	13.6	15.14	13.6	14.86	111	109	70-130	2	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroundecanoic acid	13.6	18.11	13.6	16.86	133*	124	70-130	7	30
PFOSA	13.6	14.55	13.6	15.9	107	117	70-130	9	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172580571308	Sample number(s): 9207730								
Mercury	0.00100	0.000957			96		80-120		
Batch number: 172581063502	Sample number(s): 9207730								
Aluminum	2.00	1.99			100		80-120		
Boron	2.00	1.85			93		80-120		
Calcium	4.00	3.93			98		80-120		
Iron	1.00	0.953			95		80-120		
Magnesium	2.00	1.98			99		80-120		
Manganese	0.500	0.506			101		80-120		
Potassium	10	9.83			98		80-120		
Sodium	10	9.77			98		80-120		
Zinc	0.500	0.500			100		80-120		
Batch number: 172581063902A	Sample number(s): 9207730								
Antimony	0.00600	0.00603			101		80-120		
Arsenic	0.0100	0.00992			99		80-120		
Beryllium	0.00400	0.00395			99		80-120		
Cadmium	0.00500	0.00483			97		80-120		
Chromium	0.0500	0.0510			102		80-120		
Cobalt	0.250	0.258			103		80-120		
Copper	0.0500	0.0526			105		80-120		
Lead	0.0150	0.0153			102		80-120		
Nickel	0.0500	0.0529			106		80-120		
Silver	0.0500	0.0517			103		80-120		
Thallium	0.00200	0.00190			95		80-120		
Vanadium	0.0500	0.0509			102		80-120		
Batch number: 172581063902B	Sample number(s): 9207730								
Selenium	0.0100	0.0104			104		80-120		
Batch number: 172581063902D	Sample number(s): 9207730								
Barium	0.0500	0.0497			99		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17257987113A	Sample number(s): 9207730								
Bromide	7.50	7.24			97		90-110		
Chloride	3.00	2.87			96		90-110		
Nitrate Nitrogen	0.750	0.708			94		90-110		
Nitrite Nitrogen	0.750	0.726			97		90-110		
Sulfate	7.50	7.04			94		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17263108101A	Sample number(s): 9207730								
Kjeldahl Nitrogen	5.00	5.48	5.00	4.84	110	97	90-110	12	20
Batch number: 17268107105B	Sample number(s): 9207730								
Ammonia Nitrogen	1.50	1.46			97		90-110		
Batch number: 17269117101A	Sample number(s): 9207730								
Total Cyanide	0.200	0.207			103		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17257022602A	Sample number(s): 9207730								
Ortho-Phosphate as P	0.400	0.406			102		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17258002205A	Sample number(s): 9207730								
Total Alkalinity to pH 4.5	188	181.74	188	181.76	97	97	77-114	0	5

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L172621AA	Sample number(s): 9207729-9207730 UNSPK: P203340									
Acetone	6 U	150	174.76	150	165.09	117	110	44-177	6	30
Benzene	110.38	20	132.57	20	129.39	111 (2)	95 (2)	78-120	2	30
Bromochloromethane	1 U	20	20.47	20	20.24	102	101	80-125	1	30
Bromodichloromethane	0.5 U	20	19.45	20	19.51	97	98	71-120	0	30
Bromoform	0.5 U	20	14.05	20	14.35	70	72	59-120	2	30
Bromomethane	0.5 U	20	17.22	20	17.57	86	88	44-139	2	30
2-Butanone	3 U	150	163.55	150	161.87	109	108	53-140	1	30
Carbon Disulfide	1 U	20	20.91	20	21.08	105	105	65-128	1	30
Carbon Tetrachloride	0.5 U	20	19.24	20	19.72	96	99	68-128	2	30
Chlorobenzene	0.5 U	20	21.88	20	22.01	109	110	80-120	1	30
Chloroethane	0.5 U	20	18.29	20	18.66	91	93	52-127	2	30
Chloroform	0.5 U	20	23.29	20	23.16	116	116	80-120	1	30
Chloromethane	0.5 U	20	20.72	20	20.85	104	104	57-120	1	30
Cyclohexane	26.44	20	50.88	20	50.61	122*	121	67-121	1	30
1,2-Dibromo-3-chloropropane	2 U	20	18.64	20	19.52	93	98	64-120	5	30
Dibromochloromethane	0.5 U	20	17.34	20	17.63	87	88	71-120	2	30
1,2-Dibromoethane	0.5 U	20	20.59	20	20.7	103	104	75-120	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	20.97	20	21.2	105	106	80-120	1	30
1,3-Dichlorobenzene	1 U	20	21.06	20	21.31	105	107	80-120	1	30
1,4-Dichlorobenzene	1 U	20	21.75	20	21.71	109	109	80-120	0	30
Dichlorodifluoromethane	0.5 U	20	20.25	20	20.26	101	101	47-124	0	30
1,1-Dichloroethane	1.10	20	24.18	20	24.25	115	116	80-120	0	30
1,2-Dichloroethane	0.828	20	22.37	20	21.9	108	105	73-124	2	30
1,1-Dichloroethene	0.5 U	20	24.56	20	24.64	123	123	76-124	0	30
cis-1,2-Dichloroethene	19.25	20	42.55	20	42.67	116	117	80-120	0	30
trans-1,2-Dichloroethene	0.563	20	23.37	20	23.47	114	115	80-120	0	30
1,2-Dichloropropane	0.5 U	20	23.75	20	23.46	119	117	80-120	1	30
cis-1,3-Dichloropropene	0.5 U	20	19.42	20	19.79	97	99	75-120	2	30
trans-1,3-Dichloropropene	0.5 U	20	18.18	20	18.62	91	93	76-120	2	30
Ethylbenzene	2.91	20	26.01	20	25.78	116	114	78-120	1	30
Freon 113	2 U	20	23.96	20	24.15	120	121	68-137	1	30
2-Hexanone	3 U	100	115.14	100	116.9	115	117	60-134	2	30
Isopropylbenzene	3.34	20	26.62	20	26.58	116	116	80-120	0	30
Methyl Acetate	1 U	20	21.96	20	21.95	110	110	61-137	0	30
Methyl Tertiary Butyl Ether	9.10	20	30.62	20	30.7	108	108	75-120	0	30
4-Methyl-2-pentanone	3 U	100	114.09	100	113.96	114	114	67-128	0	30
Methylcyclohexane	21.29	20	46.55	20	45.72	126	122	66-126	2	30
Methylene Chloride	2 U	20	22.72	20	22.98	114	115	80-120	1	30
Styrene	1 U	20	21.81	20	21.94	109	110	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.41	20	21.12	107	106	72-120	1	30
Tetrachloroethene	67.26	20	90.34	20	89.27	115	110	80-129	1	30
Toluene	2.81	20	25.28	20	25.24	112	112	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	20.1	20	20.59	101	103	66-120	2	30
1,2,4-Trichlorobenzene	1 U	20	19.94	20	20.52	100	103	70-120	3	30
1,1,1-Trichloroethane	0.5 U	20	19.19	20	19.28	96	96	67-120	0	30
1,1,2-Trichloroethane	0.5 U	20	24.3	20	24.29	121*	121*	80-120	0	30
Trichloroethene	26.22	20	49.92	20	49.24	118	115	80-120	1	30
Trichlorofluoromethane	0.5 U	20	22.01	20	21.92	110	110	52-143	0	30
Vinyl Chloride	2.31	20	23.52	20	23.61	106	106	63-121	0	30
m+p-Xylene	13.91	40	59.35	40	59.09	114	113	80-120	0	30
o-Xylene	3.45	20	25.16	20	25.05	109	108	80-120	0	30
Xylene (Total)	17.36	60	84.51	60	84.13	112	111	80-120	0	30
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17258007	Sample number(s): 9207730 UNSPK: P203377									
6:2 fluorotelomersulfonate	3 U	12.87	19.61			152*		70-130		
8:2 fluorotelomersulfonate	4 U	13.01	18.62			143*		70-130		
NEtFOSAA	1 U	13.58	18.42			136*		70-130		
NMeFOSAA	1 U	13.58	16.56			122		70-130		
Perfluorobutanesulfonate	0.810	12.01	15.58			123		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanoic Acid	9.87	13.58	24.94			111		70-130		
Perfluorodecanoic acid	0.5 U	13.58	17.41			128		70-130		
Perfluorododecanoic acid	0.5 U	13.58	16.24			120		70-130		
Perfluoroheptanoic acid	34.75	13.58	61.91			200*		70-130		
Perfluorohexanesulfonate	1 U	12.84	12.56			98		70-130		
Perfluorohexanoic acid	21.38	13.58	40.44			140*		70-130		
Perfluorononanoic acid	1.99	13.58	20.21			134*		70-130		
Perfluoro-octanesulfonate	2 U	12.98	14.19			109		70-130		
Perfluorooctanoic acid	848.38	13.58	897.85			364 (2)		70-130		
Perfluoropentanoic Acid	9.56	13.58	26.25			123		70-130		
Perfluorotetradecanoic acid	0.5 U	13.58	16.66			123		70-130		
Perfluorotridecanoic acid	0.5 U	13.58	13.4			99		70-130		
Perfluoroundecanoic acid	1 U	13.58	19.03			140*		70-130		
PFOSA	3 U	13.58	17.71			130		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172580571308	Sample number(s): 9207730 UNSPK: P209814									
Mercury	0.000050 U	0.00100	0.000926	0.00100	0.000938	93	94	80-120	1	20
Batch number: 172581063502	Sample number(s): 9207730 UNSPK: 9207730									
Aluminum	0.0894 U	2.00	2.02	2.00	2.08	101	104	75-125	3	20
Boron	0.0422	2.00	1.94	2.00	1.97	95	96	75-125	2	20
Calcium	136.17	4.00	136.6	4.00	140.29	11 (2)	103 (2)	75-125	3	20
Iron	3.48	1.00	4.36	1.00	4.44	88	96	75-125	2	20
Magnesium	27.43	2.00	28.71	2.00	29.48	64 (2)	103 (2)	75-125	3	20
Manganese	1.56	0.500	2.01	0.500	2.07	91	102	75-125	3	20
Potassium	14.76	10	24.12	10	24.73	94	100	75-125	2	20
Sodium	25.07	10	34.09	10	35.08	90	100	75-125	3	20
Zinc	0.0065 U	0.500	0.497	0.500	0.506	99	101	75-125	2	20
Batch number: 172581063902A	Sample number(s): 9207730 UNSPK: P206651									
Antimony	0.00045 U	0.00600	0.00650	0.00600	0.00638	108	106	75-125	2	20
Arsenic	0.00072 U	0.0100	0.0105	0.0100	0.0109	105	109	75-125	3	20
Beryllium	0.000071 U	0.00400	0.00411	0.00400	0.00408	103	102	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00487	0.00500	0.00512	97	102	75-125	5	20
Chromium	0.00087 U	0.0500	0.0500	0.0500	0.0510	100	102	75-125	2	20
Cobalt	0.00016 U	0.250	0.248	0.250	0.255	99	102	75-125	3	20
Copper	0.000565	0.0500	0.0503	0.0500	0.0522	99	103	75-125	4	20
Lead	0.00011 U	0.0150	0.0155	0.0150	0.0155	104	103	75-125	0	20
Nickel	0.00122	0.0500	0.0503	0.0500	0.0545	98	107	75-125	8	20
Silver	0.00015 U	0.0500	0.0492	0.0500	0.0500	98	100	75-125	2	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Thallium	0.00012 U	0.00200	0.00202	0.00200	0.00202	101	101	75-125	0	20
Vanadium	0.000832	0.0500	0.0500	0.0500	0.0512	98	101	75-125	3	20
Batch number: 172581063902B	Sample number(s): 9207730 UNSPK: P206651									
Selenium	0.00050 U	0.0100	0.00998	0.0100	0.00999	100	100	75-125	0	20
Batch number: 172581063902D	Sample number(s): 9207730 UNSPK: P206651									
Barium	0.00860	0.0500	0.0560	0.0500	0.0569	95	97	75-125	2	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17257987113A	Sample number(s): 9207730 UNSPK: 9207730									
Bromide	1.3 U	25	25.02			100		90-110		
Chloride	42.98	20	66.79			119*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.64			106		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.24			89*		90-110		
Sulfate	16.69	25	40.31			94		90-110		
Batch number: 17263108101A	Sample number(s): 9207730 UNSPK: P208148									
Kjeldahl Nitrogen	0.50 U	5.00	5.88			118*		90-110		
Batch number: 17268107105B	Sample number(s): 9207730 UNSPK: P209076									
Ammonia Nitrogen	0.0628	1.00	1.19			112*		90-110		
Batch number: 17269117101A	Sample number(s): 9207730 UNSPK: 9207730									
Total Cyanide	0.0050 U	0.200	0.195			98		72-114		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17257022602A	Sample number(s): 9207730 UNSPK: P207121									
Ortho-Phosphate as P	2.21	2.00	4.04	2.00	4.07	92	93	69-131	1	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17258002205A	Sample number(s): 9207730 UNSPK: 9207730									
Total Alkalinity to pH 4.5	455.52	188	593.92			74*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172580571308	Sample number(s): 9207730 BKG: P209814			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 172581063502	Sample number(s): 9207730 BKG: 9207730			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0422	0.0425	1 (1)	20
Calcium	136.17	136.54	0	20
Iron	3.48	3.51	1	20
Magnesium	27.43	27.47	0	20
Manganese	1.56	1.57	1	20
Potassium	14.76	14.82	0	20
Sodium	25.07	25.12	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172581063902A	Sample number(s): 9207730 BKG: P206651			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00016 U	0.00016 U	0 (1)	20
Copper	0.000565	0.000627	10 (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.00122	0.00145	17 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000832	0.000971	15 (1)	20
Batch number: 172581063902B	Sample number(s): 9207730 BKG: P206651			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172581063902D	Sample number(s): 9207730 BKG: P206651			
Barium	0.00860	0.0101	16 (1)	20
	mg/l	mg/l		
Batch number: 17257987113A	Sample number(s): 9207730 BKG: 9207730			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	42.98	42.95	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	16.69	16.33	2 (1)	15
Batch number: 17263108101A	Sample number(s): 9207730 BKG: P208148			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17268107105B	Sample number(s): 9207730 BKG: P209076			
Ammonia Nitrogen	0.0628	0.0595	5 (1)	20
Batch number: 17269117101A	Sample number(s): 9207730 BKG: 9207730			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17257022602A	Sample number(s): 9207730 BKG: P207121			
Ortho-Phosphate as P	2.21	2.19	1 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17258002205A	Sample number(s): 9207730 BKG: 9207730			
Total Alkalinity to pH 4.5	455.52	458.68	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172621AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9207729	95	99	102	98
9207730	96	101	101	97
Blank	96	100	101	98
LCS	98	100	101	100
MS	98	101	101	101
MSD	97	101	101	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17262WAH026

	1,4-Dioxane-d8
9207730	35*
Blank	41*
LCS	42*
LCSD	44*

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:01

Group Number: 1850184

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 1,4-Dioxane
Batch number: 17262WAH026

Limits: 70-130

Analysis Name: 19 PFCs
Batch number: 17258007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9207730	75	108	141	55	68	73
Blank	82	81	75	84	81	81
LCS	94	98	93	103	102	97
LCSD	93	93	85	95	87	94
MS	73	85	83	74	91	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9207730	137	70	74	94	65	110
Blank	76	83	78	83	75	61
LCS	96	99	91	111	89	76
LCSD	81	89	95	100	82	70
MS	60	72	70	71	71	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9207730	66	75	74	63	58	17*
Blank	65	71	78	70	70	59*
LCS	105	96	115	96	95	62*
LCSD	85	90	100	87	87	67*
MS	71	69	76	76	72	12*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1850184 | 9207729-30

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52310 COC 3 of 34

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 300 Market Pointe Dr.	Address: 50 Century Hill Dr. Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 3242100

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other Trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 40ml vials - HCl	250ml Plastic - Trizma	250ml Plastic - Unpre.	250ml Plastic - Nitric	40ml Vials - Unpre.	500ml Plastic - H_2SO_4	Water/Soil: 250ml Glass - Unpres.	250ml Plastic - NaOH/Trizma	250ml Plastic - Unpres.	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
									X										B O A C A D	A E A	N N N N N N N N Y	
1. SG3-LTB34-170913	—	—	—	09/13/2017	AM	W	N	2	2												VOC Trip Blank Prepared by ELLE 9.5.17
2. SG3-S21-170913	—	—	—	09/13/2017	1430	GW	N	15	3	2	1	2	2	1	2	1	1				(19) PFC's, metals/cations (including CN and Hg), anions, ammonia, orthophosphate, TKN, 1,4-Dioxane 5030 2, 2 VOCs, Alkalinity (Carb/Bicarb) Nitrogen (Nitrate/Nitrite) Bromide, Chloride, Solfate.
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

BARR USE ONLY

Sampled by: RAK JMS

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kosbosky — On Ice? (Y) N — Date: 9.13.17 — Time: 1700 — Received by:

Relinquished by: — On Ice? Y N — Date — Time — Received by: — Date: 9/14/17 — Time: 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____ — Air Bill Number:

Lab WO: — Temperature on Receipt (°C): 2.8/5.1 — Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 194380

Group Number(s): 1850184

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/14/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:56 on 09/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.8	DT	Wet	Y	Bagged	N
2	DT42-01	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1850188
SDG: SGB37
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

REVISED

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D01-0-0.5' Soil	09/13/2017 09:00	9207754
SG3-D01-0.5-1' Soil	09/13/2017 09:05	9207755
SG3-D01-1-1.5' Soil	09/13/2017 09:10	9207756
SG3-D01-3-4' Soil	09/13/2017 09:20	9207757
SG3-D01-8-9' Soil	09/13/2017 09:25	9207758
SG3-D01-12-13' Soil	09/13/2017 09:50	9207759
SG3-D01-18-19' Soil	09/13/2017 10:00	9207760
SG3-D01-28-29' Soil	09/13/2017 10:30	9207761
SG3-S18-0-0.5' Soil	09/13/2017 09:15	9207762
SG3-S18-0.5-1' Soil	09/13/2017 09:30	9207763
SG3-S18-1-1.5' Soil	09/13/2017 09:35	9207764
SG3-S18-3-4' Soil	09/13/2017 10:00	9207765
SG3-S18-5.3-6.3' Soil	09/13/2017 10:55	9207766
SG3-LTB32-170913 Water	09/13/2017	9207767
SG3-LTB33-170913 Water	09/13/2017	9207768
SG3-S21-0-0.5' Soil	09/13/2017 12:45	9207769
SG3-S21-0.5-1' Soil	09/13/2017 12:55	9207770
SG3-S21-1-1.5' Soil	09/13/2017 13:05	9207771
SG3-S21-3-4' Soil	09/13/2017 13:15	9207772
SG3-S21-6.3-7.3' Soil	09/13/2017 13:30	9207773

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1850188

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9207755, 9207765, 9207773

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample #s: 9207756, 9207757, 9207758, 9207759, 9207760, 9207761, 9207762, 9207763, 9207764, 9207766, 9207769, 9207770, 9207771, 9207772

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9207754

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC

Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch #: 17258008 (Sample number(s): 9207767-9207768)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

Batch #: 17268006 (Sample number(s): 9207754-9207766, 9207769-9207773 UNSPK: 9207754)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorononanoic acid. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9207754, 9207756, 9207757, 9207758, 9207759, 9207760, 9207761, 9207762, 9207763, 9207764, 9207766, 9207769, 9207770, 9207771, 9207772, MS

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17271667634B (Sample number(s): 9207763-9207766, 9207769-9207773 UNSPK: 9207772 BKG: 9207772)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9207771

The pH was measured in water at 19.7 C.

Sample #s: 9207754, 9207759, 9207760, 9207772

The pH was measured in water at 19.9 C.

Sample #s: 9207755, 9207756, 9207763

The pH was measured in water at 20 C.

Sample #s: 9207769, 9207773

The pH was measured in water at 20.1 C.

Sample #s: 9207761, 9207764, 9207770

The pH was measured in water at 20.2 C.

Sample #s: 9207757, 9207766

The pH was measured in water at 20.3 C.

Sample #s: 9207765

The pH was measured in water at 20.4 C.

Sample #s: 9207762

The pH was measured in water at 20.5 C.

Sample #s: 9207758

The pH was measured in water at 20.6 C.

REVISED

Sample Description: SG3-D01-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207754
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:00 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3701 SDG#: SGB37-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample.

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,000**		1,310	3,930	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		%		%	%	
00111	**Moisture**	n.a.	**5.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207754
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:00 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3701 SDG#: SGB37-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 08:54	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 01:50	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401A	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207755
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:05 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B37-2 SDG#: SGB37-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,430**		675	2,030	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207755
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:05 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B37-2 SDG#: SGB37-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 09:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 02:29	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401A	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207756
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:10 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3703 SDG#: SGB37-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,190**		142	425	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.81**		0.0100	0.0100	1

The pH was measured in water at 20 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207756
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:10 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3703 SDG#: SGB37-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 10:16	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	09/29/2017 08:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401A	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207757
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:20 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B37-4 SDG#: SGB37-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,600**		597	1,790	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.16**		0.0100	0.0100	1

The pH was measured in water at 20.3 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.7**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207757
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:20 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B37-4 SDG#: SGB37-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 10:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 04:26	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401A	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9207758
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:25 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3705 SDG#: SGB37-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.73	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.73	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.73	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37	U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24	U	0.24	0.73	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.73	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,070**		132	397	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**		0.0100	0.0100	1

The pH was measured in water at 20.6 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**21.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9207758
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:25 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3705 SDG#: SGB37-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 10:57	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	09/29/2017 09:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401A	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-12-13' Soil
SGPP - North Bennington

ELLE Sample # SW 9207759
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:50 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3706 SDG#: SGB37-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095	U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095	U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29	U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19	U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.57	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**51,800**		2,600	7,800	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.98**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**4.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-12-13' Soil
SGPP - North Bennington

ELLE Sample # SW 9207759
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:50 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3706 SDG#: SGB37-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 11:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 02:42	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9207760
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:00 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3707 SDG#: SGB37-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,700**		731	2,190	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.01**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.1**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9207760
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:00 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3707 SDG#: SGB37-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 11:38	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 02:55	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9207761
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:30 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3708 SDG#: SGB37-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,330**		1,110	3,230	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**		0.0100	0.0100	1

The pH was measured in water at 20.2 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D01-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9207761
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:30 by DJZ

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3708 SDG#: SGB37-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 11:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	10/05/2017 03:08	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207762
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:15 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3709 SDG#: SGB37-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**		0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,200**		335	1,010	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**		0.0100	0.0100	1

The pH was measured in water at 20.5 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.7**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207762
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:15 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3709 SDG#: SGB37-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 12:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634A	09/29/2017 10:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207763
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:30 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3710 SDG#: SGB37-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**		0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,500**		230	691	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.16**		0.0100	0.0100	1

The pH was measured in water at 20 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.5**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207763
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:30 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3710 SDG#: SGB37-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 12:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 11:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004A	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207764
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:35 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3711 SDG#: SGB37-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38**	**J**	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,470**		205	616	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**		0.0100	0.0100	1

The pH was measured in water at 20.2 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.4**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207764
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 09:35 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3711 SDG#: SGB37-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 13:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 11:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207765
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:00 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3712 SDG#: SGB37-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
	The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,000**		241	722	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.64**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207765
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:00 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3712 SDG#: SGB37-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 14:02	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 11:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-5.3-6.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9207766
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:55 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3713 SDG#: SGB37-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099	U	0.099	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.099	U	0.099	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,700**		1,810	5,430	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.94**		0.0100	0.0100	1

The pH was measured in water at 20.3 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.0**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S18-5.3-6.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9207766
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 10:55 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3713 SDG#: SGB37-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 14:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	10/05/2017 03:21	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB32-170913 Water
SGPP - North Bennington

ELLE Sample # WW 9207767
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3714 SDG#: SGB37-14TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 02:22	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-LTB33-170913 Water
SGPP - North Bennington

ELLE Sample # WW 9207768
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3715 SDG#: SGB37-15TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17258008	09/23/2017 02:42	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17258008	09/17/2017 09:55	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207769
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 12:45 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3716 SDG#: SGB37-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.60**	**J**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,000**		267	802	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**		0.0100	0.0100	1

The pH was measured in water at 20.1 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.6**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207769
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 12:45 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3716 SDG#: SGB37-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 14:43	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 11:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207770
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 12:55 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3717 SDG#: SGB37-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,740**		443	1,330	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.12**		0.0100	0.0100	1

The pH was measured in water at 20.2 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.9**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9207770
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 12:55 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3717 SDG#: SGB37-17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 15:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 12:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039401B	09/20/2017 19:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207771
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:05 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3718 SDG#: SGB37-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.38**	**J**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,500**		304	911	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**		0.0100	0.0100	1

The pH was measured in water at 19.7 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9207771
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:05 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3718 SDG#: SGB37-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 15:24	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	09/29/2017 12:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17263039402A	09/20/2017 20:30	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207772
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:15 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3719 SDG#: SGB37-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,360**		1,470	4,420	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.08**		0.0100	0.0100	1

The pH was measured in water at 19.9 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**3.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9207772
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:15 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3719 SDG#: SGB37-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 15:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	10/05/2017 03:34	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039402A	09/20/2017 20:30	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-6.3-7.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9207773
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:30 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3720 SDG#: SGB37-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.46**	**J**	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1

The recovery for PFNA in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,700**		2,510	7,540	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.79**		0.0100	0.0100	1

The pH was measured in water at 20.1 C.

Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**4.8**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-S21-6.3-7.3' Soil
SGPP - North Bennington

ELLE Sample # SW 9207773
ELLE Group # 1850188
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 13:30 by RAK

Submitted: 09/14/2017 09:35
Reported: 10/12/2017 11:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B3720 SDG#: SGB37-20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17268006	09/27/2017 16:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17268006	09/25/2017 15:25	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17271667634B	10/05/2017 04:13	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17263039402A	09/20/2017 20:30	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17262820004B	09/19/2017 22:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 11:03

Group Number: 1850188

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17268006	Sample number(s): 9207754-9207766,9207769-9207773			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17258008	Sample number(s): 9207767-9207768			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17271667634A	Sample number(s): 9207754-9207762			
TOC	100	U	100	300
Batch number: 17271667634B	Sample number(s): 9207763-9207766,9207769-9207773			
TOC	100	U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1850188
Reported: 10/12/2017 11:03

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17268006	Sample number(s): 9207754-9207766,9207769-9207773								
Perfluorobutanesulfonate	1.20	1.22	1.20	1.10	101	91	70-130	10	30
Perfluorobutanoic acid	1.36	1.40	1.36	1.43	103	105	70-130	2	30
Perfluorodecanoic acid	1.36	1.42	1.36	1.32	104	97	70-130	7	30
Perfluorododecanoic acid	1.36	1.52	1.36	1.46	112	107	70-130	4	30
Perfluoroheptanoic acid	1.36	1.54	1.36	1.41	113	103	70-130	9	30
Perfluorohexanesulfonate	1.29	1.35	1.29	1.20	105	93	70-130	12	30
Perfluorohexanoic acid	1.36	1.41	1.36	1.42	104	105	70-130	1	30
Perfluorononanoic acid	1.36	1.37	1.36	2.01	101	148*	70-130	38*	30
Perfluoro-octanesulfonate	1.30	1.14	1.30	1.40	88	108	70-130	20	30
Perfluorooctanoic acid	1.36	1.53	1.36	1.26	113	93	70-130	19	30
Perfluoropentanoic acid	1.36	1.30	1.36	1.36	96	100	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.43	1.36	1.36	105	100	70-130	5	30
Perfluorotridecanoic acid	1.36	1.68	1.36	1.54	123	113	70-130	8	30
Perfluoroundecanoic acid	1.36	1.50	1.36	1.46	110	108	70-130	2	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17258008	Sample number(s): 9207767-9207768								
Perfluorobutanesulfonate	12.03	12.53	12.03	12.1	104	101	70-130	4	30
Perfluorobutanoic Acid	13.6	13.16	13.6	14.24	97	105	70-130	8	30
Perfluorodecanoic acid	13.6	14.2	13.6	18.29	104	135*	70-130	25	30
Perfluorododecanoic acid	13.6	13.31	13.6	15.57	98	115	70-130	16	30
Perfluoroheptanoic acid	13.6	13.29	13.6	14.67	98	108	70-130	10	30
Perfluorohexanesulfonate	12.86	10.53	12.86	12.57	82	98	70-130	18	30
Perfluorohexanoic acid	13.6	14.23	13.6	14.52	105	107	70-130	2	30
Perfluorononanoic acid	13.6	14.17	13.6	16.24	104	119	70-130	14	30
Perfluoro-octanesulfonate	13	12.46	13	11.5	96	88	70-130	8	30
Perfluorooctanoic acid	13.6	14.51	13.6	14.02	107	103	70-130	3	30
Perfluoropentanoic Acid	13.6	13.64	13.6	13.73	100	101	70-130	1	30
Perfluorotetradecanoic acid	13.6	13.6	13.6	15.88	100	117	70-130	15	30
Perfluorotridecanoic acid	13.6	11.31	13.6	13.91	83	102	70-130	21	30
Perfluoroundecanoic acid	13.6	16.37	13.6	16.99	120	125	70-130	4	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17271667634A	Sample number(s): 9207754-9207762								
TOC	7150	6562.32			92		47-143		
Batch number: 17271667634B	Sample number(s): 9207763-9207766,9207769-9207773								
TOC	7150	6562.32			92		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17263039401A	Sample number(s): 9207754-9207758								
pH	7.00	6.92			99		95-105		
Batch number: 17263039401B	Sample number(s): 9207759-9207766,9207769-9207770								
pH	7.00	6.92			99		95-105		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 11:03

Group Number: 1850188

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17263039402A	Sample number(s): 9207771-9207773								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17262820004A	Sample number(s): 9207754-9207763								
Moisture	89.5	89.4			100		99-101		
Batch number: 17262820004B	Sample number(s): 9207764-9207766,9207769-9207773								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/g		ng/g	ng/g	ng/g	ng/g					
Batch number: 17268006	Sample number(s): 9207754-9207766,9207769-9207773 UNSPK: 9207754										
Perfluorobutanesulfonate	0.19	U	1.17	1.13			97		70-130		
Perfluorobutanoic acid	0.19	U	1.32	1.44			109		70-130		
Perfluorodecanoic acid	0.19	U	1.32	1.42			107		70-130		
Perfluorododecanoic acid	0.19	U	1.32	1.37			104		70-130		
Perfluoroheptanoic acid	0.19	U	1.32	1.42			108		70-130		
Perfluorohexanesulfonate	0.19	U	1.25	1.23			98		70-130		
Perfluorohexanoic acid	0.094	U	1.32	1.34			101		70-130		
Perfluorononanoic acid	0.094	U	1.32	1.59			121		70-130		
Perfluoro-octanesulfonate	0.28	U	1.26	1.13			90		70-130		
Perfluorooctanoic acid	0.19	U	1.32	1.43			109		70-130		
Perfluoropentanoic acid	0.19	U	1.32	1.29			98		70-130		
Perfluorotetradecanoic acid	0.19	U	1.32	1.39			105		70-130		
Perfluorotridecanoic acid	0.19	U	1.32	1.56			118		70-130		
Perfluoroundecanoic acid	0.19	U	1.32	1.35			103		70-130		
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17271667634A	Sample number(s): 9207754-9207762 UNSPK: 9207758										
TOC	4770.19		6100	7905.65			51		47-143		
Batch number: 17271667634B	Sample number(s): 9207763-9207766,9207769-9207773 UNSPK: 9207772										
TOC	9011.56		72464	112155.51			142		47-143		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 11:03

Group Number: 1850188

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17271667634A	Sample number(s): 9207754-9207762 BKG: 9207758			
TOC	4770.19	4734.22	1	7
Batch number: 17271667634B	Sample number(s): 9207763-9207766,9207769-9207773 BKG: 9207772			
TOC	9011.56	20864.87	79* (1)	7
	Std. Units	Std. Units		
Batch number: 17263039401A	Sample number(s): 9207754-9207758 BKG: P210974			
pH	7.40	7.55	2	3
Batch number: 17263039401B	Sample number(s): 9207759-9207766,9207769-9207770 BKG: 9207759			
pH	8.98	9.02	0	3
Batch number: 17263039402A	Sample number(s): 9207771-9207773 BKG: 9207771			
pH	8.02	8.12	1	3
	%	%		
Batch number: 17262820004A	Sample number(s): 9207754-9207763 BKG: 9207759			
Moisture	4.76	4.57	4	5
Batch number: 17262820004B	Sample number(s): 9207764-9207766,9207769-9207773 BKG: 9207765			
Moisture	8.19	7.95	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17258008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9207767	95	92	86	104	97	93
9207768	74	72	71	78	74	74
Blank	84	79	76	78	83	72
LCS	92	86	80	76	88	86
LCSD	83	82	81	81	85	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1850188
Reported: 10/12/2017 11:03

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17258008

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9207767	90	98	94	85	91	88
9207768	71	67	73	67	68	72
Blank	86	74	83	76	72	71
LCS	83	85	86	85	85	89
LCSD	81	81	77	77	78	76
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9207767	81
9207768	68
Blank	73
LCS	82
LCSD	83
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17268006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9207754	56	55*	70	65	87	67
9207755	78	70	71	97	95	89
9207756	78	68*	73	78	86	75
9207757	72	63*	69	88	93	87
9207758	70	64*	69	82	79	73
9207759	58	53*	56	62	72	61
9207760	68	60*	63	75	78	71
9207761	71	65*	69	78	85	70
9207762	71	63*	63	76	79	73
9207763	78	69*	71	94	90	81
9207764	76	67*	68	84	82	82
9207765	77	70	76	81	80	83
9207766	74	63*	75	85	89	88
9207769	69	64*	67	76	83	74
9207770	68	60*	73	80	99	83
9207771	66	62*	63	76	84	78
9207772	77	65*	68	80	82	76
9207773	82	74	76	100	98	90
Blank	82	76	72	107	98	93
LCS	80	75	70	93	95	86
LCSD	80	70	74	83	82	80
MS	63	61*	80	70	83	70

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1850188
Reported: 10/12/2017 11:03

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17268006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	54-95	70-130	34-118	43-115	32-125	45-114
9207754	66	86	75	84	83	89
9207755	77	75	75	88	92	92
9207756	75	72	81	78	85	91
9207757	84	76	67	78	89	85
9207758	75	84	76	76	83	81
9207759	59	67	66	63	67	65
9207760	69	80	73	73	71	71
9207761	71	78	63	79	81	84
9207762	71	63	68	67	70	72
9207763	85	87	89	78	89	90
9207764	81	84	76	73	78	76
9207765	75	77	66	83	85	87
9207766	80	79	75	81	76	79
9207769	73	79	80	79	86	81
9207770	74	91	84	82	90	89
9207771	71	82	71	78	88	78
9207772	76	79	80	74	84	81
9207773	85	79	86	86	95	87
Blank	97	88	90	86	94	100
LCS	87	81	78	78	84	81
LCSD	80	84	75	88	92	96
MS	68	80	74	82	90	96
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9207754	111
9207755	89
9207756	94
9207757	100
9207758	81
9207759	62
9207760	71
9207761	91
9207762	81
9207763	100
9207764	91
9207765	90
9207766	80

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1850188
Reported: 10/12/2017 11:03

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17268006

	13C2-PFTeDA
9207769	86
9207770	91
9207771	88
9207772	87
9207773	101
Blank	101
LCS	90
LCSD	107
MS	113
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1850188 | 9207754-73

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 52275

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG PP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 250 mL Trip Blank (Water)	250 mL Plastic PFCs (14) (Soil)	4 oz glass TOC, pH, Moist (Soil)	% Solids	Preservative Code	Field Filtered Y/N	Comments
1. SG3-D01-0-0.5'	0	0.5	ft	09/13/2017	0900	Soil	N	2		1	1		N	N	PFCs (14), TOC, pH
2. SG3-D01-0.5-1'	0.5	1	ft	9-13-17	0905	S	N	2		1	1				% H_2O
3. SG3-D01-1-1.5'	1	1.5	ft	9-13-17	0910	S	N	2		1	1				
4. SG3-D01-3-4'	3	4	ft	9-13-17	0920	S	N	2		1	1				
5. SG3-D01-8-9'	8	9	ft	9-13-17	0925	S	N	2		1	1				
6. SG3-D01-12-13'	12	13	ft	9-13-17	0950	S	N	2		1	1				
7. SG3-D01-18-19'	18	19	ft	9-13-17	1000	S	N	2		1	1				
8. SG3-D01-28-29'	28	29	ft	9-13-17	1030	S	N	2		1	1				
9.															
10.															

BARR USE ONLY

Sampled by: DJZ KMJ2

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? Y N: Y Date: 9/13/17 Time: 1705

Relinquished by: [signature] On Ice? Y N: Date: Time:

Received by: Date: Time:

Received by: [signature] Date: 9/14/17 Time: 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 28/28 Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 | 1850188 | 9207754-73

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52305

COC 1 of 34

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 300 Market Pointe Dr.	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: mbdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Benning ton	Barr Project No: 3242100 1.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic	Soil: 250ml Plastic	Soil: 4oz glass	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
									A	A	A				
									N	N	N				
1. SG3-S18-0-0.5'	0	0.5	ft.	09/13/2017	0915	S	N	2		1	1				~~(14) PFC 15~~ (14) PFC 15, TOC, pH, moisture content.
2. SG3-S18-0.5-1'	0.5	1	ft.	09/13/2017	0930	S	N	2		1	1				
3. SG3-S18-1-1.5'	1	1.5	ft.	09/13/2017	0935	S	N	2		1	1				
4. SG3-S18-3-4'	3	4	ft.	09/13/2017	1000	S	N	2		1	1				
5. SG3-S18-5.3-6.3'	5.3	6.3	ft	09/13/2017	1055	S	N	2		1	1				
6. SG3-LTB32-170913	—	—	—	09/13/2017	AM	W	N	1	1						Trip Blank Prepared by ELLE 8.31.17
7. SG3-LTB33-170913	—	—	—	09/13/2017	AM	W	N	1	1						Trip Blank Prepared by ELLE 8.24.17
8. SG3-S21-0-0.5'	0	0.5	ft	09/13/2017	1245	S	N	2		1	1				
9. SG3-S21-0.5-1'	0.5	1	ft	09/13/2017	1255	S	N	2		1	1				
10. SG3-S21-1-1.5'	1	1.5	ft	09/13/2017	1305	S	N	2		1	1				

BARR USE ONLY		Relinquished by	On Ice? (Y) N	Date	Time	Received by	Date	Time
Sampled by:	RAK / JMS	Robert Kosbahy		9.13.17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/14/17	Time 9/14/17
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE						Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 2.8/0.8			Custody Seal Intact? ☒ Y ☐ N ☐ None		

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 | 1850188 | 92077754-73

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52304

COC 2 of 34

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 300 Market Pointe Dr.	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 3242 1001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250ml Plastic	Soil 250ml Plastic	Soil 4oz. Glass	% Solids	Preservative Code	Field Filtered Y/N	Comments
													A	N	
1. SG3-521-3-4'	3	4	ft	09/13/2017	1315	S	N	2		1	1				(14) PFC's, TOC, pH, moisture content.
2. SG3-521-6.3-7.3'	6.3	7.3	ft	09/13/2017	1330	S	N	2		1	1				
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY							
Sampled by: RAK / JMS	Relinquished by: Robert Kozlosky	On Ice? (Y) N	Date 9.13.17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/14/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 2.8/0.8	Custody Seal Intact? ☐ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 194380

Group Number(s): 1850188

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/14/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:56 on 09/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.8	DT	Wet	Y	Bagged	N
2	DT42-01	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 29, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1850365
SDG: SGB38
PO Number: 16.6131
State of Sample Origin: VT

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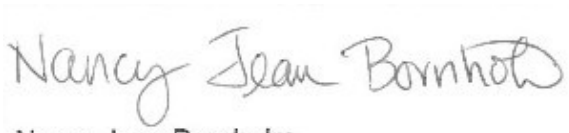
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D13-0-1' Soil	09/06/2017	9208541
SG3-D13-1-10' Soil	09/06/2017	9208542
SG3-D13-10-15' Soil	09/06/2017	9208543
SG3-D13-15-25' Soil	09/06/2017	9208544
SG3-D23-0-2' Soil	09/07/2017	9208545
SG3-D23-5-10' Soil	09/07/2017	9208546
SG3-D23-10-15' Soil	09/07/2017	9208547
SG3-D23-15-38' Soil	09/07/2017	9208548
SG3-D23-38-43' Soil	09/07/2017	9208549
SG3-D23-43-50' Soil	09/07/2017	9208550
SG3-D07-0-1' Soil	09/08/2017	9208551
SG3-D07-1-10' Soil	09/08/2017	9208552
SG3-D07-10-20' Soil	09/08/2017	9208553
SG3-D07-20-28' Soil	09/08/2017	9208554
SG3-D07-28-31' Soil	09/08/2017	9208555
SG3-D07-33-40' Soil	09/08/2017	9208556
SG3-D07-40-50' Soil	09/08/2017	9208557
SG3-D07-50-60' Soil	09/08/2017	9208558
SG3-D07-60-75' Soil	09/09/2017	9208559
SG3-D07-75-78' Soil	09/09/2017	9208560

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1850365

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: SG3-D13-0-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9208541
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D13-1 SDG#: SGB38-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**93.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**91.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**88.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**80.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**68.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**55.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**44.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**35.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-1-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9208542
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
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Latham NY 12110

D13-2 SDG#: SGB38-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**86.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**83.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**79.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**68.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**55.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**45.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**35.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**21.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-10-15' Soil
SGPP - North Bennington

ELLE Sample # SW 9208543
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
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Latham NY 12110

D13-3 SDG#: SGB38-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**85.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**71.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**69.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**64.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**53.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**47.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**42.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D13-15-25' Soil
SGPP - North Bennington

ELLE Sample # SW 9208544
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/06/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D13-4 SDG#: SGB38-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**91.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**69.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**64.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**59.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**51.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**45.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**40.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**36.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**29.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-0-2' Soil
SGPP - North Bennington

ELLE Sample # SW 9208545
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

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Latham NY 12110

1-D23 SDG#: SGB38-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**88.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**64.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**59.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**53.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**45.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**37.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**30.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**26.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-5-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9208546
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

2-D23 SDG#: SGB38-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**84.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**62.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**58.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**54.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**51.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**48.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**45.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**38.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**31.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**26.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-10-15' Soil
SGPP - North Bennington

ELLE Sample # SW 9208547
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

3-D23 SDG#: SGB38-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**86.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**82.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**76.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**71.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**69.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**66.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**64.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**62.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**44.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**24.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-15-38' Soil
SGPP - North Bennington

ELLE Sample # SW 9208548
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

4-D23 SDG#: SGB38-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**89.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**82.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**77.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**72.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**68.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**65.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**62.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**57.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**12.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-38-43' Soil
SGPP - North Bennington

ELLE Sample # SW 9208549
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

5-D23 SDG#: SGB38-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**90.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**84.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**76.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**66.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**58.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**52.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**48.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**47.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D23-43-50' Soil
SGPP - North Bennington

ELLE Sample # SW 9208550
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/07/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

6-D23 SDG#: SGB38-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**95.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**92.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**89.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**83.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**73.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**63.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**56.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**51.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**47.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-0-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9208551
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

1-D07 SDG#: SGB38-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**91.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**71.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**66.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**61.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**57.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**51.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**44.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**37.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**30.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**21.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-1-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9208552
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

2-D07 SDG#: SGB38-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**88.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**76.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**70.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**66.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**64.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**62.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**58.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**54.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**45.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**33.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**6.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-10-20' Soil
SGPP - North Bennington

ELLE Sample # SW 9208553
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

3-D07 SDG#: SGB38-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**93.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**90.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**82.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**80.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**76.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**72.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**67.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**54.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**39.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-20-28' Soil
SGPP - North Bennington

ELLE Sample # SW 9208554
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

4-D07 SDG#: SGB38-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**96.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**88.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**84.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**78.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**71.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**62.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**51.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**47.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-28-31' Soil
SGPP - North Bennington

ELLE Sample # SW 9208555
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

5-D07 SDG#: SGB38-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**92.5**	0.50	0.50	1
07103	**19 mm**	n.a.	**76.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**56.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**51.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**46.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**40.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**33.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**27.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**23.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**19.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**14.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-33-40' Soil
SGPP - North Bennington

ELLE Sample # SW 9208556
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

6-D07 SDG#: SGB38-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**90.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**68.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**64.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**59.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**58.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**51.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**48.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**42.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**40.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-40-50' Soil
SGPP - North Bennington

ELLE Sample # SW 9208557
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

7-D07 SDG#: SGB38-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**91.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**88.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**85.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**83.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**70.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**65.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**56.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**53.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-50-60' Soil
SGPP - North Bennington

ELLE Sample # SW 9208558
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/08/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

8-D07 SDG#: SGB38-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**91.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**77.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**74.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**65.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**61.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**58.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**53.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**51.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-60-75' Soil
SGPP - North Bennington

ELLE Sample # SW 9208559
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

9-D07 SDG#: SGB38-19

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**73.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**69.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**64.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**59.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**54.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**47.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**37.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-75-78' Soil
SGPP - North Bennington

ELLE Sample # SW 9208560
ELLE Group # 1850365
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 13:45

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

10D07 SDG#: SGB38-20

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**85.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**70.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**66.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**61.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**57.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**52.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**47.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**31.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710301A	09/21/2017 11:30	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1850365
Reported: 09/29/2017 13:45

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1850365 9208541-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52279
COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: Particle Size	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-D13-0-1'	0	1	ft	9-6-17		Soil	N	1		1		Particle Size Analysis	
2. SG3-D13-1-10'	1	10	ft	9-6-17		S	N	1		1			
3. SG3-D13-10-15'	10	15	ft	9-6-17		S	N	1		1			
4. SG3-D13-15-25'	15	25	ft	9-6-17		S	N	1		1			
5. SG3-D23-0-2'	0	2	ft	9-7-17		S	N	1		1			
6. SG3-D23-5-10'	5	10	ft	9-7-17		S	N	1		1		Samples in 2	
7. SG3-D23-10-15'	10	15	ft	9-7-17		S	N	1		1		5 gal buckets	
8. SG3-D23-15-38'	15	38	ft	9-7-17		S	N	1		1			
9. SG3-D23-38-43'	38	43	ft	9-7-17		S	N	1		1			
10. SG3-D23-43-50'	43	50	ft	9-7-17		S	N	1		1			

BARR USE ONLY
Sampled by: DJZ
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster

Relinquished by: Will Zander — On Ice? Y (N) — Date 9-13-17 — Time 1700
Received by: — Date — Time
Relinquished by: — On Ice? Y N — Date — Time
Received by: WS — Date 9/14/17 — Time 935

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:
Air Bill Number:
Lab WO: Temperature on Receipt (°C): NA Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1850365 9208541-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52280

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Particle Size	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D07-0-1'	0	1	ft	09/08/2017		Soil	N	1		1				Particle Size Analysis
2. SG3-D07-1-10'	1	10	ft	9-8-17		S	N	1		1				
3. SG3-D07-10-20'	10	20	ft	9-8-17		S	N	1		1				
4. SG3-D07-20-28'	20	28	ft	9-8-17		S	N	1		1				
5. SG3-D07-28-31'	28	31	ft	9-8-17		S	N	1		1				
6. SG3-D07-33-40'	33	40	ft	9-8-17		S	N	1		1				Samples in 2
7. SG3-D07-40-50'	40	50	ft	9-8-17		S	N	1		1				5 gal buckets
8. SG3-D07-50-60'	50	60	ft	9-8-17		S	N	1		1				
9. SG3-D07-60-75'	60	75	ft	9-9-17		S	N	1		1				
10. SG3-D07-75-78'	75	78	ft	9-9-17		S	N	1		1				

BARR USE ONLY

Sampled by: DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: Elle Zander — On Ice? Y (N) — Date 9-13-17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 9/14/17 — Time 935

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 194422

Group Number(s): 1850365

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/14/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	No	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	No		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 14:09 on 09/14/2017

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
SG3-D01-0-5		1	Y	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 29, 2017

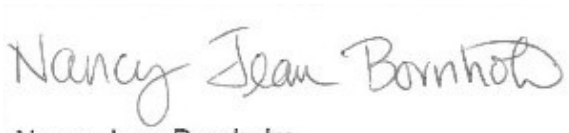
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1850366
SDG: SGB39
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D07-80-85' Soil	09/09/2017	9208561
SG3-D07-85-87' Soil	09/09/2017	9208562
SG3-D07-90-92' Soil	09/09/2017	9208563
SG3-D07-95-100' Soil	09/09/2017	9208564
SG3-D07-100-110' Soil	09/09/2017	9208565
SG3-D07-110-123' Soil	09/10/2017	9208566
SG3-D07-125-132' Soil	09/10/2017	9208567
SG3-D07-132-144' Soil	09/10/2017	9208568
SG3-D07-144-157' Soil	09/10/2017	9208569
SG3-D07-159-163' Soil	09/11/2017	9208570
SG3-D07-163-170' Soil	09/11/2017	9208571
SG3-D07-170-190' Soil	09/11/2017	9208572
SG3-D07-190-200' Soil	09/11/2017	9208573
SG3-D01-0-5' Soil	09/13/2017	9208574
SG3-D01-5-11' Soil	09/13/2017	9208575
SG3-D01-11-14' Soil	09/13/2017	9208576
SG3-D01-14-20' Soil	09/13/2017	9208577
SG3-D01-20-29' Soil	09/13/2017	9208578

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1850366

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: SG3-D07-80-85' Soil
SGPP - North Bennington

ELLE Sample # SW 9208561
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

11D07 SDG#: SGB39-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**96.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**90.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**90.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**88.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**82.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**74.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**65.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**52.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**18.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-85-87' Soil
SGPP - North Bennington

ELLE Sample # SW 9208562
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

12D07 SDG#: SGB39-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**91.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**90.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**87.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**86.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**83.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**66.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**56.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**53.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**24.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**14.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-90-92' Soil
SGPP - North Bennington

ELLE Sample # SW 9208563
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

13D07 SDG#: SGB39-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**99.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**94.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**92.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**90.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**89.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**85.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**77.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**69.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**60.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**57.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**47.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**12.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-95-100' Soil
SGPP - North Bennington

ELLE Sample # SW 9208564
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

14D07 SDG#: SGB39-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**98.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**97.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**96.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**93.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**85.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**75.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**67.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**63.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**19.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**13.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-100-110' Soil
SGPP - North Bennington

ELLE Sample # SW 9208565
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/09/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

15D07 SDG#: SGB39-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**97.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**95.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**91.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**83.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**74.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**65.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**52.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**21.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**17.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-110-123' Soil
SGPP - North Bennington

ELLE Sample # SW 9208566
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/10/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

16D07 SDG#: SGB39-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**98.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**97.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**96.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**94.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**85.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**74.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**64.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**60.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-125-132' Soil
SGPP - North Bennington

ELLE Sample # SW 9208567
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/10/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

17D07 SDG#: SGB39-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**97.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**96.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**93.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**83.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**68.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**55.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**40.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**29.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-132-144' Soil
SGPP - North Bennington

ELLE Sample # SW 9208568
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/10/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

18D07 SDG#: SGB39-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**96.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**95.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**94.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**92.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**88.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**70.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**46.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**31.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**6.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-144-157' Soil
SGPP - North Bennington

ELLE Sample # SW 9208569
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/10/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

19D07 SDG#: SGB39-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**77.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**73.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**70.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**62.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**53.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**44.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**32.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**22.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-159-163' Soil
SGPP - North Bennington

ELLE Sample # SW 9208570
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

20D07 SDG#: SGB39-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**92.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**87.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**79.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**67.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**58.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**52.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**46.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**13.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**12.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-163-170' Soil
SGPP - North Bennington

ELLE Sample # SW 9208571
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

21D07 SDG#: SGB39-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**96.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**96.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**94.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**93.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**91.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**88.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**82.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**72.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**41.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**16.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-170-190' Soil
SGPP - North Bennington

ELLE Sample # SW 9208572
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

22D07 SDG#: SGB39-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**97.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**95.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**90.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**86.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**81.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**72.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**13.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D07-190-200' Soil
SGPP - North Bennington

ELLE Sample # SW 9208573
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/11/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

23D07 SDG#: SGB39-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**99.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**99.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**96.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**93.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**91.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**89.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**88.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**84.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**72.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**52.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**27.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D01-0-5' Soil
SGPP - North Bennington

ELLE Sample # SW 9208574
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D01-1 SDG#: SGB39-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**88.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**52.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**46.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**40.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**29.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**23.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**18.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**13.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D01-5-11' Soil
SGPP - North Bennington

ELLE Sample # SW 9208575
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D01-2 SDG#: SGB39-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**90.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**81.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**78.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**76.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**73.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**71.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**69.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**68.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**66.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**15.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D01-11-14' Soil
SGPP - North Bennington

ELLE Sample # SW 9208576
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D01-3 SDG#: SGB39-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**73.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**65.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**58.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**51.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**39.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**35.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**31.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**26.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D01-14-20' Soil
SGPP - North Bennington

ELLE Sample # SW 9208577
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D01-4 SDG#: SGB39-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**71.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**65.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**60.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**52.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**47.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**42.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**40.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D01-20-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9208578
ELLE Group # 1850366
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/13/2017 by DJZ

Submitted: 09/14/2017 09:35
Reported: 09/29/2017 12:24

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D01-5 SDG#: SGB39-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**89.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**72.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**65.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**57.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**53.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**50.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**48.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**45.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**40.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**39.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17264710302A	09/21/2017 11:45	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1850366
Reported: 09/29/2017 12:24

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1850366 9204561-78

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☒ Minneapolis ☐ Bismarck ☐ Hibbing

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52281
COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Particle Size	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-D07-80-85'	80	85	ft	9-9-17		Soil	N	1		1		Particle Size Analysis	
2. SG3-D07-85-87'	85	87	ft	9-9-17		S	N	1		1			
3. SG3-D07-90-92'	90	92	ft	9-9-17		S	N	1		1			
4. SG3-D07-95-100'	95	100	ft	9-9-17		S	N	1		1			
5. SG3-D07-100-110'	100	110	ft	9-9-17		S	N	1		1			
6. SG3-D07-110-123'	110	123	ft	9-10-17		S	N	1		1		Samples in 2 5 gal buckets	
7. SG3-D07-125-132'	125	132	ft	9-10-17		S	N	1		1			
8. SG3-D07-132-144'	132	144	ft	9-10-17		S	N	1		1			
9. SG3-D07-144-157'	144	157	ft	9-10-17		S	N	1		1			
10. SG3-D07-159-163'	159	163	ft	9-11-17		S	N	1		1			

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJE							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						9/14/17	935
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): NA			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 185036 92685L-78

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52282

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Particle Size	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-D07-163-170'	163	170	ft	09/11/2017		Soil	N	1		1		Particle Size Analysis	
2. SG3-D07-170-190'	170	190	ft	9-11-17		S	N	1		1			
3. SG3-D07-190-200'	190	200	ft	9-11-17		S	N	1		1			
4. SG3-D01-0-5'	0	5	ft	9-13-17		S	N	1		1			
5. SG3-D01-5-11'	5	11	ft	9-13-17		S	N	1		1			
6. SG3-D01-11-14'	11	14	ft	9-13-17		S	N	1		1		Samples in 2 5 gal buckets	
7. SG3-D01-14-20'	14	20	ft	9-13-17		S	N	1		1			
8. SG3-D01-20-29'	20	29	ft	9-13-17		S	N	1		1			
9.													
10.													

BARR USE ONLY

Sampled by: DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: David Zander — On Ice? Y (N) — Date: 9-13-17 — Time: 1700

Relinquished by: — On Ice? Y (N) — Date — Time

Received by: — Date — Time

Received by: — Date: 9/14/17 — Time: 935

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ (Y) ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 194422

Group Number(s): 1850366

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/14/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	No	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	No		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 14:09 on 09/14/2017

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
SG3-D01-0-5		1	Y	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 21, 2017

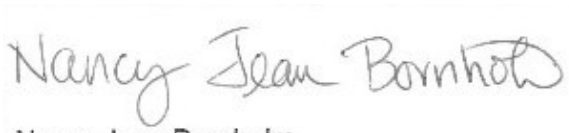
Project: St. Gobain

Account #: 37191
Group Number: 1851291
SDG: SGB40
PO Number: 16.6131
State of Sample Origin: CO

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
RAS-EQPIECE#1-Nosecone Grab Groundwater	09/15/2017 10:26	9212623
RAS-EQPIECE#2-SENSOR Grab Groundwater	09/15/2017 10:30	9212624
RAS-EQPIECE#3-DELRINPIECE Grab Groundwater	09/15/2017 10:34	9212625
RAS-EQPIECE#4-PACKER#1 Grab Groundwater	09/15/2017 10:39	9212626
RAS-EQPIECE#5-AcousticCup Grab Groundwater	09/15/2017 10:42	9212627
RAS-EQPIECE#6-Packer #2 Grab Groundwater	09/15/2017 10:45	9212628
RAS-EQPIECE#7-CALIPERTIP Grab Groundwater	09/15/2017 10:51	9212629
RAS-EQPIECE#8-PACKERPART#18 Grab Groundwater	09/15/2017 10:55	9212630
RAS-EQPIECE#9-InsituCABLETERM Grab Groundwater	09/15/2017 10:57	9212631
RAS-EQPIECE#10-PACKERPART#23 Grab Groundwater	09/15/2017 11:05	9212632

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: St. Gobain
LL Group #: 1851291

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9212623, 9212630

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9212624, 9212625, 9212626, 9212627, 9212629, 9212631, 9212632

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample #s: 9212628

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) is outside the QC acceptance limits. The following corrective action was taken: the sample was reinjected and similar recoveries were observed for the internal standards.

Batch #: 17260007 (Sample number(s): 9212623-9212632 UNSPK: 9212623)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate,

6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9212623, 9212624, 9212625, 9212626, 9212627, 9212628, 9212629, 9212631, Blank, LCS, LCSD, MS

Sample Description: RAS-EQPIECE#1-Nosecone Grab Groundwater
St. Gobain

ELLE Sample # GW 9212623
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:26 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE1 SDG#: SGB40-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 14:11	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#2-SENSOR Grab Groundwater
St. Gobain

ELLE Sample # GW 9212624
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:30 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE2 SDG#: SGB40-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 07:16	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#3-DELRINPIECE Grab Groundwater
St. Gobain

ELLE Sample # GW 9212625
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:34 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE3 SDG#: SGB40-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 07:36	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#4-PACKER#1 Grab Groundwater
St. Gobain

ELLE Sample # GW 9212626
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:39 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE4 SDG#: SGB40-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**2**		0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**3**		0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**10**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 07:57	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#5-AcousticCup Grab Groundwater St. Gobain

ELLE Sample # GW 9212627
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:42 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE5 SDG#: SGB40-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 08:18	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#6-Packer #2 Grab Groundwater
St. Gobain

ELLE Sample # GW 9212628
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:45 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE6 SDG#: SGB40-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.8**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample internal standard(s) is outside the QC acceptance limits. The following corrective action was taken: the sample was reinjected and similar recoveries were observed for the internal standards.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 08:38	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#7-CALIPERTIP Grab Groundwater
St. Gobain

ELLE Sample # GW 9212629
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:51 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE7 SDG#: SGB40-07

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 08:59	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#8-PACKERPART#18 Grab Groundwater
St. Gobain

ELLE Sample # GW 9212630
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:55 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE8 SDG#: SGB40-08

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 14:52	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#9-InsituCABLETERM Grab Groundwater
St. Gobain

ELLE Sample # GW 9212631
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 10:57 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE9 SDG#: SGB40-09

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**17**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**5**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**2**	**J**	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**580**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 10:21	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: RAS-EQPIECE#10-PACKERPART#23 Grab Groundwater
St. Gobain

ELLE Sample # GW 9212632
ELLE Group # 1851291
Account # 37191

Project Name: St. Gobain

Collected: 09/15/2017 11:05 by MN

Submitted: 09/16/2017 09:45
Reported: 09/21/2017 16:23

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RASE0 SDG#: SGB40-10

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV) associated with this sample. The data quality is not impacted by this result.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17260007	09/21/2017 10:41	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17260007	09/19/2017 07:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/21/2017 16:23

Group Number: 1851291

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17260007	Sample number(s): 9212623-9212632			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17260007	Sample number(s): 9212623-9212632								
6:2 fluorotelomersulfonate	12.89	17.95	12.89	15.3	139*	119	70-130	16	30
8:2 fluorotelomersulfonate	13.03	17.89	13.03	17.81	137*	137*	70-130	0	30
NEtFOSAA	13.6	14.17	13.6	14.75	104	108	70-130	4	30
NMeFOSAA	13.6	15.17	13.6	15.03	112	110	70-130	1	30
Perfluorobutanesulfonate	12.03	13.04	12.03	11.83	108	98	70-130	10	30
Perfluorobutanoic Acid	13.6	13.81	13.6	13.84	102	102	70-130	0	30
Perfluorodecanoic acid	13.6	16.9	13.6	15.52	124	114	70-130	8	30
Perfluorododecanoic acid	13.6	16.37	13.6	15.07	120	111	70-130	8	30
Perfluoroheptanoic acid	13.6	15.05	13.6	14.29	111	105	70-130	5	30
Perfluorohexanesulfonate	12.86	12.93	12.86	12.02	101	93	70-130	7	30
Perfluorohexanoic acid	13.6	14.22	13.6	14.06	105	103	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1851291
Reported: 09/21/2017 16:23

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	13.62	13.6	14.5	100	107	70-130	6	30
Perfluoro-octanesulfonate	13	13.75	13	12.88	106	99	70-130	7	30
Perfluorooctanoic acid	13.6	13.47	13.6	13.25	99	97	70-130	2	30
Perfluoropentanoic Acid	13.6	14.83	13.6	13.56	109	100	70-130	9	30
Perfluorotetradecanoic acid	13.6	16.16	13.6	16.04	119	118	70-130	1	30
Perfluorotridecanoic acid	13.6	13.31	13.6	12.56	98	92	70-130	6	30
Perfluoroundecanoic acid	13.6	15.5	13.6	16.34	114	120	70-130	5	30
PFOSA	13.6	12.87	13.6	13.87	95	102	70-130	8	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17260007	Sample number(s): 9212623-9212632 UNSPK: 9212623										
6:2 fluorotelomersulfonate	3	U	12.84	14.34			112		70-130		
8:2 fluorotelomersulfonate	4	U	12.98	15.68			121		70-130		
NEtFOSAA	1	U	13.55	13.81			102		70-130		
NMeFOSAA	1	U	13.55	13.72			101		70-130		
Perfluorobutanesulfonate	0.8	U	11.98	12.1			101		70-130		
Perfluorobutanoic Acid	3	U	13.55	13.53			100		70-130		
Perfluorodecanoic acid	0.5	U	13.55	16.01			118		70-130		
Perfluorododecanoic acid	0.5	U	13.55	14.81			109		70-130		
Perfluoroheptanoic acid	0.5	U	13.55	14.44			107		70-130		
Perfluorohexanesulfonate	1	U	12.81	11.71			91		70-130		
Perfluorohexanoic acid	0.6	U	13.55	14.96			110		70-130		
Perfluorononanoic acid	0.6	U	13.55	13.63			101		70-130		
Perfluoro-octanesulfonate	2	U	12.95	11.47			89		70-130		
Perfluorooctanoic acid	0.6	U	13.55	14.99			111		70-130		
Perfluoropentanoic Acid	0.5	U	13.55	13.48			99		70-130		
Perfluorotetradecanoic acid	0.5	U	13.55	14.8			109		70-130		
Perfluorotridecanoic acid	0.5	U	13.55	12.68			94		70-130		
Perfluoroundecanoic acid	1	U	13.55	14.92			110		70-130		
PFOSA	3	U	13.55	13.65			101		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1851291
Reported: 09/21/2017 16:23

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17260007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9212623	80	80	72	78	75	74
9212624	85	89	76	67	77	69
9212625	89	91	80	80	93	78
9212626	89	87	85	87	90	83
9212627	90	88	86	83	84	81
9212628	73	75	73	63	64	64
9212629	78	83	73	89	84	87
9212630	88	83	79	85	91	76
9212631	79	75	75	82	85	77
9212632	87	83	86	92	85	83
Blank	87	87	81	85	82	86
LCS	89	82	79	88	84	82
LCSD	90	89	82	78	81	84
MS	82	82	76	81	91	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9212623	65	77	73	75	72	59
9212624	68	74	85	86	78	62
9212625	86	88	92	89	81	69
9212626	89	89	79	88	78	78
9212627	70	85	96	111	78	83
9212628	107	74	72	101	73	71
9212629	73	87	86	88	79	62
9212630	76	86	90	86	89	72
9212631	66	83	74	81	71	57
9212632	82	85	82	82	78	71
Blank	79	89	81	84	76	63
LCS	88	86	88	107	79	78
LCSD	92	84	93	95	81	87
MS	88	79	83	85	81	76
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9212623	85	76	95	74	72	45*
9212624	103	89	107	82	72	62*
9212625	92	89	112	87	88	31*
9212626	89	88	117	82	77	43*
9212627	97	91	123	85	82	66*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1851291
Reported: 09/21/2017 16:23

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17260007

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9212628	87	78	98	74	63	49*
9212629	86	80	119	78	73	60*
9212630	94	93	118	95	85	71
9212631	87	79	96	76	72	67*
9212632	89	79	107	78	81	76
Blank	82	90	110	80	75	65*
LCS	80	87	109	85	84	58*
LCSD	87	85	101	94	87	61*
MS	97	90	117	87	82	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 185291 Sample # 9212623-32

COC # 555930

Client Information

Client: CT Male	Acct. #:
Project Name/#: St. Gobain	PWSID #:
Project Manager:	P.O. #:
Sampler: Marta Nelson - Barr Eng	Quote #:
State where samples were collected: CO	For Compliance: Yes ☐ No ☒

For Lab Use Only

FSC:

SCR#: 2/2011

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Water	Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Analysis Requested: PFCs
RAS-EQPIECE#1-NoseCone	9/15/17	10:26	X					X						1	1
RAS-EQPIECE#2-SENSOR	9/15/17	10:30	X					X						1	1
RAS-EQPIECE#3-DELRINPIECE	9/15/17	10:34	X					X						1	1
RAS-EQPIECE#4-PACKER#1	9/15/17	10:39	X					X						1	1
RAS-EQPIECE#5-AcousticCup	9/15/17	10:42	X					X						1	1
RAS-EQPIECE#6-Packer#2	9/15/17	10:45	X					X						1	1
RAS-EQPIECE#7-CALIPERTIP	9/15/17	10:51						X						1	1
RAS-EQPIECE#8-PackerPart#18	9/15/17	10:55						X						1	1
RAS-EQPIECE#9-InSituCableTerm	9/15/17	10:57						X						1	1
RAS-EQPIECE#10-PackerPart#23	9/15/17	11:05						X						1	1

Matrix: Blank

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 9/29

E-mail address:

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Eileen Cardi	9/11/17	15:38			
YMNelson	9/15/17	12:30			

EDD Required? Yes (No)

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.5 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 194665

Group Number(s): 1851291

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/16/2017 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	CO		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 10:32 on 09/16/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 15:05

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1852651
SDG: SGB41
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB37-170919 Blank Water	09/19/2017	9218539
SG3-LTB38-170919 Blank Water	09/19/2017	9218540
SG3-S24-170919 Groundwater	09/19/2017 14:15	9218541

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1852651

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Preservation requirements were not met.

Sample #: 9218541

Preservation requirements were not met. The pH preservation of all non-volatile containers was checked upon receipt at the laboratory. The container for the following analysis was not within specification and was adjusted accordingly by the laboratory: Kjeldahl Nitrogen, Ammonia Nitrogen

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9218541

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:

The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-dioxane was not detected in the re-extract.

Batch #: 17268WAJ026 (Sample number(s): 9218541)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9218541, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9218541

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the opening calibration verification

standard (CCV).

Sample #s: 9218540

The recovery for labeled compound used as extraction standard Ed2-NMeFOSAA was outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the closing calibration verification standard (CCV).

Batch #: 17268012 (Sample number(s): 9218540-9218541 UNSPK: P223561)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9218540, 9218541, Blank, LCS, LCSD, MS

SW-846 6010C, Metals

Batch #: 172641063507 (Sample number(s): 9218541 UNSPK: P223178 BKG: P223178)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum

EPA 300.0, Wet Chemistry

Batch #: 17263987112A (Sample number(s): 9218541 UNSPK: 9218541 BKG: 9218541)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Sulfate, Nitrate Nitrogen, Bromide

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Sample Description: **SG3-LTB37-170919 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017
SDG#: SGB41-01TB

C. T. Male Associates
ELLE Sample #: WW 9218539
ELLE Group #: 1852651
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB37-170919 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017
SDG#: SGB41-01TB

C. T. Male Associates
ELLE Sample #: WW 9218539
ELLE Group #: 1852651
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172652AA	09/22/2017 13:21	Jennifer K Howe	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172652AA	09/22/2017 13:21	Jennifer K Howe	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-LTB38-170919 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017
SDG#: SGB41-02TB

C. T. Male Associates
ELLE Sample #: WW 9218540
ELLE Group #: 1852651
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The recovery for labeled compound used as extraction standard Ed2-NMeFOSAA was outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17268012	10/01/2017 05:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17268012	09/25/2017 15:47	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S24-170919 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017 14:15
SDG#: SGB41-03

C. T. Male Associates
ELLE Sample #: GW 9218541
ELLE Group #: 1852651
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S24-170919 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017 14:15
SDG#: SGB41-03

C. T. Male Associates
ELLE Sample #: GW 9218541
ELLE Group #: 1852651
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.076 J**	0.053	0.21	1

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:

The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-dioxane was not detected in the re-extract.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**7**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**120**	0.6	2	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S24-170919 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017 14:15
SDG#: SGB41-03

C. T. Male Associates
ELLE Sample #: GW 9218541
ELLE Group #: 1852651
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**Perfluoropentanoic Acid**	2706-90-3	**1 J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1
	The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the opening calibration verification standard (CCV).					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**5.47**	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**269**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**20.9**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**97.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.03**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.98**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.53 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0355 J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0109**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.141**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00019 J**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00029 J**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0023 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0122**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0108**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0143**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0077**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0043**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S24-170919 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017 14:15
SDG#: SGB41-03

C. T. Male Associates
ELLE Sample #: GW 9218541
ELLE Group #: 1852651
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**2.9**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**5.5**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.069 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**359**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**359**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate. Preservation requirements were not met. The pH preservation of all non-volatile containers was checked upon receipt at the laboratory. The container for the following analysis was not within specification and was adjusted accordingly by the laboratory: Kjeldahl Nitrogen, Ammonia Nitrogen

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L172652AA	09/22/2017 14:49	Jennifer K Howe	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L172652AA	09/22/2017 14:49	Jennifer K Howe	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17268WAJ026	09/28/2017 09:09	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17268WAJ026	09/26/2017 08:00	Kayla A Yuditsky	1
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17268012	10/01/2017 07:59	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S24-170919 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/20/2017 09:40
Collection Date/Time: 09/19/2017 14:15
SDG#: SGB41-03

C. T. Male Associates
ELLE Sample #: GW 9218541
ELLE Group #: 1852651
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17268012	09/25/2017 15:47	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
08014	Boron	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
01750	Calcium	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
01754	Iron	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
01762	Potassium	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
01767	Sodium	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
07072	Zinc	SW-846 6010C	1	172641063507	09/28/2017 12:07	Eric L Eby	1
06024	Antimony	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172641063904D	09/27/2017 09:30	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172641063904A	09/28/2017 16:51	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	172641063904B	09/27/2017 09:30	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172641063904A	09/27/2017 09:30	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172710571305	09/30/2017 17:53	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172641063507	09/26/2017 22:37	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172641063904	09/25/2017 22:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172710571305	09/29/2017 01:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17263987112A	09/20/2017 19:11	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17263987112A	09/20/2017 19:11	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17263987112A	09/20/2017 19:11	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17263987112A	09/20/2017 19:11	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17263987112A	09/20/2017 19:11	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17272107101B	09/29/2017 21:18	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17271108102A	10/05/2017 11:26	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17271117101A	09/29/2017 11:38	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	17271108102A	09/28/2017 17:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17271117101A	09/28/2017 19:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17265002102A	09/22/2017 19:57	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17265002102A	09/22/2017 19:57	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17265002102A	09/22/2017 19:57	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17263022602A	09/20/2017 22:10	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L172652AA	Sample number(s): 9218539,9218541		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17268WAJ026	Sample number(s): 9218541		
1,4-Dioxane	0.21	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17268012	Sample number(s): 9218540-9218541		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
	mg/l	mg/l	mg/l
Batch number: 172641063507	Sample number(s): 9218541		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172641063904A	Sample number(s): 9218541		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172641063904B	Sample number(s): 9218541		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172641063904D	Sample number(s): 9218541		
Barium	0.00072 U	0.00072	0.0040
Batch number: 172710571305	Sample number(s): 9218541		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 17263987112A	Sample number(s): 9218541		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17271108102A	Sample number(s): 9218541		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17271117101A	Sample number(s): 9218541		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17272107101B	Sample number(s): 9218541		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17263022602A	Sample number(s): 9218541		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17265002102A	Sample number(s): 9218541		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L172652AA	Sample number(s): 9218539,9218541								
Acetone	150	166.67	150	157.02	111	105	44-177	6	30
Benzene	20	19.27	20	19.55	96	98	78-120	1	30
Bromochloromethane	20	19.22	20	19.6	96	98	80-125	2	30
Bromodichloromethane	20	17.9	20	18.23	89	91	71-120	2	30
Bromoform	20	16.39	20	16.57	82	83	59-120	1	30
Bromomethane	20	14.22	20	15.18	71	76	44-139	7	30
2-Butanone	150	159.11	150	157.85	106	105	53-140	1	30
Carbon Disulfide	20	18.11	20	18.13	91	91	65-128	0	30
Carbon Tetrachloride	20	16.38	20	16.59	82	83	68-128	1	30
Chlorobenzene	20	19.99	20	19.97	100	100	80-120	0	30
Chloroethane	20	15.87	20	17.04	79	85	52-127	7	30
Chloroform	20	19.3	20	19.37	97	97	80-120	0	30
Chloromethane	20	16.87	20	16.84	84	84	57-120	0	30
Cyclohexane	20	18.58	20	18.69	93	93	67-121	1	30
1,2-Dibromo-3-chloropropane	20	19.01	20	19.37	95	97	64-120	2	30
Dibromochloromethane	20	18.33	20	18.39	92	92	71-120	0	30
1,2-Dibromoethane	20	20	20	20.29	100	101	75-120	1	30
1,2-Dichlorobenzene	20	20.44	20	20.83	102	104	80-120	2	30
1,3-Dichlorobenzene	20	20.19	20	20.52	101	103	80-120	2	30
1,4-Dichlorobenzene	20	20.9	20	21.32	104	107	80-120	2	30
Dichlorodifluoromethane	20	16.04	20	16.21	80	81	47-124	1	30
1,1-Dichloroethane	20	19.34	20	19.55	97	98	80-120	1	30
1,2-Dichloroethane	20	18.51	20	19.17	93	96	73-124	3	30
1,1-Dichloroethene	20	19.24	20	19.29	96	96	76-124	0	30
cis-1,2-Dichloroethene	20	19.14	20	19.61	96	98	80-120	2	30
trans-1,2-Dichloroethene	20	19.01	20	19.28	95	96	80-120	1	30
1,2-Dichloropropane	20	20.28	20	20.67	101	103	80-120	2	30
cis-1,3-Dichloropropene	20	18.33	20	18.4	92	92	75-120	0	30
trans-1,3-Dichloropropene	20	18.2	20	18.54	91	93	76-120	2	30
Ethylbenzene	20	20.44	20	20.48	102	102	78-120	0	30
Freon 113	20	18.62	20	18.82	93	94	68-137	1	30
2-Hexanone	100	109.35	100	110.25	109	110	60-134	1	30
Isopropylbenzene	20	20.7	20	20.81	104	104	80-120	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	20	21.56	20	21.61	108	108	61-137	0	30
Methyl Tertiary Butyl Ether	20	19.18	20	19.64	96	98	75-120	2	30
4-Methyl-2-pentanone	100	106.02	100	107.54	106	108	67-128	1	30
Methylcyclohexane	20	19.95	20	20.02	100	100	66-126	0	30
Methylene Chloride	20	19.38	20	19.46	97	97	80-120	0	30
Styrene	20	20.31	20	20.59	102	103	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.47	20	20.73	102	104	72-120	1	30
Tetrachloroethene	20	20.31	20	20.18	102	101	80-129	1	30
Toluene	20	19.68	20	19.9	98	99	80-120	1	30
1,2,3-Trichlorobenzene	20	20.26	20	20.61	101	103	66-120	2	30
1,2,4-Trichlorobenzene	20	20.03	20	20.31	100	102	70-120	1	30
1,1,1-Trichloroethane	20	16.35	20	16.57	82	83	67-120	1	30
1,1,2-Trichloroethane	20	21	20	20.98	105	105	80-120	0	30
Trichloroethene	20	18.83	20	19.1	94	96	80-120	1	30
Trichlorofluoromethane	20	17.66	20	17.78	88	89	52-143	1	30
Vinyl Chloride	20	17.32	20	17.18	87	86	63-121	1	30
m+p-Xylene	40	40.7	40	40.88	102	102	80-120	0	30
o-Xylene	20	19.8	20	20.03	99	100	80-120	1	30
Xylene (Total)	60	60.5	60	60.9	101	102	80-120	1	30
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17268WAJ026	Sample number(s): 9218541								
1,4-Dioxane	1.00	1.25	1.00	1.25	125	125	70-130	0	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17268012	Sample number(s): 9218540-9218541								
6:2 fluorotelomersulfonate	12.89	15.8	12.89	12.71	123	99	70-130	22	30
8:2 fluorotelomersulfonate	13.03	12.62	13.03	14.87	97	114	70-130	16	30
NEtFOSAA	13.6	10.97	13.6	11.92	81	88	70-130	8	30
NMeFOSAA	13.6	11.02	13.6	13.94	81	102	70-130	23	30
Perfluorobutanesulfonate	12.03	10.3	12.03	11.5	86	96	70-130	11	30
Perfluorobutanoic Acid	13.6	11.44	13.6	13.46	84	99	70-130	16	30
Perfluorodecanoic acid	13.6	12.48	13.6	14.06	92	103	70-130	12	30
Perfluorododecanoic acid	13.6	10.84	13.6	13.26	80	98	70-130	20	30
Perfluoroheptanoic acid	13.6	13.64	13.6	14.25	100	105	70-130	4	30
Perfluorohexanesulfonate	12.86	10.54	12.86	11.75	82	91	70-130	11	30
Perfluorohexanoic acid	13.6	12.72	13.6	14.68	94	108	70-130	14	30
Perfluorononanoic acid	13.6	12	13.6	13.37	88	98	70-130	11	30
Perfluoro-octanesulfonate	13	10.54	13	13.4	81	103	70-130	24	30
Perfluorooctanoic acid	13.6	12.88	13.6	14.7	95	108	70-130	13	30
Perfluoropentanoic Acid	13.6	11.45	13.6	13.61	84	100	70-130	17	30
Perfluorotetradecanoic acid	13.6	11.32	13.6	13.11	83	96	70-130	15	30
Perfluorotridecanoic acid	13.6	11.14	13.6	12.5	82	92	70-130	11	30
Perfluoroundecanoic acid	13.6	12.53	13.6	14.1	92	104	70-130	12	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
PFOSA	13.6	12.48	13.6	15.12	92	111	70-130	19	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172641063507	Sample number(s): 9218541								
Aluminum	2.00	2.07			103		80-120		
Boron	2.00	1.87			93		80-120		
Calcium	4.00	4.04			101		80-120		
Iron	1.00	0.972			97		80-120		
Magnesium	2.00	2.05			103		80-120		
Manganese	0.500	0.516			103		80-120		
Potassium	10	10.4			104		80-120		
Sodium	10	10.03			100		80-120		
Zinc	0.500	0.506			101		80-120		
Batch number: 172641063904A	Sample number(s): 9218541								
Antimony	0.00600	0.00621			104		80-120		
Arsenic	0.0100	0.0113			113		80-120		
Beryllium	0.00400	0.00402			101		80-120		
Cadmium	0.00500	0.00537			107		80-120		
Chromium	0.0500	0.0518			104		80-120		
Cobalt	0.250	0.270			108		80-120		
Copper	0.0500	0.0567			113		80-120		
Lead	0.0150	0.0152			101		80-120		
Nickel	0.0500	0.0488			98		80-120		
Silver	0.0500	0.0521			104		80-120		
Thallium	0.00200	0.00210			105		80-120		
Vanadium	0.0500	0.0514			103		80-120		
Batch number: 172641063904B	Sample number(s): 9218541								
Selenium	0.0100	0.0104			104		80-120		
Batch number: 172641063904D	Sample number(s): 9218541								
Barium	0.0500	0.0524			105		80-120		
Batch number: 172710571305	Sample number(s): 9218541								
Mercury	0.00100	0.000946			95		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17263987112A	Sample number(s): 9218541								
Bromide	7.50	6.98			93		90-110		
Chloride	3.00	2.85			95		90-110		
Nitrate Nitrogen	0.750	0.733			98		90-110		
Nitrite Nitrogen	0.750	0.715			95		90-110		
Sulfate	7.50	7.31			98		90-110		
Batch number: 17271108102A	Sample number(s): 9218541								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Kjeldahl Nitrogen	5.00	5.18			104		90-110		
Batch number: 17271117101A	Sample number(s): 9218541								
Total Cyanide	0.200	0.196			98		90-110		
Batch number: 17272107101B	Sample number(s): 9218541								
Ammonia Nitrogen	1.50	1.42			94		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17263022602A	Sample number(s): 9218541								
Ortho-Phosphate as P	0.400	0.401			100		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17265002102A	Sample number(s): 9218541								
Total Alkalinity to pH 4.5	188	168.64			90		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17268012	Sample number(s): 9218540-9218541 UNSPK: P223561									
6:2 fluorotelomersulfonate	3 U	12.86	12.72			99		70-130		
8:2 fluorotelomersulfonate	4 U	13	16.14			124		70-130		
NEtFOSAA	1 U	13.56	11.35			84		70-130		
NMeFOSAA	1 U	13.56	14.03			103		70-130		
Perfluorobutanesulfonate	1.12	12	13.16			100		70-130		
Perfluorobutanoic Acid	5.63	13.56	19.21			100		70-130		
Perfluorodecanoic acid	0.5 U	13.56	15.45			114		70-130		
Perfluorododecanoic acid	0.5 U	13.56	14.28			105		70-130		
Perfluoroheptanoic acid	2.44	13.56	18.14			116		70-130		
Perfluorohexanesulfonate	1 U	12.83	12.96			101		70-130		
Perfluorohexanoic acid	0.790	13.56	14.08			98		70-130		
Perfluorononanoic acid	0.618	13.56	16.19			115		70-130		
Perfluoro-octanesulfonate	2.28	12.97	14.71			96		70-130		
Perfluorooctanoic acid	42.37	13.56	60.41			133*		70-130		
Perfluoropentanoic Acid	0.5 U	13.56	14.59			108		70-130		
Perfluorotetradecanoic acid	0.5 U	13.56	13.4			99		70-130		
Perfluorotridecanoic acid	0.5 U	13.56	13.87			102		70-130		
Perfluoroundecanoic acid	1 U	13.56	14.2			105		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
PFOSA	3 U	13.56	14.76			109		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172641063507	Sample number(s): 9218541 UNSPK: P223178									
Aluminum	0.165	2.00	2.09	2.00	2.07	96	95	75-125	1	20
Boron	0.0526	2.00	1.96	2.00	1.97	95	96	75-125	1	20
Calcium	100.43	4.00	104.33	4.00	105.28	98 (2)	121 (2)	75-125	1	20
Iron	5.45	1.00	6.41	1.00	6.46	97 (2)	101 (2)	75-125	1	20
Magnesium	16.49	2.00	18.39	2.00	18.49	95 (2)	100 (2)	75-125	1	20
Manganese	0.513	0.500	1.02	0.500	1.02	101	101	75-125	0	20
Potassium	6.11	10	16.28	10	16.43	102	103	75-125	1	20
Sodium	55.2	10	65.32	10	65.99	101 (2)	108 (2)	75-125	1	20
Zinc	0.0065 U	0.500	0.503	0.500	0.505	101	101	75-125	0	20
Batch number: 172641063904A	Sample number(s): 9218541 UNSPK: P216386									
Antimony	0.00045 U	0.00600	0.00600	0.00600	0.00664	100	111	75-125	10	20
Arsenic	0.00072 U	0.0100	0.0102	0.0100	0.0111	102	111	75-125	8	20
Beryllium	0.000071 U	0.00400	0.00410	0.00400	0.00403	102	101	75-125	2	20
Cadmium	0.00015 U	0.00500	0.00514	0.00500	0.00531	103	106	75-125	3	20
Chromium	0.00087 U	0.0500	0.0513	0.0500	0.0539	103	108	75-125	5	20
Cobalt	0.000956	0.250	0.261	0.250	0.265	104	106	75-125	1	20
Copper	0.00054 U	0.0500	0.0551	0.0500	0.0555	110	111	75-125	1	20
Lead	0.00011 U	0.0150	0.0150	0.0150	0.0151	100	101	75-125	0	20
Nickel	0.0010 U	0.0500	0.0479	0.0500	0.0487	96	97	75-125	2	20
Silver	0.00015 U	0.0500	0.0497	0.0500	0.0497	99	99	75-125	0	20
Thallium	0.00012 U	0.00200	0.00188	0.00200	0.00200	94	100	75-125	6	20
Vanadium	0.00021 U	0.0500	0.0519	0.0500	0.0532	104	106	75-125	3	20
Batch number: 172641063904B	Sample number(s): 9218541 UNSPK: P216386									
Selenium	0.00050 U	0.0100	0.0100	0.0100	0.0102	100	102	75-125	2	20
Batch number: 172641063904D	Sample number(s): 9218541 UNSPK: P216386									
Barium	0.0500	0.0500	0.0983	0.0500	0.101	97	103	75-125	3	20
Batch number: 172710571305	Sample number(s): 9218541 UNSPK: P232361									
Mercury	0.000050 U	0.00100	0.000901	0.00100	0.000900	90	90	80-120	0	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17263987112A	Sample number(s): 9218541 UNSPK: 9218541									
Bromide	1.3 U	25	28.91			116*		90-110		
Chloride	2.88	10	13.8			109		90-110		
Nitrate Nitrogen	0.25 U	2.50	3.10			124*		90-110		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Nitrite Nitrogen	0.25 U	2.50	2.75			110		90-110		
Sulfate	5.51	25	34.92			118*		90-110		
Batch number: 17271108102A	Sample number(s): 9218541 UNSPK: P218972									
Kjeldahl Nitrogen	5.88	5.00	11.19			106		90-110		
Batch number: 17271117101A	Sample number(s): 9218541 UNSPK: P218243									
Total Cyanide	0.0050 U	0.200	0.193			96		72-114		
Batch number: 17272107101B	Sample number(s): 9218541 UNSPK: P217560									
Ammonia Nitrogen	0.0645	1.00	1.10			104		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17263022602A	Sample number(s): 9218541 UNSPK: P218834									
Ortho-Phosphate as P	0.127	0.400	0.528	0.400	0.527	100	100	69-131	0	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17265002102A	Sample number(s): 9218541 UNSPK: P219974									
Total Alkalinity to pH 4.5	128.34	188	293.97			88		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172641063507	Sample number(s): 9218541 BKG: P223178			
Aluminum	0.165	0.0894 U	200* (1)	20
Boron	0.0526	0.0511	3 (1)	20
Calcium	100.43	102.29	2	20
Iron	5.45	5.47	1	20
Magnesium	16.49	16.82	2	20
Manganese	0.513	0.515	1	20
Potassium	6.11	6.17	1	20
Sodium	55.2	56.26	2	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172641063904A	Sample number(s): 9218541 BKG: P216386			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.000956	0.00102	6 (1)	20
Copper	0.00054 U	0.00054 U	0 (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.0010 U	0.0010 U	0 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 172641063904B	Sample number(s): 9218541 BKG: P216386			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172641063904D	Sample number(s): 9218541 BKG: P216386			
Barium	0.0500	0.0489	2	20
Batch number: 172710571305	Sample number(s): 9218541 BKG: P232361			
Mercury	0.000050 U	0.000050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17263987112A	Sample number(s): 9218541 BKG: 9218541			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	2.88	2.82	2 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	5.51	5.54	1 (1)	15
Batch number: 17271108102A	Sample number(s): 9218541 BKG: P218972			
Kjeldahl Nitrogen	5.88	6.89	16	20
Batch number: 17271117101A	Sample number(s): 9218541 BKG: P218243			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17272107101B	Sample number(s): 9218541 BKG: P217560			
Ammonia Nitrogen	0.0645	0.0613	5 (1)	20
	mg/l	mg/l		
Batch number: 17263022602A	Sample number(s): 9218541 BKG: P218834			
Ortho-Phosphate as P	0.127	0.129	1 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17265002102A	Sample number(s): 9218541 BKG: P219974			
Total Alkalinity to pH 4.5	128.34	128.88	0	5

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L172652AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9218539	97	101	100	98
9218541	96	100	101	97
Blank	97	99	100	99
LCS	98	98	101	100
LCSD	98	98	101	99
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17268WAJ026

	1,4-Dioxane-d8
9218541	44*
Blank	49*
LCS	50*
LCSD	47*
Limits:	70-130

Analysis Name: 19 PFCs
Batch number: 17268012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218540	85	92	91	97	95	95
9218541	81	97	94	78	87	82
Blank	87	86	92	95	94	89
LCS	100	103	106	101	108	103
LCSD	86	85	90	89	98	94
MS	76	80	85	80	83	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9218540	117	86	81	78	84	84
9218541	75	79	82	77	84	96
Blank	97	96	83	75	87	96
LCS	107	99	93	86	98	102
LCSD	133	86	81	84	83	79
MS	95	70	79	68	80	94

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:05

Group Number: 1852651

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17268012

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9218540	45	73	54	70	70	25*
9218541	53	78	58	75	75	18*
Blank	55	91	71	83	74	26*
LCS	52	85	62	83	83	17*
LCSD	49	78	62	73	69	35*
MS	59	81	62	71	74	16*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1852651 9218539-41

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52283
COC 3 of 6

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr. Latham, NY
Name: Michael Dupay	Name:
email: mdupaye barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 324 2100

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other tri zma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 40ml Glass - HCl (B)	250ml Plastic - Trizma (O)	250ml Plastic - Unpre. (A)	250ml Plastic - Nitric (C)	250ml Glass - Unpre. (A)	40ml Glass - Unpre. (A)	500ml Plastic - H_2SO_4 (D)	Soil: 250ml Glass - Unpres. (A)	250ml Plastic - NaOH/asc. (I)	250ml Plastic - Unpres. (A)	% Solids	Preservative Code	Field Filtered Y/N
									N	N	N	N	N	N	N	N	N	Y			
1. SG3-LTB35-170919 (RAK 9.19.17)	—	—	—	09/19/2019	AM	W	N	2	2											VOC Trip Blank by ELLE dated 9.5.17	
2. SG3-LTB30-170919 (RAK 9.19.17)	—	—	—	09/19/2019	AM	W	N	1		1										Trizma Trip Blank by ELLE dated	
3. SG3-S24-170919	—	—	—	09/19/2019	1415	GW	N	15	3	2	1	2	2	1	2	1	1			(19) PFC's, metals/cations (including Fe + Hg), anions, ammonia, TKN, orthophosphate, 1,4-Dioxane, 8260 2.2 VOCs, Alkalinity (Carb/Bicarb), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, Sulfate	
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

BARR USE ONLY

Sampled by: RAK / DJB
Barr Proj. Manager: JTC
Barr DQ Manager: MDP
Lab Name: ELLE
Lab Location: Lancaster, PA

Relinquished by: Robert Kozlosky — On Ice? ☒ Y ☐ N — Date: 9.19.17 — Time: 1700 — Received by: — Date — Time

Relinquished by: — On Ice? ☐ Y ☐ N — Date — Time — Received by: — Date: 9.20.17 — Time: 940

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other: — Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: — Temperature on Receipt (°C): 0.0-3.1 — Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 194953

Group Number(s): 1852651

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/20/2017 9:40
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 3 250mL plastic bottles unpreserved, 2 HCL, 1 Trizma

Unpacked by Timothy Cubberley (6520) at 11:02 on 09/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	3.1	DT	Wet	Y	Bagged	N
3	DT131	0.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 06, 2017

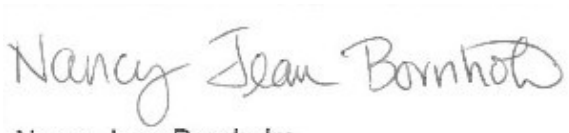
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1852652
SDG: SGB42
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D20-78-79 Soil	09/19/2017 13:20	9218542

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1852652

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D, GC/MS Semivolatiles

Batch #: 17264SLC026 (Sample number(s): 9218542 UNSPK: P220219)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Pyrene, Fluoranthene

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Hexachlorocyclopentadiene, Dibenzofuran

SW-846 8081B, Pesticides/PCBs

Sample #s: 9218542

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

SW-846 6010C, Metals

Batch #: 172641063703 (Sample number(s): 9218542 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Manganese

SW-846 6020A, Metals

Batch #: 172641063703A (Sample number(s): 9218542 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Beryllium, Chromium, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Lead, Cobalt, Copper, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Lead, Silver

Batch #: 172641063703D (Sample number(s): 9218542 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SW-846 7471B, Metals

Batch #: 172651063802 (Sample number(s): 9218542 UNSPK: 9218542 BKG: 9218542)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Mercury

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9218542

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17273837931A (Sample number(s): 9218542 UNSPK: P218545 BKG: P218545)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17270820002A (Sample number(s): 9218542 BKG: P218551)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/kg		ug/kg	ug/kg	
11995	**Acetone**	67-64-1	**20**		7	20	0.77
11995	**Benzene**	71-43-2	**1**	**J**	0.5	5	0.77
11995	Bromochloromethane	74-97-5	1	U	1	5	0.77
11995	Bromodichloromethane	75-27-4	1	U	1	5	0.77
11995	Bromoform	75-25-2	1	U	1	5	0.77
11995	Bromomethane	74-83-9	2	U	2	5	0.77
11995	2-Butanone	78-93-3	4	U	4	10	0.77
11995	Carbon Disulfide	75-15-0	1	U	1	5	0.77
11995	Carbon Tetrachloride	56-23-5	1	U	1	5	0.77
11995	Chlorobenzene	108-90-7	1	U	1	5	0.77
11995	Chloroethane	75-00-3	2	U	2	5	0.77
11995	Chloroform	67-66-3	1	U	1	5	0.77
11995	Chloromethane	74-87-3	2	U	2	5	0.77
11995	Cyclohexane	110-82-7	1	U	1	5	0.77
11995	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	0.77
11995	Dibromochloromethane	124-48-1	1	U	1	5	0.77
11995	1,2-Dibromoethane	106-93-4	1	U	1	5	0.77
11995	1,2-Dichlorobenzene	95-50-1	1	U	1	5	0.77
11995	1,3-Dichlorobenzene	541-73-1	1	U	1	5	0.77
11995	1,4-Dichlorobenzene	106-46-7	1	U	1	5	0.77
11995	Dichlorodifluoromethane	75-71-8	2	U	2	5	0.77
11995	1,1-Dichloroethane	75-34-3	1	U	1	5	0.77
11995	1,2-Dichloroethane	107-06-2	1	U	1	5	0.77
11995	1,1-Dichloroethene	75-35-4	1	U	1	5	0.77
11995	cis-1,2-Dichloroethene	156-59-2	1	U	1	5	0.77
11995	trans-1,2-Dichloroethene	156-60-5	1	U	1	5	0.77
11995	1,2-Dichloropropane	78-87-5	1	U	1	5	0.77
11995	cis-1,3-Dichloropropene	10061-01-5	1	U	1	5	0.77
11995	trans-1,3-Dichloropropene	10061-02-6	1	U	1	5	0.77
11995	Ethylbenzene	100-41-4	1	U	1	5	0.77
11995	Freon 113	76-13-1	2	U	2	10	0.77
11995	2-Hexanone	591-78-6	3	U	3	10	0.77
11995	Isopropylbenzene	98-82-8	1	U	1	5	0.77
11995	Methyl Acetate	79-20-9	2	U	2	5	0.77
11995	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	5	0.77
11995	4-Methyl-2-pentanone	108-10-1	3	U	3	10	0.77
11995	Methylcyclohexane	108-87-2	1	U	1	5	0.77
11995	Methylene Chloride	75-09-2	2	U	2	5	0.77
11995	Styrene	100-42-5	1	U	1	5	0.77
11995	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	5	0.77
11995	Tetrachloroethene	127-18-4	1	U	1	5	0.77
11995	**Toluene**	108-88-3	**1**	**J**	1	5	0.77
11995	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	0.77
11995	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	0.77
11995	1,1,1-Trichloroethane	71-55-6	1	U	1	5	0.77
11995	1,1,2-Trichloroethane	79-00-5	1	U	1	5	0.77
11995	Trichloroethene	79-01-6	1	U	1	5	0.77
11995	Trichlorofluoromethane	75-69-4	2	U	2	5	0.77
11995	Vinyl Chloride	75-01-4	1	U	1	5	0.77

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	**ug/kg**	
11995	m+p-Xylene	179601-23-1	1	U	1	5	0.77
11995	o-Xylene	95-47-6	1	U	1	5	0.77
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Acenaphthene	83-32-9	4	U	4	21	1
10726	Acenaphthylene	208-96-8	4	U	4	21	1
10726	Acetophenone	98-86-2	21	U	21	42	1
10726	Anthracene	120-12-7	4	U	4	21	1
10726	Atrazine	1912-24-9	42	U	42	210	1
10726	Benzaldehyde	100-52-7	84	U	84	210	1
10726	Benzo(a)anthracene	56-55-3	4	U	4	21	1
10726	Benzo(a)pyrene	50-32-8	4	U	4	21	1
10726	Benzo(b)fluoranthene	205-99-2	4	U	4	21	1
10726	Benzo(g,h,i)perylene	191-24-2	4	U	4	21	1
10726	Benzo(k)fluoranthene	207-08-9	4	U	4	21	1
10726	1,1'-Biphenyl	92-52-4	21	U	21	42	1
10726	4-Bromophenyl-phenylether	101-55-3	21	U	21	42	1
10726	Butylbenzylphthalate	85-68-7	84	U	84	210	1
10726	Di-n-butylphthalate	84-74-2	84	U	84	210	1
10726	Caprolactam	105-60-2	42	U	42	210	1
10726	Carbazole	86-74-8	21	U	21	42	1
10726	4-Chloro-3-methylphenol	59-50-7	21	U	21	42	1
10726	4-Chloroaniline	106-47-8	42	U	42	84	1
10726	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	42	1
10726	bis(2-Chloroethyl)ether	111-44-4	21	U	21	42	1
10726	2-Chloronaphthalene	91-58-7	8	U	8	41	1
10726	2-Chlorophenol	95-57-8	21	U	21	42	1
10726	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	42	1
10726	2,2'-oxybis(1-Chloropropane)	108-60-1	21	U	21	42	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10726	Chrysene	218-01-9	4	U	4	21	1
10726	Dibenz(a,h)anthracene	53-70-3	4	U	4	21	1
10726	Dibenzofuran	132-64-9	21	U	21	42	1
10726	3,3'-Dichlorobenzidine	91-94-1	130	U	130	420	1
10726	2,4-Dichlorophenol	120-83-2	21	U	21	42	1
10726	Diethylphthalate	84-66-2	84	U	84	210	1
10726	2,4-Dimethylphenol	105-67-9	21	U	21	42	1
10726	Dimethylphthalate	131-11-3	84	U	84	210	1
10726	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	630	1
10726	2,4-Dinitrophenol	51-28-5	380	U	380	1,300	1
10726	2,4-Dinitrotoluene	121-14-2	84	U	84	210	1
10726	2,6-Dinitrotoluene	606-20-2	21	U	21	42	1
10726	1,4-Dioxane	123-91-1	130	U	130	420	1
10726	bis(2-Ethylhexyl)phthalate	117-81-7	84	U	84	210	1
10726	Fluoranthene	206-44-0	4	U	4	21	1
10726	Fluorene	86-73-7	4	U	4	21	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D**		**ug/kg**		**ug/kg**	**ug/kg**	
10726	Hexachlorobenzene	118-74-1	4	U	4	21	1
10726	Hexachlorobutadiene	87-68-3	21	U	21	42	1
10726	Hexachlorocyclopentadiene	77-47-4	210	U	210	630	1
10726	Hexachloroethane	67-72-1	42	U	42	210	1
10726	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	21	1
10726	Isophorone	78-59-1	21	U	21	42	1
10726	2-Methylnaphthalene	91-57-6	4	U	4	21	1
10726	2-Methylphenol	95-48-7	21	U	21	42	1
10726	4-Methylphenol	106-44-5	21	U	21	42	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
10726	Naphthalene	91-20-3	4	U	4	21	1
10726	2-Nitroaniline	88-74-4	21	U	21	42	1
10726	3-Nitroaniline	99-09-2	84	U	84	210	1
10726	4-Nitroaniline	100-01-6	84	U	84	210	1
10726	Nitrobenzene	98-95-3	21	U	21	42	1
10726	2-Nitrophenol	88-75-5	21	U	21	42	1
10726	4-Nitrophenol	100-02-7	210	U	210	630	1
10726	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	42	1
10726	N-Nitrosodiphenylamine	86-30-6	21	U	21	42	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
10726	Di-n-octylphthalate	117-84-0	84	U	84	210	1
10726	Pentachlorophenol	87-86-5	42	U	42	210	1
10726	Phenanthrene	85-01-8	4	U	4	21	1
10726	Phenol	108-95-2	21	U	21	42	1
10726	Pyrene	129-00-0	4	U	4	21	1
10726	1,2,4,5-Tetrachlorobenzene	95-94-3	21	U	21	42	1
10726	2,3,4,6-Tetrachlorophenol	58-90-2	84	U	84	210	1
10726	2,4,5-Trichlorophenol	95-95-4	21	U	21	42	1
10726	2,4,6-Trichlorophenol	88-06-2	21	U	21	42	1
Pesticides/PCBs	**SW-846 8081B**		**ug/kg**		**ug/kg**	**ug/kg**	
10590	Aldrin	309-00-2	0.21	UD1	0.21	1.0	1
10590	Alpha BHC	319-84-6	0.21	UD2	0.21	1.0	1
10590	Beta BHC	319-85-7	0.38	UD1	0.38	1.3	1
10590	Gamma BHC - Lindane	58-89-9	0.21	UD1	0.21	1.0	1
10590	Alpha Chlordane	5103-71-9	0.21	UD2	0.21	1.0	1
10590	Gamma Chlordane	5103-74-2	0.31	UD1	0.31	1.0	1
10590	p,p-DDD	72-54-8	0.42	UD1	0.42	2.1	1
10590	p,p-DDE	72-55-9	0.42	UD2	0.42	2.1	1
10590	p,p-DDT	50-29-3	0.45	UD1	0.45	2.1	1
10590	Delta BHC	319-86-8	0.57	UD1	0.57	1.1	1
10590	Dieldrin	60-57-1	0.42	UD1	0.42	2.1	1
10590	Endosulfan I	959-98-8	0.28	UD1	0.28	1.0	1
10590	Endosulfan II	33213-65-9	0.42	UD1	0.42	2.1	1
10590	**Endosulfan Sulfate**	1031-07-8	**0.85**	**JD2**	0.42	2.1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8081B**		**ug/kg**		**ug/kg**	**ug/kg**	
10590	Endrin	72-20-8	0.43	UD1	0.43	2.1	1
10590	Endrin Aldehyde	7421-93-4	0.42	UD2	0.42	2.1	1
10590	Endrin Ketone	53494-70-5	0.76	UD2	0.76	2.3	1
10590	Heptachlor	76-44-8	0.21	UD1	0.21	1.0	1
10590	Heptachlor Epoxide	1024-57-3	0.21	UD1	0.21	1.0	1
10590	Methoxychlor	72-43-5	2.1	UD2	2.1	8.4	1
10590	Toxaphene	8001-35-2	18	UD1	18	42	1
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.						
Pesticides/PCBs	**SW-846 8082A Feb 2007 Rev 1**		**ug/kg**		**ug/kg**	**ug/kg**	
10885	PCB-1016	12674-11-2	4.5	UD1	4.5	21	1
10885	PCB-1221	11104-28-2	5.8	UD1	5.8	21	1
10885	PCB-1232	11141-16-5	10	UD1	10	21	1
10885	PCB-1242	53469-21-9	4.2	UD1	4.2	21	1
10885	PCB-1248	12672-29-6	4.2	UD1	4.2	21	1
10885	PCB-1254	11097-69-1	4.2	UD1	4.2	21	1
10885	PCB-1260	11096-82-5	6.2	UD1	6.2	21	1
10885	PCB-1262	37324-23-5	4.2	UD1	4.2	21	1
10885	PCB-1268	11100-14-4	4.2	UD1	4.2	21	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,160**		8.73	39.0	1
01650	**Calcium**	7440-70-2	**81,800**		16.3	195	5
01654	**Iron**	7439-89-6	**25,500**		7.86	39.0	1
01657	**Magnesium**	7439-95-4	**10,400**		2.37	19.5	1
06958	**Manganese**	7439-96-5	**2,250**		0.405	4.88	5
01662	**Potassium**	7440-09-7	**1,620**		16.3	97.6	1
01667	**Sodium**	7440-23-5	**21.5**	**J**	16.3	195	1
06972	**Zinc**	7440-66-6	**85.3**		0.234	3.90	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.215**	**J**	0.0910	0.390	2
06125	**Arsenic**	7440-38-2	**16.5**		0.125	0.781	2
06126	**Barium**	7440-39-3	**181**		0.177	0.781	2
06127	**Beryllium**	7440-41-7	**1.00**		0.0102	0.195	2
06128	**Cadmium**	7440-43-9	**0.737**		0.0336	0.195	2
06131	**Chromium**	7440-47-3	**8.89**		0.170	0.781	2
06132	**Cobalt**	7440-48-4	**14.1**		0.0305	0.195	2
06133	**Copper**	7440-50-8	**15.2**		0.105	0.781	2
06135	**Lead**	7439-92-1	**18.0**		0.0217	0.390	2
06139	**Nickel**	7440-02-0	**31.5**		0.194	0.781	2
06141	Selenium	7782-49-2	0.0976	U	0.0976	0.781	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.113 J**	0.0285	0.195	2
06145	**Thallium**	7440-28-0	**0.582**	0.0244	0.195	2
06148	**Vanadium**	7440-62-2	**12.5**	0.0416	0.195	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0415 J**	0.0127	0.127	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	925 U	925	2,780	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9012A		**mg/kg**	**mg/kg**	**mg/kg**	
05895	Total Cyanide (solid)	57-12-5	0.23 U	0.23	0.63	1
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	SOM02.2 Volatiles	SW-846 8260C	1	A172701AA	09/27/2017 13:01	Jennifer K Howe	0.77
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201726347127	09/19/2017 13:20	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201726347127	09/19/2017 13:20	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201726347127	09/19/2017 13:20	Client Supplied	1
10726	TCL Semivolatiles	SW-846 8270D	1	17264SLC026	09/23/2017 01:23	Edward C Monborne	1
10813	BNA Soil Microwave APP IX	SW-846 3546	1	17264SLC026	09/22/2017 08:00	Kayla A Yuditsky	1
10590	TCL Pesticides	SW-846 8081B	1	172680032A	09/29/2017 02:30	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218542
ELLE Group # 1852652
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/06/2017 03:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20VO SDG#: SGB42-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10885	PCBs	SW-846 8082A Feb 2007 Rev 1	1	172680031A	09/27/2017 20:55	Anita M Dale	1
10497	PCB Microwave Soil Extraction	SW-846 3546	1	172680031A	09/26/2017 09:00	Michelle A Newswanger	1
10496	PPL Pest. Microwave Extraction	SW-846 3546	1	172680032A	09/26/2017 09:00	Michelle A Newswanger	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 01:57	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 01:57	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 01:54	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:15	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:15	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:15	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172651063802	09/26/2017 11:17	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172651063802	09/26/2017 08:00	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 10:40	Leroy C Poole	1
05895	Total Cyanide (solid)	SW-846 9012A	1	17272102201A	09/30/2017 11:33	Brianna A White	1
05896	Cyanide Solid Distillation	SW-846 9012A	1	17272102201A	09/29/2017 18:30	Barbara A Washington	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852652
Reported: 10/06/2017 03:46

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/kg		MDL** ug/kg	LOQ ug/kg
Batch number: A172701AA	Sample number(s): 9218542			
Acetone	7	U	7	20
Benzene	0.5	U	0.5	5
Bromochloromethane	1	U	1	5
Bromodichloromethane	1	U	1	5
Bromoform	1	U	1	5
Bromomethane	2	U	2	5
2-Butanone	4	U	4	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	1	U	1	5
Chlorobenzene	1	U	1	5
Chloroethane	2	U	2	5
Chloroform	1	U	1	5
Chloromethane	2	U	2	5
Cyclohexane	1	U	1	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	1	U	1	5
1,2-Dibromoethane	1	U	1	5
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	2	U	2	5
1,1-Dichloroethane	1	U	1	5
1,2-Dichloroethane	1	U	1	5
1,1-Dichloroethene	1	U	1	5
cis-1,2-Dichloroethene	1	U	1	5
trans-1,2-Dichloroethene	1	U	1	5
1,2-Dichloropropane	1	U	1	5
cis-1,3-Dichloropropene	1	U	1	5
trans-1,3-Dichloropropene	1	U	1	5
Ethylbenzene	1	U	1	5
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	2	U	2	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	5
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	5
Styrene	1	U	1	5
1,1,2,2-Tetrachloroethane	1	U	1	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

Method Blank (continued)

Analysis Name	Result ug/kg		MDL** ug/kg	LOQ ug/kg
Tetrachloroethene	1	U	1	5
Toluene	1	U	1	5
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	1	U	1	5
1,1,2-Trichloroethane	1	U	1	5
Trichloroethene	1	U	1	5
Trichlorofluoromethane	2	U	2	5
Vinyl Chloride	1	U	1	5
m+p-Xylene	1	U	1	5
o-Xylene	1	U	1	5
Batch number: 17264SLC026	Sample number(s): 9218542			
Acenaphthene	3	U	3	17
Acenaphthylene	3	U	3	17
Acetophenone	17	U	17	33
Anthracene	3	U	3	17
Atrazine	33	U	33	170
Benzaldehyde	67	U	67	170
Benzo(a)anthracene	3	U	3	17
Benzo(a)pyrene	3	U	3	17
Benzo(b)fluoranthene	3	U	3	17
Benzo(g,h,i)perylene	3	U	3	17
Benzo(k)fluoranthene	3	U	3	17
1,1'-Biphenyl	17	U	17	33
4-Bromophenyl-phenylether	17	U	17	33
Butylbenzylphthalate	67	U	67	170
Di-n-butylphthalate	67	U	67	170
Caprolactam	33	U	33	170
Carbazole	17	U	17	33
4-Chloro-3-methylphenol	17	U	17	33
4-Chloroaniline	33	U	33	67
bis(2-Chloroethoxy)methane	17	U	17	33
bis(2-Chloroethyl)ether	17	U	17	33
2-Chloronaphthalene	7	U	7	33
2-Chlorophenol	17	U	17	33
4-Chlorophenyl-phenylether	17	U	17	33
2,2'-oxybis(1-Chloropropane)	17	U	17	33
Chrysene	3	U	3	17
Dibenz(a,h)anthracene	3	U	3	17
Dibenzofuran	17	U	17	33
3,3'-Dichlorobenzidine	100	U	100	330
2,4-Dichlorophenol	17	U	17	33
Diethylphthalate	67	U	67	170
2,4-Dimethylphenol	17	U	17	33
Dimethylphthalate	67	U	67	170
4,6-Dinitro-2-methylphenol	170	U	170	500
2,4-Dinitrophenol	300	U	300	1,000
2,4-Dinitrotoluene	67	U	67	170

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852652
Reported: 10/06/2017 03:46

Method Blank (continued)

Analysis Name	Result ug/kg		MDL** ug/kg	LOQ ug/kg
2,6-Dinitrotoluene	17	U	17	33
1,4-Dioxane	100	U	100	330
bis(2-Ethylhexyl)phthalate	67	U	67	170
Fluoranthene	3	U	3	17
Fluorene	3	U	3	17
Hexachlorobenzene	3	U	3	17
Hexachlorobutadiene	17	U	17	33
Hexachlorocyclopentadiene	170	U	170	500
Hexachloroethane	33	U	33	170
Indeno(1,2,3-cd)pyrene	3	U	3	17
Isophorone	17	U	17	33
2-Methylnaphthalene	3	U	3	17
2-Methylphenol	17	U	17	33
4-Methylphenol	17	U	17	33
Naphthalene	3	U	3	17
2-Nitroaniline	17	U	17	33
3-Nitroaniline	67	U	67	170
4-Nitroaniline	67	U	67	170
Nitrobenzene	17	U	17	33
2-Nitrophenol	17	U	17	33
4-Nitrophenol	170	U	170	500
N-Nitroso-di-n-propylamine	17	U	17	33
N-Nitrosodiphenylamine	17	U	17	33
Di-n-octylphthalate	67	U	67	170
Pentachlorophenol	33	U	33	170
Phenanthrene	3	U	3	17
Phenol	17	U	17	33
Pyrene	3	U	3	17
1,2,4,5-Tetrachlorobenzene	17	U	17	33
2,3,4,6-Tetrachlorophenol	67	U	67	170
2,4,5-Trichlorophenol	17	U	17	33
2,4,6-Trichlorophenol	17	U	17	33
Batch number: 172680031A	Sample number(s): 9218542			
PCB-1016	3.6	U	3.6	17
PCB-1221	4.6	U	4.6	17
PCB-1232	8.0	U	8.0	17
PCB-1242	3.3	U	3.3	17
PCB-1248	3.3	U	3.3	17
PCB-1254	3.3	U	3.3	17
PCB-1260	4.9	U	4.9	17
PCB-1262	3.3	U	3.3	17
PCB-1268	3.3	U	3.3	17
Batch number: 172680032A	Sample number(s): 9218542			
Aldrin	0.17	U	0.17	0.83
Alpha BHC	0.17	U	0.17	0.83
Beta BHC	0.30	U	0.30	1.0
Gamma BHC - Lindane	0.17	U	0.17	0.83
Alpha Chlordane	0.17	U	0.17	0.83

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ug/kg		ug/kg	ug/kg
Gamma Chlordane	0.25	U	0.25	0.83
p,p-DDD	0.33	U	0.33	1.7
p,p-DDE	0.33	U	0.33	1.7
p,p-DDT	0.36	U	0.36	1.7
Delta BHC	0.45	U	0.45	0.90
Dieldrin	0.33	U	0.33	1.7
Endosulfan I	0.22	U	0.22	0.83
Endosulfan II	0.33	U	0.33	1.7
Endosulfan Sulfate	1.1	J	0.33	1.7
Endrin	0.34	U	0.34	1.7
Endrin Aldehyde	0.33	U	0.33	1.7
Endrin Ketone	0.60	U	0.60	1.8
Heptachlor	0.17	U	0.17	0.83
Heptachlor Epoxide	0.17	U	0.17	0.83
Methoxychlor	1.7	U	1.7	6.7
Toxaphene	14	U	14	33
	mg/kg		mg/kg	mg/kg
Batch number: 172641063703	Sample number(s): 9218542			
Aluminum	8.94	U	8.94	40.0
Calcium	10.0	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	4.63	J	2.43	20.0
Manganese	0.0830	U	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.963	J	0.240	4.00
Batch number: 172641063703A	Sample number(s): 9218542			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.148	J	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172641063703B	Sample number(s): 9218542			
Selenium	0.100	U	0.100	0.800
Batch number: 172641063703D	Sample number(s): 9218542			
Barium	0.182	U	0.182	0.800
Batch number: 172651063802	Sample number(s): 9218542			
Mercury	0.0100	U	0.0100	0.100

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Batch number: 17272102201A	Sample number(s): 9218542		
Total Cyanide (solid)	0.18 U	0.18	0.50
Batch number: 17273837931A	Sample number(s): 9218542		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: A172701AA	Sample number(s): 9218542								
Acetone	150	134.75	150	126.04	90	84	32-144	7	30
Benzene	20	19.42	20	19.52	97	98	80-120	1	30
Bromochloromethane	20	20.23	20	20.98	101	105	80-120	4	30
Bromodichloromethane	20	18.42	20	18.41	92	92	70-120	0	30
Bromoform	20	20.12	20	20.61	101	103	54-120	2	30
Bromomethane	20	19.37	20	19.3	97	97	31-160	0	30
2-Butanone	150	124.59	150	117.32	83	78	49-128	6	30
Carbon Disulfide	20	20.29	20	20.11	101	101	60-128	1	30
Carbon Tetrachloride	20	19.44	20	19.57	97	98	62-129	1	30
Chlorobenzene	20	19.81	20	19.86	99	99	80-120	0	30
Chloroethane	20	17.99	20	17.89	90	89	43-137	1	30
Chloroform	20	19.45	20	19.43	97	97	80-120	0	30
Chloromethane	20	17.94	20	17.73	90	89	56-120	1	30
Cyclohexane	20	17.32	20	17.25	87	86	58-126	0	30
1,2-Dibromo-3-chloropropane	20	19.91	20	22.75	100	114	47-126	13	30
Dibromochloromethane	20	19.4	20	20.27	97	101	65-120	4	30
1,2-Dibromoethane	20	19.45	20	20.67	97	103	74-120	6	30
1,2-Dichlorobenzene	20	19.56	20	20.68	98	103	80-120	6	30
1,3-Dichlorobenzene	20	19.35	20	19.26	97	96	80-120	0	30
1,4-Dichlorobenzene	20	19.55	20	19.59	98	98	80-120	0	30
Dichlorodifluoromethane	20	16.99	20	17	85	85	10-133	0	30
1,1-Dichloroethane	20	19.36	20	19.1	97	95	77-120	1	30
1,2-Dichloroethane	20	18.21	20	18.68	91	93	71-128	3	30
1,1-Dichloroethene	20	22.81	20	22.47	114	112	73-129	2	30
cis-1,2-Dichloroethene	20	20.81	20	20.7	104	103	80-120	1	30
trans-1,2-Dichloroethene	20	21.12	20	21.16	106	106	80-125	0	30
1,2-Dichloropropane	20	18.93	20	19.07	95	95	76-120	1	30
cis-1,3-Dichloropropene	20	18.28	20	18.6	91	93	66-120	2	30
trans-1,3-Dichloropropene	20	18.52	20	18.87	93	94	63-124	2	30
Ethylbenzene	20	19.51	20	19.45	98	97	80-120	0	30
Freon 113	20	20.67	20	20.68	103	103	59-139	0	30
2-Hexanone	100	93.46	100	112.41	93	112	51-131	18	30
Isopropylbenzene	20	20.97	20	20.17	105	101	76-120	4	30
Methyl Acetate	20	19.13	20	21.57	96	108	54-146	12	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Tertiary Butyl Ether	20	19.44	20	20.25	97	101	66-123	4	30
4-Methyl-2-pentanone	100	94.25	100	107.54	94	108	53-134	13	30
Methylcyclohexane	20	18.62	20	18.44	93	92	61-124	1	30
Methylene Chloride	20	20.35	20	20.48	102	102	76-122	1	30
Styrene	20	20.06	20	19.99	100	100	76-120	0	30
1,1,2,2-Tetrachloroethane	20	20.32	20	22.07	102	110	61-131	8	30
Tetrachloroethene	20	19.5	20	20.28	97	101	73-120	4	30
Toluene	20	19.96	20	19.31	100	97	80-120	3	30
1,2,3-Trichlorobenzene	20	20.81	20	21.09	104	105	63-128	1	30
1,2,4-Trichlorobenzene	20	20.39	20	20.27	102	101	62-127	1	30
1,1,1-Trichloroethane	20	17.16	20	17	86	85	61-125	1	30
1,1,2-Trichloroethane	20	19.76	20	20.87	99	104	80-120	5	30
Trichloroethene	20	19.42	20	19.34	97	97	80-120	0	30
Trichlorofluoromethane	20	19.62	20	19.45	98	97	47-132	1	30
Vinyl Chloride	20	18.61	20	18.72	93	94	59-120	1	30
m+p-Xylene	40	40.61	40	40.52	102	101	80-120	0	30
o-Xylene	20	19.89	20	19.66	99	98	75-120	1	30
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 17264SLC026	Sample number(s): 9218542								
Acenaphthene	1666.67	1601.23			96		78-119		
Acenaphthylene	1666.67	1654.2			99		76-119		
Acetophenone	1666.67	1396.01			84		68-115		
Anthracene	1666.67	1603.77			96		82-118		
Atrazine	1666.67	1642.87			99		58-126		
Benzaldehyde	1666.67	1382.59			83		17-129		
Benzo(a)anthracene	1666.67	1588.28			95		76-119		
Benzo(a)pyrene	1666.67	1604.09			96		78-117		
Benzo(b)fluoranthene	1666.67	1557.87			93		74-127		
Benzo(g,h,i)perylene	1666.67	1551.09			93		72-118		
Benzo(k)fluoranthene	1666.67	1704.31			102		71-123		
1,1'-Biphenyl	1666.67	1559.4			94		78-115		
4-Bromophenyl-phenylether	1666.67	1513.24			91		78-122		
Butylbenzylphthalate	1666.67	1584.27			95		75-123		
Di-n-butylphthalate	1666.67	1601.81			96		77-121		
Caprolactam	1666.67	1421.25			85		63-121		
Carbazole	1666.67	1532.95			92		74-118		
4-Chloro-3-methylphenol	1666.67	1583.37			95		70-128		
4-Chloroaniline	1666.67	1048.67			63		10-112		
bis(2-Chloroethoxy)methane	1666.67	1556.72			93		69-122		
bis(2-Chloroethyl)ether	1666.67	1400.83			84		68-115		
2-Chloronaphthalene	1666.67	1503.28			90		51-150		
2-Chlorophenol	1666.67	1661.12			100		75-124		
4-Chlorophenyl-phenylether	1666.67	1526.37			92		73-119		
2,2'-oxybis(1-Chloropropane)	1666.67	1470.27			88		53-121		
Chrysene	1666.67	1549.88			93		72-121		
Dibenz(a,h)anthracene	1666.67	1577.63			95		72-129		
Dibenzofuran	1666.67	1529.63			92		79-114		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
3,3'-Dichlorobenzidine	1666.67	1117.47			67		20-121		
2,4-Dichlorophenol	1666.67	1614.56			97		79-125		
Diethylphthalate	1666.67	1556.17			93		74-120		
2,4-Dimethylphenol	1666.67	1418.46			85		57-102		
Dimethylphthalate	1666.67	1550.84			93		77-116		
4,6-Dinitro-2-methylphenol	1666.67	1587.32			95		60-128		
2,4-Dinitrophenol	3333.33	2893.16			87		27-136		
2,4-Dinitrotoluene	1666.67	1526.29			92		72-127		
2,6-Dinitrotoluene	1666.67	1594.15			96		80-120		
1,4-Dioxane	1666.67	1006.93			60		40-76		
bis(2-Ethylhexyl)phthalate	1666.67	1579.48			95		73-123		
Fluoranthene	1666.67	1543.25			93		72-120		
Fluorene	1666.67	1563.61			94		75-118		
Hexachlorobenzene	1666.67	1428.05			86		73-120		
Hexachlorobutadiene	1666.67	1537.45			92		72-120		
Hexachlorocyclopentadiene	3333.33	4356.07			131		30-133		
Hexachloroethane	1666.67	1340.25			80		69-116		
Indeno(1,2,3-cd)pyrene	1666.67	1572.91			94		69-125		
Isophorone	1666.67	1557.32			93		65-120		
2-Methylnaphthalene	1666.67	1483.27			89		77-116		
2-Methylphenol	1666.67	1612.81			97		74-128		
4-Methylphenol	1666.67	1496.55			90		66-121		
Naphthalene	1666.67	1538.07			92		75-113		
2-Nitroaniline	1666.67	1611.3			97		75-130		
3-Nitroaniline	1666.67	1640.22			98		60-125		
4-Nitroaniline	1666.67	1081.32			65		50-112		
Nitrobenzene	1666.67	1796.26			108		70-122		
2-Nitrophenol	1666.67	1696.57			102		77-123		
4-Nitrophenol	1666.67	1376.67			83		44-131		
N-Nitroso-di-n-propylamine	1666.67	1409.89			85		60-123		
N-Nitrosodiphenylamine	1666.67	1586.96			95		83-118		
Di-n-octylphthalate	1666.67	1775.97			107		76-135		
Pentachlorophenol	1666.67	1560.37			94		33-141		
Phenanthrene	1666.67	1489.23			89		74-114		
Phenol	1666.67	1540.9			92		63-125		
Pyrene	1666.67	1456.66			87		74-112		
1,2,4,5-Tetrachlorobenzene	1666.67	1529.53			92		76-116		
2,3,4,6-Tetrachlorophenol	1666.67	1558			93		65-123		
2,4,5-Trichlorophenol	1666.67	1734.33			104		79-123		
2,4,6-Trichlorophenol	1666.67	1724.9			103		81-123		
	ug/kg	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 172680031A	Sample number(s): 9218542								
PCB-1016	167	153.48			92		76-121		
PCB-1260	167	185.27			111		79-130		
Batch number: 172680032A	Sample number(s): 9218542								
Aldrin	3.33	3.05			92		60-117		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Alpha BHC	3.27	3.17			97		65-124		
Beta BHC	3.27	2.97			91		68-129		
Gamma BHC - Lindane	3.27	3.13			96		47-140		
Alpha Chlordane	3.33	3.15			95		73-131		
Gamma Chlordane	3.33	2.92			88		76-134		
p,p-DDD	6.53	7.14			109		69-138		
p,p-DDE	6.60	6.59			100		68-146		
p,p-DDT	6.53	7.42			114		67-135		
Delta BHC	3.27	3.18			97		45-151		
Dieldrin	6.47	6.75			104		63-126		
Endosulfan I	3.27	2.90			89		62-119		
Endosulfan II	6.67	6.27			94		65-126		
Endosulfan Sulfate	6.60	6.73			102		71-132		
Endrin	6.53	7.27			111		65-125		
Endrin Aldehyde	6.60	6.22			94		59-122		
Endrin Ketone	6.60	7.06			107		64-121		
Heptachlor	3.27	3.24			99		66-118		
Heptachlor Epoxide	3.33	3.17			95		74-128		
Methoxychlor	32.8	39.73			121		65-131		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172641063703	Sample number(s): 9218542								
Aluminum	200	211.61			106		80-120		
Calcium	400	410.75			103		80-120		
Iron	100	103.37			103		80-120		
Magnesium	200	207.34			104		80-120		
Manganese	50	52.35			105		80-120		
Potassium	1000	1021.49			102		80-120		
Sodium	1000	1010.11			101		80-120		
Zinc	50	53.04			106		80-120		
Batch number: 172641063703A	Sample number(s): 9218542								
Antimony	0.600	0.619			103		80-120		
Arsenic	1.00	0.935			93		80-120		
Beryllium	0.400	0.430			107		80-120		
Cadmium	0.500	0.534			107		80-120		
Chromium	5.00	5.31			106		80-120		
Cobalt	25	24.32			97		80-120		
Copper	5.00	4.98			100		80-120		
Lead	1.50	1.53			102		80-120		
Nickel	5.00	5.01			100		80-120		
Silver	5.00	5.13			103		80-120		
Thallium	0.200	0.187			94		80-120		
Vanadium	5.00	5.11			102		80-120		
Batch number: 172641063703B	Sample number(s): 9218542								
Selenium	1.00	1.05			105		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172641063703D	Sample number(s): 9218542								
Barium	5.00	4.83			97		80-120		
Batch number: 172651063802	Sample number(s): 9218542								
Mercury	0.100	0.0837			84		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17272102201A	Sample number(s): 9218542								
Total Cyanide (solid)	10	9.86			99		90-110		
Batch number: 17273837931A	Sample number(s): 9218542								
TOC	7150	7211.19			101		47-143		
	%	%	%	%					
Batch number: 17270820002A	Sample number(s): 9218542								
Moisture	89.5	89.36			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ug/kg		ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 17264SLC026	Sample number(s): 9218542 UNSPK: P220219										
Acenaphthene	3	U	1658.37	1397.07	1661.13	1427.98	84	86	78-119	2	30
Acenaphthylene	28.05		1658.37	1428.75	1661.13	1461.51	84	86	76-119	2	30
Acetophenone	17	U	1658.37	1328.74	1661.13	1381.84	80	83	68-115	4	30
Anthracene	236.05		1658.37	1932.65	1661.13	1952.91	102	103	82-118	1	30
Atrazine	33	U	1658.37	1546.55	1661.13	1648.85	93	99	58-126	6	30
Benzaldehyde	67	U	1658.37	1407.32	1661.13	1533.97	85	92	17-129	9	30
Benzo(a)anthracene	251.65		1658.37	1848.67	1661.13	1967.84	96	103	76-119	6	30
Benzo(a)pyrene	87.78		1658.37	1514.37	1661.13	1703.17	86	97	78-117	12	30
Benzo(b)fluoranthene	91.65		1658.37	1453.27	1661.13	1707.14	82	97	74-127	16	30
Benzo(g,h,i)perylene	36.58		1658.37	1433.79	1661.13	1518.09	84	89	72-118	6	30
Benzo(k)fluoranthene	52.37		1658.37	1516.44	1661.13	1486.74	88	86	71-123	2	30
1,1'-Biphenyl	17	U	1658.37	1331.86	1661.13	1371.02	80	83	78-115	3	30
4-Bromophenyl-phenylether	17	U	1658.37	1422.06	1661.13	1502.79	86	90	78-122	6	30
Butylbenzylphthalate	67	U	1658.37	1350.1	1661.13	1462.41	81	88	75-123	8	30
Di-n-butylphthalate	67	U	1658.37	1423.18	1661.13	1550.97	86	93	77-121	9	30
Caprolactam	33	U	1658.37	1507.51	1661.13	1641.45	91	99	63-121	9	30
Carbazole	17	U	1658.37	1401.08	1661.13	1471.86	84	89	74-118	5	30
4-Chloro-3-methylphenol	17	U	1658.37	1406.93	1661.13	1476.9	85	89	70-128	5	30
4-Chloroaniline	33	U	1658.37	789.54	1661.13	894.28	48	54	10-112	12	30
bis(2-Chloroethoxy)methane	17	U	1658.37	1408.03	1661.13	1474.58	85	89	69-122	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
bis(2-Chloroethyl)ether	17 U	1658.37	1320.05	1661.13	1406.41	80	85	68-115	6	30
2-Chloronaphthalene	7 U	1658.37	1233.7	1661.13	1662.72	74	100	51-150	30	30
2-Chlorophenol	17 U	1658.37	1490.65	1661.13	1576.73	90	95	75-124	6	30
4-Chlorophenyl-phenylether	17 U	1658.37	1252.6	1661.13	1298.45	76	78	73-119	4	30
2,2'-oxybis(1-Chloropropane)	17 U	1658.37	1389.97	1661.13	1498.56	84	90	53-121	8	30
Chrysene	273.39	1658.37	1836.63	1661.13	1989.7	94	103	72-121	8	30
Dibenz(a,h)anthracene	9.57	1658.37	1349.69	1661.13	1475.22	81	88	72-129	9	30
Dibenzofuran	17 U	1658.37	1288.58	1661.13	1322.28	78*	80	79-114	3	30
3,3'-Dichlorobenzidine	100 U	1658.37	624.08	1661.13	649.19	38	39	20-121	4	30
2,4-Dichlorophenol	17 U	1658.37	1389.75	1661.13	1478.1	84	89	79-125	6	30
Diethylphthalate	67 U	1658.37	1275.76	1661.13	1307.7	77	79	74-120	2	30
2,4-Dimethylphenol	17 U	1658.37	1261.51	1661.13	1313.71	76	79	57-102	4	30
Dimethylphthalate	67 U	1658.37	1280.03	1661.13	1299.49	77	78	77-116	2	30
4,6-Dinitro-2-methylphenol	170 U	1658.37	1092.16	1661.13	1133.92	66	68	60-128	4	30
2,4-Dinitrophenol	300 U	3316.75	1703.33	3322.26	1646.16	51	50	27-136	3	30
2,4-Dinitrotoluene	67 U	1658.37	1272.17	1661.13	1280.57	77	77	72-127	1	30
2,6-Dinitrotoluene	17 U	1658.37	1358.3	1661.13	1413.49	82	85	80-120	4	30
1,4-Dioxane	100 U	1658.37	817.37	1661.13	959.81	49	58	40-76	16	30
bis(2-Ethylhexyl)phthalate	67 U	1658.37	1324.29	1661.13	1470.04	80	88	73-123	10	30
Fluoranthene	747.08	1658.37	2891.51	1661.13	2862.63	129*	127*	72-120	1	30
Fluorene	69.55	1658.37	1418.23	1661.13	1447.85	81	83	75-118	2	30
Hexachlorobenzene	3 U	1658.37	1330.96	1661.13	1422.25	80	86	73-120	7	30
Hexachlorobutadiene	17 U	1658.37	1428.87	1661.13	1512.47	86	91	72-120	6	30
Hexachlorocyclopentadiene	170 U	3316.75	575.99	3322.26	670.48	17*	20*	30-133	15	30
Hexachloroethane	33 U	1658.37	1305.74	1661.13	1431.22	79	86	69-116	9	30
Indeno(1,2,3-cd)pyrene	32.23	1658.37	1415.49	1661.13	1553.37	83	92	69-125	9	30
Isophorone	17 U	1658.37	1411.6	1661.13	1494.12	85	90	65-120	6	30
2-Methylnaphthalene	3 U	1658.37	1405.15	1661.13	1443.25	85	87	77-116	3	30
2-Methylphenol	17 U	1658.37	1485.75	1661.13	1568.37	90	94	74-128	5	30
4-Methylphenol	17 U	1658.37	1322.51	1661.13	1425.51	80	86	66-121	7	30
Naphthalene	3 U	1658.37	1432.21	1661.13	1491.41	86	90	75-113	4	30
2-Nitroaniline	17 U	1658.37	1413.6	1661.13	1451.46	85	87	75-130	3	30
3-Nitroaniline	67 U	1658.37	1474.93	1661.13	1420.94	89	86	60-125	4	30
4-Nitroaniline	67 U	1658.37	1011.58	1661.13	980.32	61	59	50-112	3	30
Nitrobenzene	17 U	1658.37	1622.57	1661.13	1684.51	98	101	70-122	4	30
2-Nitrophenol	17 U	1658.37	1568.87	1661.13	1632.06	95	98	77-123	4	30
4-Nitrophenol	170 U	1658.37	1572.53	1661.13	1372.2	95	83	44-131	14	30
N-Nitroso-di-n-propylamine	17 U	1658.37	1353.87	1661.13	1422.32	82	86	60-123	5	30
N-Nitrosodiphenylamine	17 U	1658.37	1719.22	1661.13	1819.51	104	110	83-118	6	30
Di-n-octylphthalate	67 U	1658.37	1490.45	1661.13	1639.16	90	99	76-135	10	30
Pentachlorophenol	33 U	1658.37	1364.75	1661.13	1366.99	82	82	33-141	0	30
Phenanthrene	31.28	1658.37	1438.17	1661.13	1478.79	85	87	74-114	3	30
Phenol	17 U	1658.37	1400.96	1661.13	1485.37	84	89	63-125	6	30
Pyrene	1103.88	1658.37	3543.7	1661.13	3603.4	147*	150*	74-112	2	30
1,2,4,5-Tetrachlorobenzene	17 U	1658.37	1339.48	1661.13	1404.45	81	85	76-116	5	30
2,3,4,6-Tetrachlorophenol	67 U	1658.37	1259.96	1661.13	1261.72	76	76	65-123	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg		MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
2,4,5-Trichlorophenol	17	U	1658.37	1419.34	1661.13	1460.44	86	88	79-123	3	30
2,4,6-Trichlorophenol	17	U	1658.37	1450.25	1661.13	1491.03	87	90	81-123	3	30
	ug/kg		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**					
Batch number: 172680031A	Sample number(s): 9218542 UNSPK: P220859										
PCB-1016	3.6	U	165	146.42	165	148.95	89	90	76-121	2	50
PCB-1260	4.8	U	165	169.47	165	163.98	103	99	79-130	3	50
Batch number: 172680032A	Sample number(s): 9218542 UNSPK: P220859										
Aldrin	0.17	U	3.31	2.82	3.31	2.60	85	78	60-117	8	50
Alpha BHC	0.17	U	3.24	2.86	3.25	3.91	88	120	65-124	31	50
Beta BHC	0.30	U	3.24	2.72	3.25	2.76	84	85	68-129	2	50
Gamma BHC - Lindane	0.17	U	3.24	2.82	3.25	2.73	87	84	47-140	3	50
Alpha Chlordane	0.17	U	3.31	2.85	3.31	2.62	86	79	73-131	8	50
Gamma Chlordane	0.25	U	3.31	2.73	3.31	2.58	82	78	76-134	6	50
p,p-DDD	0.33	U	6.48	6.68	6.49	6.17	103	95	69-138	8	50
p,p-DDE	0.33	U	6.55	6.09	6.56	5.57	93	85	68-146	9	50
p,p-DDT	0.36	U	6.48	6.95	6.49	6.40	107	99	67-135	8	50
Delta BHC	0.45	U	3.24	2.62	3.25	2.62	81	81	45-151	0	50
Dieldrin	0.33	U	6.42	6.29	6.43	5.66	98	88	63-126	11	50
Endosulfan I	0.22	U	3.24	2.65	3.25	2.43	82	75	62-119	9	50
Endosulfan II	0.33	U	6.61	5.77	6.63	5.43	87	82	65-126	6	50
Endosulfan Sulfate	0.33	U	6.55	6.32	6.56	5.80	96	88	71-132	9	50
Endrin	0.34	U	6.48	6.73	6.49	6.14	104	95	65-125	9	50
Endrin Aldehyde	0.33	U	6.55	5.65	6.56	5.26	86	80	59-122	7	50
Endrin Ketone	0.59	U	6.55	6.66	6.56	6.22	102	95	64-121	7	50
Heptachlor	0.17	U	3.24	2.88	3.25	2.77	89	85	66-118	4	50
Heptachlor Epoxide	0.17	U	3.31	2.87	3.31	2.65	87	80	74-128	8	50
Methoxychlor	1.7	U	32.5	37.38	32.6	35.95	115	110	65-131	4	50
	mg/kg		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172641063703	Sample number(s): 9218542 UNSPK: P210689										
Aluminum	20972.97		168.07	27447.34	172.41	28132.29	3852 (2)	4152 (2)	75-125	2	20
Calcium	844.43		336.13	1257.76	344.83	1369.6	123	152*	75-125	9	20
Iron	39286.71		84.03	41534.66	86.21	39682.03	2675 (2)	459 (2)	75-125	5	20
Magnesium	7025.57		168.07	7446.01	172.41	7519.7	250 (2)	287 (2)	75-125	1	20
Manganese	1368.39		42.02	896.14	43.1	812.81	-1124 (2)	-1289 (2)	75-125	10	20
Potassium	2794.43		840.34	5926.38	862.07	6183.88	373*	393*	75-125	4	20
Sodium	493.92		840.34	1453.08	862.07	1511.98	114	118	75-125	4	20
Zinc	91.09		42.02	131.59	43.1	132.49	96	96	75-125	1	20
Batch number: 172641063703A	Sample number(s): 9218542 UNSPK: P210689										
Antimony	0.192		1.01	0.823	1.03	0.887	63*	67*	75-125	7	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Arsenic	8.20	1.68	10.06	1.72	10.15	111 (2)	113 (2)	75-125	1	20
Beryllium	0.866	0.672	1.59	0.690	1.77	108	132*	75-125	11	20
Cadmium	0.134	0.840	0.973	0.862	0.996	100	100	75-125	2	20
Chromium	22.74	8.40	33.85	8.62	34.88	132*	141*	75-125	3	20
Cobalt	24.9	42.02	56.17	43.1	59.76	74*	81	75-125	6	20
Copper	31.41	8.40	36.3	8.62	39.86	58*	98	75-125	9	20
Lead	20.56	2.52	18.84	2.59	20.45	-68 (2)	-4 (2)	75-125	8	20
Nickel	35.15	8.40	39.88	8.62	42.22	56 (2)	82 (2)	75-125	6	20
Silver	0.0202	8.40	8.68	8.62	8.86	103	103	75-125	2	20
Thallium	0.191	0.336	0.518	0.345	0.577	97	112	75-125	11	20
Vanadium	25.14	8.40	37.63	8.62	39.36	149*	165*	75-125	4	20
Batch number: 172641063703B	Sample number(s): 9218542 UNSPK: P210689									
Selenium	0.0796	1.68	1.76	1.72	1.79	100	99	75-125	1	20
Batch number: 172641063703D	Sample number(s): 9218542 UNSPK: P210689									
Barium	144.79	8.40	159.28	8.62	191.03	172 (2)	536 (2)	75-125	18	20
Batch number: 172651063802	Sample number(s): 9218542 UNSPK: 9218542									
Mercury	0.0327	0.156	0.177	0.154	0.179	92	95	80-120	1	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17272102201A	Sample number(s): 9218542 UNSPK: P224766									
Total Cyanide (solid)	0.17 U	4.88	4.99			102		41-145		
Batch number: 17273837931A	Sample number(s): 9218542 UNSPK: P218545									
TOC	6765.87	26430	19750			49		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172641063703	Sample number(s): 9218542 BKG: P210689			
Aluminum	20972.97	21099.64	1	20
Calcium	844.43	937.66	10	20
Iron	39286.71	39696.28	1	20
Magnesium	7025.57	7238.7	3	20
Manganese	1368.39	917.06	39*	20
Potassium	2794.43	2863.27	2	20
Sodium	493.92	538.88	9 (1)	20
Zinc	91.09	95.4	5	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/06/2017 03:46

Group Number: 1852652

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172641063703A	Sample number(s): 9218542 BKG: P210689			
Antimony	0.192	0.164	16 (1)	20
Arsenic	8.20	7.97	3	20
Beryllium	0.866	0.864	0	20
Cadmium	0.134	0.132	1 (1)	20
Chromium	22.74	23.96	5	20
Cobalt	24.9	17.78	33*	20
Copper	31.41	30.69	2	20
Lead	20.56	16.72	21*	20
Nickel	35.15	35.19	0	20
Silver	0.0202	0.0218 U	200* (1)	20
Thallium	0.191	0.186	2 (1)	20
Vanadium	25.14	25.24	0	20
Batch number: 172641063703B	Sample number(s): 9218542 BKG: P210689			
Selenium	0.0796	0.0782	2 (1)	20
Batch number: 172641063703D	Sample number(s): 9218542 BKG: P210689			
Barium	144.79	138.15	5	20
Batch number: 172651063802	Sample number(s): 9218542 BKG: 9218542			
Mercury	0.0327	0.0404	21* (1)	20
	mg/kg	mg/kg		
Batch number: 17272102201A	Sample number(s): 9218542 BKG: P224766			
Total Cyanide (solid)	0.17 U	0.18 U	0 (1)	20
Batch number: 17273837931A	Sample number(s): 9218542 BKG: P218545			
TOC	6765.87	7541.26	11*	7
	%	%		
Batch number: 17270820002A	Sample number(s): 9218542 BKG: P218551			
Moisture	9.59	10.48	9*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: A172701AA

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852652
Reported: 10/06/2017 03:46

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: A172701AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9218542	93	97	100	95
Blank	98	98	100	96
LCS	101	101	101	100
LCSD	102	104	98	98
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL Semivolatiles
Batch number: 17264SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
9218542	85	92	81	83	90	90
Blank	87	96	96	92	97	93
LCS	86	93	89	89	91	90
MS	79	83	72	79	77	77
MSD	84	88	72	83	79	82
Limits:	46-125	51-123	34-129	49-118	57-116	55-118

Analysis Name: PCBs
Batch number: 172680031A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
9218542	103	102	101	111
Blank	104	100	106	113
LCS	99	110	108	110
MS	94	104	96	107
MSD	94	96	101	103
Limits:	53-140	45-143	53-140	45-143

Analysis Name: TCL Pesticides
Batch number: 172680032A

	Tetrachloro-m-xylene-D1	Decachlorobiphenyl-D1	Tetrachloro-m-xylene-D2	Decachlorobiphenyl-D2
9218542	47	81	48	88
Blank	38	89	37	97
LCS	41	92	40	97
MS	53	85	54	95
MSD	66	83	66	93
Limits:	26-145	39-152	26-145	39-152

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1852652 9218942-

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52299

COC 6 of 6

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: VOA Vials (red cap)	Soil: VOA Vial (green cap)	Soil: 500ml WM glass	Soil: 250ml WM glass	Soil: % Solids Moisture plast. bag
										G	F	A	A	A
										1	1	1	1	1
1. SG3-D20-78-79	78	79	Ft.	09/19/2017	13:20	S	N	6		2	1	1	1	1
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Preservative Code: VOA kit: TCL Volatiles

Field Filtered Y/N: 500ml WM: Grain size to 1um

250ml WM: PCBs, TAL Metals, TCL Pest., TCL SVOCs, TOC, CN.

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: RQM	(RQM)	(Y) N	09/19/2017	16:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9.20.17	Time 9:40
Barr DQ Manager: MDD							
Lab Name: ELLE							
Lab Location: Lancaster, PA							

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 0.0-3.1 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 194953

Group Number(s): 1852652

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/20/2017 9:40
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 3 250mL plastic bottles unpreserved, 2 HCL, 1 Trizma

Unpacked by Timothy Cubberley (6520) at 11:02 on 09/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	3.1	DT	Wet	Y	Bagged	N
3	DT131	0.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 10, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1852654
SDG: SGB43
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D20-78-79 Soil	09/19/2017 13:20	9218544

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1852654

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: SG3-D20-78-79 Soil
SGPP - North Bennington

ELLE Sample # SW 9218544
ELLE Group # 1852654
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/10/2017 09:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20GS SDG#: SGB43-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**79.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**70.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**66.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**62.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**55.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**45.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**24.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17271710302A	09/28/2017 15:25	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852654
Reported: 10/10/2017 09:01

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1852654 9218544

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52299
COC 6 of 6

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: VOA Vials (red cap)	Soil: VOA Vial (green cap)	Soil: 500ml WM glass	Soil: 250ml WM glass	Soil: % Solids Moisture plast. tub	Preservative Code	Field Filtered Y/N	
										G	F	A	A	A			
										1	1	1	1	1			
1. SG3-D20-78-79	78	79	Ft.	09/19/2017	13:20	S	N	6		2	1	1	1	1			VOA kit: TCL Volatiles
2.																	500ml WM: Grain size to 1um
3.																	
4.																	250ml WM: PCBs, TAL Metals, TCL Pest., TCL SVOCs, TOC, CN.
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM	(RQM)	(Y) N	09/19/2017	16:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9.20.17	Time 940
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.0-3.1	Custody Seal Intact? ☒ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 194953

Group Number(s): 1852654

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/20/2017 9:40
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 3 250mL plastic bottles unpreserved, 2 HCL, 1 Trizma

Unpacked by Timothy Cubberley (6520) at 11:02 on 09/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	3.1	DT	Wet	Y	Bagged	N
3	DT131	0.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1852655
SDG: SGB44
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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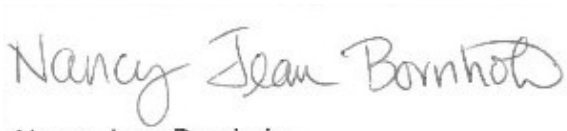
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S22-0-0.5' Soil	09/18/2017 11:20	9218545
SG3-S22-0.5-1' Soil	09/18/2017 11:30	9218546
SG3-S22-1-1.5' Soil	09/18/2017 11:40	9218547
SG3-S22-3-4' Soil	09/18/2017 11:55	9218548
SG3-LTB35-170918 Blank Water	09/18/2017	9218549
SG3-LTB36-170918 Blank Water	09/18/2017	9218550
SG3-S22-9-10' Soil	09/18/2017 12:20	9218551
SG3-S13-0-0.5' Soil	09/18/2017 14:30	9218552
SG3-S13-0.5-1' Soil	09/18/2017 14:45	9218553
SG3-S13-1-1.5' Soil	09/18/2017 14:50	9218554
SG3-S13-3-4' Soil	09/18/2017 15:20	9218555
SG3-S13-8-9' Soil	09/18/2017 15:50	9218556
SG3-S24-0-0.5' Soil	09/19/2017 10:00	9218557
SG3-S24-0.5-1' Soil	09/19/2017 10:10	9218558
SG3-S24-1-1.5' Soil	09/19/2017 10:20	9218559
SG3-S24-2.7-3.7' Soil	09/19/2017 10:35	9218560

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1852655

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9218548

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17281006 (Sample number(s): 9218545-9218548, 9218551-9218556 UNSPK: 9218545)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9218556, LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9218548

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9218548, 9218551, 9218555, 9218556

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17273837931A (Sample number(s): 9218545-9218548, 9218551-9218552 UNSPK: 9218545 BKG: 9218545)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17278245031B (Sample number(s): 9218555-9218560 UNSPK: 9218558 BKG: 9218558)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17278245033A (Sample number(s): 9218553-9218554 UNSPK: P220981 BKG: P220981)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9218548

The pH was measured in water at 19.8 C.

Sample #s: 9218557

The pH was measured in water at 19.9 C.

Sample #s: 9218551, 9218553

The pH was measured in water at 20 C.

Sample #s: 9218547, 9218552, 9218555, 9218556, 9218558

The pH was measured in water at 20.1 C.

Sample #s: 9218545, 9218546, 9218554, 9218559, 9218560

The pH was measured in water at 20.2 C.

%Moisture- Dry Wt Calculation, Wet Chemistry

Batch #: 17270820002A (Sample number(s): 9218545-9218548, 9218551-9218560 BKG: 9218551)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: SG3-S22-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218545
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-1 SDG#: SGB44-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.24**	**J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.80**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,080**		363	1,090	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 05:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218545
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-1 SDG#: SGB44-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 14:34	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039401B	09/21/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218546
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:30 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-2 SDG#: SGB44-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.21**	**J**	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**		0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,170**		651	1,950	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 06:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218546
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:30 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-2 SDG#: SGB44-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 12:19	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039401B	09/21/2017 20:00	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218547
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:40 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-3 SDG#: SGB44-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16	U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16	U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16	U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16	U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16	U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16	U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.081	U	0.081	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.081	U	0.081	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24	U	0.24	0.73	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.18**	**J**	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16	U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16	U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16	U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16	U	0.16	0.49	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,290**		465	1,400	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 06:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218547
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:40 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-3 SDG#: SGB44-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 13:13	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218548
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:55 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-4 SDG#: SGB44-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18	U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18	U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18	U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18	U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18	U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18	U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092	U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092	U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.18	U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18	U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18	U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18	U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18	U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	283	U	283	848	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.47**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218548
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:55 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-4 SDG#: SGB44-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 06:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 15:02	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB35-170918 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9218549
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB35 SDG#: SGB44-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17267004	09/27/2017 15:38	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17267004	09/25/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB36-170918 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9218550
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB36 SDG#: SGB44-06TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17267004	09/27/2017 15:59	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17267004	09/25/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-9-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9218551
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 12:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-5 SDG#: SGB44-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**543**	**J**	284	853	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S22-9-10' Soil
SGPP - North Bennington

ELLE Sample # SW 9218551
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 12:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S22-5 SDG#: SGB44-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 08:00	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 15:33	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218552
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:30 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-1 SDG#: SGB44-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25	U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25	U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25	U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25	U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25	U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25	U	0.25	0.74	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.22**	**J**	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.49	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.72**	**J**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.25**	**J**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25	U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25	U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25	U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25	U	0.25	0.74	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**33,300**		865	2,600	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.23**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 08:20	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218552
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:30 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-1 SDG#: SGB44-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17273837931A	09/30/2017 13:49	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218553
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:45 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-2 SDG#: SGB44-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16	U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16	U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16	U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16	U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16	U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16	U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.081	U	0.081	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.081	U	0.081	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24	U	0.24	0.73	1
14027	Perfluorooctanoic acid	335-67-1	0.16	U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16	U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16	U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16	U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16	U	0.16	0.49	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,400**		662	1,980	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.98**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 08:41	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218553
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:45 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-2 SDG#: SGB44-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 20:10	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218554
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:50 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-3 SDG#: SGB44-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,000**		668	2,000	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.92**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**8.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 09:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218554
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:50 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-3 SDG#: SGB44-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 20:23	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218555
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-4 SDG#: SGB44-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18	U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18	U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18	U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18	U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18	U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18	U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091	U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091	U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27	U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18	U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18	U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18	U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18	U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18	U	0.18	0.55	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	293	U	293	879	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218555
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-4 SDG#: SGB44-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 09:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/03/2017 20:42	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9218556
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:50 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-5 SDG#: SGB44-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18	U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18	U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18	U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18	U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18	U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18	U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091	U	0.091	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.091	U	0.091	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27	U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18	U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18	U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18	U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18	U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18	U	0.18	0.55	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	281	U	281	842	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S13-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9218556
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:50 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S13-5 SDG#: SGB44-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 09:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/03/2017 20:54	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218557
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:00 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-1 SDG#: SGB44-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.26**	**J**	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15**	**J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.81**	**J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.45**	**J**	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,350**		501	1,500	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.34**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**27.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 08:34	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218557
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:00 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-1 SDG#: SGB44-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/03/2017 21:03	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218558
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:10 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-2 SDG#: SGB44-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.63**	**J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.67**	**J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.69	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,670**		379	1,140	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.23**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**14.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 15:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218558
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:10 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-2 SDG#: SGB44-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/03/2017 21:16	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402A	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218559
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-3 SDG#: SGB44-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097	U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097	U	0.097	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.49**	**J**	0.29	0.87	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.38**	**J**	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.58	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,660**		368	1,100	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 10:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218559
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:20 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-3 SDG#: SGB44-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/04/2017 12:50	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-2.7-3.7' Soil
SGPP - North Bennington

ELLE Sample # SW 9218560
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:35 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-4 SDG#: SGB44-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.44**	**J**	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.73**	**J**	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,250**		184	551	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.9**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 11:19	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S24-2.7-3.7' Soil
SGPP - North Bennington

ELLE Sample # SW 9218560
ELLE Group # 1852655
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:35 by RAK

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 13:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S24-4 SDG#: SGB44-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/04/2017 13:13	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17270820002A	09/27/2017 20:14	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852655
Reported: 10/12/2017 13:59

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17272010	Sample number(s): 9218557-9218560			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17281006	Sample number(s): 9218545-9218548,9218551-9218556			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17267004	Sample number(s): 9218549-9218550			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 13:59

Group Number: 1852655

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17273837931A	Sample number(s): 9218545-9218548,9218551-9218552			
TOC	100	U	100	300
Batch number: 17278245031B	Sample number(s): 9218555-9218560			
TOC	100	U	100	300
Batch number: 17278245033A	Sample number(s): 9218553-9218554			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17272010	Sample number(s): 9218557-9218560								
Perfluorobutanesulfonate	1.20	1.05	1.20	0.987	87	82	70-130	6	30
Perfluorobutanoic acid	1.36	1.23	1.36	1.34	91	99	70-130	9	30
Perfluorodecanoic acid	1.36	1.26	1.36	1.28	93	94	70-130	1	30
Perfluorododecanoic acid	1.36	1.13	1.36	1.34	83	99	70-130	17	30
Perfluoroheptanoic acid	1.36	1.11	1.36	1.21	81	89	70-130	9	30
Perfluorohexanesulfonate	1.29	1.03	1.29	1.05	80	82	70-130	2	30
Perfluorohexanoic acid	1.36	1.05	1.36	1.22	77	89	70-130	15	30
Perfluorononanoic acid	1.36	0.978	1.36	1.30	72	95	70-130	28	30
Perfluoro-octanesulfonate	1.30	1.19	1.30	1.39	92	107	70-130	16	30
Perfluorooctanoic acid	1.36	1.10	1.36	1.25	81	92	70-130	12	30
Perfluoropentanoic acid	1.36	1.17	1.36	1.23	86	90	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.16	1.36	1.25	85	92	70-130	7	30
Perfluorotridecanoic acid	1.36	1.05	1.36	1.12	77	82	70-130	6	30
Perfluoroundecanoic acid	1.36	1.16	1.36	1.16	85	85	70-130	0	30
Batch number: 17281006	Sample number(s): 9218545-9218548,9218551-9218556								
Perfluorobutanesulfonate	1.20	1.18	1.20	1.26	98	105	70-130	6	30
Perfluorobutanoic acid	1.36	1.38	1.36	1.43	101	105	70-130	3	30
Perfluorodecanoic acid	1.36	1.46	1.36	1.25	108	92	70-130	16	30
Perfluorododecanoic acid	1.36	1.37	1.36	1.33	101	98	70-130	3	30
Perfluoroheptanoic acid	1.36	1.34	1.36	1.28	98	94	70-130	4	30
Perfluorohexanesulfonate	1.29	1.20	1.29	1.30	93	101	70-130	8	30
Perfluorohexanoic acid	1.36	1.41	1.36	1.37	104	101	70-130	3	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 13:59

Group Number: 1852655

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorononanoic acid	1.36	1.40	1.36	1.48	103	109	70-130	6	30
Perfluoro-octanesulfonate	1.30	1.08	1.30	1.11	83	85	70-130	3	30
Perfluorooctanoic acid	1.36	1.17	1.36	1.21	86	89	70-130	3	30
Perfluoropentanoic acid	1.36	1.29	1.36	1.35	95	99	70-130	4	30
Perfluorotetradecanoic acid	1.36	1.30	1.36	1.42	96	104	70-130	8	30
Perfluorotridecanoic acid	1.36	1.17	1.36	1.30	86	96	70-130	10	30
Perfluoroundecanoic acid	1.36	1.32	1.36	1.39	97	102	70-130	5	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17267004	Sample number(s): 9218549-9218550								
Perfluorobutanesulfonate	12.03	13.06	12.03	13.31	109	111	70-130	2	30
Perfluorobutanoic Acid	13.6	13.79	13.6	13.77	101	101	70-130	0	30
Perfluorodecanoic acid	13.6	14.03	13.6	16.04	103	118	70-130	13	30
Perfluorododecanoic acid	13.6	14.85	13.6	15.03	109	111	70-130	1	30
Perfluoroheptanoic acid	13.6	14.74	13.6	14.32	108	105	70-130	3	30
Perfluorohexanesulfonate	12.86	11.53	12.86	11.36	90	88	70-130	1	30
Perfluorohexanoic acid	13.6	13.65	13.6	12.85	100	95	70-130	6	30
Perfluorononanoic acid	13.6	15.95	13.6	13.93	117	102	70-130	14	30
Perfluoro-octanesulfonate	13	12.6	13	11.94	97	92	70-130	5	30
Perfluorooctanoic acid	13.6	12.96	13.6	13.87	95	102	70-130	7	30
Perfluoropentanoic Acid	13.6	13.26	13.6	13.54	97	100	70-130	2	30
Perfluorotetradecanoic acid	13.6	15.64	13.6	15.54	115	114	70-130	1	30
Perfluorotridecanoic acid	13.6	13.66	13.6	12.35	100	91	70-130	10	30
Perfluoroundecanoic acid	13.6	15.31	13.6	16.98	113	125	70-130	10	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17273837931A	Sample number(s): 9218545-9218548,9218551-9218552								
TOC	7150	7211.19			101		47-143		
Batch number: 17278245031B	Sample number(s): 9218555-9218560								
TOC	7150	5579.46			78		47-143		
Batch number: 17278245033A	Sample number(s): 9218553-9218554								
TOC	7150	6851.38			96		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17264039401B	Sample number(s): 9218545-9218546								
pH	7.00	6.96			99		95-105		
Batch number: 17264039402A	Sample number(s): 9218547-9218548,9218551-9218558								
pH	7.00	7.01			100		95-105		
Batch number: 17264039402B	Sample number(s): 9218559-9218560								
pH	7.00	7.01			100		95-105		
	%	%	%	%					
Batch number: 17270820002A	Sample number(s): 9218545-9218548,9218551-9218560								

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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 13:59

Group Number: 1852655

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Moisture	89.5	89.36			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17272010	Sample number(s): 9218557-9218560 UNSPK: 9218557									
Perfluorobutanesulfonate	0.17 U	1.04	0.962			93		70-130		
Perfluorobutanoic acid	0.189	1.17	1.29			94		70-130		
Perfluorodecanoic acid	0.17 U	1.17	1.27			109		70-130		
Perfluorododecanoic acid	0.17 U	1.17	1.20			102		70-130		
Perfluoroheptanoic acid	0.17 U	1.17	1.29			110		70-130		
Perfluorohexanesulfonate	0.17 U	1.11	0.936			84		70-130		
Perfluorohexanoic acid	0.085 U	1.17	1.16			99		70-130		
Perfluorononanoic acid	0.111	1.17	1.14			88		70-130		
Perfluoro-octanesulfonate	0.590	1.12	1.52			83		70-130		
Perfluorooctanoic acid	0.327	1.17	1.45			96		70-130		
Perfluoropentanoic acid	0.17 U	1.17	1.05			89		70-130		
Perfluorotetradecanoic acid	0.17 U	1.17	1.11			95		70-130		
Perfluorotridecanoic acid	0.17 U	1.17	1.03			88		70-130		
Perfluoroundecanoic acid	0.17 U	1.17	1.15			98		70-130		
Batch number: 17281006	Sample number(s): 9218545-9218548,9218551-9218556 UNSPK: 9218545									
Perfluorobutanesulfonate	0.19 U	1.12	1.01			90		70-130		
Perfluorobutanoic acid	0.202	1.27	1.44			98		70-130		
Perfluorodecanoic acid	0.19 U	1.27	1.22			96		70-130		
Perfluorododecanoic acid	0.19 U	1.27	1.33			104		70-130		
Perfluoroheptanoic acid	0.19 U	1.27	1.19			93		70-130		
Perfluorohexanesulfonate	0.19 U	1.20	1.09			91		70-130		
Perfluorohexanoic acid	0.093 U	1.27	1.20			94		70-130		
Perfluorononanoic acid	0.093 U	1.27	1.24			97		70-130		
Perfluoro-octanesulfonate	0.28 U	1.22	1.32			108		70-130		
Perfluorooctanoic acid	0.673	1.27	1.70			81		70-130		
Perfluoropentanoic acid	0.19 U	1.27	1.30			103		70-130		
Perfluorotetradecanoic acid	0.19 U	1.27	1.35			106		70-130		
Perfluorotridecanoic acid	0.19 U	1.27	1.23			97		70-130		
Perfluoroundecanoic acid	0.19 U	1.27	1.37			107		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17273837931A	Sample number(s): 9218545-9218548,9218551-9218552 UNSPK: 9218545									
TOC	6765.87	26430	19750			49		47-143		

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 13:59

Group Number: 1852655

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17278245031B	Sample number(s): 9218555-9218560 UNSPK: 9218558									
TOC	3133.07	17610	18038.76			85		47-143		
Batch number: 17278245033A	Sample number(s): 9218553-9218554 UNSPK: P220981									
TOC	17193.16	23340	38763.61			92		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 17273837931A	Sample number(s): 9218545-9218548,9218551-9218552 BKG: 9218545			
TOC	6765.87	7541.26	11*	7
Batch number: 17278245031B	Sample number(s): 9218555-9218560 BKG: 9218558			
TOC	3133.07	2557.37	20* (1)	7
Batch number: 17278245033A	Sample number(s): 9218553-9218554 BKG: P220981			
TOC	17193.16	15222.35	12*	7
	Std. Units	Std. Units		
Batch number: 17264039401B	Sample number(s): 9218545-9218546 BKG: P199868			
pH	7.74	7.69	1	3
Batch number: 17264039402A	Sample number(s): 9218547-9218548,9218551-9218558 BKG: 9218548			
pH	8.47	8.48	0	3
Batch number: 17264039402B	Sample number(s): 9218559-9218560 BKG: 9218560			
pH	8.09	8.16	1	3
	%	%		
Batch number: 17270820002A	Sample number(s): 9218545-9218548,9218551-9218560 BKG: 9218551			
Moisture	9.59	10.48	9*	5

Surrogate Quality Control

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 13:59

Group Number: 1852655

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17267004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218549	95	91	85	97	102	99
9218550	92	94	81	96	95	95
Blank	96	95	85	109	108	88
LCS	100	97	90	105	95	95
LCSD	93	96	81	94	92	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218549	97	93	98	91	91	87
9218550	98	94	86	92	87	84
Blank	102	92	115	91	90	92
LCS	107	93	93	94	89	89
LCSD	101	86	90	87	97	101
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9218549	90
9218550	89
Blank	91
LCS	91
LCSD	98
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17272010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218557	83	82	58	102	83	94
9218558	79	71	56	96	81	83
9218559	90	82	66	84	78	84
9218560	91	91	65	88	90	86
Blank	84	78	62	79	72	76
LCS	84	79	62	87	80	85
LCSD	80	79	63	80	84	85
MS	84	79	61	86	80	78
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218557	92	68	72	88	98	86
9218558	87	86	94	86	81	80

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852655
Reported: 10/12/2017 13:59

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17272010

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218559	92	84	83	93	102	104
9218560	94	83	107	96	96	95
Blank	91	70	93	91	113	96
LCS	95	79	93	90	99	100
LCSD	86	73	84	80	94	87
MS	83	78	85	87	93	83
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9218557	88
9218558	74
9218559	96
9218560	93
Blank	101
LCS	94
LCSD	82
MS	87
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17281006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218545	85	81	84	79	79	82
9218546	84	84	81	80	90	84
9218547	79	81	75	83	86	82
9218548	69	67*	82	84	89	73
9218551	87	79	88	89	100	92
9218552	83	82	89	74	79	77
9218553	88	87	88	98	98	95
9218554	93	93	92	93	95	97
9218555	81	77	86	86	99	79
9218556	108*	103	118	105	128*	108
Blank	73	72	72	77	74	68
LCS	95	98	93	110	118	109
LCSD	83	82	76	86	83	90
MS	76	71	80	84	84	93
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852655
Reported: 10/12/2017 13:59

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17281006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218545	83	83	85	99	89	93
9218546	86	92	85	96	91	98
9218547	81	91	78	88	92	90
9218548	84	85	66	77	76	71
9218551	96	94	89	87	97	98
9218552	81	95	104	72	72	58
9218553	90	89	94	89	81	71
9218554	93	104	87	87	86	87
9218555	81	87	77	95	85	88
9218556	128*	143*	105	121	124	121
Blank	75	78	77	83	90	85
LCS	125*	105	108	103	111	115
LCSD	86	83	71	89	92	92
MS	87	83	86	97	91	90
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9218545	84
9218546	87
9218547	91
9218548	66
9218551	85
9218552	60
9218553	68
9218554	79
9218555	80
9218556	116
Blank	82
LCS	100
LCSD	86
MS	77
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1852655 9218545-CO IN 3 COOLERS

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52292 COC 1 of 6

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: G.T. MALE
Address: 300 Market Pointe Dr.	Address: 50 Century Hill Dr. Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3-St. Gobain/Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic-unpres.	Soil: 250ml Plastic	Soil: 4oz Glass	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A				
										N	N				
1. SG3-SZ2-0-0.5'	0	0.5	ft	09/18/2017	1120	S	N	2		1	1				(14) PFC's, moisture content, TOC, pH.
2. SG3-SZ2-0.5-1'	0.5	1	ft	09/18/2017	1130	S	N	2		1	1				
3. SG3-SZ2-1-1.5'	1	1.5	ft	09/18/2017	1140	S	N	2		1	1				
4. SG3-SZ2-3-4'	3	4	ft	09/18/2017	1155	S	N	2		1	1				RAK 9.18.17 ~~Trip Blank Prepared by ELLE~~
5. SG3-LTB35-170918 (35 RAK 9.19.17)	—	—	—	09/18/2017	AM	W	N	1	1						Trip Blank Prepared by ELLE 8.24.17
6. SG3-LTB36-170918 (36 RAK 9.19.17)	—	—	—	09/18/2017	AM	W	N	1	1						Trip Blank Prepared by ELLE 9.8.17
7. SG3-SZ2-~~8-9'~~ 09-10' (RAK 9.18.17)	~~8~~ 9	~~9~~ 10	ft	09/18/2017	1220	S	N	2		1	1				
8. SG3-S13-0-0.5'	0	0.5	ft,	09/18/2017	1430	S	N	2		1	1				
9. SG3-S13-0.5-1'	0.5	1	ft	09/18/2017	1445	S	N	2		1	1				
10. SG3-S13-~~0~~ 1-1.5' (RAK 9.18.17)	1	1.5	ft	09/18/2017	1450	S	N	2		1	1				

BARR USE ONLY

Sampled by: RAK/KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kolodney — On Ice? (Y) N — Date 9.19.17 — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: 3 — Date 9.20.17 — Time 9:40

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C) 3.0-3.1 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1852655 9218545-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52294
COC 2 of 16

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 300 Market Pointe Dr.	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 3242100

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water / Soil: 250ml Plastic	4oz Glass	% Solids
									A	A	
									N	N	
1. SG3-S13-3-4'	3	4	ft	09/18/2017	1520	S	N	2	1	1	
2. SG3-S13-8-9'	8	9	ft	09/18/2017	1550	S	N	2	1	1	
3. SG3-S24-0-0.5'	0	0.5	ft	9-19-17	1000	S	N	2	1	1	
4. SG3-S24-0.5-1'	0.5	1	ft	9-19-17	1010	S	N	2	1	1	
5. SG3-S24-1-1.5'	1	1.5	ft	9-19-17	1020	S	N	2	1	1	
6. SG3-S24-2.7-3.7'	2.7	3.7	ft	9-19-17	1035	S	N	2	1	1	
7.											
8.											
9.											
10.											

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Preservative Code

Field Filtered Y/N

BARR USE ONLY

Sampled by: RAK/KAM
Barr Proj. Manager: JTC
Barr DQ Manager: MDO
Lab Name: ELLE
Lab Location: Lancaster, PA

Relinquished by: Robert Kurkosky — On Ice? (Y) N — Date: 9.19.17 — Time: 1700
Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time
Received by: 3 — Date: 9.20.17 — Time: 940

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C) 0.03.1 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 194953

Group Number(s): 1852655

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/20/2017 9:40
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 3 250mL plastic bottles unpreserved, 2 HCL, 1 Trizma

Unpacked by Timothy Cubberley (6520) at 11:02 on 09/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	3.1	DT	Wet	Y	Bagged	N
3	DT131	0.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 12, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1852656
SDG: SGB45
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D20-0-0.5' Soil	09/18/2017 10:50	9218561
SG3-D20-0.5-1' Soil	09/18/2017 10:55	9218562
SG3-D20-1.0-1.5' Soil	09/18/2017 11:00	9218563
SG3-D20-3-4' Soil	09/18/2017 11:15	9218564
SG3-D20-6.5-7.5' Soil	09/18/2017 11:35	9218565
SG3-D20-8-9' Soil	09/18/2017 11:40	9218566
SG3-D20-18-19' Soil	09/18/2017 12:45	9218567
SG3-D20-28-29' Soil	09/18/2017 13:40	9218568
SG3-D20-38-39' Soil	09/18/2017 14:30	9218569
SG3-D20-48-49' Soil	09/18/2017 15:15	9218570
SG3-D20-58-59' Soil	09/19/2017 09:20	9218571
SG3-D20-68.5-69.5' Soil	09/19/2017 10:55	9218572
SG3-D20-75-77' Soil	09/19/2017 12:00	9218573
SG3-D20-78-79' Soil	09/19/2017 13:20	9218574
SG3-LTB39-170919 Blank Water	09/19/2017	9218575

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1852656

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9218568, 9218573, 9218574

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17272010 (Sample number(s): 9218565-9218574 UNSPK: P218557)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9218568, 9218573, 9218574

Batch #: 17281006 (Sample number(s): 9218561-9218564 UNSPK: P218545)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCS

SW-846 6010C, Metals

Batch #: 172641063703 (Sample number(s): 9218561-9218574 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Manganese

SW-846 6020A, Metals

Batch #: 172641063703A (Sample number(s): 9218561-9218574 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Beryllium, Chromium, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Lead, Cobalt, Copper, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Lead, Silver

Batch #: 172641063703D (Sample number(s): 9218561-9218574 UNSPK: P210689 BKG: P210689)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9218565, 9218566, 9218568, 9218570, 9218571, 9218572, 9218574

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17278245031B (Sample number(s): 9218561-9218562 UNSPK: P218558 BKG: P218558)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9218561, 9218562, 9218568, 9218571

The pH was measured in water at 20.1 C.

Sample #s: 9218563, 9218565, 9218567, 9218569, 9218570, 9218572, 9218573

The pH was measured in water at 20.2 C.

Sample #s: 9218564, 9218566, 9218574

The pH was measured in water at 20.3 C.

Sample Description: SG3-D20-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218561
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:50 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-1 SDG#: SGB45-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**4,310**	7.60	34.0	1
01650	**Calcium**	7440-70-2	**90,000**	14.1	170	5
01654	**Iron**	7439-89-6	**12,700**	6.84	34.0	1
01657	**Magnesium**	7439-95-4	**32,200**	2.06	17.0	1
06958	**Manganese**	7439-96-5	**317**	0.0705	0.850	1
01662	**Potassium**	7440-09-7	**971**	14.2	85.0	1
01667	**Sodium**	7440-23-5	**54.9 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**50.7**	0.204	3.40	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.233 J**	0.0792	0.340	2
06125	**Arsenic**	7440-38-2	**4.90**	0.109	0.680	2
06126	**Barium**	7440-39-3	**35.2**	0.154	0.680	2
06127	**Beryllium**	7440-41-7	**0.252**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**0.119 J**	0.0292	0.170	2
06131	**Chromium**	7440-47-3	**22.7**	0.148	0.680	2
06132	**Cobalt**	7440-48-4	**5.00**	0.0265	0.170	2
06133	**Copper**	7440-50-8	**12.7**	0.0911	0.680	2
06135	**Lead**	7439-92-1	**68.3**	0.0189	0.340	2
06139	**Nickel**	7440-02-0	**9.71**	0.169	0.680	2
06141	Selenium	7782-49-2	0.0850 U	0.0850	0.680	2
06142	**Silver**	7440-22-4	**0.0347 J**	0.0248	0.170	2
06145	**Thallium**	7440-28-0	**0.0704 J**	0.0212	0.170	2
06148	**Vanadium**	7440-62-2	**17.2**	0.0362	0.170	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0245 J**	0.0111	0.111	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218561
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:50 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-1 SDG#: SGB45-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,300**	1,010	3,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 10:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 02:03	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 02:00	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:18	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:20	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218561
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:50 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-1 SDG#: SGB45-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:18	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:18	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 13:46	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/04/2017 13:27	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218562
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-2 SDG#: SGB45-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**1,240**	7.80	34.9	1
01650	**Calcium**	7440-70-2	**89,300**	14.5	175	5
01654	**Iron**	7439-89-6	**6,130**	7.03	34.9	1
01657	**Magnesium**	7439-95-4	**44,900**	10.6	87.3	5
06958	**Manganese**	7439-96-5	**236**	0.0724	0.873	1
01662	**Potassium**	7440-09-7	**438**	14.6	87.3	1
01667	**Sodium**	7440-23-5	**42.7 J**	14.6	175	1
06972	**Zinc**	7440-66-6	**21.8**	0.209	3.49	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.627**	0.0813	0.349	2
06125	**Arsenic**	7440-38-2	**2.63**	0.112	0.698	2
06126	**Barium**	7440-39-3	**24.3**	0.158	0.698	2
06127	**Beryllium**	7440-41-7	**0.112 J**	0.0091	0.175	2
06128	**Cadmium**	7440-43-9	**0.0620 J**	0.0300	0.175	2
06131	**Chromium**	7440-47-3	**3.92**	0.152	0.698	2
06132	**Cobalt**	7440-48-4	**2.02**	0.0272	0.175	2
06133	**Copper**	7440-50-8	**6.33**	0.0936	0.698	2
06135	**Lead**	7439-92-1	**35.2**	0.0194	0.349	2
06139	**Nickel**	7440-02-0	**4.32**	0.174	0.698	2
06141	Selenium	7782-49-2	0.0873 U	0.0873	0.698	2
06142	**Silver**	7440-22-4	**0.0289 J**	0.0255	0.175	2
06145	**Thallium**	7440-28-0	**0.0713 J**	0.0218	0.175	2
06148	**Vanadium**	7440-62-2	**13.3**	0.0372	0.175	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0373 J**	0.0101	0.101	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218562
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-2 SDG#: SGB45-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**52,600**	6,760	20,300	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.64**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 10:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 02:10	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 02:10	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 02:06	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:21	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:21	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9218562
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-2 SDG#: SGB45-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:21	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:21	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 13:52	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17278245031B	10/04/2017 14:53	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-1.0-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218563
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-3 SDG#: SGB45-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15	U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15	U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15	U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15	U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15	U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15	U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.076	U	0.076	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.076	U	0.076	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.68	1
14027	Perfluorooctanoic acid	335-67-1	0.15	U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15	U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15	U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15	U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15	U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,180**		7.28	32.6	1
01650	**Calcium**	7440-70-2	**60,600**		13.6	163	5
01654	**Iron**	7439-89-6	**19,000**		6.56	32.6	1
01657	**Magnesium**	7439-95-4	**27,600**		1.98	16.3	1
06958	**Manganese**	7439-96-5	**382**		0.0676	0.814	1
01662	**Potassium**	7440-09-7	**1,330**		13.6	81.4	1
01667	**Sodium**	7440-23-5	**123**	**J**	13.6	163	1
06972	**Zinc**	7440-66-6	**53.1**		0.195	3.26	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.244**	**J**	0.0759	0.326	2
06125	**Arsenic**	7440-38-2	**8.62**		0.104	0.652	2
06126	**Barium**	7440-39-3	**42.4**		0.148	0.652	2
06127	**Beryllium**	7440-41-7	**0.369**		0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.188**		0.0280	0.163	2
06131	**Chromium**	7440-47-3	**10.5**		0.142	0.652	2
06132	**Cobalt**	7440-48-4	**10.1**		0.0254	0.163	2
06133	**Copper**	7440-50-8	**19.7**		0.0873	0.652	2
06135	**Lead**	7439-92-1	**55.7**		0.0181	0.326	2
06139	**Nickel**	7440-02-0	**14.9**		0.162	0.652	2
06141	**Selenium**	7782-49-2	**0.239**	**J**	0.0814	0.652	2
06142	**Silver**	7440-22-4	**0.0430**	**J**	0.0238	0.163	2
06145	**Thallium**	7440-28-0	**0.192**		0.0204	0.163	2
06148	**Vanadium**	7440-62-2	**13.3**		0.0347	0.163	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-1.0-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218563
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-3 SDG#: SGB45-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0179 J**	0.0109	0.109	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**6,720**	356	1,070	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**9.02**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 10:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 02:16	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 02:13	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:24	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:23	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-1.0-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218563
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-3 SDG#: SGB45-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:24	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:24	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 13:54	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 14:12	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218564
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-4 SDG#: SGB45-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,600**		7.51	33.6	1
01650	**Calcium**	7440-70-2	**9,110**		2.80	33.6	1
01654	**Iron**	7439-89-6	**29,800**		33.8	168	5
01657	**Magnesium**	7439-95-4	**8,870**		2.04	16.8	1
06958	**Manganese**	7439-96-5	**762**		0.0697	0.840	1
01662	**Potassium**	7440-09-7	**1,860**		14.0	84.0	1
01667	**Sodium**	7440-23-5	**655**		14.0	168	1
06972	**Zinc**	7440-66-6	**65.6**		0.202	3.36	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.224**	**J**	0.0783	0.336	2
06125	**Arsenic**	7440-38-2	**10.1**		0.107	0.672	2
06126	**Barium**	7440-39-3	**79.1**		0.153	0.672	2
06127	**Beryllium**	7440-41-7	**0.713**		0.0088	0.168	2
06128	**Cadmium**	7440-43-9	**0.229**		0.0289	0.168	2
06131	**Chromium**	7440-47-3	**14.8**		0.146	0.672	2
06132	**Cobalt**	7440-48-4	**12.7**		0.0262	0.168	2
06133	**Copper**	7440-50-8	**20.3**		0.0900	0.672	2
06135	**Lead**	7439-92-1	**19.6**		0.0186	0.336	2
06139	**Nickel**	7440-02-0	**22.8**		0.167	0.672	2
06141	**Selenium**	7782-49-2	**0.165**	**J**	0.0840	0.672	2
06142	**Silver**	7440-22-4	**0.0422**	**J**	0.0245	0.168	2
06145	**Thallium**	7440-28-0	**0.179**		0.0210	0.168	2
06148	**Vanadium**	7440-62-2	**18.2**		0.0358	0.168	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218564
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-4 SDG#: SGB45-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0362 J**	0.0114	0.114	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,170**	300	900	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.86**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**19.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281006	10/11/2017 11:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281006	10/09/2017 08:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:21	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:18	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:27	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9218564
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-4 SDG#: SGB45-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:27	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:27	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 13:56	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 14:26	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-6.5-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218565
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:35 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-5 SDG#: SGB45-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.47 J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.61	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,930**	7.22	32.3	1
01650	**Calcium**	7440-70-2	**1,400**	2.69	32.3	1
01654	**Iron**	7439-89-6	**20,700**	6.50	32.3	1
01657	**Magnesium**	7439-95-4	**2,560**	1.96	16.2	1
06958	**Manganese**	7439-96-5	**619**	0.0671	0.808	1
01662	**Potassium**	7440-09-7	**1,340**	13.5	80.8	1
01667	**Sodium**	7440-23-5	**255**	13.5	162	1
06972	**Zinc**	7440-66-6	**42.4**	0.194	3.23	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.126 J**	0.0753	0.323	2
06125	**Arsenic**	7440-38-2	**10.1**	0.103	0.646	2
06126	**Barium**	7440-39-3	**73.4**	0.147	0.646	2
06127	**Beryllium**	7440-41-7	**0.575**	0.0085	0.162	2
06128	**Cadmium**	7440-43-9	**0.174**	0.0278	0.162	2
06131	**Chromium**	7440-47-3	**12.2**	0.141	0.646	2
06132	**Cobalt**	7440-48-4	**10.9**	0.0252	0.162	2
06133	**Copper**	7440-50-8	**19.1**	0.0866	0.646	2
06135	**Lead**	7439-92-1	**11.1**	0.0179	0.323	2
06139	**Nickel**	7440-02-0	**18.7**	0.161	0.646	2
06141	Selenium	7782-49-2	0.0808 U	0.0808	0.646	2
06142	**Silver**	7440-22-4	**0.0288 J**	0.0236	0.162	2
06145	**Thallium**	7440-28-0	**0.218**	0.0202	0.162	2
06148	**Vanadium**	7440-62-2	**14.9**	0.0344	0.162	2
	SW-846 7471B		**mg/kg**	**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-6.5-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218565
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:35 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-5 SDG#: SGB45-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		**mg/kg**		**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0284 J**		0.0109	0.109	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	335	U	335	1,000	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 11:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:24	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:30	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-6.5-7.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218565
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:35 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-5 SDG#: SGB45-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:30	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:30	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 13:58	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 14:41	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9218566
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-6 SDG#: SGB45-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,970**	9.58	42.9	1
01650	**Calcium**	7440-70-2	**22,100**	3.57	42.9	1
01654	**Iron**	7439-89-6	**22,500**	8.63	42.9	1
01657	**Magnesium**	7439-95-4	**9,360**	2.60	21.4	1
06958	**Manganese**	7439-96-5	**742**	0.0890	1.07	1
01662	**Potassium**	7440-09-7	**1,600**	17.9	107	1
01667	**Sodium**	7440-23-5	**286**	17.9	214	1
06972	**Zinc**	7440-66-6	**55.9**	0.257	4.29	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.171 J**	0.0999	0.429	2
06125	**Arsenic**	7440-38-2	**14.1**	0.137	0.857	2
06126	**Barium**	7440-39-3	**74.3**	0.195	0.857	2
06127	**Beryllium**	7440-41-7	**0.580**	0.0112	0.214	2
06128	**Cadmium**	7440-43-9	**0.197 J**	0.0369	0.214	2
06131	**Chromium**	7440-47-3	**11.6**	0.187	0.857	2
06132	**Cobalt**	7440-48-4	**16.3**	0.0334	0.214	2
06133	**Copper**	7440-50-8	**19.2**	0.115	0.857	2
06135	**Lead**	7439-92-1	**16.0**	0.0238	0.429	2
06139	**Nickel**	7440-02-0	**24.4**	0.214	0.857	2
06141	Selenium	7782-49-2	0.107 U	0.107	0.857	2
06142	Silver	7440-22-4	0.0313 U	0.0313	0.214	2
06145	**Thallium**	7440-28-0	**0.280**	0.0268	0.214	2
06148	**Vanadium**	7440-62-2	**15.7**	0.0457	0.214	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0162 J**	0.0116	0.116	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9218566
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-6 SDG#: SGB45-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	233	U	233	699	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		Std. Units		Std. Units	Std. Units	
00394	**pH**	n.a.	**8.50**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%		%	%	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 12:00	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:27	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:33	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9218566
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 11:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-6 SDG#: SGB45-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:33	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:33	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:00	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 14:50	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9218567
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 12:45 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-7 SDG#: SGB45-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,730**	7.36	32.9	1
01650	**Calcium**	7440-70-2	**39,600**	2.74	32.9	1
01654	**Iron**	7439-89-6	**22,000**	6.63	32.9	1
01657	**Magnesium**	7439-95-4	**16,600**	2.00	16.5	1
06958	**Manganese**	7439-96-5	**809**	0.0684	0.824	1
01662	**Potassium**	7440-09-7	**1,470**	13.8	82.4	1
01667	**Sodium**	7440-23-5	**261**	13.8	165	1
06972	**Zinc**	7440-66-6	**55.7**	0.198	3.29	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.135 J**	0.0768	0.329	2
06125	**Arsenic**	7440-38-2	**10.9**	0.105	0.659	2
06126	**Barium**	7440-39-3	**78.9**	0.150	0.659	2
06127	**Beryllium**	7440-41-7	**0.522**	0.0086	0.165	2
06128	**Cadmium**	7440-43-9	**0.224**	0.0283	0.165	2
06131	**Chromium**	7440-47-3	**11.2**	0.143	0.659	2
06132	**Cobalt**	7440-48-4	**12.7**	0.0257	0.165	2
06133	**Copper**	7440-50-8	**17.7**	0.0883	0.659	2
06135	**Lead**	7439-92-1	**14.1**	0.0183	0.329	2
06139	**Nickel**	7440-02-0	**21.3**	0.164	0.659	2
06141	**Selenium**	7782-49-2	**0.109 J**	0.0824	0.659	2
06142	Silver	7440-22-4	0.0240 U	0.0240	0.165	2
06145	**Thallium**	7440-28-0	**0.208**	0.0206	0.165	2
06148	**Vanadium**	7440-62-2	**13.2**	0.0351	0.165	2
	SW-846 7471B		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0147 J**	0.0115	0.115	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9218567
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 12:45 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-7 SDG#: SGB45-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,120**	349	1,050	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 12:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:30	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:36	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:25	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9218567
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 12:45 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-7 SDG#: SGB45-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:36	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:36	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:02	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 15:12	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9218568
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 13:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-8 SDG#: SGB45-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22	U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22	U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,950**		7.97	35.7	1
01650	**Calcium**	7440-70-2	**60,000**		14.8	178	5
01654	**Iron**	7439-89-6	**36,200**		35.9	178	5
01657	**Magnesium**	7439-95-4	**17,300**		2.17	17.8	1
06958	**Manganese**	7439-96-5	**878**		0.0740	0.892	1
01662	**Potassium**	7440-09-7	**1,660**		14.9	89.2	1
01667	**Sodium**	7440-23-5	**84.8**	**J**	14.9	178	1
06972	**Zinc**	7440-66-6	**72.4**		0.214	3.57	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.225**	**J**	0.0831	0.357	2
06125	**Arsenic**	7440-38-2	**12.6**		0.114	0.713	2
06126	**Barium**	7440-39-3	**66.4**		0.162	0.713	2
06127	**Beryllium**	7440-41-7	**0.627**		0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.364**		0.0307	0.178	2
06131	**Chromium**	7440-47-3	**13.0**		0.155	0.713	2
06132	**Cobalt**	7440-48-4	**16.6**		0.0278	0.178	2
06133	**Copper**	7440-50-8	**19.6**		0.0956	0.713	2
06135	**Lead**	7439-92-1	**14.7**		0.0198	0.357	2
06139	**Nickel**	7440-02-0	**25.1**		0.178	0.713	2
06141	**Selenium**	7782-49-2	**0.106**	**J**	0.0892	0.713	2
06142	**Silver**	7440-22-4	**0.0358**	**J**	0.0260	0.178	2
06145	**Thallium**	7440-28-0	**0.242**		0.0223	0.178	2
06148	**Vanadium**	7440-62-2	**13.7**		0.0380	0.178	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9218568
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 13:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-8 SDG#: SGB45-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0142 J**	0.0108	0.108	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	392 U	392	1,180	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.75**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 12:41	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:37	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:37	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:33	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:45	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9218568
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 13:40 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-8 SDG#: SGB45-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:45	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:45	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:04	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 19:32	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039402B	09/21/2017 20:40	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-38-39' Soil
SGPP - North Bennington

ELLE Sample # SW 9218569
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:30 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-9 SDG#: SGB45-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,130**		8.56	38.3	1
01650	**Calcium**	7440-70-2	**128,000**		15.9	192	5
01654	**Iron**	7439-89-6	**17,400**		7.71	38.3	1
01657	**Magnesium**	7439-95-4	**62,900**		11.6	95.8	5
06958	**Manganese**	7439-96-5	**409**		0.0795	0.958	1
01662	**Potassium**	7440-09-7	**1,690**		16.0	95.8	1
01667	**Sodium**	7440-23-5	**100**	**J**	16.0	192	1
06972	**Zinc**	7440-66-6	**46.7**		0.230	3.83	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.221**	**J**	0.0893	0.383	2
06125	**Arsenic**	7440-38-2	**10.4**		0.123	0.766	2
06126	**Barium**	7440-39-3	**44.7**		0.174	0.766	2
06127	**Beryllium**	7440-41-7	**0.459**		0.0100	0.192	2
06128	**Cadmium**	7440-43-9	**0.138**	**J**	0.0329	0.192	2
06131	**Chromium**	7440-47-3	**12.7**		0.167	0.766	2
06132	**Cobalt**	7440-48-4	**10.3**		0.0299	0.192	2
06133	**Copper**	7440-50-8	**14.3**		0.103	0.766	2
06135	**Lead**	7439-92-1	**11.2**		0.0213	0.383	2
06139	**Nickel**	7440-02-0	**17.8**		0.191	0.766	2
06141	**Selenium**	7782-49-2	**0.786**		0.0958	0.766	2
06142	**Silver**	7440-22-4	**0.0317**	**J**	0.0280	0.192	2
06145	**Thallium**	7440-28-0	**0.0929**	**J**	0.0239	0.192	2
06148	**Vanadium**	7440-62-2	**13.3**		0.0408	0.192	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-38-39' Soil
SGPP - North Bennington

ELLE Sample # SW 9218569
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:30 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-9 SDG#: SGB45-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		mg/kg	mg/kg	mg/kg	
00159	**Mercury**	7439-97-6	**0.0151 J**	0.0101	0.101	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,690**	308	925	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.74**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%	%	%	
00111	**Moisture**	n.a.	**7.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 13:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:43	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:43	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:40	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:48	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:28	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-38-39' Soil
SGPP - North Bennington

ELLE Sample # SW 9218569
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 14:30 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D20-9 SDG#: SGB45-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:48	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:48	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:06	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 16:26	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005A	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9218570
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2010 SDG#: SGB45-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,300**		6.90	30.9	1
01650	**Calcium**	7440-70-2	**31,200**		2.57	30.9	1
01654	**Iron**	7439-89-6	**28,800**		31.0	154	5
01657	**Magnesium**	7439-95-4	**15,800**		1.87	15.4	1
06958	**Manganese**	7439-96-5	**710**		0.0640	0.771	1
01662	**Potassium**	7440-09-7	**1,760**		12.9	77.1	1
01667	**Sodium**	7440-23-5	**46.1**	**J**	12.9	154	1
06972	**Zinc**	7440-66-6	**66.3**		0.185	3.09	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.332**		0.0719	0.309	2
06125	**Arsenic**	7440-38-2	**12.1**		0.0987	0.617	2
06126	**Barium**	7440-39-3	**85.2**		0.140	0.617	2
06127	**Beryllium**	7440-41-7	**0.773**		0.0081	0.154	2
06128	**Cadmium**	7440-43-9	**0.222**		0.0265	0.154	2
06131	**Chromium**	7440-47-3	**14.4**		0.134	0.617	2
06132	**Cobalt**	7440-48-4	**15.1**		0.0241	0.154	2
06133	**Copper**	7440-50-8	**24.2**		0.0827	0.617	2
06135	**Lead**	7439-92-1	**16.8**		0.0171	0.309	2
06139	**Nickel**	7440-02-0	**27.0**		0.154	0.617	2
06141	Selenium	7782-49-2	0.0771	U	0.0771	0.617	2
06142	**Silver**	7440-22-4	**0.0264**	**J**	0.0225	0.154	2
06145	**Thallium**	7440-28-0	**0.227**		0.0193	0.154	2
06148	**Vanadium**	7440-62-2	**16.5**		0.0329	0.154	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0759**	**J**	0.0106	0.106	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9218570
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2010 SDG#: SGB45-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg		mg/kg	mg/kg	
02079	TOC	n.a.	320	U	320	959	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		Std. Units		Std. Units	Std. Units	
00394	**pH**	n.a.	**8.77**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		%		%	%	
00111	**Moisture**	n.a.	**13.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 13:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 03:46	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:55	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:51	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:29	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-48-49' Soil
SGPP - North Bennington

ELLE Sample # SW 9218570
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/18/2017 15:15 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2010 SDG#: SGB45-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:51	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:51	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:08	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 16:41	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005B	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-58-59' Soil
SGPP - North Bennington

ELLE Sample # SW 9218571
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 09:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2011 SDG#: SGB45-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095	U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095	U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19	U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,000**		7.01	31.4	1
01650	**Calcium**	7440-70-2	**62,200**		13.1	157	5
01654	**Iron**	7439-89-6	**26,000**		31.6	157	5
01657	**Magnesium**	7439-95-4	**17,500**		1.91	15.7	1
06958	**Manganese**	7439-96-5	**596**		0.0651	0.785	1
01662	**Potassium**	7440-09-7	**1,740**		13.1	78.5	1
01667	**Sodium**	7440-23-5	**47.1**	**J**	13.1	157	1
06972	**Zinc**	7440-66-6	**61.3**		0.188	3.14	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.287**	**J**	0.0731	0.314	2
06125	**Arsenic**	7440-38-2	**11.5**		0.100	0.628	2
06126	**Barium**	7440-39-3	**107**		0.142	0.628	2
06127	**Beryllium**	7440-41-7	**0.613**		0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.314**		0.0270	0.157	2
06131	**Chromium**	7440-47-3	**14.9**		0.137	0.628	2
06132	**Cobalt**	7440-48-4	**13.9**		0.0245	0.157	2
06133	**Copper**	7440-50-8	**23.1**		0.0841	0.628	2
06135	**Lead**	7439-92-1	**14.6**		0.0174	0.314	2
06139	**Nickel**	7440-02-0	**25.4**		0.156	0.628	2
06141	**Selenium**	7782-49-2	**0.0950**	**J**	0.0785	0.628	2
06142	**Silver**	7440-22-4	**0.0287**	**J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.198**		0.0196	0.157	2
06148	**Vanadium**	7440-62-2	**16.9**		0.0334	0.157	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-58-59' Soil
SGPP - North Bennington

ELLE Sample # SW 9218571
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 09:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2011 SDG#: SGB45-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0356 J**	0.0108	0.108	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	324 U	324	972	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.55**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 13:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 04:02	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 04:02	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 03:59	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:54	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-58-59' Soil
SGPP - North Bennington

ELLE Sample # SW 9218571
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 09:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2011 SDG#: SGB45-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172641063703A	09/28/2017 04:31	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:54	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:54	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:10	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 16:50	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005B	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-68.5-69.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218572
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2012 SDG#: SGB45-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.29	U	0.29	0.87	1
14027	Perfluorobutanoic acid	375-22-4	0.29	U	0.29	0.87	1
14027	Perfluorodecanoic acid	335-76-2	0.29	U	0.29	0.87	1
14027	Perfluorododecanoic acid	307-55-1	0.29	U	0.29	0.87	1
14027	Perfluoroheptanoic acid	375-85-9	0.29	U	0.29	0.87	1
14027	Perfluorohexanesulfonate	355-46-4	0.29	U	0.29	0.87	1
14027	Perfluorohexanoic acid	307-24-4	0.14	U	0.14	0.58	1
14027	Perfluorononanoic acid	375-95-1	0.14	U	0.14	0.58	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.43	U	0.43	1.3	1
14027	Perfluorooctanoic acid	335-67-1	0.29	U	0.29	0.87	1
14027	Perfluoropentanoic acid	2706-90-3	0.29	U	0.29	0.87	1
14027	Perfluorotetradecanoic acid	376-06-7	0.29	U	0.29	0.87	1
14027	Perfluorotridecanoic acid	72629-94-8	0.29	U	0.29	0.87	1
14027	Perfluoroundecanoic acid	2058-94-8	0.29	U	0.29	0.87	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,300**		9.77	43.7	1
01650	**Calcium**	7440-70-2	**4,490**		3.64	43.7	1
01654	**Iron**	7439-89-6	**47,800**		44.0	219	5
01657	**Magnesium**	7439-95-4	**2,640**		2.66	21.9	1
06958	**Manganese**	7439-96-5	**1,840**		0.0907	1.09	1
01662	**Potassium**	7440-09-7	**1,490**		18.2	109	1
01667	**Sodium**	7440-23-5	**22.7**	**J**	18.2	219	1
06972	**Zinc**	7440-66-6	**91.1**		0.262	4.37	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.491**		0.102	0.437	2
06125	**Arsenic**	7440-38-2	**31.5**		0.140	0.874	2
06126	**Barium**	7440-39-3	**186**		0.198	0.874	2
06127	**Beryllium**	7440-41-7	**2.36**		0.0115	0.219	2
06128	**Cadmium**	7440-43-9	**0.489**		0.0376	0.219	2
06131	**Chromium**	7440-47-3	**7.88**		0.190	0.874	2
06132	**Cobalt**	7440-48-4	**12.9**		0.0341	0.219	2
06133	**Copper**	7440-50-8	**29.0**		0.117	0.874	2
06135	**Lead**	7439-92-1	**23.5**		0.0243	0.437	2
06139	**Nickel**	7440-02-0	**36.0**		0.218	0.874	2
06141	Selenium	7782-49-2	0.109	U	0.109	0.874	2
06142	**Silver**	7440-22-4	**0.0416**	**J**	0.0319	0.219	2
06145	**Thallium**	7440-28-0	**0.576**		0.0273	0.219	2
06148	**Vanadium**	7440-62-2	**22.9**		0.0465	0.219	2
	SW-846 7471B		**mg/kg**		**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0229**	**J**	0.0144	0.144	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-68.5-69.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218572
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2012 SDG#: SGB45-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	TOC	n.a.	351	U	351	1,050	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**31.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 14:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 04:08	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 04:05	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 01:57	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-68.5-69.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9218572
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 10:55 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2012 SDG#: SGB45-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 01:57	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 01:57	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:16	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031A	10/03/2017 16:58	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005B	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-75-77' Soil
SGPP - North Bennington

ELLE Sample # SW 9218573
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 12:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2013 SDG#: SGB45-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24	U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,720**		8.16	36.5	1
01650	**Calcium**	7440-70-2	**96,700**		15.2	183	5
01654	**Iron**	7439-89-6	**17,400**		7.35	36.5	1
01657	**Magnesium**	7439-95-4	**37,100**		2.22	18.3	1
06958	**Manganese**	7439-96-5	**423**		0.0758	0.913	1
01662	**Potassium**	7440-09-7	**2,420**		15.2	91.3	1
01667	**Sodium**	7440-23-5	**29.3**	**J**	15.2	183	1
06972	**Zinc**	7440-66-6	**34.3**		0.219	3.65	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0965**	**J**	0.0851	0.365	2
06125	**Arsenic**	7440-38-2	**10.6**		0.117	0.730	2
06126	**Barium**	7440-39-3	**43.3**		0.166	0.730	2
06127	**Beryllium**	7440-41-7	**0.703**		0.0096	0.183	2
06128	**Cadmium**	7440-43-9	**0.154**	**J**	0.0314	0.183	2
06131	**Chromium**	7440-47-3	**11.0**		0.159	0.730	2
06132	**Cobalt**	7440-48-4	**6.56**		0.0285	0.183	2
06133	**Copper**	7440-50-8	**8.49**		0.0979	0.730	2
06135	**Lead**	7439-92-1	**12.0**		0.0203	0.365	2
06139	**Nickel**	7440-02-0	**14.2**		0.182	0.730	2
06141	Selenium	7782-49-2	0.0913	U	0.0913	0.730	2
06142	**Silver**	7440-22-4	**0.0865**	**J**	0.0267	0.183	2
06145	**Thallium**	7440-28-0	**0.109**	**J**	0.0228	0.183	2
06148	**Vanadium**	7440-62-2	**10.3**		0.0389	0.183	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-75-77' Soil
SGPP - North Bennington

ELLE Sample # SW 9218573
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 12:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2013 SDG#: SGB45-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0343 J**	0.0116	0.116	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,760**	287	862	2.44
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.25**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 15:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 04:14	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 04:11	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 02:00	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-75-77' Soil
SGPP - North Bennington

ELLE Sample # SW 9218573
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 12:00 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2013 SDG#: SGB45-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 02:00	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 02:00	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:18	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031B	10/03/2017 17:06	Leroy C Poole	2.44
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005B	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79' Soil
SGPP - North Bennington

ELLE Sample # SW 9218574
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2014 SDG#: SGB45-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24	U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24	U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24	U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24	U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24	U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24	U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12	U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12	U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35	U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24	U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24	U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24	U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24	U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24	U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,700**		8.08	36.2	1
01650	**Calcium**	7440-70-2	**69,300**		15.1	181	5
01654	**Iron**	7439-89-6	**20,700**		7.28	36.2	1
01657	**Magnesium**	7439-95-4	**6,330**		2.20	18.1	1
06958	**Manganese**	7439-96-5	**1,430**		0.0750	0.904	1
01662	**Potassium**	7440-09-7	**1,500**		15.1	90.4	1
01667	**Sodium**	7440-23-5	**15.9**	**J**	15.1	181	1
06972	**Zinc**	7440-66-6	**78.2**		0.217	3.62	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.184**	**J**	0.0843	0.362	2
06125	**Arsenic**	7440-38-2	**14.3**		0.116	0.723	2
06126	**Barium**	7440-39-3	**129**		0.164	0.723	2
06127	**Beryllium**	7440-41-7	**0.959**		0.0095	0.181	2
06128	**Cadmium**	7440-43-9	**0.580**		0.0311	0.181	2
06131	**Chromium**	7440-47-3	**9.06**		0.157	0.723	2
06132	**Cobalt**	7440-48-4	**11.2**		0.0282	0.181	2
06133	**Copper**	7440-50-8	**11.2**		0.0969	0.723	2
06135	**Lead**	7439-92-1	**14.3**		0.0201	0.362	2
06139	**Nickel**	7440-02-0	**23.2**		0.180	0.723	2
06141	Selenium	7782-49-2	0.0904	U	0.0904	0.723	2
06142	**Silver**	7440-22-4	**0.0813**	**J**	0.0264	0.181	2
06145	**Thallium**	7440-28-0	**0.466**		0.0226	0.181	2
06148	**Vanadium**	7440-62-2	**11.0**		0.0385	0.181	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79' Soil
SGPP - North Bennington

ELLE Sample # SW 9218574
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2014 SDG#: SGB45-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 7471B**		**mg/kg**	**mg/kg**	**mg/kg**	
00159	**Mercury**	7439-97-6	**0.0452 J**	0.0110	0.110	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	280 U	280	841	2.35
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.58**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**%Moisture- Dry Wt Calculation**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17272010	10/04/2017 15:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17272010	10/02/2017 18:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172641063703	09/25/2017 04:21	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172641063703	09/25/2017 04:17	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172641063703D	09/26/2017 02:03	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D20-78-79' Soil
SGPP - North Bennington

ELLE Sample # SW 9218574
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017 13:20 by RQM

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D2014 SDG#: SGB45-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172641063703B	09/26/2017 02:03	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172641063703A	09/26/2017 02:03	Bradley M Berlot	2
00159	Mercury	SW-846 7471B	1	172641063802	09/23/2017 14:20	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172641063703	09/23/2017 15:50	JoElla L Rice	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	172641063802	09/22/2017 17:50	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17276245031B	10/03/2017 17:20	Leroy C Poole	2.35
00394	pH	SW-846 9045D modified	1	17264039403A	09/21/2017 21:20	Jeremy L Bolf	1
00111	Moisture	%Moisture- Dry Wt Calculation	1	17269820005B	09/26/2017 21:15	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB39-170919 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9218575
ELLE Group # 1852656
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/19/2017

Submitted: 09/20/2017 09:40
Reported: 10/12/2017 16:01

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB39 SDG#: SGB45-15TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 17:54	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852656
Reported: 10/12/2017 16:01

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17272010	Sample number(s): 9218565-9218574			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17281006	Sample number(s): 9218561-9218564			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17274001	Sample number(s): 9218575			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172641063703	Sample number(s): 9218561-9218574			
Aluminum	8.94	U	8.94	40.0
Calcium	10.0	J	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	4.63	J	2.43	20.0
Manganese	0.0830	U	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.963	J	0.240	4.00
Batch number: 172641063703A	Sample number(s): 9218561-9218574			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.148	J	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172641063703B	Sample number(s): 9218561-9218574			
Selenium	0.100	U	0.100	0.800
Batch number: 172641063703D	Sample number(s): 9218561-9218574			
Barium	0.182	U	0.182	0.800
Batch number: 172641063802	Sample number(s): 9218561-9218574			
Mercury	0.0100	U	0.0100	0.100
Batch number: 17276245031A	Sample number(s): 9218563-9218572			
TOC	100	U	100	300
Batch number: 17276245031B	Sample number(s): 9218573-9218574			
TOC	100	U	100	300
Batch number: 17278245031B	Sample number(s): 9218561-9218562			
TOC	100	U	100	300

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17272010	Sample number(s): 9218565-9218574								
Perfluorobutanesulfonate	1.20	1.05	1.20	0.987	87	82	70-130	6	30
Perfluorobutanoic acid	1.36	1.23	1.36	1.34	91	99	70-130	9	30
Perfluorodecanoic acid	1.36	1.26	1.36	1.28	93	94	70-130	1	30
Perfluorododecanoic acid	1.36	1.13	1.36	1.34	83	99	70-130	17	30
Perfluoroheptanoic acid	1.36	1.11	1.36	1.21	81	89	70-130	9	30
Perfluorohexanesulfonate	1.29	1.03	1.29	1.05	80	82	70-130	2	30
Perfluorohexanoic acid	1.36	1.05	1.36	1.22	77	89	70-130	15	30
Perfluorononanoic acid	1.36	0.978	1.36	1.30	72	95	70-130	28	30
Perfluoro-octanesulfonate	1.30	1.19	1.30	1.39	92	107	70-130	16	30
Perfluorooctanoic acid	1.36	1.10	1.36	1.25	81	92	70-130	12	30
Perfluoropentanoic acid	1.36	1.17	1.36	1.23	86	90	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.16	1.36	1.25	85	92	70-130	7	30
Perfluorotridecanoic acid	1.36	1.05	1.36	1.12	77	82	70-130	6	30
Perfluoroundecanoic acid	1.36	1.16	1.36	1.16	85	85	70-130	0	30
Batch number: 17281006	Sample number(s): 9218561-9218564								
Perfluorobutanesulfonate	1.20	1.18	1.20	1.26	98	105	70-130	6	30
Perfluorobutanoic acid	1.36	1.38	1.36	1.43	101	105	70-130	3	30
Perfluorodecanoic acid	1.36	1.46	1.36	1.25	108	92	70-130	16	30
Perfluorododecanoic acid	1.36	1.37	1.36	1.33	101	98	70-130	3	30
Perfluoroheptanoic acid	1.36	1.34	1.36	1.28	98	94	70-130	4	30
Perfluorohexanesulfonate	1.29	1.20	1.29	1.30	93	101	70-130	8	30
Perfluorohexanoic acid	1.36	1.41	1.36	1.37	104	101	70-130	3	30
Perfluorononanoic acid	1.36	1.40	1.36	1.48	103	109	70-130	6	30
Perfluoro-octanesulfonate	1.30	1.08	1.30	1.11	83	85	70-130	3	30
Perfluorooctanoic acid	1.36	1.17	1.36	1.21	86	89	70-130	3	30
Perfluoropentanoic acid	1.36	1.29	1.36	1.35	95	99	70-130	4	30
Perfluorotetradecanoic acid	1.36	1.30	1.36	1.42	96	104	70-130	8	30
Perfluorotridecanoic acid	1.36	1.17	1.36	1.30	86	96	70-130	10	30
Perfluoroundecanoic acid	1.36	1.32	1.36	1.39	97	102	70-130	5	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17274001	Sample number(s): 9218575								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172641063703	Sample number(s): 9218561-9218574								
Aluminum	200	211.61			106		80-120		
Calcium	400	410.75			103		80-120		
Iron	100	103.37			103		80-120		
Magnesium	200	207.34			104		80-120		
Manganese	50	52.35			105		80-120		
Potassium	1000	1021.49			102		80-120		
Sodium	1000	1010.11			101		80-120		
Zinc	50	53.04			106		80-120		
Batch number: 172641063703A	Sample number(s): 9218561-9218574								
Antimony	0.600	0.619			103		80-120		
Arsenic	1.00	0.935			93		80-120		
Beryllium	0.400	0.430			107		80-120		
Cadmium	0.500	0.534			107		80-120		
Chromium	5.00	5.31			106		80-120		
Cobalt	25	24.32			97		80-120		
Copper	5.00	4.98			100		80-120		
Lead	1.50	1.53			102		80-120		
Nickel	5.00	5.01			100		80-120		
Silver	5.00	5.13			103		80-120		
Thallium	0.200	0.187			94		80-120		
Vanadium	5.00	5.11			102		80-120		
Batch number: 172641063703B	Sample number(s): 9218561-9218574								
Selenium	1.00	1.05			105		80-120		
Batch number: 172641063703D	Sample number(s): 9218561-9218574								
Barium	5.00	4.83			97		80-120		
Batch number: 172641063802	Sample number(s): 9218561-9218574								
Mercury	0.100	0.0944			94		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17276245031A	Sample number(s): 9218563-9218572								
TOC	7150	5562.75			78		47-143		
Batch number: 17276245031B	Sample number(s): 9218573-9218574								
TOC	7150	5562.75			78		47-143		
Batch number: 17278245031B	Sample number(s): 9218561-9218562								
TOC	7150	5579.46			78		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17264039402B	Sample number(s): 9218561-9218568								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
pH	7.00	7.01			100		95-105		
Batch number: 17264039403A	Sample number(s): 9218569-9218574								
pH	7.00	7.02			100		95-105		
	%	%	%	%					
Batch number: 17269820005A	Sample number(s): 9218561-9218569								
Moisture	89.5	89.43			100		99-101		
Batch number: 17269820005B	Sample number(s): 9218570-9218574								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17272010	Sample number(s): 9218565-9218574 UNSPK: P218557										
Perfluorobutanesulfonate	0.17	U	1.04	0.962			93		70-130		
Perfluorobutanoic acid	0.189		1.17	1.29			94		70-130		
Perfluorodecanoic acid	0.17	U	1.17	1.27			109		70-130		
Perfluorododecanoic acid	0.17	U	1.17	1.20			102		70-130		
Perfluoroheptanoic acid	0.17	U	1.17	1.29			110		70-130		
Perfluorohexanesulfonate	0.17	U	1.11	0.936			84		70-130		
Perfluorohexanoic acid	0.085	U	1.17	1.16			99		70-130		
Perfluorononanoic acid	0.111		1.17	1.14			88		70-130		
Perfluoro-octanesulfonate	0.590		1.12	1.52			83		70-130		
Perfluorooctanoic acid	0.327		1.17	1.45			96		70-130		
Perfluoropentanoic acid	0.17	U	1.17	1.05			89		70-130		
Perfluorotetradecanoic acid	0.17	U	1.17	1.11			95		70-130		
Perfluorotridecanoic acid	0.17	U	1.17	1.03			88		70-130		
Perfluoroundecanoic acid	0.17	U	1.17	1.15			98		70-130		
Batch number: 17281006	Sample number(s): 9218561-9218564 UNSPK: P218545										
Perfluorobutanesulfonate	0.19	U	1.12	1.01			90		70-130		
Perfluorobutanoic acid	0.202		1.27	1.44			98		70-130		
Perfluorodecanoic acid	0.19	U	1.27	1.22			96		70-130		
Perfluorododecanoic acid	0.19	U	1.27	1.33			104		70-130		
Perfluoroheptanoic acid	0.19	U	1.27	1.19			93		70-130		
Perfluorohexanesulfonate	0.19	U	1.20	1.09			91		70-130		
Perfluorohexanoic acid	0.093	U	1.27	1.20			94		70-130		
Perfluorononanoic acid	0.093	U	1.27	1.24			97		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	0.28 U	1.22	1.32			108		70-130		
Perfluorooctanoic acid	0.673	1.27	1.70			81		70-130		
Perfluoropentanoic acid	0.19 U	1.27	1.30			103		70-130		
Perfluorotetradecanoic acid	0.19 U	1.27	1.35			106		70-130		
Perfluorotridecanoic acid	0.19 U	1.27	1.23			97		70-130		
Perfluoroundecanoic acid	0.19 U	1.27	1.37			107		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172641063703	Sample number(s): 9218561-9218574 UNSPK: P210689									
Aluminum	20972.97	168.07	27447.34	172.41	28132.29	3852 (2)	4152 (2)	75-125	2	20
Calcium	844.43	336.13	1257.76	344.83	1369.6	123	152*	75-125	9	20
Iron	39286.71	84.03	41534.66	86.21	39682.03	2675 (2)	459 (2)	75-125	5	20
Magnesium	7025.57	168.07	7446.01	172.41	7519.7	250 (2)	287 (2)	75-125	1	20
Manganese	1368.39	42.02	896.14	43.1	812.81	-1124 (2)	-1289 (2)	75-125	10	20
Potassium	2794.43	840.34	5926.38	862.07	6183.88	373*	393*	75-125	4	20
Sodium	493.92	840.34	1453.08	862.07	1511.98	114	118	75-125	4	20
Zinc	91.09	42.02	131.59	43.1	132.49	96	96	75-125	1	20
Batch number: 172641063703A	Sample number(s): 9218561-9218574 UNSPK: P210689									
Antimony	0.192	1.01	0.823	1.03	0.887	63*	67*	75-125	7	20
Arsenic	8.20	1.68	10.06	1.72	10.15	111 (2)	113 (2)	75-125	1	20
Beryllium	0.866	0.672	1.59	0.690	1.77	108	132*	75-125	11	20
Cadmium	0.134	0.840	0.973	0.862	0.996	100	100	75-125	2	20
Chromium	22.74	8.40	33.85	8.62	34.88	132*	141*	75-125	3	20
Cobalt	24.9	42.02	56.17	43.1	59.76	74*	81	75-125	6	20
Copper	31.41	8.40	36.3	8.62	39.86	58*	98	75-125	9	20
Lead	20.56	2.52	18.84	2.59	20.45	-68 (2)	-4 (2)	75-125	8	20
Nickel	35.15	8.40	39.88	8.62	42.22	56 (2)	82 (2)	75-125	6	20
Silver	0.0202	8.40	8.68	8.62	8.86	103	103	75-125	2	20
Thallium	0.191	0.336	0.518	0.345	0.577	97	112	75-125	11	20
Vanadium	25.14	8.40	37.63	8.62	39.36	149*	165*	75-125	4	20
Batch number: 172641063703B	Sample number(s): 9218561-9218574 UNSPK: P210689									
Selenium	0.0796	1.68	1.76	1.72	1.79	100	99	75-125	1	20
Batch number: 172641063703D	Sample number(s): 9218561-9218574 UNSPK: P210689									
Barium	144.79	8.40	159.28	8.62	191.03	172 (2)	536 (2)	75-125	18	20
Batch number: 172641063802	Sample number(s): 9218561-9218574 UNSPK: P210690									
Mercury	0.0109	0.159	0.164	0.161	0.160	97	93	80-120	3	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17276245031A	Sample number(s): 9218563-9218572 UNSPK: 9218568									
TOC	326 U	17550	12228.07			70		47-143		

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17276245031B	Sample number(s): 9218573-9218574 UNSPK: P220868									
TOC	293 U	17910	17737.31			99		47-143		
Batch number: 17278245031B	Sample number(s): 9218561-9218562 UNSPK: P218558									
TOC	3133.07	17610	18038.76			85		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172641063703	Sample number(s): 9218561-9218574 BKG: P210689			
Aluminum	20972.97	21099.64	1	20
Calcium	844.43	937.66	10	20
Iron	39286.71	39696.28	1	20
Magnesium	7025.57	7238.7	3	20
Manganese	1368.39	917.06	39*	20
Potassium	2794.43	2863.27	2	20
Sodium	493.92	538.88	9 (1)	20
Zinc	91.09	95.4	5	20
Batch number: 172641063703A	Sample number(s): 9218561-9218574 BKG: P210689			
Antimony	0.192	0.164	16 (1)	20
Arsenic	8.20	7.97	3	20
Beryllium	0.866	0.864	0	20
Cadmium	0.134	0.132	1 (1)	20
Chromium	22.74	23.96	5	20
Cobalt	24.9	17.78	33*	20
Copper	31.41	30.69	2	20
Lead	20.56	16.72	21*	20
Nickel	35.15	35.19	0	20
Silver	0.0202	0.0218 U	200* (1)	20
Thallium	0.191	0.186	2 (1)	20
Vanadium	25.14	25.24	0	20
Batch number: 172641063703B	Sample number(s): 9218561-9218574 BKG: P210689			
Selenium	0.0796	0.0782	2 (1)	20
Batch number: 172641063703D	Sample number(s): 9218561-9218574 BKG: P210689			
Barium	144.79	138.15	5	20
Batch number: 172641063802	Sample number(s): 9218561-9218574 BKG: P210690			

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/12/2017 16:01

Group Number: 1852656

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Mercury	0.0109	0.0118	9 (1)	20
	mg/kg	mg/kg		
Batch number: 17276245031A	Sample number(s): 9218563-9218572 BKG: 9218568			
TOC	326 U	352 U	0 (1)	7
Batch number: 17276245031B	Sample number(s): 9218573-9218574 BKG: P220868			
TOC	293 U	297 U	0 (1)	7
Batch number: 17278245031B	Sample number(s): 9218561-9218562 BKG: P218558			
TOC	3133.07	2557.37	20* (1)	7
	Std. Units	Std. Units		
Batch number: 17264039402B	Sample number(s): 9218561-9218568 BKG: P218560			
pH	8.09	8.16	1	3
Batch number: 17264039403A	Sample number(s): 9218569-9218574 BKG: 9218570			
pH	8.77	8.78	0	3
	%	%		
Batch number: 17269820005A	Sample number(s): 9218561-9218569 BKG: 9218564			
Moisture	19.04	19.26	1	5
Batch number: 17269820005B	Sample number(s): 9218570-9218574 BKG: 9218570			
Moisture	13.04	12.52	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17272010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218565	84	76	64	82	78	78
9218566	81	70	58	74	73	69
9218567	89	87	66	95	79	94
9218568	74	67*	56	81	74	78
9218569	80	73	66	83	82	88
9218570	78	72	64	85	78	83
9218571	87	81	64	88	84	86
9218572	73	74	58	88	75	80

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852656
Reported: 10/12/2017 16:01

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17272010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218573	72	67*	54	79	74	78
9218574	73	67*	60	73	80	76
Blank	84	78	62	79	72	76
LCS	84	79	62	87	80	85
LCSD	80	79	63	80	84	85
MS	84	79	61	86	80	78
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218565	80	75	83	77	90	78
9218566	75	79	82	79	83	89
9218567	91	82	109	98	96	99
9218568	76	83	87	85	91	99
9218569	88	87	96	74	83	76
9218570	77	70	75	82	95	93
9218571	89	95	95	75	84	83
9218572	93	82	88	75	88	83
9218573	78	71	81	81	71	73
9218574	69	84	84	65	75	75
Blank	91	70	93	91	113	96
LCS	95	79	93	90	99	100
LCSD	86	73	84	80	94	87
MS	83	78	85	87	93	83
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9218565	79
9218566	80
9218567	87
9218568	83
9218569	74
9218570	81
9218571	78
9218572	83
9218573	67
9218574	68
Blank	101
LCS	94
LCSD	82
MS	87

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852656
Reported: 10/12/2017 16:01

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17272010

Limits: 20-127

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218575	99	94	70	103	88	94
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218575	102	90	116	110	110	110
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9218575	106
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17281006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9218561	81	81	77	77	81	73
9218562	77	80	76	78	78	81
9218563	89	86	91	96	97	93
9218564	90	85	86	91	98	96
Blank	73	72	72	77	74	68
LCS	95	98	93	110	118	109
LCSD	83	82	76	86	83	90
MS	76	71	80	84	84	93
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1852656
Reported: 10/12/2017 16:01

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17281006

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9218561	92	81	83	79	85	81
9218562	78	86	92	86	83	74
9218563	90	94	97	97	95	85
9218564	96	81	89	96	91	80
Blank	75	78	77	83	90	85
LCS	125*	105	108	103	111	115
LCSD	86	83	71	89	92	92
MS	87	83	86	97	91	90
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9218561	70
9218562	62
9218563	80
9218564	79
Blank	82
LCS	100
LCSD	86
MS	77
Limits:	20-127

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1852656 9218561-75

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52295

COC 4 of 6

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.06

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Soil: PFCs (poly) (14)	4 oz. glass - TOC, pH, Moist. + TAL metals/cations	% Solids	Preservative Code	Field Filtered Y/N	Comments
									A	A				
									N	N				
1. SG3-D20-0-0.5'	0	0.5	ft.	09/18/2017	10:50	S	N	2	1	1				TAL metals/cations shared out of 4 oz. jar
2. SG3-D20-0.5-1'	0.5	1	ft.	09/18/2017	10:55	S	N	2	1	1				
3. SG3-D20-1.0-1.5'	1	1.5	ft.	09/18/2017	11:00	S	N	2	1	1				
4. SG3-D20-3-4'	3	4	ft.	09/18/2017	11:15	S	N	2	1	1				Samples split into ~~two~~ three coolers
5. SG3-D20-6.5-7.5'	6.5	7.5	ft.	09/18/2017	11:35	S	N	2	1	1				
6. SG3-D20-8-9'	8	9	ft.	09/18/2017	11:40	S	N	2	1	1				
7. SG3-D20-18-19'	18	19	ft.	09/18/2017	12:45	S	N	2	1	1				
8. SG3-D20-28-29'	28	29	ft.	09/18/2017	13:40	S	N	2	1	1				
9. SG3-D20-38-39'	38	39	ft.	09/18/2017	14:30	S	N	2	1	1				
10. SG3-D20-48-49'	48	49	ft.	09/18/2017	15:15	S	N	2	1	1				

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) — On Ice? (Y) N — Date 09/19/2017 — Time 16:00

Received by: — Date — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date 9.20.17 — Time 9:40

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Lab WO: Temperature on Receipt (°C) 0.0-3.1 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1852656 9218561-75

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52303

COC 5 of 6

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001.

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: PFCs (14) in poly	Soil: 4oz jar, TOL, pH, moist, metals	Soil: % Solids
										A	A	
							N	Z		1	1	
1. SG3-D20-58-59'	58	59	Ft.	09/19/2017	09:20	S	N	2		1	1	
2. SG3-D20-68.5-69.5'	68.5	69.5	Ft.	09/19/2017	10:55	S	N	2		1	1	
3. SG3-D20-75-77'	75	77	Ft.	09/19/2017	12:00	S	N	2		1	1	
4. ~~SG3-D20~~ SG3-D20-78-79'	78	79	Ft.	09/19/2017	13:20	S	N	2		1	1	
5. ~~SG3-D20~~ SG3-LTB39-170919				09/19/2017	PM	Water	N	1	1			
6. ~~SG3-D20~~												
7. ~~SG3-D20~~												
8. ~~SG3-D20~~												
9. ~~SG3-D20~~												
10. ~~SG3-D20~~												

Preservative Code

Field Filtered Y/N

Soil metals = TAL cations excluding Hg

Samples split into two coolers

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM	(RQM)	Y	09/19/2017	16:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						9.20.17	941
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.0-3.1			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 194953

Group Number(s): 1852656

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/20/2017 9:40
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 3 250mL plastic bottles unpreserved, 2 HCL, 1 Trizma

Unpacked by Timothy Cubberley (6520) at 11:02 on 09/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	3.1	DT	Wet	Y	Bagged	N
3	DT131	0.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 16, 2017

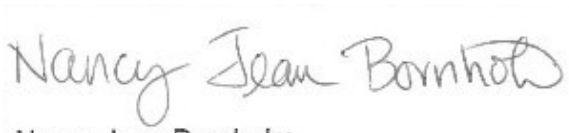
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1853277
SDG: SGB46
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-S27-0-0.5' Soil	09/20/2017 08:45	9220980
SG3-S27-0.5-1' Soil	09/20/2017 08:50	9220981
SG3-S27-0.5-1' MS Soil	09/20/2017 08:50	9220982
SG3-S27-0.5-1' MSD Soil	09/20/2017 08:50	9220983
SG3-S27-0.5-1' Dupl Soil	09/20/2017 08:50	9220984
SG3-S27-1-1.5' Soil	09/20/2017 09:00	9220985
SG3-S27-3-4' Soil	09/20/2017 09:30	9220986
SG3-S27-7-8' Soil	09/20/2017 10:05	9220987
SG3-FD12-170920 Soil	09/20/2017	9220988
SG3-LTB40-170920 Blank Water	09/20/2017	9220989
SG3-LTB41-170920 Blank Water	09/20/2017	9220990
SG3-S26-0-0.5' Soil	09/20/2017 11:10	9220991
SG3-S26-0.5-1' Soil	09/20/2017 11:15	9220992
SG3-S26-1-1.5' Soil	09/20/2017 11:20	9220993
SG3-S26-3-4' Soil	09/20/2017 11:30	9220994
SG3-S26-8-9' Soil	09/20/2017 11:55	9220995
SG3-S16-0-0.5' Soil	09/20/2017 14:25	9220996
SG3-S16-0.5-1' Soil	09/20/2017 14:30	9220997
SG3-S16-1-1.5' Soil	09/20/2017 14:35	9220998

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1853277

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9220991

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17275005 (Sample number(s): 9220980-9220983, 9220985-9220988, 9220991-9220996, 9220998 UNSPK: 9220981)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9220991

Batch #: 17281008 (Sample number(s): 9220997 UNSPK: P235175)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid, Perfluorodecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MS, MSD

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17278245033A (Sample number(s): 9220981-9220982, 9220984-9220988, 9220991-9220995 UNSPK: 9220981 BKG: 9220981)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17278245033B (Sample number(s): 9220996-9220998 UNSPK: P221000 BKG: P221000)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9220988

The pH was measured in water at 19.9 C.

Sample #s: 9220981, 9220984, 9220986, 9220994

The pH was measured in water at 20 C.

Sample #s: 9220993, 9220995, 9220996, 9220997, 9220998

The pH was measured in water at 20.1 C.

Sample #s: 9220985, 9220987, 9220991, 9220992

The pH was measured in water at 20.2 C.

Sample #s: 9220980

The pH was measured in water at 20.3 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 172698200006B (Sample number(s): 9220980-9220988, 9220991-9220998 BKG: 9220981)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-S27-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220980
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:45 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-1 SDG#: SGB46-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,930**		372	1,120	3.46
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 14:09	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220980
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:45 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-1 SDG#: SGB46-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17276245031B	10/03/2017 19:18	Leroy C Poole	3.46
00394	pH	SW-846 9045D modified	1	17265039401B	09/22/2017 19:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220981
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:50 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-2 SDG#: SGB46-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.26**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,400**		553	1,660	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**6.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 14:30	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220981
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:50 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-2 SDG#: SGB46-02BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 20:36	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0.5-1' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9220982
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:50 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-2 SDG#: SGB46-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.3**	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.4**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.3**	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.4**	0.20	0.60	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.1**	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6**	0.10	0.40	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.3**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.9**	0.20	0.60	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.3**	0.20	0.60	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.2**	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**41,400**	831	2,490	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**6.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 09:42	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/07/2017 12:29	James S Mathiot	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0.5-1' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9220983
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:50 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-2 SDG#: SGB46-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.21	0.64	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.21	0.64	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.21	0.64	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.3**	0.21	0.64	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.21	0.64	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**1.4**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.3**	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.21	0.64	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.21	0.64	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.21	0.64	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.21	0.64	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.5**	0.21	0.64	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**6.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 10:03	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-0.5-1' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9220984
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 08:50 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-2 SDG#: SGB46-02DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**16,300**	421	1,260	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.67**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**6.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**6.8**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 04:59	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220985
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:00 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-3 SDG#: SGB46-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15	U	0.15	0.45	1
14027	Perfluorobutanoic acid	375-22-4	0.15	U	0.15	0.45	1
14027	Perfluorodecanoic acid	335-76-2	0.15	U	0.15	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.15	U	0.15	0.45	1
14027	Perfluoroheptanoic acid	375-85-9	0.15	U	0.15	0.45	1
14027	Perfluorohexanesulfonate	355-46-4	0.15	U	0.15	0.45	1
14027	Perfluorohexanoic acid	307-24-4	0.075	U	0.075	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.075	U	0.075	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.68	1
14027	Perfluorooctanoic acid	335-67-1	0.15	U	0.15	0.45	1
14027	Perfluoropentanoic acid	2706-90-3	0.15	U	0.15	0.45	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15	U	0.15	0.45	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15	U	0.15	0.45	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15	U	0.15	0.45	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,000**		401	1,200	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 14:50	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220985
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:00 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-3 SDG#: SGB46-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 05:12	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039401B	09/22/2017 19:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9220986
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-4 SDG#: SGB46-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23	U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23	U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23	U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23	U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23	U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23	U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34	U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23	U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23	U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23	U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23	U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23	U	0.23	0.68	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,800**		550	1,650	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.62**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 15:11	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9220986
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-4 SDG#: SGB46-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 20:49	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-7-8' Soil
SGPP - North Bennington

ELLE Sample # SW 9220987
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 10:05 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-5 SDG#: SGB46-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18	U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18	U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18	U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18	U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18	U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18	U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.090	U	0.090	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.090	U	0.090	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27	U	0.27	0.81	1
14027	Perfluorooctanoic acid	335-67-1	0.18	U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18	U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18	U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18	U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18	U	0.18	0.54	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,400**		539	1,620	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 15:31	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S27-7-8' Soil
SGPP - North Bennington

ELLE Sample # SW 9220987
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 10:05 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S27-5 SDG#: SGB46-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 05:38	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD12-170920 Soil
SGPP - North Bennington

ELLE Sample # SW 9220988
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D12 SDG#: SGB46-06FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095	U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095	U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19	U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.57	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,200**		357	1,070	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 15:52	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD12-170920 Soil
SGPP - North Bennington

ELLE Sample # SW 9220988
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3D12 SDG#: SGB46-06FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 05:51	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB40-170920 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9220989
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB40 SDG#: SGB46-07TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17267004	09/27/2017 16:40	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17267004	09/25/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB41-170920 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9220990
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

LTB41 SDG#: SGB46-08TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17267004	09/27/2017 17:41	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17267004	09/25/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220991
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:10 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-1 SDG#: SGB46-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22	U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.24**	**J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22	U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22	U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22	U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22	U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33	U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.82**		0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22	U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22	U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22	U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22	U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,300**		1,300	3,900	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.85**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 16:13	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220991
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:10 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-1 SDG#: SGB46-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 06:04	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220992
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:15 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-2 SDG#: SGB46-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.62**		0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,600**		320	959	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 16:33	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220992
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:15 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-2 SDG#: SGB46-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 06:17	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220993
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:20 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-3 SDG#: SGB46-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30	U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20	U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**23,800**		505	1,510	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**5.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 16:54	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220993
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:20 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-3 SDG#: SGB46-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 21:02	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9220994
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-4 SDG#: SGB46-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15	U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15	U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15	U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15	U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15	U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15	U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077	U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077	U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.69	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.40**	**J**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15	U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15	U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15	U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15	U	0.15	0.46	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,900**		543	1,630	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.42**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/06/2017 17:14	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9220994
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-4 SDG#: SGB46-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 21:15	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9220995
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:55 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-5 SDG#: SGB46-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098	U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098	U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29	U	0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.21**	**J**	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.59	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,260**		666	2,000	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/07/2017 07:16	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S26-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9220995
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 11:55 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S26-5 SDG#: SGB46-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033A	10/06/2017 21:28	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220996
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:25 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-1 SDG#: SGB46-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15	U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15	U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15	U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15	U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15	U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15	U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077	U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077	U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.69	1
14027	Perfluorooctanoic acid	335-67-1	0.15	U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15	U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15	U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15	U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15	U	0.15	0.46	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,650**		342	1,020	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.14**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/07/2017 07:37	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220996
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:25 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-1 SDG#: SGB46-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 07:35	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402A	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220997
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-2 SDG#: SGB46-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17	U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17	U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17	U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17	U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17	U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17	U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.087	U	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087	U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26	U	0.26	0.79	1
14027	Perfluorooctanoic acid	335-67-1	0.17	U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17	U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17	U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17	U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17	U	0.17	0.52	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,700**		381	1,140	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.15**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 10:47	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9220997
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:30 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-2 SDG#: SGB46-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 07:47	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220998
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:35 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-3 SDG#: SGB46-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093	U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093	U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19	U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.56	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,110**		464	1,390	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.23**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**9.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17275005	10/07/2017 08:18	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17275005	10/02/2017 18:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-S16-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220998
ELLE Group # 1853277
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:35 by DJZ

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:03

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S16-3 SDG#: SGB46-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 08:00	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820006B	09/27/2017 00:36	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853277
Reported: 10/16/2017 17:03

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17275005	Sample number(s): 9220980-9220983,9220985-9220988,9220991-9220996,9220998			
Perfluorobutanesulfonate	1.0	U	1.0	3.0
Perfluorobutanoic acid	1.0	U	1.0	3.0
Perfluorodecanoic acid	1.0	U	1.0	3.0
Perfluorododecanoic acid	1.0	U	1.0	3.0
Perfluoroheptanoic acid	1.0	U	1.0	3.0
Perfluorohexanesulfonate	1.0	U	1.0	3.0
Perfluorohexanoic acid	0.50	U	0.50	2.0
Perfluorononanoic acid	0.50	U	0.50	2.0
Perfluoro-octanesulfonate	1.5	U	1.5	4.5
Perfluorooctanoic acid	1.0	U	1.0	3.0
Perfluoropentanoic acid	1.0	U	1.0	3.0
Perfluorotetradecanoic acid	1.0	U	1.0	3.0
Perfluorotridecanoic acid	1.0	U	1.0	3.0
Perfluoroundecanoic acid	1.0	U	1.0	3.0
Batch number: 17281008	Sample number(s): 9220997			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17267004	Sample number(s): 9220989-9220990			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:03

Group Number: 1853277

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 17276245031B	Sample number(s): 9220980			
TOC	100	U	100	300
Batch number: 17278245033A	Sample number(s): 9220981-9220982,9220984-9220988,9220991-9220995			
TOC	100	U	100	300
Batch number: 17278245033B	Sample number(s): 9220996-9220998			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17275005	Sample number(s): 9220980-9220983,9220985-9220988,9220991-9220996,9220998								
Perfluorobutanesulfonate	6.01	5.20			87		70-130		
Perfluorobutanoic acid	6.80	6.15			90		70-130		
Perfluorodecanoic acid	6.80	6.53			96		70-130		
Perfluorododecanoic acid	6.80	5.71			84		70-130		
Perfluoroheptanoic acid	6.80	6.44			95		70-130		
Perfluorohexanesulfonate	6.43	5.61			87		70-130		
Perfluorohexanoic acid	6.80	6.11			90		70-130		
Perfluorononanoic acid	6.80	6.40			94		70-130		
Perfluoro-octanesulfonate	6.50	5.98			92		70-130		
Perfluorooctanoic acid	6.80	6.78			100		70-130		
Perfluoropentanoic acid	6.80	6.32			93		70-130		
Perfluorotetradecanoic acid	6.80	5.83			86		70-130		
Perfluorotridecanoic acid	6.80	5.38			79		70-130		
Perfluoroundecanoic acid	6.80	6.11			90		70-130		
Batch number: 17281008	Sample number(s): 9220997								
Perfluorobutanesulfonate	1.20	1.10			91		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.40			103		70-130		
Perfluorododecanoic acid	1.36	1.37			101		70-130		
Perfluoroheptanoic acid	1.36	1.22			90		70-130		
Perfluorohexanesulfonate	1.29	1.19			92		70-130		
Perfluorohexanoic acid	1.36	1.34			99		70-130		

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:03

Group Number: 1853277

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Perfluorononanoic acid	1.36	1.36			100		70-130		
Perfluoro-octanesulfonate	1.30	1.20			92		70-130		
Perfluorooctanoic acid	1.36	1.43			105		70-130		
Perfluoropentanoic acid	1.36	1.35			100		70-130		
Perfluorotetradecanoic acid	1.36	1.37			101		70-130		
Perfluorotridecanoic acid	1.36	1.51			111		70-130		
Perfluoroundecanoic acid	1.36	1.28			94		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17267004	Sample number(s): 9220989-9220990								
Perfluorobutanesulfonate	12.03	13.06	12.03	13.31	109	111	70-130	2	30
Perfluorobutanoic Acid	13.6	13.79	13.6	13.77	101	101	70-130	0	30
Perfluorodecanoic acid	13.6	14.03	13.6	16.04	103	118	70-130	13	30
Perfluorododecanoic acid	13.6	14.85	13.6	15.03	109	111	70-130	1	30
Perfluoroheptanoic acid	13.6	14.74	13.6	14.32	108	105	70-130	3	30
Perfluorohexanesulfonate	12.86	11.53	12.86	11.36	90	88	70-130	1	30
Perfluorohexanoic acid	13.6	13.65	13.6	12.85	100	95	70-130	6	30
Perfluorononanoic acid	13.6	15.95	13.6	13.93	117	102	70-130	14	30
Perfluoro-octanesulfonate	13	12.6	13	11.94	97	92	70-130	5	30
Perfluorooctanoic acid	13.6	12.96	13.6	13.87	95	102	70-130	7	30
Perfluoropentanoic Acid	13.6	13.26	13.6	13.54	97	100	70-130	2	30
Perfluorotetradecanoic acid	13.6	15.64	13.6	15.54	115	114	70-130	1	30
Perfluorotridecanoic acid	13.6	13.66	13.6	12.35	100	91	70-130	10	30
Perfluoroundecanoic acid	13.6	15.31	13.6	16.98	113	125	70-130	10	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17276245031B	Sample number(s): 9220980								
TOC	7150	5562.75			78		47-143		
Batch number: 17278245033A	Sample number(s): 9220981-9220982,9220984-9220988,9220991-9220995								
TOC	7150	6851.38			96		47-143		
Batch number: 17278245033B	Sample number(s): 9220996-9220998								
TOC	7150	6851.38			96		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17265039401B	Sample number(s): 9220980,9220985								
pH	7.00	6.96			99		95-105		
Batch number: 17265039402A	Sample number(s): 9220981,9220984,9220986-9220988,9220991-9220996								
pH	7.00	6.99			100		95-105		
Batch number: 17265039402B	Sample number(s): 9220997-9220998								
pH	7.00	6.99			100		95-105		
	%	%	%	%					
Batch number: 17269820006B	Sample number(s): 9220980-9220988,9220991-9220998								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:03

Group Number: 1853277

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Moisture	89.5	89.34			100		99-101		
Moisture	89.5	89.34			100		99-101		
Moisture Duplicate	89.5	89.34			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17275005	Sample number(s): 9220980-9220983,9220985-9220988,9220991-9220996,9220998 UNSPK: 9220981										
Perfluorobutanesulfonate	0.19	U	1.12	1.00	1.20	1.09	89	90	70-130	8	30
Perfluorobutanoic acid	0.19	U	1.27	1.26	1.36	1.41	99	104	70-130	11	30
Perfluorodecanoic acid	0.19	U	1.27	1.32	1.36	1.42	104	105	70-130	7	30
Perfluorododecanoic acid	0.19	U	1.27	1.22	1.36	1.42	96	104	70-130	15	30
Perfluoroheptanoic acid	0.19	U	1.27	1.29	1.36	1.18	102	87	70-130	9	30
Perfluorohexanesulfonate	0.19	U	1.20	1.07	1.29	1.34	89	104	70-130	22	30
Perfluorohexanoic acid	0.095	U	1.27	1.54	1.36	1.41	121	104	70-130	9	30
Perfluorononanoic acid	0.095	U	1.27	1.19	1.36	1.35	94	99	70-130	12	30
Perfluoro-octanesulfonate	0.29	U	1.22	1.17	1.30	1.26	96	97	70-130	7	30
Perfluorooctanoic acid	0.242		1.27	5.55	1.36	1.66	418*	104	70-130	108*	30
Perfluoropentanoic acid	0.19	U	1.27	1.27	1.36	1.45	100	107	70-130	13	30
Perfluorotetradecanoic acid	0.19	U	1.27	1.23	1.36	1.37	97	101	70-130	11	30
Perfluorotridecanoic acid	0.19	U	1.27	1.32	1.36	1.50	104	110	70-130	12	30
Perfluoroundecanoic acid	0.19	U	1.27	1.12	1.36	1.37	88	101	70-130	20	30
Batch number: 17281008	Sample number(s): 9220997 UNSPK: P235175										
Perfluorobutanesulfonate	0.17	U	0.807	0.803	1.07	1.09	99	101	70-130	30	30
Perfluorobutanoic acid	0.17	U	0.913	0.947	1.21	1.34	104	110	70-130	34*	30
Perfluorodecanoic acid	0.17	U	0.913	0.929	1.21	1.31	102	108	70-130	34*	30
Perfluorododecanoic acid	0.17	U	0.913	0.955	1.21	1.27	105	105	70-130	29	30
Perfluoroheptanoic acid	0.17	U	0.913	0.962	1.21	1.34	105	110	70-130	33*	30
Perfluorohexanesulfonate	0.17	U	0.863	0.848	1.15	1.12	98	97	70-130	27	30
Perfluorohexanoic acid	0.083	U	0.913	0.835	1.21	1.35	91	111	70-130	47*	30
Perfluorononanoic acid	0.083	U	0.913	0.900	1.21	1.11	99	91	70-130	21	30
Perfluoro-octanesulfonate	0.25	U	0.872	0.935	1.16	1.12	107	97	70-130	18	30
Perfluorooctanoic acid	0.17	U	0.913	0.971	1.21	1.35	106	111	70-130	32*	30
Perfluoropentanoic acid	0.17	U	0.913	0.978	1.21	1.26	107	103	70-130	25	30
Perfluorotetradecanoic acid	0.17	U	0.913	0.896	1.21	1.28	98	106	70-130	35*	30
Perfluorotridecanoic acid	0.17	U	0.913	0.902	1.21	1.25	99	103	70-130	32*	30
Perfluoroundecanoic acid	0.17	U	0.913	0.958	1.21	1.29	105	107	70-130	30	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:03

Group Number: 1853277

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17276245031B	Sample number(s): 9220980 UNSPK: P220868									
TOC	293 U		17910	17737.31		99		47-143		
Batch number: 17278245033A	Sample number(s): 9220981-9220982,9220984-9220988,9220991-9220995 UNSPK: 9220981									
TOC	17193.16		23340	38763.61		92		47-143		
Batch number: 17278245033B	Sample number(s): 9220996-9220998 UNSPK: P221000									
TOC	10383.29		33784	50144.07		118		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 17276245031B	Sample number(s): 9220980 BKG: P220868			
TOC	293 U	297 U	0 (1)	7
Batch number: 17278245033A	Sample number(s): 9220981-9220982,9220984-9220988,9220991-9220995 BKG: 9220981			
TOC	17193.16	15222.35	12*	7
Batch number: 17278245033B	Sample number(s): 9220996-9220998 BKG: P221000			
TOC	10383.29	9437.15	10*	7
	Std. Units	Std. Units		
Batch number: 17265039401B	Sample number(s): 9220980,9220985 BKG: P220868			
pH	8.33	8.35	0	3
Batch number: 17265039402A	Sample number(s): 9220981,9220984,9220986-9220988,9220991-9220996 BKG: 9220981			
pH	8.51	8.67	2	3
Batch number: 17265039402B	Sample number(s): 9220997-9220998 BKG: P221000			
pH	8.07	8.03	0	3
	%	%		
Batch number: 17269820006B	Sample number(s): 9220980-9220988,9220991-9220998 BKG: 9220981, P220981			
Moisture	6.39	6.84	7*	5
Moisture	6.39	6.84	7*	5
Moisture Duplicate	6.39	6.84	7*	5

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853277
Reported: 10/16/2017 17:03

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17267004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9220989	96	95	84	104	96	97
9220990	85	89	78	81	79	91
Blank	96	95	85	109	108	88
LCS	100	97	90	105	95	95
LCSD	93	96	81	94	92	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9220989	98	89	93	90	86	80
9220990	87	80	86	84	95	89
Blank	102	92	115	91	90	92
LCS	107	93	93	94	89	89
LCSD	101	86	90	87	97	101
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9220989	83
9220990	92
Blank	91
LCS	91
LCSD	98
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17275005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9220980	94	88	87	89	93	83
9220981	91	93	89	96	95	91
9220982	84	85	83	90	97	88
9220983	84	83	88	84	89	87
9220985	89	93	95	88	97	86
9220986	89	88	89	98	101	97
9220987	79	78	87	87	100	78
9220988	81	80	81	78	86	80
9220991	70	69*	72	66	72	69
9220992	78	77	79	75	78	78
9220993	80	75	73	89	98	88
9220994	84	81	78	84	87	84
9220995	80	81	78	80	88	76

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853277
Reported: 10/16/2017 17:03

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17275005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9220996	81	76	80	81	82	81
9220998	81	80	76	85	92	85
Blank	103*	103	100	102	117	108
LCS	103*	97	102	98	103	109
MS	84	85	83	90	97	88
MSD	84	83	88	84	89	87
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9220980	92	93	96	98	91	95
9220981	86	93	85	102	107	102
9220982	80	86	79	85	92	91
9220983	87	83	82	96	95	93
9220985	95	93	88	95	90	91
9220986	94	98	84	96	99	91
9220987	81	85	72	89	90	83
9220988	80	82	88	82	80	81
9220991	74	66	74	75	78	78
9220992	85	79	90	83	73	79
9220993	81	87	91	86	85	81
9220994	82	85	76	83	87	80
9220995	83	78	76	87	86	84
9220996	86	93	79	77	75	73
9220998	79	83	88	79	87	85
Blank	108	98	98	105	105	103
LCS	94	100	98	100	105	97
MS	80	86	79	85	92	91
MSD	87	83	82	96	95	93
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9220980	101
9220981	104
9220982	93
9220983	98
9220985	95
9220986	92
9220987	85
9220988	85
9220991	77

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1853277
Reported: 10/16/2017 17:03

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17275005

	13C2-PFTeDA
9220992	86
9220993	87
9220994	75
9220995	83
9220996	81
9220998	77
Blank	99
LCS	85
MS	93
MSD	98
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17281008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9220997	81	88	77	80	81	80
Blank	95	96	88	109	97	101
LCS	93	97	92	93	92	100
MS	56	53*	70	69	77	66
MSD	59	58*	66	57	65	60
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9220997	83	84	89	93	96	98
Blank	93	96	92	95	85	88
LCS	91	93	104	112	101	109
MS	57	74	54	56	59	58
MSD	53	72	63	64	63	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9220997	104
Blank	105
LCS	117
MS	68
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853277
Reported: 10/16/2017 17:03

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1853277 9220980-98 Samples in 2 Coolers

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47399

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 3242 001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic – unpres	Water: 250 mL Plastic / PFCs (19)	Soil: 4oz glass / TOC, pH, moisture	% Solids	Preservative Code	Field Filtered Y/N	Comments
									A	A	A		N	N	
1. SG3-S27-0-0.5'	0	0.5	ft	09/20/2017	0845	Soil	N	2		1	1				(19) PFCs, moisture content
2. SG3-S27-0.5-1'	0.5	1	ft	9-20-17	0850	S	Y	6		1	1				pH, TOC
3. SG3-S27-1-1.5'	1	1.5	ft	9-20-17	0900	S	N	2		1	1				
4. SG3-S27-3-4'	3	4	ft	9-20-17	0930	S	N	2		1	1				
5. SG3-S27-7-8	7	8	ft	9-20-17	1005	S	N	2		1	1				
6. SG3-FD12-170920	—	—	—	9-20-17	—	S	N	2		1	1				
7. SG3-LTB40-170920	—	—	—	—	AM	W	N	1	1						Trip Blank Prepared by ELLE 8-28-17
8. SG3-LTB41-170920	—	—	—	—	AM	W	N	1	1						Trip Blank Prepared by ELLE 8-30-17
9. SG3-S26-0-0.5'	0	0.5	ft	9-20-17	1110	S	N	2		1	1				
10. SG3-S26-0.5-1'	0.5	1	ft	9-20-17	1115	S	N	2		1	1				

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DE RAK	Relinquished by:		9-20-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						9/21/17	430
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): 1.7/2.2 Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1853277 9220980.98 Samples in 2 coolers

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47400

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGAP Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic - unpres	Water: 250 mL plastic (PFCs (14))	Water: 40z glass (TOC, pH)	Soil: 250 mL plastic (PFCs (14))	Soil: 40z glass (TOC, pH)	% Solids	Preservative Code	Field Filtered Y/N	Comments
1. SG3-S26-1-1.5'	1	1.5	ft	09/20/2017	1120	SO	N	2				1	1				PFCs (14), moisture content
2. SG3-S26-3-4'	3	4	ft	9-20-17	1130	S	N	2				1	1				pH, TOC
3. SG3-S26-8-9'	8	9	ft	9-20-17	1155	S	N	2				1	1				
4. SG3-S16-0-0.5'	0	0.5	ft	9-20-17	1425	S	N	2				1	1				
5. SG3-S16-0.5-1'	0.5	1	ft	9-20-17	1430	S	N	2				1	1				
6. SG3-S16-1-1.5'	1	1.5	ft	9-20-17	1435	S	N	2				1	1				
7.																	
8.																	
9.																	
10.																	

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJE / RAK	Dave Zander	Y	9-20-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MJD						9/21/17	935
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): 1.7/2.2	Custody Seal Intact? ☐ Y ☐ N ☐ None	

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195092

Group Number(s): 1853277

Client: BARR

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/21/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 12:06 on 09/21/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.7	DT	Wet	Y	Bagged	N
2	DT42-01	2.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 16, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1853278
SDG: SGB47
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-D02-0-0.5' Soil	09/20/2017 09:30	9220999
SG3-D02-0.5-1' Soil	09/20/2017 09:45	9221000
SG3-D02-0.5-1' MS Soil	09/20/2017 09:45	9221001
SG3-D02-0.5-1' MSD Soil	09/20/2017 09:45	9221002
SG3-D02-0.5-1' Dupl Soil	09/20/2017 09:45	9221003
SG3-D02-1-1.5' Soil	09/20/2017 09:55	9221004
SG3-D02-3-4' Soil	09/20/2017 09:50	9221005
SG3-FBS06-170920 Blank Water	09/20/2017 13:50	9221006
SG3-D16-0-0.5' Soil	09/20/2017 14:10	9221007
SG3-D16-0.5-1' Soil	09/20/2017 14:15	9221008
SG3-D16-1-1.5' Soil	09/20/2017 14:20	9221009
SG3-D16-3-4' Soil	09/20/2017 14:35	9221010
SG3-D16-18-19' Soil	09/20/2017 15:15	9221011
SG3-D16-8-9' Soil	09/20/2017 15:00	9221012
SG3-FDS06-170920 Soil	09/20/2017	9221013
SG3-D16-28-29' Soil	09/20/2017 16:10	9221014

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1853278

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9221004

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9221001, 9221002

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C3-PFBS was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C3-PFBS was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Sample #s: 9221014

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Sample #s: 9221007, 9221008, 9221009, 9221013

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Sample #s: 9221000

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C4-PFBA was outside QC acceptance criteria. The recovery of 13C4-PFBA was also outside acceptance criteria in the matrix spike and matric spike duplicate, indicating a matrix effect.

Batch #: 17276006 (Sample number(s): 9221000-9221002, 9221007-9221009, 9221013-9221014 UNSPK: 9221000)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoroundecanoic acid, Perfluoro-octanesulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9221000, 9221001, 9221002, 9221007, 9221008, 9221009, 9221013, 9221014, Blank, LCS, MS, MSD

Batch #: 17281008 (Sample number(s): 9220999, 9221004-9221005, 9221010-9221012 UNSPK: P235175)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid, Perfluorodecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9220999, 9221004, MS, MSD

SW-846 6010C, Metals

Batch #: 172651063702 (Sample number(s): 9220999-9221005, 9221007-9221014 UNSPK: 9221000 BKG: 9221000)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium,

Manganese, Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Calcium, Iron, Magnesium, Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium, Iron, Magnesium, Sodium, Manganese, Zinc

SW-846 6020A, Metals

Batch #: 172651063702A (Sample number(s): 9220999-9221005, 9221007-9221014 UNSPK: 9221000 BKG: 9221000)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Chromium, Copper, Lead, Nickel, Thallium, Cobalt

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium

Batch #: 172651063702D (Sample number(s): 9220999-9221005, 9221007-9221014 UNSPK: 9221000 BKG: 9221000)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9221014

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17278245033B (Sample number(s): 9220999-9221001, 9221003-9221005, 9221007 UNSPK: 9221000 BKG: 9221000)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17279245031A (Sample number(s): 9221008-9221014 UNSPK: 9221008 BKG: 9221008)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9221011

The pH was measured in water at 19.9 C.

Sample #s: 9221013

The pH was measured in water at 20 C.

Sample #s: 9220999, 9221005, 9221007, 9221008, 9221009, 9221012, 9221014

The pH was measured in water at 20.1 C.

Sample #s: 9221000, 9221003, 9221004, 9221010

The pH was measured in water at 20.2 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17269820007A (Sample number(s): 9220999-9221005, 9221007-9221014 BKG: 9221000)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: SG3-D02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220999
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:30 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-1 SDG#: SGB47-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093	U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093	U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.84	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.72**		0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.56	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,030**		9.15	40.9	1
01650	**Calcium**	7440-70-2	**62,100**		17.0	205	5
01654	**Iron**	7439-89-6	**14,400**		8.24	40.9	1
01657	**Magnesium**	7439-95-4	**28,300**		2.49	20.5	1
06958	**Manganese**	7439-96-5	**805**		0.0849	1.02	1
01662	**Potassium**	7440-09-7	**499**		17.1	102	1
01667	**Sodium**	7440-23-5	**48.7**	**J**	17.1	205	1
06972	**Zinc**	7440-66-6	**45.3**		0.246	4.09	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.105**	**J**	0.0954	0.409	2
06125	**Arsenic**	7440-38-2	**5.52**		0.131	0.818	2
06126	**Barium**	7440-39-3	**111**		0.186	0.818	2
06127	**Beryllium**	7440-41-7	**0.266**		0.0107	0.205	2
06128	**Cadmium**	7440-43-9	**0.187**	**J**	0.0352	0.205	2
06131	**Chromium**	7440-47-3	**5.96**		0.178	0.818	2
06132	**Cobalt**	7440-48-4	**12.6**		0.0319	0.205	2
06133	**Copper**	7440-50-8	**9.29**		0.110	0.818	2
06135	**Lead**	7439-92-1	**21.5**		0.0227	0.409	2
06139	**Nickel**	7440-02-0	**9.66**		0.204	0.818	2
06141	**Selenium**	7782-49-2	**0.219**	**J**	0.102	0.818	2
06142	**Silver**	7440-22-4	**0.0768**	**J**	0.0299	0.205	2
06145	**Thallium**	7440-28-0	**0.178**	**J**	0.0256	0.205	2
06148	**Vanadium**	7440-62-2	**8.10**		0.0436	0.205	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220999
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:30 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-1 SDG#: SGB47-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**32,100**	951	2,850	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.85**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**13.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 11:08	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	10/02/2017 21:25	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 13:59	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9220999
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:30 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-1 SDG#: SGB47-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 13:59	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 13:59	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 08:13	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221000
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.96**		0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C4-PFBA was outside QC acceptance criteria. The recovery of 13C4-PFBA was also outside acceptance criteria in the matrix spike and matric spike duplicate, indicating a matrix effect.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,270**		9.62	43.1	1
01650	**Calcium**	7440-70-2	**65,200**		17.9	215	5
01654	**Iron**	7439-89-6	**10,800**		8.66	43.1	1
01657	**Magnesium**	7439-95-4	**32,200**		2.62	21.5	1
06958	**Manganese**	7439-96-5	**701**		0.0893	1.08	1
01662	**Potassium**	7440-09-7	**413**		18.0	108	1
01667	**Sodium**	7440-23-5	**65.0**	**J**	18.0	215	1
06972	**Zinc**	7440-66-6	**29.6**		0.258	4.31	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.106**	**J**	0.100	0.431	2
06125	**Arsenic**	7440-38-2	**5.46**		0.138	0.861	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221000
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06126	**Barium**	7440-39-3	**75.6**	0.195	0.861	2
06127	**Beryllium**	7440-41-7	**0.234**	0.0113	0.215	2
06128	**Cadmium**	7440-43-9	**0.108 J**	0.0370	0.215	2
06131	**Chromium**	7440-47-3	**5.70**	0.187	0.861	2
06132	**Cobalt**	7440-48-4	**9.86**	0.0336	0.215	2
06133	**Copper**	7440-50-8	**6.07**	0.115	0.861	2
06135	**Lead**	7439-92-1	**10.4**	0.0239	0.431	2
06139	**Nickel**	7440-02-0	**6.70**	0.214	0.861	2
06141	**Selenium**	7782-49-2	**0.160 J**	0.108	0.861	2
06142	**Silver**	7440-22-4	**0.0710 J**	0.0314	0.215	2
06145	**Thallium**	7440-28-0	**0.183 J**	0.0269	0.215	2
06148	**Vanadium**	7440-62-2	**7.71**	0.0459	0.215	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,500**	545	1,640	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 06:55	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221000
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	10/02/2017 20:58	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 17:29	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 13:22	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 13:22	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 13:22	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 08:26	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9221001
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.19	0.57	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.4**	0.19	0.57	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.3**	0.19	0.57	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.19	0.57	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.19	0.57	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.1**	0.19	0.57	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.096	0.38	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.096	0.38	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.7**	0.29	0.86	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**	0.19	0.57	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.3**	0.19	0.57	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.2**	0.19	0.57	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.2**	0.19	0.57	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**	0.19	0.57	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C3-PFBS was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C3-PFBS was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**6,260**	8.33	37.3	1
01650	**Calcium**	7440-70-2	**89,200**	15.5	186	5
01654	**Iron**	7439-89-6	**11,700**	7.50	37.3	1
01657	**Magnesium**	7439-95-4	**44,600**	2.26	18.6	1
06958	**Manganese**	7439-96-5	**1,150**	0.0773	0.932	1
01662	**Potassium**	7440-09-7	**1,720**	15.6	93.2	1
01667	**Sodium**	7440-23-5	**1,000**	15.6	186	1
06972	**Zinc**	7440-66-6	**72.9**	0.224	3.73	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.02**	0.0868	0.373	2
06125	**Arsenic**	7440-38-2	**7.35**	0.119	0.745	2
06126	**Barium**	7440-39-3	**265**	0.169	0.745	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9221001
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06127	**Beryllium**	7440-41-7	**1.04**	0.0098	0.186	2
06128	**Cadmium**	7440-43-9	**1.12**	0.0320	0.186	2
06131	**Chromium**	7440-47-3	**16.8**	0.162	0.745	2
06132	**Cobalt**	7440-48-4	**68.5**	0.0291	0.186	2
06133	**Copper**	7440-50-8	**18.2**	0.0999	0.745	2
06135	**Lead**	7439-92-1	**15.1**	0.0207	0.373	2
06139	**Nickel**	7440-02-0	**18.0**	0.186	0.745	2
06141	**Selenium**	7782-49-2	**2.11**	0.0932	0.745	2
06142	**Silver**	7440-22-4	**9.65**	0.0272	0.186	2
06145	**Thallium**	7440-28-0	**0.969**	0.0233	0.186	2
06148	**Vanadium**	7440-62-2	**18.3**	0.0397	0.186	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**55,600**	1,250	3,750	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**9.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 04:31	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	10/02/2017 21:10	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MS Soil
SGPP - North Bennington

ELLE Sample # SW 9221001
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 17:41	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 13:31	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 13:31	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 13:31	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 08:39	James S Mathiot	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9221002
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.85**	0.15	0.45	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.1**	0.15	0.45	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.0**	0.15	0.45	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.1**	0.15	0.45	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.2**	0.15	0.45	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.96**	0.15	0.45	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.2**	0.075	0.30	1
14027	**Perfluorononanoic acid**	375-95-1	**1.1**	0.075	0.30	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	0.22	0.67	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**	0.15	0.45	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.1**	0.15	0.45	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.0**	0.15	0.45	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.97**	0.15	0.45	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.0**	0.15	0.45	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C3-PFBS was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C3-PFBS was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,440**	8.47	37.9	1
01650	**Calcium**	7440-70-2	**22,700**	3.16	37.9	1
01654	**Iron**	7439-89-6	**15,000**	7.63	37.9	1
01657	**Magnesium**	7439-95-4	**10,900**	2.30	19.0	1
06958	**Manganese**	7439-96-5	**1,460**	0.0786	0.948	1
01662	**Potassium**	7440-09-7	**1,870**	15.8	94.8	1
01667	**Sodium**	7440-23-5	**1,040**	15.8	190	1
06972	**Zinc**	7440-66-6	**86.0**	0.227	3.79	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.956**	0.0883	0.379	2
06125	**Arsenic**	7440-38-2	**7.95**	0.121	0.758	2
06126	**Barium**	7440-39-3	**269**	0.172	0.758	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9221002
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06127	**Beryllium**	7440-41-7	**1.04**	0.0099	0.190	2
06128	**Cadmium**	7440-43-9	**1.12**	0.0326	0.190	2
06131	**Chromium**	7440-47-3	**20.2**	0.165	0.758	2
06132	**Cobalt**	7440-48-4	**63.4**	0.0296	0.190	2
06133	**Copper**	7440-50-8	**19.7**	0.102	0.758	2
06135	**Lead**	7439-92-1	**18.9**	0.0210	0.379	2
06139	**Nickel**	7440-02-0	**19.3**	0.189	0.758	2
06141	**Selenium**	7782-49-2	**2.02**	0.0948	0.758	2
06142	**Silver**	7440-22-4	**9.89**	0.0277	0.190	2
06145	**Thallium**	7440-28-0	**1.06**	0.0237	0.190	2
06148	**Vanadium**	7440-62-2	**18.9**	0.0404	0.190	2
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**9.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 04:52	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 17:45	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' MSD Soil
SGPP - North Bennington

ELLE Sample # SW 9221002
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 13:34	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 13:34	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 13:34	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9221003
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02DUP

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,320**		7.23	32.4	1
01650	**Calcium**	7440-70-2	**16,900**		2.69	32.4	1
01654	**Iron**	7439-89-6	**16,700**		6.51	32.4	1
01657	**Magnesium**	7439-95-4	**7,910**		1.97	16.2	1
06958	**Manganese**	7439-96-5	**2,070**		0.336	4.05	5
01662	**Potassium**	7440-09-7	**397**		13.5	80.9	1
01667	**Sodium**	7440-23-5	**48.1**	**J**	13.5	162	1
06972	**Zinc**	7440-66-6	**39.6**		0.194	3.24	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.114**	**J**	0.0754	0.324	2
06125	**Arsenic**	7440-38-2	**5.81**		0.104	0.647	2
06126	**Barium**	7440-39-3	**251**		0.147	0.647	2
06127	**Beryllium**	7440-41-7	**0.276**		0.0085	0.162	2
06128	**Cadmium**	7440-43-9	**0.168**		0.0278	0.162	2
06131	**Chromium**	7440-47-3	**7.60**		0.141	0.647	2
06132	**Cobalt**	7440-48-4	**20.1**		0.0252	0.162	2
06133	**Copper**	7440-50-8	**9.76**		0.0867	0.647	2
06135	**Lead**	7439-92-1	**14.0**		0.0180	0.324	2
06139	**Nickel**	7440-02-0	**9.76**		0.161	0.647	2
06141	**Selenium**	7782-49-2	**0.181**	**J**	0.0809	0.647	2
06142	**Silver**	7440-22-4	**0.144**	**J**	0.0236	0.162	2
06145	**Thallium**	7440-28-0	**0.426**		0.0202	0.162	2
06148	**Vanadium**	7440-62-2	**8.21**		0.0345	0.162	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,500**		533	1,600	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.03**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00118	**Moisture**	n.a.	**9.8**		0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**8.4**		0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.						

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-0.5-1' Dupl Soil
SGPP - North Bennington

ELLE Sample # SW 9221003
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:45 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-2 SDG#: SGB47-02DUP

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	10/02/2017 21:06	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 17:37	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 13:28	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 13:28	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 13:28	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 08:52	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221004
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:55 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-3 SDG#: SGB47-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19	U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19	U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19	U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19	U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19	U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19	U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093	U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093	U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28	U	0.28	0.83	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.30**	**J**	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19	U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19	U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19	U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19	U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,590**		8.15	36.5	1
01650	**Calcium**	7440-70-2	**1,480**		3.03	36.5	1
01654	**Iron**	7439-89-6	**24,200**		7.34	36.5	1
01657	**Magnesium**	7439-95-4	**1,710**		2.21	18.2	1
06958	**Manganese**	7439-96-5	**14,700**		1.51	18.2	20
01662	**Potassium**	7440-09-7	**565**		15.2	91.1	1
01667	**Sodium**	7440-23-5	**56.8**	**J**	15.2	182	1
06972	**Zinc**	7440-66-6	**46.6**		0.219	3.65	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0909**	**J**	0.0849	0.365	2
06125	**Arsenic**	7440-38-2	**8.45**		0.117	0.729	2
06126	**Barium**	7440-39-3	**1,470**		0.414	1.82	5
06127	**Beryllium**	7440-41-7	**0.814**		0.0096	0.182	2
06128	**Cadmium**	7440-43-9	**0.548**		0.0314	0.182	2
06131	**Chromium**	7440-47-3	**9.22**		0.159	0.729	2
06132	**Cobalt**	7440-48-4	**355**		0.0284	0.182	2
06133	**Copper**	7440-50-8	**38.2**		0.0977	0.729	2
06135	**Lead**	7439-92-1	**12.1**		0.0202	0.365	2
06139	**Nickel**	7440-02-0	**15.5**		0.182	0.729	2
06141	**Selenium**	7782-49-2	**0.195**	**J**	0.0911	0.729	2
06142	**Silver**	7440-22-4	**1.87**		0.0266	0.182	2
06145	**Thallium**	7440-28-0	**9.06**		0.0228	0.182	2
06148	**Vanadium**	7440-62-2	**9.35**		0.0388	0.182	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221004
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:55 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-3 SDG#: SGB47-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,680**	588	1,760	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.79**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**13.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 11:28	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	10/02/2017 21:29	Cindy M Gehman	20
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:18	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	10/04/2017 15:15	Choon Y Tian	5

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221004
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:55 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-3 SDG#: SGB47-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 09:05	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221005
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:50 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-4 SDG#: SGB47-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20	U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20	U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20	U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20	U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20	U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20	U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.30**	**J**	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20	U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20	U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20	U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20	U	0.20	0.61	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,970**		6.78	30.3	1
01650	**Calcium**	7440-70-2	**3,650**		2.52	30.3	1
01654	**Iron**	7439-89-6	**7,160**		6.10	30.3	1
01657	**Magnesium**	7439-95-4	**1,820**		1.84	15.2	1
06958	**Manganese**	7439-96-5	**20,200**		3.15	37.9	50
01662	**Potassium**	7440-09-7	**604**		12.7	75.8	1
01667	**Sodium**	7440-23-5	**36.4**	**J**	12.7	152	1
06972	**Zinc**	7440-66-6	**31.4**		0.182	3.03	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0801**	**J**	0.0706	0.303	2
06125	**Arsenic**	7440-38-2	**4.15**		0.0970	0.606	2
06126	**Barium**	7440-39-3	**2,850**		0.688	3.03	10
06127	**Beryllium**	7440-41-7	**0.425**		0.0079	0.152	2
06128	**Cadmium**	7440-43-9	**0.433**		0.0261	0.152	2
06131	**Chromium**	7440-47-3	**6.63**		0.132	0.606	2
06132	**Cobalt**	7440-48-4	**433**		0.0237	0.152	2
06133	**Copper**	7440-50-8	**36.5**		0.0813	0.606	2
06135	**Lead**	7439-92-1	**6.40**		0.0168	0.303	2
06139	**Nickel**	7440-02-0	**9.25**		0.151	0.606	2
06141	**Selenium**	7782-49-2	**0.0888**	**J**	0.0758	0.606	2
06142	**Silver**	7440-22-4	**2.03**		0.0221	0.152	2
06145	**Thallium**	7440-28-0	**6.02**		0.0190	0.152	2
06148	**Vanadium**	7440-62-2	**2.65**		0.0323	0.152	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221005
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:50 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-4 SDG#: SGB47-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**3,700**	289	866	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**3.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 12:30	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	10/02/2017 21:33	Cindy M Gehman	50
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:21	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	10/04/2017 15:18	Choon Y Tian	10

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D02-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221005
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 09:50 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D02-4 SDG#: SGB47-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:06	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:06	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 09:44	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FBS06-170920 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9221006
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 13:50 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FB6 SDG#: SGB47-05FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17267004	09/27/2017 18:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17267004	09/25/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221007
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-1 SDG#: SGB47-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17	U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17	U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17	U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17	U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17	U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17	U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.083	U	0.083	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.083	U	0.083	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25	U	0.25	0.75	1
14027	Perfluorooctanoic acid	335-67-1	0.17	U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17	U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17	U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17	U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17	U	0.17	0.50	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals		**SW-846 6010C**	mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**10,500**		9.17	41.0	1
01650	**Calcium**	7440-70-2	**7,130**		3.42	41.0	1
01654	**Iron**	7439-89-6	**22,000**		8.26	41.0	1
01657	**Magnesium**	7439-95-4	**4,900**		2.49	20.5	1
06958	**Manganese**	7439-96-5	**373**		0.0852	1.03	1
01662	**Potassium**	7440-09-7	**1,040**		17.1	103	1
01667	**Sodium**	7440-23-5	**242**		17.1	205	1
06972	**Zinc**	7440-66-6	**45.3**		0.246	4.10	1
		SW-846 6020A	mg/kg		mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.146**	**J**	0.0956	0.410	2
06125	**Arsenic**	7440-38-2	**7.48**		0.131	0.821	2
06126	**Barium**	7440-39-3	**47.0**		0.186	0.821	2
06127	**Beryllium**	7440-41-7	**0.583**		0.0108	0.205	2
06128	**Cadmium**	7440-43-9	**0.127**	**J**	0.0353	0.205	2
06131	**Chromium**	7440-47-3	**9.70**		0.179	0.821	2
06132	**Cobalt**	7440-48-4	**11.2**		0.0320	0.205	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221007
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-1 SDG#: SGB47-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**17.1**	0.110	0.821	2
06135	**Lead**	7439-92-1	**11.3**	0.0228	0.410	2
06139	**Nickel**	7440-02-0	**17.0**	0.204	0.821	2
06141	**Selenium**	7782-49-2	**0.291 J**	0.103	0.821	2
06142	**Silver**	7440-22-4	**0.0305 J**	0.0300	0.205	2
06145	**Thallium**	7440-28-0	**0.176 J**	0.0257	0.205	2
06148	**Vanadium**	7440-62-2	**14.0**	0.0437	0.205	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,250**	401	1,200	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.40**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 07:57	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0-0.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221007
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-1 SDG#: SGB47-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:25	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:09	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:09	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:09	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17278245033B	10/06/2017 09:57	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221008
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-2 SDG#: SGB47-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g		ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.16	U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16	U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16	U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16	U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16	U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16	U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078	U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078	U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.70	1
14027	Perfluorooctanoic acid	335-67-1	0.16	U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16	U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16	U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16	U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16	U	0.16	0.47	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals		**SW-846 6010C**	mg/kg		mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**2,550**		6.65	29.8	1
01650	**Calcium**	7440-70-2	**15,500**		2.48	29.8	1
01654	**Iron**	7439-89-6	**10,600**		5.99	29.8	1
01657	**Magnesium**	7439-95-4	**8,000**		1.81	14.9	1
06958	**Manganese**	7439-96-5	**144**		0.0617	0.744	1
01662	**Potassium**	7440-09-7	**763**		12.4	74.4	1
01667	**Sodium**	7440-23-5	**57.2**	**J**	12.4	149	1
06972	**Zinc**	7440-66-6	**13.4**		0.179	2.98	1
		SW-846 6020A	mg/kg		mg/kg	mg/kg	
06124	Antimony	7440-36-0	0.0693	U	0.0693	0.298	2
06125	**Arsenic**	7440-38-2	**2.79**		0.0952	0.595	2
06126	**Barium**	7440-39-3	**16.9**		0.135	0.595	2
06127	**Beryllium**	7440-41-7	**0.253**		0.0078	0.149	2
06128	**Cadmium**	7440-43-9	**0.0457**	**J**	0.0256	0.149	2
06131	**Chromium**	7440-47-3	**4.41**		0.129	0.595	2
06132	**Cobalt**	7440-48-4	**3.08**		0.0232	0.149	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221008
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-2 SDG#: SGB47-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**5.70**	0.0798	0.595	2
06135	**Lead**	7439-92-1	**6.06**	0.0165	0.298	2
06139	**Nickel**	7440-02-0	**4.25**	0.148	0.595	2
06141	**Selenium**	7782-49-2	**0.108 J**	0.0744	0.595	2
06142	Silver	7440-22-4	0.0217 U	0.0217	0.149	2
06145	**Thallium**	7440-28-0	**0.0564 J**	0.0186	0.149	2
06148	**Vanadium**	7440-62-2	**5.39**	0.0317	0.149	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,170**	502	1,500	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.78**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 08:17	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-0.5-1' Soil
SGPP - North Bennington

ELLE Sample # SW 9221008
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-2 SDG#: SGB47-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:28	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:12	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:12	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:12	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/06/2017 22:33	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221009
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:20 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-3 SDG#: SGB47-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17	U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17	U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17	U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17	U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17	U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17	U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.084	U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084	U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25	U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17	U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17	U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17	U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17	U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17	U	0.17	0.51	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,100**		7.27	32.5	1
01650	**Calcium**	7440-70-2	**629**		2.71	32.5	1
01654	**Iron**	7439-89-6	**25,300**		32.7	163	5
01657	**Magnesium**	7439-95-4	**2,430**		1.98	16.3	1
06958	**Manganese**	7439-96-5	**539**		0.0675	0.813	1
01662	**Potassium**	7440-09-7	**1,070**		13.6	81.3	1
01667	**Sodium**	7440-23-5	**285**		13.6	163	1
06972	**Zinc**	7440-66-6	**55.2**		0.195	3.25	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0962**	**J**	0.0758	0.325	2
06125	**Arsenic**	7440-38-2	**7.83**		0.104	0.651	2
06126	**Barium**	7440-39-3	**46.5**		0.148	0.651	2
06127	**Beryllium**	7440-41-7	**0.702**		0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.133**	**J**	0.0280	0.163	2
06131	**Chromium**	7440-47-3	**10.9**		0.141	0.651	2
06132	**Cobalt**	7440-48-4	**13.5**		0.0254	0.163	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221009
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:20 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-3 SDG#: SGB47-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**18.1**	0.0872	0.651	2
06135	**Lead**	7439-92-1	**11.3**	0.0181	0.325	2
06139	**Nickel**	7440-02-0	**19.5**	0.162	0.651	2
06141	**Selenium**	7782-49-2	**0.337 J**	0.0813	0.651	2
06142	Silver	7440-22-4	0.0237 U	0.0237	0.163	2
06145	**Thallium**	7440-28-0	**0.213**	0.0203	0.163	2
06148	**Vanadium**	7440-62-2	**14.0**	0.0346	0.163	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,820**	798	2,390	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 08:38	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	10/02/2017 21:48	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-1-1.5' Soil
SGPP - North Bennington

ELLE Sample # SW 9221009
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:20 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-3 SDG#: SGB47-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:32	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:15	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:15	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:15	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/06/2017 23:11	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221010
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:35 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-4 SDG#: SGB47-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11	U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11	U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32	U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,600**		8.21	36.7	1
01650	**Calcium**	7440-70-2	**163**		3.06	36.7	1
01654	**Iron**	7439-89-6	**23,600**		7.39	36.7	1
01657	**Magnesium**	7439-95-4	**1,600**		2.23	18.4	1
06958	**Manganese**	7439-96-5	**728**		0.0762	0.919	1
01662	**Potassium**	7440-09-7	**1,270**		15.3	91.9	1
01667	**Sodium**	7440-23-5	**284**		15.3	184	1
06972	**Zinc**	7440-66-6	**45.1**		0.220	3.67	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.237**	**J**	0.0856	0.367	2
06125	**Arsenic**	7440-38-2	**9.77**		0.118	0.735	2
06126	**Barium**	7440-39-3	**90.4**		0.167	0.735	2
06127	**Beryllium**	7440-41-7	**0.699**		0.0096	0.184	2
06128	**Cadmium**	7440-43-9	**0.168**	**J**	0.0316	0.184	2
06131	**Chromium**	7440-47-3	**10.1**		0.160	0.735	2
06132	**Cobalt**	7440-48-4	**16.8**		0.0287	0.184	2
06133	**Copper**	7440-50-8	**24.5**		0.0985	0.735	2
06135	**Lead**	7439-92-1	**12.7**		0.0204	0.367	2
06139	**Nickel**	7440-02-0	**21.5**		0.183	0.735	2
06141	**Selenium**	7782-49-2	**0.252**	**J**	0.0919	0.735	2
06142	Silver	7440-22-4	0.0268	U	0.0268	0.184	2
06145	**Thallium**	7440-28-0	**0.307**		0.0230	0.184	2
06148	**Vanadium**	7440-62-2	**13.1**		0.0391	0.184	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221010
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:35 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-4 SDG#: SGB47-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,070**	138	413	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**6.99**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**12.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 12:50	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:35	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-3-4' Soil
SGPP - North Bennington

ELLE Sample # SW 9221010
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 14:35 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-4 SDG#: SGB47-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/09/2017 17:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17265039402B	09/22/2017 20:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9221011
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-5 SDG#: SGB47-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20 J**	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084 U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.75	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**28,100**	9.50	42.5	1
01650	**Calcium**	7440-70-2	**1,550**	3.54	42.5	1
01654	**Iron**	7439-89-6	**28,600**	8.56	42.5	1
01657	**Magnesium**	7439-95-4	**4,670**	2.58	21.3	1
06958	**Manganese**	7439-96-5	**252**	0.0882	1.06	1
01662	**Potassium**	7440-09-7	**2,050**	17.8	106	1
01667	**Sodium**	7440-23-5	**401**	17.8	213	1
06972	**Zinc**	7440-66-6	**89.8**	0.255	4.25	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	Antimony	7440-36-0	0.0991 U	0.0991	0.425	2
06125	**Arsenic**	7440-38-2	**5.11**	0.136	0.850	2
06126	**Barium**	7440-39-3	**173**	0.193	0.850	2
06127	**Beryllium**	7440-41-7	**1.02**	0.0111	0.213	2
06128	**Cadmium**	7440-43-9	**0.0839 J**	0.0366	0.213	2
06131	**Chromium**	7440-47-3	**20.1**	0.185	0.850	2
06132	**Cobalt**	7440-48-4	**10.4**	0.0332	0.213	2
06133	**Copper**	7440-50-8	**22.9**	0.114	0.850	2
06135	**Lead**	7439-92-1	**15.0**	0.0236	0.425	2
06139	**Nickel**	7440-02-0	**26.7**	0.212	0.850	2
06141	Selenium	7782-49-2	0.106 U	0.106	0.850	2
06142	**Silver**	7440-22-4	**0.0639 J**	0.0310	0.213	2
06145	**Thallium**	7440-28-0	**0.352**	0.0266	0.213	2
06148	**Vanadium**	7440-62-2	**37.0**	0.0453	0.213	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9221011
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-5 SDG#: SGB47-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**938**	146	439	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.40**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**16.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 13:11	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:39	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-18-19' Soil
SGPP - North Bennington

ELLE Sample # SW 9221011
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:15 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-5 SDG#: SGB47-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:30	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:30	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:30	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/09/2017 17:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17265039403A	09/22/2017 21:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9221012
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:00 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-6 SDG#: SGB47-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15	U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15	U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15	U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15	U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15	U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15	U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077	U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077	U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.69	1
14027	Perfluorooctanoic acid	335-67-1	0.15	U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15	U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15	U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15	U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15	U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,100**		9.43	42.2	1
01650	**Calcium**	7440-70-2	**553**		3.51	42.2	1
01654	**Iron**	7439-89-6	**21,900**		8.49	42.2	1
01657	**Magnesium**	7439-95-4	**2,880**		2.56	21.1	1
06958	**Manganese**	7439-96-5	**226**		0.0876	1.06	1
01662	**Potassium**	7440-09-7	**1,340**		17.6	106	1
01667	**Sodium**	7440-23-5	**206**	**J**	17.6	211	1
06972	**Zinc**	7440-66-6	**36.5**		0.253	4.22	1
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0983	U	0.0983	0.422	2
06125	**Arsenic**	7440-38-2	**6.85**		0.135	0.844	2
06126	**Barium**	7440-39-3	**69.4**		0.192	0.844	2
06127	**Beryllium**	7440-41-7	**0.676**		0.0111	0.211	2
06128	**Cadmium**	7440-43-9	**0.0714**	**J**	0.0363	0.211	2
06131	**Chromium**	7440-47-3	**12.7**		0.184	0.844	2
06132	**Cobalt**	7440-48-4	**10.5**		0.0329	0.211	2
06133	**Copper**	7440-50-8	**14.5**		0.113	0.844	2
06135	**Lead**	7439-92-1	**12.3**		0.0234	0.422	2
06139	**Nickel**	7440-02-0	**14.1**		0.210	0.844	2
06141	Selenium	7782-49-2	0.106	U	0.106	0.844	2
06142	Silver	7440-22-4	0.0308	U	0.0308	0.211	2
06145	**Thallium**	7440-28-0	**0.200**	**J**	0.0264	0.211	2
06148	**Vanadium**	7440-62-2	**19.8**		0.0450	0.211	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9221012
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:00 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-6 SDG#: SGB47-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**500**	125	376	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**7.24**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**10.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 13:31	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:50	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-8-9' Soil
SGPP - North Bennington

ELLE Sample # SW 9221012
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 15:00 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-6 SDG#: SGB47-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:33	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:33	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:33	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/09/2017 17:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17265039403A	09/22/2017 21:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS06-170920 Soil
SGPP - North Bennington

ELLE Sample # SW 9221013
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD6 SDG#: SGB47-12FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16	U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16	U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16	U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16	U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16	U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16	U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078	U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078	U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23	U	0.23	0.70	1
14027	Perfluorooctanoic acid	335-67-1	0.16	U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16	U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16	U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16	U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16	U	0.16	0.47	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,000**		8.87	39.7	1
01650	**Calcium**	7440-70-2	**538**		3.30	39.7	1
01654	**Iron**	7439-89-6	**23,200**		7.99	39.7	1
01657	**Magnesium**	7439-95-4	**2,570**		2.41	19.8	1
06958	**Manganese**	7439-96-5	**204**		0.0823	0.992	1
01662	**Potassium**	7440-09-7	**1,190**		16.6	99.2	1
01667	**Sodium**	7440-23-5	**202**		16.6	198	1
06972	**Zinc**	7440-66-6	**36.1**		0.238	3.97	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0925	U	0.0925	0.397	2
06125	**Arsenic**	7440-38-2	**7.60**		0.127	0.794	2
06126	**Barium**	7440-39-3	**69.1**		0.180	0.794	2
06127	**Beryllium**	7440-41-7	**0.690**		0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**0.0999 J**		0.0341	0.198	2
06131	**Chromium**	7440-47-3	**11.8**		0.173	0.794	2
06132	**Cobalt**	7440-48-4	**10.3**		0.0310	0.198	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS06-170920 Soil
SGPP - North Bennington

ELLE Sample # SW 9221013
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD6 SDG#: SGB47-12FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**15.8**	0.106	0.794	2
06135	**Lead**	7439-92-1	**11.4**	0.0220	0.397	2
06139	**Nickel**	7440-02-0	**15.9**	0.198	0.794	2
06141	Selenium	7782-49-2	0.0992 U	0.0992	0.794	2
06142	Silver	7440-22-4	0.0290 U	0.0290	0.198	2
06145	**Thallium**	7440-28-0	**0.199**	0.0248	0.198	2
06148	**Vanadium**	7440-62-2	**19.9**	0.0423	0.198	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**604**	146	437	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.15**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 10:00	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS06-170920 Soil
SGPP - North Bennington

ELLE Sample # SW 9221013
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FD6 SDG#: SGB47-12FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:53	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:37	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:37	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:37	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/09/2017 18:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17265039403A	09/22/2017 21:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9221014
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 16:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-7 SDG#: SGB47-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21	U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21	U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21	U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21	U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21	U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21	U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10	U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10	U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31	U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21	U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21	U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21	U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21	U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21	U	0.21	0.63	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of extraction standard 13C9-PFNA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C9-PFNA was within acceptance criteria in the sample, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,800**		6.64	29.7	1
01650	**Calcium**	7440-70-2	**226**		2.47	29.7	1
01654	**Iron**	7439-89-6	**2,140**		5.98	29.7	1
01657	**Magnesium**	7439-95-4	**476**		1.80	14.9	1
06958	**Manganese**	7439-96-5	**21.4**		0.0616	0.743	1
01662	**Potassium**	7440-09-7	**656**		12.4	74.3	1
01667	**Sodium**	7440-23-5	**191**		12.4	149	1
06972	**Zinc**	7440-66-6	**10.0**		0.178	2.97	1
		SW-846 6020A	**mg/kg**		**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0692	U	0.0692	0.297	2
06125	**Arsenic**	7440-38-2	**0.579**	**J**	0.0950	0.594	2
06126	**Barium**	7440-39-3	**32.3**		0.135	0.594	2
06127	**Beryllium**	7440-41-7	**0.157**		0.0078	0.149	2
06128	Cadmium	7440-43-9	0.0255	U	0.0255	0.149	2
06131	**Chromium**	7440-47-3	**6.12**		0.129	0.594	2
06132	**Cobalt**	7440-48-4	**1.06**		0.0232	0.149	2
06133	**Copper**	7440-50-8	**3.93**		0.0796	0.594	2
06135	**Lead**	7439-92-1	**5.09**		0.0165	0.297	2
06139	**Nickel**	7440-02-0	**3.68**		0.148	0.594	2
06141	Selenium	7782-49-2	0.0743	U	0.0743	0.594	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9221014
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 16:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-7 SDG#: SGB47-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0244 J**	0.0217	0.149	2
06145	**Thallium**	7440-28-0	**0.0937 J**	0.0186	0.149	2
06148	**Vanadium**	7440-62-2	**4.43**	0.0316	0.149	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**270 J**	111	333	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.39**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276006	10/06/2017 11:01	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276006	10/03/2017 09:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D16-28-29' Soil
SGPP - North Bennington

ELLE Sample # SW 9221014
ELLE Group # 1853278
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/20/2017 16:10 by RQM

Submitted: 09/21/2017 09:35
Reported: 10/16/2017 17:07

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

D16-7 SDG#: SGB47-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06958	Manganese	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172651063702	09/30/2017 18:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172651063702D	09/28/2017 14:40	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172651063702B	09/28/2017 14:40	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172651063702A	09/28/2017 14:40	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063702	09/26/2017 06:20	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17279245031A	10/09/2017 18:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17265039403A	09/22/2017 21:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17269820007A	09/27/2017 01:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853278
Reported: 10/16/2017 17:07

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/g		ng/g	ng/g
Batch number: 17276006	Sample number(s): 9221000-9221002,9221007-9221009,9221013-9221014			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
Batch number: 17281008	Sample number(s): 9220999,9221004-9221005,9221010-9221012			
Perfluorobutanesulfonate	0.20	U	0.20	0.60
Perfluorobutanoic acid	0.20	U	0.20	0.60
Perfluorodecanoic acid	0.20	U	0.20	0.60
Perfluorododecanoic acid	0.20	U	0.20	0.60
Perfluoroheptanoic acid	0.20	U	0.20	0.60
Perfluorohexanesulfonate	0.20	U	0.20	0.60
Perfluorohexanoic acid	0.10	U	0.10	0.40
Perfluorononanoic acid	0.10	U	0.10	0.40
Perfluoro-octanesulfonate	0.30	U	0.30	0.90
Perfluorooctanoic acid	0.20	U	0.20	0.60
Perfluoropentanoic acid	0.20	U	0.20	0.60
Perfluorotetradecanoic acid	0.20	U	0.20	0.60
Perfluorotridecanoic acid	0.20	U	0.20	0.60
Perfluoroundecanoic acid	0.20	U	0.20	0.60
	ng/l		ng/l	ng/l
Batch number: 17267004	Sample number(s): 9221006			
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
	mg/kg		mg/kg	mg/kg
Batch number: 172651063702	Sample number(s): 9220999-9221005,9221007-9221014			
Aluminum	8.94	U	8.94	40.0
Calcium	3.33	U	3.33	40.0
Iron	8.05	U	8.05	40.0
Magnesium	2.43	U	2.43	20.0
Manganese	0.0830	U	0.0830	1.00
Potassium	16.7	U	16.7	100
Sodium	16.7	U	16.7	200
Zinc	0.277	J	0.240	4.00
Batch number: 172651063702A	Sample number(s): 9220999-9221005,9221007-9221014			
Antimony	0.0932	U	0.0932	0.400
Arsenic	0.128	U	0.128	0.800
Beryllium	0.0105	U	0.0105	0.200
Cadmium	0.0344	U	0.0344	0.200
Chromium	0.174	U	0.174	0.800
Cobalt	0.0312	U	0.0312	0.200
Copper	0.107	U	0.107	0.800
Lead	0.0222	U	0.0222	0.400
Nickel	0.199	U	0.199	0.800
Silver	0.0292	U	0.0292	0.200
Thallium	0.0250	U	0.0250	0.200
Vanadium	0.0426	U	0.0426	0.200
Batch number: 172651063702B	Sample number(s): 9220999-9221005,9221007-9221014			
Selenium	0.100	U	0.100	0.800
Batch number: 172651063702D	Sample number(s): 9220999-9221005,9221007-9221014			
Barium	0.182	U	0.182	0.800
Batch number: 17278245033B	Sample number(s): 9220999-9221001,9221003-9221005,9221007			
TOC	100	U	100	300
Batch number: 17279245031A	Sample number(s): 9221008-9221014			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17276006	Sample number(s): 9221000-9221002,9221007-9221009,9221013-9221014								
Perfluorobutanesulfonate	1.20	1.22			102		70-130		
Perfluorobutanoic acid	1.36	1.47			108		70-130		
Perfluorodecanoic acid	1.36	1.43			105		70-130		
Perfluorododecanoic acid	1.36	1.55			114		70-130		
Perfluoroheptanoic acid	1.36	1.30			96		70-130		
Perfluorohexanesulfonate	1.29	1.22			95		70-130		
Perfluorohexanoic acid	1.36	1.25			92		70-130		
Perfluorononanoic acid	1.36	1.33			98		70-130		
Perfluoro-octanesulfonate	1.30	1.33			102		70-130		
Perfluorooctanoic acid	1.36	1.31			96		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.33			97		70-130		
Perfluorotridecanoic acid	1.36	1.38			102		70-130		
Perfluoroundecanoic acid	1.36	1.22			90		70-130		
Batch number: 17281008	Sample number(s): 9220999,9221004-9221005,9221010-9221012								
Perfluorobutanesulfonate	1.20	1.10			91		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.40			103		70-130		
Perfluorododecanoic acid	1.36	1.37			101		70-130		
Perfluoroheptanoic acid	1.36	1.22			90		70-130		
Perfluorohexanesulfonate	1.29	1.19			92		70-130		
Perfluorohexanoic acid	1.36	1.34			99		70-130		
Perfluorononanoic acid	1.36	1.36			100		70-130		
Perfluoro-octanesulfonate	1.30	1.20			92		70-130		
Perfluorooctanoic acid	1.36	1.43			105		70-130		
Perfluoropentanoic acid	1.36	1.35			100		70-130		
Perfluorotetradecanoic acid	1.36	1.37			101		70-130		
Perfluorotridecanoic acid	1.36	1.51			111		70-130		
Perfluoroundecanoic acid	1.36	1.28			94		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17267004	Sample number(s): 9221006								
Perfluorobutanesulfonate	12.03	13.06	12.03	13.31	109	111	70-130	2	30
Perfluorobutanoic Acid	13.6	13.79	13.6	13.77	101	101	70-130	0	30
Perfluorodecanoic acid	13.6	14.03	13.6	16.04	103	118	70-130	13	30
Perfluorododecanoic acid	13.6	14.85	13.6	15.03	109	111	70-130	1	30
Perfluoroheptanoic acid	13.6	14.74	13.6	14.32	108	105	70-130	3	30
Perfluorohexanesulfonate	12.86	11.53	12.86	11.36	90	88	70-130	1	30
Perfluorohexanoic acid	13.6	13.65	13.6	12.85	100	95	70-130	6	30
Perfluorononanoic acid	13.6	15.95	13.6	13.93	117	102	70-130	14	30
Perfluoro-octanesulfonate	13	12.6	13	11.94	97	92	70-130	5	30
Perfluorooctanoic acid	13.6	12.96	13.6	13.87	95	102	70-130	7	30
Perfluoropentanoic Acid	13.6	13.26	13.6	13.54	97	100	70-130	2	30
Perfluorotetradecanoic acid	13.6	15.64	13.6	15.54	115	114	70-130	1	30
Perfluorotridecanoic acid	13.6	13.66	13.6	12.35	100	91	70-130	10	30
Perfluoroundecanoic acid	13.6	15.31	13.6	16.98	113	125	70-130	10	30

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172651063702	Sample number(s): 9220999-9221005,9221007-9221014								
Aluminum	200	223.04			112		80-120		
Calcium	400	400.88			100		80-120		
Iron	100	104.52			105		80-120		
Magnesium	200	206.62			103		80-120		
Manganese	50	51.93			104		80-120		
Potassium	1000	1028.23			103		80-120		
Sodium	1000	1031.78			103		80-120		
Zinc	50	50.93			102		80-120		
Batch number: 172651063702A	Sample number(s): 9220999-9221005,9221007-9221014								
Antimony	0.600	0.653			109		80-120		
Arsenic	1.00	1.13			113		80-120		
Beryllium	0.400	0.432			108		80-120		
Cadmium	0.500	0.533			107		80-120		
Chromium	5.00	4.99			100		80-120		
Cobalt	25	24.16			97		80-120		
Copper	5.00	4.97			99		80-120		
Lead	1.50	1.51			101		80-120		
Nickel	5.00	4.75			95		80-120		
Silver	5.00	5.24			105		80-120		
Thallium	0.200	0.191			96		80-120		
Vanadium	5.00	4.93			99		80-120		
Batch number: 172651063702B	Sample number(s): 9220999-9221005,9221007-9221014								
Selenium	1.00	1.07			107		80-120		
Batch number: 172651063702D	Sample number(s): 9220999-9221005,9221007-9221014								
Barium	5.00	5.12			102		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17278245033B	Sample number(s): 9220999-9221001,9221003-9221005,9221007								
TOC	7150	6851.38			96		47-143		
Batch number: 17279245031A	Sample number(s): 9221008-9221014								
TOC	7150	6424.64			90		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17265039402B	Sample number(s): 9220999-9221000,9221003-9221005,9221007-9221010								
pH	7.00	6.99			100		95-105		
Batch number: 17265039403A	Sample number(s): 9221011-9221014								
pH	7.00	6.99			100		95-105		
	%	%	%	%					
Batch number: 17269820007A	Sample number(s): 9220999-9221005,9221007-9221014								

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Moisture	89.5	89.4			100		99-101		
Moisture	89.5	89.4			100		99-101		
Moisture Duplicate	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g		MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17276006	Sample number(s): 9221000-9221002,9221007-9221009,9221013-9221014 UNSPK: 9221000										
Perfluorobutanesulfonate	0.19	U	1.04	0.979	0.812	0.771	95	95	70-130	24	30
Perfluorobutanoic acid	0.19	U	1.17	1.28	0.919	1.01	109	110	70-130	24	30
Perfluorodecanoic acid	0.19	U	1.17	1.13	0.919	0.939	97	102	70-130	19	30
Perfluorododecanoic acid	0.19	U	1.17	1.28	0.919	0.985	109	107	70-130	26	30
Perfluoroheptanoic acid	0.19	U	1.17	1.37	0.919	1.11	117	121	70-130	20	30
Perfluorohexanesulfonate	0.19	U	1.11	1.01	0.869	0.867	91	100	70-130	15	30
Perfluorohexanoic acid	0.093	U	1.17	1.26	0.919	1.11	107	121	70-130	13	30
Perfluorononanoic acid	0.093	U	1.17	1.17	0.919	1.01	100	110	70-130	15	30
Perfluoro-octanesulfonate	0.28	U	1.12	1.52	0.878	1.02	136*	116	70-130	39*	30
Perfluorooctanoic acid	0.863		1.17	2.11	0.919	2.06	106	130	70-130	2	30
Perfluoropentanoic acid	0.19	U	1.17	1.18	0.919	0.994	100	108	70-130	17	30
Perfluorotetradecanoic acid	0.19	U	1.17	1.13	0.919	0.921	96	100	70-130	20	30
Perfluorotridecanoic acid	0.19	U	1.17	1.12	0.919	0.876	95	95	70-130	24	30
Perfluoroundecanoic acid	0.19	U	1.17	1.30	0.919	0.900	111	98	70-130	37*	30
Batch number: 17281008	Sample number(s): 9220999,9221004-9221005,9221010-9221012 UNSPK: P235175										
Perfluorobutanesulfonate	0.17	U	0.807	0.803	1.07	1.09	99	101	70-130	30	30
Perfluorobutanoic acid	0.17	U	0.913	0.947	1.21	1.34	104	110	70-130	34*	30
Perfluorodecanoic acid	0.17	U	0.913	0.929	1.21	1.31	102	108	70-130	34*	30
Perfluorododecanoic acid	0.17	U	0.913	0.955	1.21	1.27	105	105	70-130	29	30
Perfluoroheptanoic acid	0.17	U	0.913	0.962	1.21	1.34	105	110	70-130	33*	30
Perfluorohexanesulfonate	0.17	U	0.863	0.848	1.15	1.12	98	97	70-130	27	30
Perfluorohexanoic acid	0.083	U	0.913	0.835	1.21	1.35	91	111	70-130	47*	30
Perfluorononanoic acid	0.083	U	0.913	0.900	1.21	1.11	99	91	70-130	21	30
Perfluoro-octanesulfonate	0.25	U	0.872	0.935	1.16	1.12	107	97	70-130	18	30
Perfluorooctanoic acid	0.17	U	0.913	0.971	1.21	1.35	106	111	70-130	32*	30
Perfluoropentanoic acid	0.17	U	0.913	0.978	1.21	1.26	107	103	70-130	25	30
Perfluorotetradecanoic acid	0.17	U	0.913	0.896	1.21	1.28	98	106	70-130	35*	30
Perfluorotridecanoic acid	0.17	U	0.913	0.902	1.21	1.25	99	103	70-130	32*	30
Perfluoroundecanoic acid	0.17	U	0.913	0.958	1.21	1.29	105	107	70-130	30	30
	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172651063702	Sample number(s): 9220999-9221005,9221007-9221014 UNSPK: 9221000									
Aluminum	4749.59	168.07	5645.71	170.94	7611.11	533 (2)	1674 (2)	75-125	30*	20
Calcium	58773.05	336.13	80442.38	341.88	20483.06	6447 (2)	-11200 (2)	75-125	119*	20
Iron	9742.36	84.03	10543.42	85.47	13539.89	953 (2)	4443 (2)	75-125	25*	20
Magnesium	29054.88	168.07	40236.86	170.94	9853.31	6653 (2)	-11233 (2)	75-125	121*	20
Manganese	631.97	42.02	1035.58	42.74	1312.53	961 (2)	1593 (2)	75-125	24*	20
Potassium	372.48	840.34	1551.88	854.7	1683.43	140*	153*	75-125	8	20
Sodium	58.63	840.34	902.62	854.7	933.86	100	102	75-125	3	20
Zinc	26.71	42.02	65.71	42.74	77.56	93	119	75-125	17	20
Batch number: 172651063702A	Sample number(s): 9220999-9221005,9221007-9221014 UNSPK: 9221000									
Antimony	0.0961	1.01	0.921	1.03	0.863	82	75	75-125	7	20
Arsenic	4.92	1.68	6.63	1.71	7.17	102	132*	75-125	8	20
Beryllium	0.211	0.672	0.941	0.684	0.941	109	107	75-125	0	20
Cadmium	0.0972	0.840	1.01	0.855	1.01	109	107	75-125	0	20
Chromium	5.14	8.40	15.18	8.55	18.19	119	153*	75-125	18	20
Cobalt	8.89	42.02	61.82	42.74	57.18	126*	113	75-125	8	20
Copper	5.47	8.40	16.44	8.55	17.79	130*	144*	75-125	8	20
Lead	9.35	2.52	13.58	2.56	17.09	168*	302*	75-125	23*	20
Nickel	6.05	8.40	16.23	8.55	17.38	121	133*	75-125	7	20
Silver	0.0640	8.40	8.71	8.55	8.92	103	104	75-125	2	20
Thallium	0.165	0.336	0.874	0.342	0.958	211*	232*	75-125	9	20
Vanadium	6.95	8.40	16.5	8.55	17.02	114	118	75-125	3	20
Batch number: 172651063702B	Sample number(s): 9220999-9221005,9221007-9221014 UNSPK: 9221000									
Selenium	0.144	1.68	1.91	1.71	1.82	105	98	75-125	5	20
Batch number: 172651063702D	Sample number(s): 9220999-9221005,9221007-9221014 UNSPK: 9221000									
Barium	68.23	8.40	239.16	8.55	242.91	2034 (2)	2044 (2)	75-125	2	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17278245033B	Sample number(s): 9220999-9221001,9221003-9221005,9221007 UNSPK: 9221000									
TOC	10383.29	33784	50144.07			118		47-143		
Batch number: 17279245031A	Sample number(s): 9221008-9221014 UNSPK: 9221008									
TOC	4790.89	28080	36301.5			112		47-143		

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 17:07

Group Number: 1853278

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172651063702	Sample number(s): 9220999-9221005,9221007-9221014 BKG: 9221000			
Aluminum	4749.59	5696.74	18	20
Calcium	58773.05	15246.36	118*	20
Iron	9742.36	15107.04	43*	20
Magnesium	29054.88	7132.37	121*	20
Manganese	631.97	1864.46	99*	20
Potassium	372.48	357.64	4 (1)	20
Sodium	58.63	43.43	30* (1)	20
Zinc	26.71	35.75	29*	20
Batch number: 172651063702A	Sample number(s): 9220999-9221005,9221007-9221014 BKG: 9221000			
Antimony	0.0961	0.103	7 (1)	20
Arsenic	4.92	5.24	6	20
Beryllium	0.211	0.249	16 (1)	20
Cadmium	0.0972	0.151	43* (1)	20
Chromium	5.14	6.85	29*	20
Cobalt	8.89	18.12	68*	20
Copper	5.47	8.81	47*	20
Lead	9.35	12.61	30*	20
Nickel	6.05	8.80	37*	20
Silver	0.0640	0.130	68* (1)	20
Thallium	0.165	0.385	80* (1)	20
Vanadium	6.95	7.40	6	20
Batch number: 172651063702B	Sample number(s): 9220999-9221005,9221007-9221014 BKG: 9221000			
Selenium	0.144	0.163	12 (1)	20
Batch number: 172651063702D	Sample number(s): 9220999-9221005,9221007-9221014 BKG: 9221000			
Barium	68.23	226.72	107*	20
	mg/kg	mg/kg		
Batch number: 17278245033B	Sample number(s): 9220999-9221001,9221003-9221005,9221007 BKG: 9221000			
TOC	10383.29	9437.15	10*	7
Batch number: 17279245031A	Sample number(s): 9221008-9221014 BKG: 9221008			
TOC	4790.89	4101.78	15* (1)	7
	Std. Units	Std. Units		
Batch number: 17265039402B	Sample number(s): 9220999-9221000,9221003-9221005,9221007-9221010 BKG: 9221000			
pH	8.07	8.03	0	3
Batch number: 17265039403A	Sample number(s): 9221011-9221014 BKG: 9221011			
pH	6.40	6.41	0	3
	%	%		
Batch number: 17269820007A	Sample number(s): 9220999-9221005,9221007-9221014 BKG: 9221000, P221000			
Moisture	9.82	8.39	16*	5
Moisture	9.82	8.39	16*	5

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1853278
Reported: 10/16/2017 17:07

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture Duplicate	9.82	8.39	16*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17267004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9221006	91	90	84	96	87	88
Blank	96	95	85	109	108	88
LCS	100	97	90	105	95	95
LCSD	93	96	81	94	92	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9221006	98	88	90	89	93	94
Blank	102	92	115	91	90	92
LCS	107	93	93	94	89	89
LCSD	101	86	90	87	97	101
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9221006	86
Blank	91
LCS	91
LCSD	98
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17276006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9221000	47*	51*	40	56	50	54
9221001	54	53*	41	58	58	54
9221002	49*	44*	40	53	54	50
9221007	56	55*	39	63	55	65

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853278
Reported: 10/16/2017 17:07

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17276006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9221008	58	54*	41	59	54	58
9221009	61	55*	43	59	56	56
9221013	57	52*	40	72	56	59
9221014	54	50*	38	61	55	61
Blank	66	64*	47	72	55	74
LCS	58	54*	39	60	57	65
MS	54	53*	41	58	58	54
MSD	49*	44*	40	53	54	50
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9221000	58	60	65	55	53	54
9221001	63	60	70	56	58	62
9221002	52	57	55	54	60	55
9221007	70	59	72	61	68	64
9221008	64	56	72	59	66	64
9221009	57	66	76	61	67	63
9221013	67	58	58	58	59	59
9221014	65	55	64	54	61	59
Blank	69	65	80	66	69	64
LCS	61	57	71	59	65	60
MS	63	60	70	56	58	62
MSD	52	57	55	54	60	55
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9221000	51
9221001	58
9221002	52
9221007	62
9221008	56
9221009	57
9221013	52
9221014	51
Blank	63
LCS	64
MS	58
MSD	52

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853278
Reported: 10/16/2017 17:07

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17276006

Limits: 20-127

Analysis Name: 14 PFCs
Batch number: 17281008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9220999	50	56*	71	54	70	52
9221004	57	57*	72	53	69	56
9221005	73	76	82	70	81	71
9221010	77	80	72	78	79	75
9221011	74	80	79	74	81	79
9221012	70	74	73	76	81	71
Blank	95	96	88	109	97	101
LCS	93	97	92	93	92	100
MS	56	53*	70	69	77	66
MSD	59	58*	66	57	65	60
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9220999	63	81	78	78	88	85
9221004	58	75	63	62	68	66
9221005	71	85	85	79	84	95
9221010	80	80	85	84	82	84
9221011	77	82	84	80	94	92
9221012	78	86	104	80	75	81
Blank	93	96	92	95	85	88
LCS	91	93	104	112	101	109
MS	57	74	54	56	59	58
MSD	53	72	63	64	63	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9220999	90
9221004	70
9221005	95
9221010	87
9221011	94
9221012	86
Blank	105
LCS	117
MS	68

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1853278
Reported: 10/16/2017 17:07

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17281008

	13C2-PFTeDA
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1853278 9220949 - 9221014

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ~~☒ MN~~ ☐ SD

COC Number: 52296

COC 3 of 4

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	Soil: PFCs (14) poly	Soil: 4oz. jar TOC, pH, TAL Metals + MO. Solve	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A				
										1	1				
1. SG3-D02-0-0.5'	0	0.5	ft.	09/20/2017	09:30	S	N	2		1	1				Metals TAL/cations excluding Hg
2. SG3-D02-0.5-1'	0.5	1	ft.	09/20/2017	09:45	S	Y	6		3	3				
3. SG3-D02-1-1.5'	1	1.5	ft.	09/20/2017	09:55	S	N	2		1	1				
4. SG3-D02-3-4'	3	4	ft.	09/20/2017	09:50	S	N	2		1	1				
5. SG3-FBS06-170920	/	/	/	09/20/2017	13:50	Water	N	1	1						
6. SG3-D16-0-0.5'	0	0.5	ft.	09/20/2017	14:10	S	N	2		1	1				Samples split in two coolers
7. SG3-D16-0.5-1'	0.5	1	ft.	09/20/2017	14:15	S	N	2		1	1				
8. SG3-D16-1-1.5'	1	1.5	ft.	09/20/2017	14:20	S	N	2		1	1				
9. SG3-D16-3-4'	3	4	ft	09/20/2017	14:35	S	N	2		1	1				
10. SG3-D16-18-19'	18	19	ft	09/20/2017	15:15	S	N	2		1	1				

BARR USE ONLY

Sampled by: RAM/KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 9/20/17 Time 17:00 Received by:

Relinquished by: On Ice? Y N Date Time Received by: Date 9/21/17 Time 9:35

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.7/2.2 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1853278 9220999 - 9221014

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☒ ~~MN~~ ☐ MI ☐ ND ☐ SD Other: VT

COC Number: 52297

COC 4 of 4

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: PFCs (14) poly	4oz jar TOC, pH, Metals, moist	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-D16-8-9'	8	9	ft.	09/20/2017	15:00	S	N	2		1	1		Metals = TAL cations excl. Hg	
2. SG3-FDS06-170920	/	/	/	09/20/2017	/	S	N	2		1	1			
3. SG3-D16-28-29'	28	29	ft	09/20/2017	16:10	S	N	2		1	1		Samples split into two coolers	
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] | On Ice? (Y) N | Date 9/20/17 | Time 17:00 | Received by: | Date | Time

Relinquished by: | On Ice? Y N | Date | Time | Received by: [signature] | Date | Time 1735

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.7/2 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195092

Group Number(s): 1853278

Client: BARR

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/21/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 12:06 on 09/21/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.7	DT	Wet	Y	Bagged	N
2	DT42-01	2.2	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 15:08

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1853939
SDG: SGB48
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S16-170921 Groundwater	09/21/2017 09:30	9223561
SG3-LTB42-170921 Blank Water	09/21/2017	9223562
SG3-LTB43-170921 Blank Water	09/21/2017	9223563
SG3-S25-0-0.5' Soil	09/21/2017 11:00	9223564
SG3-S25-0.5-1' Soil	09/21/2017 11:05	9223565
SG3-S25-1-1.5' Soil	09/21/2017 11:10	9223566
SG3-S25-3-4' Soil	09/21/2017 11:30	9223567
SG3-S25-4.6-5.6' Soil	09/21/2017 12:10	9223568
SG3-LTB44-170921 Blank Water	09/21/2017	9223569
SG3-LTB45-170921 Blank Water	09/21/2017	9223570
SG3-FB13-170921 Blank Water	09/21/2017 13:15	9223571
SG3-D16-36-37' Soil	09/21/2017 08:40	9223572

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1853939

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9223561

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:

The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-dioxane was not detected in the re-extract.

Batch #: 17268WAJ026 (Sample number(s): 9223561)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9223561, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9223561, 9223563

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample #s: 9223569

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within

acceptance criteria in the sample, the data is reported.

Sample #s: 9223571

The recovery of extraction standard 13C3-PFBS was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C3-PFBS was within acceptance criteria in the sample, the data is reported.

Sample #s: 9223564, 9223567, 9223568

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17268012 (Sample number(s): 9223561, 9223563 UNSPK: 9223561)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9223561, 9223563, Blank, LCS, LCSD, MS

Batch #: 17276008 (Sample number(s): 9223564-9223568, 9223572 UNSPK: 9223564)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9223564, 9223567, 9223568, MS

SW-846 6010C, Metals

Batch #: 172701063507 (Sample number(s): 9223561 UNSPK: P226910 BKG: P226910)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium

SW-846 6020A, Metals

Batch #: 172701063905A (Sample number(s): 9223561 UNSPK: P217289 BKG: P217289)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic

EPA 300.0, Wet Chemistry

Batch #: 17265987106B (Sample number(s): 9223561 UNSPK: 9223561 BKG: 9223561)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

EPA 351.2, Wet Chemistry

Batch #: 17272108101B (Sample number(s): 9223561 UNSPK: 9223561 BKG: 9223561)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17279245033A (Sample number(s): 9223564-9223568, 9223572 UNSPK: 9223564 BKG: 9223564)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9012A, Wet Chemistry

Sample #s: 9223561

The holding time was not met.

SM 2320 B-1997, Wet Chemistry

Batch #: 17268002104A (Sample number(s): 9223561 UNSPK: P223755 BKG: P223531, P223755)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9223561

The holding time was not met.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9223565

The pH was measured in water at 20 C.

Sample #s: 9223568

The pH was measured in water at 20.1 C.

Sample #s: 9223572

The pH was measured in water at 20.2 C.

Sample #s: 9223564, 9223566, 9223567

The pH was measured in water at 20.3 C.

REVISED

Sample Description: **SG3-S16-170921 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 09:30
SDG#: SGB48-01

C. T. Male Associates
ELLE Sample #: GW 9223561
ELLE Group #: 1853939
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S16-170921 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 09:30
SDG#: SGB48-01

C. T. Male Associates
ELLE Sample #: GW 9223561
ELLE Group #: 1853939
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.095 J**	0.055	0.22	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:					
	The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-dioxane was not detected in the re-extract.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**1 J**	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**6 J**	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.8 J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.6 J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**42**	0.6	2	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S16-170921 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 09:30
SDG#: SGB48-01

C. T. Male Associates
ELLE Sample #: GW 9223561
ELLE Group #: 1853939
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1
	The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the opening calibration verification standard (CCV).					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.225 J**	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**86.9**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.648**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**20.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0435**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.23**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**15.4**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0652**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00031 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.00094 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00043 J**	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00036 J**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S16-170921 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 09:30
SDG#: SGB48-01

C. T. Male Associates
ELLE Sample #: GW 9223561
ELLE Group #: 1853939
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**22.2**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**5.0 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.074 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	The holding time was not met.					
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**283**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**283**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5172701AA	09/27/2017 10:52	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5172701AA	09/27/2017 10:52	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17268WAJ026	09/28/2017 09:23	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17268WAJ026	09/26/2017 08:00	Kayla A Yuditsky	1
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17268012	10/01/2017 08:19	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17268012	09/25/2017 15:47	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S16-170921 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 09:30
SDG#: SGB48-01

C. T. Male Associates
ELLE Sample #: GW 9223561
ELLE Group #: 1853939
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	172701063507	09/30/2017 17:50	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	172701063507	10/02/2017 18:59	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172701063905D	09/29/2017 05:55	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172701063905B	09/29/2017 05:55	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172701063905A	09/29/2017 05:55	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172700571304	09/30/2017 19:24	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172701063507	09/28/2017 06:21	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172701063905	09/28/2017 06:01	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172700571304	09/28/2017 18:35	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17265987106B	09/23/2017 02:47	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17265987106B	09/23/2017 02:47	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17265987106B	09/23/2017 02:47	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17265987106B	09/23/2017 02:47	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17265987106B	09/23/2017 02:47	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17279107102B	10/07/2017 18:50	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17272108101B	10/03/2017 13:06	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17277117101A	10/06/2017 11:54	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17272108101B	09/29/2017 09:25	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17277117101A	10/03/2017 17:30	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17268002104A	09/25/2017 23:54	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17268002104A	09/25/2017 23:54	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17268002104A	09/25/2017 23:54	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17266022601A	09/23/2017 10:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB42-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017
SDG#: SGB48-02TB

C. T. Male Associates
ELLE Sample #: WW 9223562
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB42-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017
SDG#: SGB48-02TB

C. T. Male Associates
ELLE Sample #: WW 9223562
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5172701AA	09/27/2017 11:13	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5172701AA	09/27/2017 11:13	Linda C Pape	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB43-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017
SDG#: SGB48-03TB

C. T. Male Associates
ELLE Sample #: WW 9223563
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS was outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17268012	10/01/2017 08:40	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17268012	09/25/2017 15:47	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:00
SDG#: SGB48-04

C. T. Male Associates
ELLE Sample #: SW 9223564
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.21 J**	0.16	0.49	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.32 J**	0.16	0.49	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.29 J**	0.16	0.49	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.18 J**	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.12 J**	0.081	0.33	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20 J**	0.081	0.33	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.24	0.73	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.47 J**	0.16	0.49	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.17 J**	0.16	0.49	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.20 J**	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.20 J**	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,600**	529	1,590	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 01:26	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:00
SDG#: SGB48-04

C. T. Male Associates
ELLE Sample #: SW 9223564
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/07/2017 07:45	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:05
SDG#: SGB48-05

C. T. Male Associates
ELLE Sample #: SW 9223565
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.61	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,190**	805	2,420	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.90**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 02:28	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:05
SDG#: SGB48-05

C. T. Male Associates
ELLE Sample #: SW 9223565
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/11/2017 10:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:10
SDG#: SGB48-06

C. T. Male Associates
ELLE Sample #: SW 9223566
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.32 J**	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,170**	1,060	3,190	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.95**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 02:48	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:10
SDG#: SGB48-06

C. T. Male Associates
ELLE Sample #: SW 9223566
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/11/2017 10:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:30
SDG#: SGB48-07

C. T. Male Associates
ELLE Sample #: SW 9223567
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.37	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.61 J**	0.28	0.84	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55 J**	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,600**	528	1,580	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.45**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 03:09	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 11:30
SDG#: SGB48-07

C. T. Male Associates
ELLE Sample #: SW 9223567
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/07/2017 09:15	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-4.6-5.6' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 12:10
SDG#: SGB48-08

C. T. Male Associates
ELLE Sample #: SW 9223568
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.088 U	0.088	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.088 U	0.088	0.35	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.35 J**	0.26	0.79	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.40 J**	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,500**	390	1,170	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.44**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 21:38	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S25-4.6-5.6' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 12:10
SDG#: SGB48-08

C. T. Male Associates
ELLE Sample #: SW 9223568
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/07/2017 09:28	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB44-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017
SDG#: SGB48-09TB

C. T. Male Associates
ELLE Sample #: WW 9223569
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17270007	09/30/2017 10:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270007	09/27/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB45-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017
SDG#: SGB48-10TB

C. T. Male Associates
ELLE Sample #: WW 9223570
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17278016	10/06/2017 23:24	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17278016	10/05/2017 18:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FB13-170921 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 13:15
SDG#: SGB48-11FB

C. T. Male Associates
ELLE Sample #: WW 9223571
ELLE Group #: 1853939
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of extraction standard 13C3-PFBS was outside QC acceptance criteria in the closing CCV associated with this sample. Since the recovery of 13C3-PFBS was within acceptance criteria in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17270007	10/05/2017 13:48	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270007	09/27/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D16-36-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 08:40
SDG#: SGB48-12

C. T. Male Associates
ELLE Sample #: SW 9223572
ELLE Group #: 1853939
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.086 U	0.086	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.086 U	0.086	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**433**	127	380	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.50**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**20.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17276008	10/06/2017 21:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17276008	10/03/2017 15:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D16-36-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/22/2017 09:50
Collection Date/Time: 09/21/2017 08:40
SDG#: SGB48-12

C. T. Male Associates
ELLE Sample #: SW 9223572
ELLE Group #: 1853939
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17279245033A	10/11/2017 11:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039401A	09/26/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17268820002A	09/25/2017 23:57	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5172701AA	Sample number(s): 9223561-9223562		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17268WAJ026	Sample number(s): 9223561		
1,4-Dioxane	0.21	0.050	0.20
	ng/g	ng/g	ng/g
Batch number: 17276008	Sample number(s): 9223564-9223568,9223572		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17268012	Sample number(s): 9223561,9223563		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
Batch number: 17270007	Sample number(s): 9223569,9223571		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	2 J	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
Batch number: 17278016	Sample number(s): 9223570		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/l	mg/l	mg/l
Batch number: 172700571304	Sample number(s): 9223561		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 172701063507	Sample number(s): 9223561		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172701063905A	Sample number(s): 9223561		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172701063905B	Sample number(s): 9223561		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172701063905D	Sample number(s): 9223561		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17279245033A	Sample number(s): 9223564-9223568,9223572		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17265987106B	Sample number(s): 9223561		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17272108101B	Sample number(s): 9223561		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17277117101A	Sample number(s): 9223561		
Total Cyanide	0.0050 U	0.0050	0.010

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 17279107102B	Sample number(s): 9223561		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17266022601A	Sample number(s): 9223561		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17268002104A	Sample number(s): 9223561		
Total Alkalinity to pH 4.5	3.0 J	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5172701AA	Sample number(s): 9223561-9223562								
Acetone	150	135.97	150	130.88	91	87	44-177	4	30
Benzene	20	20	20	20.28	100	101	78-120	1	30
Bromochloromethane	20	20.86	20	21.48	104	107	80-125	3	30
Bromodichloromethane	20	20.18	20	19.9	101	99	71-120	1	30
Bromoform	20	18.28	20	18.26	91	91	59-120	0	30
Bromomethane	20	19.38	20	19.07	97	95	44-139	2	30
2-Butanone	150	153.84	150	151.66	103	101	53-140	1	30
Carbon Disulfide	20	18.2	20	19.02	91	95	65-128	4	30
Carbon Tetrachloride	20	21.31	20	21.37	107	107	68-128	0	30
Chlorobenzene	20	19.17	20	19.2	96	96	80-120	0	30
Chloroethane	20	16.77	20	17.43	84	87	52-127	4	30
Chloroform	20	21.18	20	21	106	105	80-120	1	30
Chloromethane	20	16.72	20	16.93	84	85	57-120	1	30
Cyclohexane	20	19.24	20	19.15	96	96	67-121	0	30
1,2-Dibromo-3-chloropropane	20	19.65	20	19.42	98	97	64-120	1	30
Dibromochloromethane	20	18.8	20	19.16	94	96	71-120	2	30
1,2-Dibromoethane	20	19.88	20	20	99	100	75-120	1	30
1,2-Dichlorobenzene	20	18.79	20	19.07	94	95	80-120	1	30
1,3-Dichlorobenzene	20	18.46	20	18.53	92	93	80-120	0	30
1,4-Dichlorobenzene	20	18.64	20	18.82	93	94	80-120	1	30
Dichlorodifluoromethane	20	17.64	20	17.71	88	89	47-124	0	30
1,1-Dichloroethane	20	20.33	20	20.26	102	101	80-120	0	30
1,2-Dichloroethane	20	21.37	20	21.23	107	106	73-124	1	30
1,1-Dichloroethene	20	22.05	20	22.72	110	114	76-124	3	30
cis-1,2-Dichloroethene	20	20.75	20	21.42	104	107	80-120	3	30
trans-1,2-Dichloroethene	20	21.31	20	21.48	107	107	80-120	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloropropane	20	19.78	20	20.27	99	101	80-120	2	30
cis-1,3-Dichloropropene	20	19.62	20	19.65	98	98	75-120	0	30
trans-1,3-Dichloropropene	20	18.39	20	18.36	92	92	76-120	0	30
Ethylbenzene	20	19.03	20	19.28	95	96	78-120	1	30
Freon 113	20	22.56	20	23.35	113	117	68-137	3	30
2-Hexanone	100	92.76	100	93.06	93	93	60-134	0	30
Isopropylbenzene	20	19.36	20	19.48	97	97	80-120	1	30
Methyl Acetate	20	20.84	20	21.27	104	106	61-137	2	30
Methyl Tertiary Butyl Ether	20	21	20	21.42	105	107	75-120	2	30
4-Methyl-2-pentanone	100	99.83	100	101.72	100	102	67-128	2	30
Methylcyclohexane	20	20.22	20	20.22	101	101	66-126	0	30
Methylene Chloride	20	21.28	20	21.26	106	106	80-120	0	30
Styrene	20	19.39	20	19.56	97	98	80-120	1	30
1,1,2,2-Tetrachloroethane	20	18.86	20	18.75	94	94	72-120	1	30
Tetrachloroethene	20	19.92	20	19.96	100	100	80-129	0	30
Toluene	20	19.12	20	19.38	96	97	80-120	1	30
1,2,3-Trichlorobenzene	20	18.68	20	18.77	93	94	66-120	0	30
1,2,4-Trichlorobenzene	20	18.29	20	18.5	91	92	70-120	1	30
1,1,1-Trichloroethane	20	21.65	20	21.75	108	109	67-120	0	30
1,1,2-Trichloroethane	20	19.61	20	20.19	98	101	80-120	3	30
Trichloroethene	20	20.76	20	20.62	104	103	80-120	1	30
Trichlorofluoromethane	20	20.04	20	20.27	100	101	52-143	1	30
Vinyl Chloride	20	17.42	20	17.38	87	87	63-121	0	30
m+p-Xylene	40	38.3	40	39.05	96	98	80-120	2	30
o-Xylene	20	18.73	20	19.19	94	96	80-120	2	30
Xylene (Total)	60	57.04	60	58.25	95	97	80-120	2	30
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17268WAJ026	Sample number(s): 9223561								
1,4-Dioxane	1.00	1.25	1.00	1.25	125	125	70-130	0	30
	ng/g	**ng/g**	**ng/g**	**ng/g**					
Batch number: 17276008	Sample number(s): 9223564-9223568,9223572								
Perfluorobutanesulfonate	1.20	1.16	1.20	1.26	96	104	70-130	8	30
Perfluorobutanoic acid	1.36	1.63	1.36	1.50	120	110	70-130	9	30
Perfluorodecanoic acid	1.36	1.48	1.36	1.49	109	110	70-130	1	30
Perfluorododecanoic acid	1.36	1.46	1.36	1.58	107	116	70-130	8	30
Perfluoroheptanoic acid	1.36	1.33	1.36	1.52	98	112	70-130	13	30
Perfluorohexanesulfonate	1.29	1.22	1.29	1.41	95	110	70-130	14	30
Perfluorohexanoic acid	1.36	1.49	1.36	1.45	109	107	70-130	2	30
Perfluorononanoic acid	1.36	1.22	1.36	1.59	90	117	70-130	26	30
Perfluoro-octanesulfonate	1.30	1.40	1.30	1.40	108	108	70-130	0	30
Perfluorooctanoic acid	1.36	1.26	1.36	1.50	93	110	70-130	17	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.48	107	109	70-130	2	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	1.36	1.35	1.36	1.41	99	104	70-130	4	30
Perfluorotridecanoic acid	1.36	1.22	1.36	1.33	89	98	70-130	9	30
Perfluoroundecanoic acid	1.36	1.34	1.36	1.59	99	117	70-130	17	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17268012	Sample number(s): 9223561,9223563								
6:2 fluorotelomersulfonate	12.89	15.8	12.89	12.71	123	99	70-130	22	30
8:2 fluorotelomersulfonate	13.03	12.62	13.03	14.87	97	114	70-130	16	30
NEtFOSAA	13.6	10.97	13.6	11.92	81	88	70-130	8	30
NMeFOSAA	13.6	11.02	13.6	13.94	81	102	70-130	23	30
Perfluorobutanesulfonate	12.03	10.3	12.03	11.5	86	96	70-130	11	30
Perfluorobutanoic Acid	13.6	11.44	13.6	13.46	84	99	70-130	16	30
Perfluorodecanoic acid	13.6	12.48	13.6	14.06	92	103	70-130	12	30
Perfluorododecanoic acid	13.6	10.84	13.6	13.26	80	98	70-130	20	30
Perfluoroheptanoic acid	13.6	13.64	13.6	14.25	100	105	70-130	4	30
Perfluorohexanesulfonate	12.86	10.54	12.86	11.75	82	91	70-130	11	30
Perfluorohexanoic acid	13.6	12.72	13.6	14.68	94	108	70-130	14	30
Perfluorononanoic acid	13.6	12	13.6	13.37	88	98	70-130	11	30
Perfluoro-octanesulfonate	13	10.54	13	13.4	81	103	70-130	24	30
Perfluorooctanoic acid	13.6	12.88	13.6	14.7	95	108	70-130	13	30
Perfluoropentanoic Acid	13.6	11.45	13.6	13.61	84	100	70-130	17	30
Perfluorotetradecanoic acid	13.6	11.32	13.6	13.11	83	96	70-130	15	30
Perfluorotridecanoic acid	13.6	11.14	13.6	12.5	82	92	70-130	11	30
Perfluoroundecanoic acid	13.6	12.53	13.6	14.1	92	104	70-130	12	30
PFOSA	13.6	12.48	13.6	15.12	92	111	70-130	19	30
Batch number: 17270007	Sample number(s): 9223569,9223571								
Perfluorobutanesulfonate	12.03	11.3	12.03	11.82	94	98	70-130	4	30
Perfluorobutanoic Acid	13.6	14.06	13.6	14.29	103	105	70-130	2	30
Perfluorodecanoic acid	13.6	14.44	13.6	13.78	106	101	70-130	5	30
Perfluorododecanoic acid	13.6	13.41	13.6	13.23	99	97	70-130	1	30
Perfluoroheptanoic acid	13.6	13.71	13.6	13.41	101	99	70-130	2	30
Perfluorohexanesulfonate	12.86	12.17	12.86	11.85	95	92	70-130	3	30
Perfluorohexanoic acid	13.6	13.24	13.6	13.17	97	97	70-130	1	30
Perfluorononanoic acid	13.6	11.93	13.6	13.39	88	98	70-130	12	30
Perfluoro-octanesulfonate	13	12.88	13	12.21	99	94	70-130	5	30
Perfluorooctanoic acid	13.6	13.35	13.6	12.75	98	94	70-130	5	30
Perfluoropentanoic Acid	13.6	12.81	13.6	14.22	94	105	70-130	10	30
Perfluorotetradecanoic acid	13.6	13.08	13.6	13.57	96	100	70-130	4	30
Perfluorotridecanoic acid	13.6	13.26	13.6	11.81	97	87	70-130	12	30
Perfluoroundecanoic acid	13.6	15.14	13.6	13.31	111	98	70-130	13	30
Batch number: 17278016	Sample number(s): 9223570								
Perfluorobutanesulfonate	12.03	13.16	12.03	12.5	109	104	70-130	5	30
Perfluorobutanoic Acid	13.6	15.24	13.6	16.05	112	118	70-130	5	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorodecanoic acid	13.6	15.12	13.6	15.82	111	116	70-130	5	30
Perfluorododecanoic acid	13.6	14.61	13.6	15.76	107	116	70-130	8	30
Perfluoroheptanoic acid	13.6	13.39	13.6	13.28	98	98	70-130	1	30
Perfluorohexanesulfonate	12.86	13.61	12.86	14.6	106	114	70-130	7	30
Perfluorohexanoic acid	13.6	15.14	13.6	16.19	111	119	70-130	7	30
Perfluorononanoic acid	13.6	14.24	13.6	16.3	105	120	70-130	13	30
Perfluoro-octanesulfonate	13	13.52	13	15.94	104	123	70-130	16	30
Perfluorooctanoic acid	13.6	14.47	13.6	15.59	106	115	70-130	7	30
Perfluoropentanoic Acid	13.6	14.37	13.6	14.5	106	107	70-130	1	30
Perfluorotetradecanoic acid	13.6	14.25	13.6	14.89	105	110	70-130	4	30
Perfluorotridecanoic acid	13.6	13.53	13.6	15.49	100	114	70-130	13	30
Perfluoroundecanoic acid	13.6	13.98	13.6	15.35	103	113	70-130	9	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172700571304	Sample number(s): 9223561								
Mercury	0.00100	0.000847			85		80-120		
Batch number: 172701063507	Sample number(s): 9223561								
Aluminum	2.00	2.08			104		80-120		
Boron	2.00	1.82			91		80-120		
Calcium	4.00	3.97			99		80-120		
Iron	1.00	0.972			97		80-120		
Magnesium	2.00	2.02			101		80-120		
Manganese	0.500	0.507			101		80-120		
Potassium	10	10.02			100		80-120		
Sodium	10	9.93			99		80-120		
Zinc	0.500	0.499			100		80-120		
Batch number: 172701063905A	Sample number(s): 9223561								
Antimony	0.00600	0.00533			89		80-120		
Arsenic	0.0100	0.0108			108		80-120		
Beryllium	0.00400	0.00400			100		80-120		
Cadmium	0.00500	0.00456			91		80-120		
Chromium	0.0500	0.0529			106		80-120		
Cobalt	0.250	0.252			101		80-120		
Copper	0.0500	0.0519			104		80-120		
Lead	0.0150	0.0150			100		80-120		
Nickel	0.0500	0.0488			98		80-120		
Silver	0.0500	0.0507			101		80-120		
Thallium	0.00200	0.00213			107		80-120		
Vanadium	0.0500	0.0533			107		80-120		
Batch number: 172701063905B	Sample number(s): 9223561								
Selenium	0.0100	0.00998			100		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 172701063905D	Sample number(s): 9223561								
Barium	0.0500	0.0515			103		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17279245033A	Sample number(s): 9223564-9223568,9223572								
TOC	7150	6224.14			87		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17265987106B	Sample number(s): 9223561								
Bromide	7.50	7.39	7.50	7.37	98	98	90-110	0	20
Chloride	3.00	2.90	3.00	2.88	97	96	90-110	1	20
Nitrate Nitrogen	0.750	0.747	0.750	0.744	100	99	90-110	0	20
Nitrite Nitrogen	0.750	0.737	0.750	0.734	98	98	90-110	0	20
Sulfate	7.50	7.30	7.50	7.26	97	97	90-110	0	20
Batch number: 17272108101B	Sample number(s): 9223561								
Kjeldahl Nitrogen	5.00	5.28			106		90-110		
Batch number: 17277117101A	Sample number(s): 9223561								
Total Cyanide	0.200	0.215			108		90-110		
Batch number: 17279107102B	Sample number(s): 9223561								
Ammonia Nitrogen	1.50	1.48			99		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17266022601A	Sample number(s): 9223561								
Ortho-Phosphate as P	0.400	0.399	0.400	0.401	100	100	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17268002104A	Sample number(s): 9223561								
Total Alkalinity to pH 4.5	188	171.33			91		77-114		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17269039401A	Sample number(s): 9223564-9223568,9223572								
pH	7.00	7.01			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17268820002A	Sample number(s): 9223564-9223568,9223572								
Moisture	89.5	89.42			100		99-101		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17276008	Sample number(s): 9223564-9223568,9223572 UNSPK: 9223564									
Perfluorobutanesulfonate	0.14 U	1.03	1.12			109		70-130		
Perfluorobutanoic acid	0.184	1.16	1.44			108		70-130		
Perfluorodecanoic acid	0.278	1.16	1.41			97		70-130		
Perfluorododecanoic acid	0.255	1.16	1.43			101		70-130		
Perfluoroheptanoic acid	0.158	1.16	1.46			112		70-130		
Perfluorohexanesulfonate	0.14 U	1.10	1.07			97		70-130		
Perfluorohexanoic acid	0.101	1.16	1.32			105		70-130		
Perfluorononanoic acid	0.174	1.16	1.36			102		70-130		
Perfluoro-octanesulfonate	1.34	1.11	2.21			78		70-130		
Perfluorooctanoic acid	0.409	1.16	1.33			79		70-130		
Perfluoropentanoic acid	0.150	1.16	1.31			99		70-130		
Perfluorotetradecanoic acid	0.176	1.16	1.23			91		70-130		
Perfluorotridecanoic acid	0.14 U	1.16	1.24			107		70-130		
Perfluoroundecanoic acid	0.177	1.16	1.35			101		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17268012	Sample number(s): 9223561,9223563 UNSPK: 9223561									
6:2 fluorotelomersulfonate	3 U	12.86	12.72			99		70-130		
8:2 fluorotelomersulfonate	4 U	13	16.14			124		70-130		
NEtFOSAA	1 U	13.56	11.35			84		70-130		
NMeFOSAA	1 U	13.56	14.03			103		70-130		
Perfluorobutanesulfonate	1.12	12	13.16			100		70-130		
Perfluorobutanoic Acid	5.63	13.56	19.21			100		70-130		
Perfluorodecanoic acid	0.5 U	13.56	15.45			114		70-130		
Perfluorododecanoic acid	0.5 U	13.56	14.28			105		70-130		
Perfluoroheptanoic acid	2.44	13.56	18.14			116		70-130		
Perfluorohexanesulfonate	1 U	12.83	12.96			101		70-130		
Perfluorohexanoic acid	0.790	13.56	14.08			98		70-130		
Perfluorononanoic acid	0.618	13.56	16.19			115		70-130		
Perfluoro-octanesulfonate	2.28	12.97	14.71			96		70-130		
Perfluorooctanoic acid	42.37	13.56	60.41			133*		70-130		
Perfluoropentanoic Acid	0.5 U	13.56	14.59			108		70-130		
Perfluorotetradecanoic acid	0.5 U	13.56	13.4			99		70-130		
Perfluorotridecanoic acid	0.5 U	13.56	13.87			102		70-130		
Perfluoroundecanoic acid	1 U	13.56	14.2			105		70-130		
PFOSA	3 U	13.56	14.76			109		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172700571304	Sample number(s): 9223561 UNSPK: P226909									
Mercury	0.000050 U	0.00100	0.000900	0.00100	0.000850	90	85	80-120	6	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172701063507	Sample number(s): 9223561 UNSPK: P226910									
Aluminum	0.0894 U	2.00	2.02	2.00	1.99	101	100	75-125	2	20
Boron	0.0437	2.00	1.92	2.00	1.90	94	93	75-125	1	20
Calcium	92.96	4.00	97.5	4.00	96.59	114 (2)	91 (2)	75-125	1	20
Iron	0.148	1.00	1.13	1.00	1.11	98	96	75-125	2	20
Magnesium	34.98	2.00	36.74	2.00	36.41	88 (2)	71 (2)	75-125	1	20
Manganese	0.218	0.500	0.712	0.500	0.710	99	98	75-125	0	20
Potassium	3.68	10	13.53	10	13.46	99	98	75-125	1	20
Sodium	47.26	10	56.66	10	56.23	94 (2)	90 (2)	75-125	1	20
Zinc	0.0414	0.500	0.530	0.500	0.523	98	96	75-125	1	20
Batch number: 172701063905A	Sample number(s): 9223561 UNSPK: P217289									
Antimony	0.00045 U	0.00600	0.00507	0.00600	0.00537	84	90	75-125	6	20
Arsenic	0.00275	0.0100	0.0130	0.0100	0.0125	102	98	75-125	4	20
Beryllium	0.000071 U	0.00400	0.00413	0.00400	0.00416	103	104	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00527	0.00500	0.00544	105	109	75-125	3	20
Chromium	0.00927	0.0500	0.0593	0.0500	0.0604	100	102	75-125	2	20
Cobalt	0.000430	0.250	0.277	0.250	0.266	111	106	75-125	4	20
Copper	0.00785	0.0500	0.0641	0.0500	0.0632	112	111	75-125	1	20
Lead	0.00153	0.0150	0.0176	0.0150	0.0174	107	106	75-125	1	20
Nickel	0.00215	0.0500	0.0570	0.0500	0.0559	110	108	75-125	2	20
Silver	0.00015 U	0.0500	0.0540	0.0500	0.0541	108	108	75-125	0	20
Thallium	0.00012 U	0.00200	0.00221	0.00200	0.00207	111	103	75-125	7	20
Vanadium	0.0101	0.0500	0.0619	0.0500	0.0626	104	105	75-125	1	20
Batch number: 172701063905B	Sample number(s): 9223561 UNSPK: P217289									
Selenium	0.000738	0.0100	0.0103	0.0100	0.0101	95	93	75-125	2	20
Batch number: 172701063905D	Sample number(s): 9223561 UNSPK: P217289									
Barium	0.00757	0.0500	0.0630	0.0500	0.0623	111	109	75-125	1	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17279245033A	Sample number(s): 9223564-9223568,9223572 UNSPK: 9223564									
TOC	19800.65	34140	45722.41			76		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17265987106B	Sample number(s): 9223561 UNSPK: 9223561									
Bromide	1.3 U	25	25.16			101		90-110		
Chloride	22.23	10	33.35			111*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.59			104		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.48			99		90-110		
Sulfate	4.99	25	29.35			97		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17272108101B	Sample number(s): 9223561 UNSPK: 9223561									
Kjeldahl Nitrogen	0.50 U	5.00	4.45			89*		90-110		
Batch number: 17277117101A	Sample number(s): 9223561 UNSPK: P231270									
Total Cyanide	0.0050 U	0.200	0.191			95		72-114		
Batch number: 17279107102B	Sample number(s): 9223561 UNSPK: P222730									
Ammonia Nitrogen	0.120	1.00	1.19			107		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17268002104A	Sample number(s): 9223561 UNSPK: P223755									
Total Alkalinity to pH 4.5	15.9	188	160.4			77		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172700571304	Sample number(s): 9223561 BKG: P226909			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 172701063507	Sample number(s): 9223561 BKG: P226910			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0437	0.0421	4 (1)	20
Calcium	92.96	92.83	0	20
Iron	0.148	0.152	2 (1)	20
Magnesium	34.98	34.62	1	20
Manganese	0.218	0.222	2	20
Potassium	3.68	3.61	2 (1)	20
Sodium	47.26	46.96	1	20
Zinc	0.0414	0.0412	1 (1)	20
Batch number: 172701063905A	Sample number(s): 9223561 BKG: P217289			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00275	0.00184	40* (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00927	0.00888	4 (1)	20
Cobalt	0.000430	0.000407	5 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	**mg/l**		
Copper	0.00785	0.00792	1 (1)	20
Lead	0.00153	0.00154	1 (1)	20
Nickel	0.00215	0.00190	12 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.0101	0.0106	4	20
Batch number: 172701063905B	Sample number(s): 9223561 BKG: P217289			
Selenium	0.000738	0.000767	4 (1)	20
Batch number: 172701063905D	Sample number(s): 9223561 BKG: P217289			
Barium	0.00757	0.00805	6 (1)	20
	mg/kg	**mg/kg**		
Batch number: 17279245033A	Sample number(s): 9223564-9223568,9223572 BKG: 9223564			
TOC	19800.65	21602.95	9*	7
	mg/l	**mg/l**		
Batch number: 17265987106B	Sample number(s): 9223561 BKG: 9223561			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	22.23	22.35	1	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	4.99	4.85	3 (1)	15
Batch number: 17272108101B	Sample number(s): 9223561 BKG: 9223561			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17277117101A	Sample number(s): 9223561 BKG: P231270			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17279107102B	Sample number(s): 9223561 BKG: P222730			
Ammonia Nitrogen	0.120	0.108	11 (1)	20
	mg/l	**mg/l**		
Batch number: 17266022601A	Sample number(s): 9223561 BKG: 9223561			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	**mg/l as CaCO3**		
Batch number: 17268002104A	Sample number(s): 9223561 BKG: P223755			
Total Alkalinity to pH 4.5	15.9	18.21	14* (1)	5
	Std. Units	**Std. Units**		
Batch number: 17269039401A	Sample number(s): 9223564-9223568,9223572 BKG: P224012			
pH	8.21	8.19	0	3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
	%	%		
Batch number: 17268820002A	Sample number(s): 9223564-9223568,9223572 BKG: P216637			
Moisture	10.46	10.18	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5172701AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9223561	104	104	97	100
9223562	103	105	98	101
Blank	104	106	96	101
LCS	106	101	97	101
LCSD	105	102	97	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17268WAJ026

	1,4-Dioxane-d8
9223561	47*
Blank	49*
LCS	50*
LCSD	47*
Limits:	70-130

Analysis Name: 19 PFCs
Batch number: 17268012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9223561	80	84	88	85	100	87
9223563	88	87	93	85	95	82
Blank	87	86	92	95	94	89
LCS	100	103	106	101	108	103
LCSD	86	85	90	89	98	94

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17268012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MS	76	80	85	80	83	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9223561	108	85	78	72	80	80
9223563	95	87	71	75	83	99
Blank	97	96	83	75	87	96
LCS	107	99	93	86	98	102
LCSD	133	86	81	84	83	79
MS	95	70	79	68	80	94
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9223561	52	68	62	67	70	21*
9223563	52	71	54	72	69	21*
Blank	55	91	71	83	74	26*
LCS	52	85	62	83	83	17*
LCSD	49	78	62	73	69	35*
MS	59	81	62	71	74	16*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17270007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9223569	82	76	65	82	81	81
9223571	81	80	56	87	67	88
Blank	87	86	82	100	93	100
LCS	84	85	59	89	77	89
LCSD	97	92	54	107	68	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9223569	75	75	80	90	86	104
9223571	80	83	93	81	93	76
Blank	90	85	84	88	88	100

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17270007

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCS	90	82	104	75	73	76
LCSD	110	79	119	88	97	92
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9223569	108
9223571	70
Blank	99
LCS	70
LCSD	77
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17276008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9223564	73	69*	47	73	64	71
9223565	84	79	54	86	73	86
9223566	78	74	56	96	81	85
9223567	69	64*	48	70	66	67
9223568	70	67*	48	75	64	67
9223572	77	71	54	88	78	78
Blank	85	79	66	85	73	88
LCS	81	81	61	73	68	82
LCSD	80	73	53	88	70	81
MS	65	66*	46	71	63	62
Limits:	54-95	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9223564	76	67	94	72	86	71
9223565	89	86	111	78	84	86
9223566	88	84	98	83	91	83
9223567	68	64	72	72	82	76
9223568	80	73	80	66	76	66
9223572	87	74	95	73	89	81
Blank	82	83	103	91	106	94
LCS	80	75	88	80	89	89

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17276008

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCSD	80	86	88	84	97	89
MS	70	68	83	69	73	68
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9223564	66
9223565	71
9223566	75
9223567	69
9223568	58
9223572	78
Blank	88
LCS	77
LCSD	84
MS	64
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17278016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9223570	80	83	77	91	79	94
Blank	87	85	81	98	94	87
LCS	81	87	76	84	83	85
LCSD	80	84	75	80	79	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9223570	76	86	85	82	77	77
Blank	84	87	89	87	85	84
LCS	85	75	75	84	84	91
LCSD	75	73	72	80	75	79
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:08

Group Number: 1853939

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17278016

	13C2-PFTeDA
9223570	77
Blank	94
LCS	94
LCSD	83
Limits:	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1853939 922356 72 Samples in (2) Coolers

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☒ Minneapolis ☐ Bismarck ☐ Hibbing

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52284

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr. Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 3242100

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other Trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 40ml Glass - HCl	250ml Plastic - Trizma	250ml Plastic - Unpres	250ml Plastic - Nitric	40ml Glass - Unpres.	500ml Plastic - H_2SO_4	Soil: 250ml Plastic Glass - Unpres	250ml Plastic - NaOH/ascorbic	250ml Plastic - Unpres	% Solids
Preservative Code									B	O	A	C	A	D	A	F, J	A	
Field Filtered Y/N									N	N	N	N	N	N	N	N	Y	
1. SG3-SW-170921	—	—	—	09/21/2017	0930	GW	N	15	3	2	1	2	2	1	2	1	1	
2. SG3-LTB42-170921	—	—	—	09/21/2017	AM	W	N	1	1									
3. SG3-LTB43-170921	—	—	—	09/21/2017	AM	W	N	1		1								
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

VOC Trip blank by ELLE 9.6.17

Trizma blank by ELLE 9.13.17

(19) PECs, metals/cations (including CN + Hg), anions, ammonia, TKN, orthophosphate, 1-4-Dioxane, SOM02.2, VOCs, Alkalinity (Carb/Bicarb), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, Sulfate

BARR USE ONLY

Sampled by: RAK / DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Horsley — On Ice? Y N — Date: 9.21.17 — Time: 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date: 9/22/17 — Time: 0950

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.0-2.4 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1853939 9223561-72

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other VT ☐ MN ☐ SD

COC Number: 52293
COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr., Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 3242100

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic-Unpres.	Soil: 250ml Plastic	Soil: 4oz Glass	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A			N	
1. SG3-S25-0-0.5'	0	0.5	Ft	09/21/2017	1100	S	N	2		1	1				(14) PFCs, moisture content, TOC, pH
2. SG3-S25-0.5-1'	0.5	1	Ft.	09/21/2017	1105	S	N	2		1	1				
3. SG3-S25-1-1.5'	1	1.5	Ft.	09/21/2017	1110	S	N	2		1	1				
4. SG3-S25-3-4'	3	4	Ft.	09/21/2017	1130	S	N	2		1	1				
5. SG3-S25-4.6-5.6'	46	5.6	Ft	09/21/2017	1210	S	N	2		1	1				
6. SG3-LTB44-170921	—	—	—	09/21/2017	AM	W	N	1	1						Trip Blank by ELLE 8.28.17
7. SG3-LTB45-170921	—	—	—	09/21/2017	AM	W	N	1	1						Trip Blank by ELLE 8.28.17
8. SG3-FB13-170921	—	—	—	09/21/2017	1315	W	N	1	1						Soil field blank,
9. SG3-D16-36-37'	36	37	Ft	09/21/2017	0840	S	N	2		1	1				
10.															

BARR USE ONLY							
Sampled by:	RAK / DJZ	Relinquished by: Robert Kosberg	On Ice? Y ☒ N ☐	Date 9.21.17	Time 1700	Received by:	Date / Time
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y ☐ N ☐	Date	Time	Received by:	Date 9/22/17 Time 0950
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name:	ELLE						
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.0 J.4	Custody Seal Intact? ☒ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 195249

Group Number(s): 1853939

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/22/2017 9:50
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 1 HCL, 2 UNPRES. PLASTIC, 1 TRIZMA

Unpacked by Nicole Reiff (25684) at 13:09 on 09/22/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.4	DT	Wet	Y	Bagged	N
2	DT146	1.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 01, 2017 13:39

Project: SGPP - Bennington

Account #: 37191
Group Number: 1854285
SDG: SGB49
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S20-0-0.5' Soil	09/22/2017 09:30	9225386
SG3-S20-0.5-1' Soil	09/22/2017 09:35	9225387
SG3-S20-1-1.5' Soil	09/22/2017 09:40	9225388
SG3-S29-0-0.5' Soil	09/22/2017 11:35	9225389
SG3-S29-0.5-1' Soil	09/22/2017 11:40	9225390
SG3-S29-1-1.5' Soil	09/22/2017 11:45	9225391
SG3-LTB47-170922 Blank Water	09/22/2017	9225392
SG3-LTB48-170922 Blank Water	09/22/2017	9225393
SG3-D08-0-0.5' Soil	09/22/2017 09:05	9225394
SG3-D08-0.5-1' Soil	09/22/2017 09:15	9225395
SG3-D08-1-1.5' Soil	09/22/2017 09:20	9225396
SG3-FDS07-170922 Soil	09/22/2017	9225397
SG3-D08-3-5' Soil	09/22/2017 09:30	9225398
SG3-D08-3-5' MS Soil	09/22/2017 09:30	9225399
SG3-D08-3-5' MSD Soil	09/22/2017 09:30	9225400
SG3-D08-3-5' Dupl Soil	09/22/2017 09:30	9225401
SG3-D08-7-8' Soil	09/22/2017 09:45	9225402
SG3-D08-10-11' Soil	09/22/2017 10:20	9225403

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1854285

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9225392

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample #s: 9225386, 9225387, 9225388, 9225389, 9225390, 9225391, 9225394, 9225395, 9225396, 9225397, 9225402, 9225403

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17277004 (Sample number(s): 9225386, 9225388, 9225390-9225391, 9225394-9225400, 9225402-9225403 UNSPK: 9225398)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9225386, 9225388, 9225390, 9225391, 9225394, 9225395, 9225396, 9225397, 9225400, 9225402, 9225403, Blank, LCS, MSD

Batch #: 17283014 (Sample number(s): 9225387, 9225389 UNSPK: 9225387)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid, Perfluorohexanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9225387, 9225389, Blank, LCS, LCSD, MS

SW-846 6010C, Metals

Batch #: 172701063704 (Sample number(s): 9225394-9225403 UNSPK: 9225398 BKG: 9225398)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Manganese, Calcium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium, Manganese

SW-846 6020A, Metals

Sample #s: 9225398, 9225399, 9225400, 9225401

Reporting limits were raised due to interference from the sample matrix.

Batch #: 172701063704A (Sample number(s): 9225394-9225403 UNSPK: 9225398 BKG: 9225398)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Lead, Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium

Batch #: 172701063704D (Sample number(s): 9225394-9225403 UNSPK: 9225398 BKG: 9225398)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9225394, 9225395

One of the two Continuing Calibration Blanks associated with the sample was unable to be quantified. The sample was repeated outside of the 28 day holding time with comparable results.

Sample #s: 9225398

One of the two Continuing calibration Verification standards associated with the sample was unable to be quantified. The sample was repeated outside of the 28 day holding time with confirming results.

Sample #s: 9225397

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

Sample #s: 9225387, 9225389

This sample was originally analyzed within the 28 day holding time, however, is above the calibration range. A repeat trial confirmed the over-range results.

Batch #: 17282667632B (Sample number(s): 9225386-9225391, 9225394-9225395 UNSPK: P225311 BKG: P225311)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17293245031A (Sample number(s): 9225386, 9225395-9225399, 9225401-9225403 UNSPK: 9225398 BKG: 9225398)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: TOC Solids/Sludges Combustion

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9225386, 9225387, 9225388, 9225391, 9225395, 9225396, 9225401

The pH was measured in water at 20.1 C.

Sample #s: 9225389, 9225390, 9225397, 9225398, 9225402, 9225403

The pH was measured in water at 20.2 C.

Sample #s: 9225394

The pH was measured in water at 20.3 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17272820003A (Sample number(s): 9225386-9225391, 9225394-9225401 BKG: 9225398)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Batch #: 17272820003B (Sample number(s): 9225398-9225403 BKG: P9225398-P225414)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Sample Description: **SG3-S20-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-01

C. T. Male Associates
ELLE Sample #: SW 9225386
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	4.8	U	4.8	14	1
14027	**Perfluorobutanoic acid**	375-22-4	**6.0**	**J**	4.8	14	1
14027	Perfluorodecanoic acid	335-76-2	4.8	U	4.8	14	1
14027	Perfluorododecanoic acid	307-55-1	4.8	U	4.8	14	1
14027	**Perfluoroheptanoic acid**	375-85-9	**10**	**J**	4.8	14	1
14027	Perfluorohexanesulfonate	355-46-4	4.8	U	4.8	14	1
14027	**Perfluorohexanoic acid**	307-24-4	**7.1**	**J**	2.4	9.5	1
14027	**Perfluorononanoic acid**	375-95-1	**4.1**	**J**	2.4	9.5	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**17**	**J**	7.1	21	1
14027	**Perfluorooctanoic acid**	335-67-1	**130**		4.8	14	1
14027	Perfluoropentanoic acid	2706-90-3	4.8	U	4.8	14	1
14027	Perfluorotetradecanoic acid	376-06-7	4.8	U	4.8	14	1
14027	Perfluorotridecanoic acid	72629-94-8	4.8	U	4.8	14	1
14027	Perfluoroundecanoic acid	2058-94-8	4.8	U	4.8	14	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,200**	**J**	10,100	30,400	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.26**		0.0100	0.0100	1

The pH was measured in water at 20.1 C.

Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**83.7**		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 09:11	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-S20-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-01

C. T. Male Associates
ELLE Sample #: SW 9225386
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	2	17293245031A	10/20/2017 20:16	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17269039402A	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S20-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:35
SDG#: SGB49-02

C. T. Male Associates
ELLE Sample #: SW 9225387
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.98 U	0.98	2.9	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5 J**	0.98	2.9	1
14027	Perfluorodecanoic acid	335-76-2	0.98 U	0.98	2.9	1
14027	Perfluorododecanoic acid	307-55-1	0.98 U	0.98	2.9	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8 J**	0.98	2.9	1
14027	Perfluorohexanesulfonate	355-46-4	0.98 U	0.98	2.9	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.6 J**	0.49	2.0	1
14027	**Perfluorononanoic acid**	375-95-1	**0.86 J**	0.49	2.0	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**3.2 J**	1.5	4.4	1
14027	**Perfluorooctanoic acid**	335-67-1	**19**	0.98	2.9	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.1 J**	0.98	2.9	1
14027	Perfluorotetradecanoic acid	376-06-7	0.98 U	0.98	2.9	1
14027	Perfluorotridecanoic acid	72629-94-8	0.98 U	0.98	2.9	1
14027	Perfluoroundecanoic acid	2058-94-8	0.98 U	0.98	2.9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**446,000**	6,290	18,900	1
	This sample was originally analyzed within the 28 day holding time, however, is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.36**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**80.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S20-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:35
SDG#: SGB49-02

C. T. Male Associates
ELLE Sample #: SW 9225387
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283014	10/12/2017 09:00	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17283014	10/10/2017 19:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 09:53	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402A	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S20-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:40
SDG#: SGB49-03

C. T. Male Associates
ELLE Sample #: SW 9225388
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	5.5 U	5.5	16	1
14027	**Perfluorobutanoic acid**	375-22-4	**5.8 J**	5.5	16	1
14027	Perfluorodecanoic acid	335-76-2	5.5 U	5.5	16	1
14027	Perfluorododecanoic acid	307-55-1	5.5 U	5.5	16	1
14027	**Perfluoroheptanoic acid**	375-85-9	**6.4 J**	5.5	16	1
14027	Perfluorohexanesulfonate	355-46-4	5.5 U	5.5	16	1
14027	**Perfluorohexanoic acid**	307-24-4	**4.5 J**	2.7	11	1
14027	**Perfluorononanoic acid**	375-95-1	**3.2 J**	2.7	11	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**16 J**	8.2	25	1
14027	**Perfluorooctanoic acid**	335-67-1	**110**	5.5	16	1
14027	Perfluoropentanoic acid	2706-90-3	5.5 U	5.5	16	1
14027	Perfluorotetradecanoic acid	376-06-7	5.5 U	5.5	16	1
14027	Perfluorotridecanoic acid	72629-94-8	5.5 U	5.5	16	1
14027	Perfluoroundecanoic acid	2058-94-8	5.5 U	5.5	16	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**512,000**	14,600	43,800	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.09**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**87.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 09:52	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S20-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:40
SDG#: SGB49-03

C. T. Male Associates
ELLE Sample #: SW 9225388
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 10:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402A	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:35
SDG#: SGB49-04

C. T. Male Associates
ELLE Sample #: SW 9225389
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.53 U	0.53	1.6	1
14027	Perfluorobutanoic acid	375-22-4	0.53 U	0.53	1.6	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.56 J**	0.53	1.6	1
14027	Perfluorododecanoic acid	307-55-1	0.53 U	0.53	1.6	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.83 J**	0.53	1.6	1
14027	Perfluorohexanesulfonate	355-46-4	0.53 U	0.53	1.6	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.77 J**	0.26	1.1	1
14027	**Perfluorononanoic acid**	375-95-1	**0.39 J**	0.26	1.1	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6 J**	0.79	2.4	1
14027	**Perfluorooctanoic acid**	335-67-1	**18**	0.53	1.6	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.58 J**	0.53	1.6	1
14027	Perfluorotetradecanoic acid	376-06-7	0.53 U	0.53	1.6	1
14027	Perfluorotridecanoic acid	72629-94-8	0.53 U	0.53	1.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.53 U	0.53	1.6	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**174,000**	2,630	7,880	1
	This sample was originally analyzed within the 28 day holding time, however, is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.80**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**65.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:35
SDG#: SGB49-04

C. T. Male Associates
ELLE Sample #: SW 9225389
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283014	10/12/2017 09:20	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17283014	10/10/2017 19:30	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 10:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB49-05

C. T. Male Associates
ELLE Sample #: SW 9225390
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	3.7 U	3.7	11	1
14027	Perfluorobutanoic acid	375-22-4	3.7 U	3.7	11	1
14027	Perfluorodecanoic acid	335-76-2	3.7 U	3.7	11	1
14027	Perfluorododecanoic acid	307-55-1	3.7 U	3.7	11	1
14027	Perfluoroheptanoic acid	375-85-9	3.7 U	3.7	11	1
14027	Perfluorohexanesulfonate	355-46-4	3.7 U	3.7	11	1
14027	Perfluorohexanoic acid	307-24-4	1.9 U	1.9	7.5	1
14027	Perfluorononanoic acid	375-95-1	1.9 U	1.9	7.5	1
14027	Perfluoro-octanesulfonate	1763-23-1	5.6 U	5.6	17	1
14027	**Perfluorooctanoic acid**	335-67-1	**53**	3.7	11	1
14027	Perfluoropentanoic acid	2706-90-3	3.7 U	3.7	11	1
14027	Perfluorotetradecanoic acid	376-06-7	3.7 U	3.7	11	1
14027	Perfluorotridecanoic acid	72629-94-8	3.7 U	3.7	11	1
14027	Perfluoroundecanoic acid	2058-94-8	3.7 U	3.7	11	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**480,000**	9,920	29,800	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.89**	0.0100	0.0100	1

The pH was measured in water at 20.2 C.

Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**81.5**	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 10:33	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB49-05

C. T. Male Associates
ELLE Sample #: SW 9225390
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 10:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:45
SDG#: SGB49-06

C. T. Male Associates
ELLE Sample #: SW 9225391
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	4.4 U	4.4	13	1
14027	Perfluorobutanoic acid	375-22-4	4.4 U	4.4	13	1
14027	Perfluorodecanoic acid	335-76-2	4.4 U	4.4	13	1
14027	Perfluorododecanoic acid	307-55-1	4.4 U	4.4	13	1
14027	Perfluoroheptanoic acid	375-85-9	4.4 U	4.4	13	1
14027	Perfluorohexanesulfonate	355-46-4	4.4 U	4.4	13	1
14027	Perfluorohexanoic acid	307-24-4	2.2 U	2.2	8.8	1
14027	Perfluorononanoic acid	375-95-1	2.2 U	2.2	8.8	1
14027	Perfluoro-octanesulfonate	1763-23-1	6.6 U	6.6	20	1
14027	**Perfluorooctanoic acid**	335-67-1	**53**	4.4	13	1
14027	Perfluoropentanoic acid	2706-90-3	4.4 U	4.4	13	1
14027	Perfluorotetradecanoic acid	376-06-7	4.4 U	4.4	13	1
14027	Perfluorotridecanoic acid	72629-94-8	4.4 U	4.4	13	1
14027	Perfluoroundecanoic acid	2058-94-8	4.4 U	4.4	13	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**477,000**	10,600	31,900	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.88**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**81.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 10:53	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S29-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:45
SDG#: SGB49-06

C. T. Male Associates
ELLE Sample #: SW 9225391
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 10:45	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB47-170922 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017
SDG#: SGB49-07TB

C. T. Male Associates
ELLE Sample #: WW 9225392
ELLE Group #: 1854285
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17270007	09/30/2017 11:58	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270007	09/27/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB48-170922 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017
SDG#: SGB49-08TB

C. T. Male Associates
ELLE Sample #: WW 9225393
ELLE Group #: 1854285
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17278016	10/06/2017 23:44	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17278016	10/05/2017 18:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:05
SDG#: SGB49-09

C. T. Male Associates
ELLE Sample #: SW 9225394
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.87 U	0.87	2.6	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.4 J**	0.87	2.6	1
14027	**Perfluorodecanoic acid**	335-76-2	**2.6**	0.87	2.6	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.3 J**	0.87	2.6	1
14027	Perfluoroheptanoic acid	375-85-9	0.87 U	0.87	2.6	1
14027	Perfluorohexanesulfonate	355-46-4	0.87 U	0.87	2.6	1
14027	Perfluorohexanoic acid	307-24-4	0.43 U	0.43	1.7	1
14027	**Perfluorononanoic acid**	375-95-1	**1.4 J**	0.43	1.7	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**8.3**	1.3	3.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.4**	0.87	2.6	1
14027	Perfluoropentanoic acid	2706-90-3	0.87 U	0.87	2.6	1
14027	Perfluorotetradecanoic acid	376-06-7	0.87 U	0.87	2.6	1
14027	Perfluorotridecanoic acid	72629-94-8	0.87 U	0.87	2.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.87 U	0.87	2.6	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,880**	9.83	44.0	1
01650	**Calcium**	7440-70-2	**4,410**	3.66	44.0	1
01654	**Iron**	7439-89-6	**18,500**	8.85	44.0	1
01657	**Magnesium**	7439-95-4	**4,150**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**536**	0.0913	1.10	1
01662	**Potassium**	7440-09-7	**1,750**	18.4	110	1
01667	**Sodium**	7440-23-5	**56.8 J**	18.4	220	1
06972	**Zinc**	7440-66-6	**52.5**	0.264	4.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.307 J**	0.102	0.440	2
06125	**Arsenic**	7440-38-2	**5.45**	0.141	0.880	2
06126	**Barium**	7440-39-3	**73.1**	0.200	0.880	2
06127	**Beryllium**	7440-41-7	**0.493**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.186 J**	0.0378	0.220	2
06131	**Chromium**	7440-47-3	**12.2**	0.191	0.880	2
06132	**Cobalt**	7440-48-4	**8.18**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**15.0**	0.118	0.880	2
06135	**Lead**	7439-92-1	**42.2**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**13.5**	0.219	0.880	2
06141	**Selenium**	7782-49-2	**0.207 J**	0.110	0.880	2
06142	**Silver**	7440-22-4	**1.02**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**0.193 J**	0.0275	0.220	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D08-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:05
SDG#: SGB49-09

C. T. Male Associates
ELLE Sample #: SW 9225394
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.8**	0.0468	0.220	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,200**	693	2,080	1
	One of the two Continuing Calibration Blanks associated with the sample was unable to be quantified. The sample was repeated outside of the 28 day holding time with comparable results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.77**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 13:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:54	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:02	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:05
SDG#: SGB49-09

C. T. Male Associates
ELLE Sample #: SW 9225394
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17282667632B	10/10/2017 11:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:15
SDG#: SGB49-10

C. T. Male Associates
ELLE Sample #: SW 9225395
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	1.1 U	1.1	3.2	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.1 J**	1.1	3.2	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7 J**	1.1	3.2	1
14027	Perfluorododecanoic acid	307-55-1	1.1 U	1.1	3.2	1
14027	Perfluoroheptanoic acid	375-85-9	1.1 U	1.1	3.2	1
14027	Perfluorohexanesulfonate	355-46-4	1.1 U	1.1	3.2	1
14027	Perfluorohexanoic acid	307-24-4	0.54 U	0.54	2.2	1
14027	**Perfluorononanoic acid**	375-95-1	**0.86 J**	0.54	2.2	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**4.8 J**	1.6	4.8	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.4 J**	1.1	3.2	1
14027	Perfluoropentanoic acid	2706-90-3	1.1 U	1.1	3.2	1
14027	Perfluorotetradecanoic acid	376-06-7	1.1 U	1.1	3.2	1
14027	Perfluorotridecanoic acid	72629-94-8	1.1 U	1.1	3.2	1
14027	Perfluoroundecanoic acid	2058-94-8	1.1 U	1.1	3.2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,770**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**10,800**	2.77	33.3	1
01654	**Iron**	7439-89-6	**19,000**	6.70	33.3	1
01657	**Magnesium**	7439-95-4	**8,200**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**520**	0.0690	0.832	1
01662	**Potassium**	7440-09-7	**1,600**	13.9	83.2	1
01667	**Sodium**	7440-23-5	**51.5 J**	13.9	166	1
06972	**Zinc**	7440-66-6	**44.1**	0.200	3.33	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.154 J**	0.0775	0.333	2
06125	**Arsenic**	7440-38-2	**5.31**	0.106	0.665	2
06126	**Barium**	7440-39-3	**58.2**	0.151	0.665	2
06127	**Beryllium**	7440-41-7	**0.486**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.187**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**9.89**	0.145	0.665	2
06132	**Cobalt**	7440-48-4	**7.90**	0.0260	0.166	2
06133	**Copper**	7440-50-8	**11.5**	0.0892	0.665	2
06135	**Lead**	7439-92-1	**16.1**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**13.3**	0.166	0.665	2
06141	**Selenium**	7782-49-2	**0.155 J**	0.0832	0.665	2
06142	**Silver**	7440-22-4	**0.220**	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.167**	0.0208	0.166	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D08-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:15
SDG#: SGB49-10

C. T. Male Associates
ELLE Sample #: SW 9225395
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**12.6**	0.0354	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,740**	505	1,510	1
	One of the two Continuing Calibration Blanks associated with the sample was unable to be quantified. The sample was repeated outside of the 28 day holding time with comparable results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.82**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 13:38	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:15
SDG#: SGB49-10

C. T. Male Associates
ELLE Sample #: SW 9225395
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	3	17282667632B	10/10/2017 11:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:20
SDG#: SGB49-11

C. T. Male Associates
ELLE Sample #: SW 9225396
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.87 U	0.87	2.6	1
14027	Perfluorobutanoic acid	375-22-4	0.87 U	0.87	2.6	1
14027	Perfluorodecanoic acid	335-76-2	0.87 U	0.87	2.6	1
14027	Perfluorododecanoic acid	307-55-1	0.87 U	0.87	2.6	1
14027	Perfluoroheptanoic acid	375-85-9	0.87 U	0.87	2.6	1
14027	Perfluorohexanesulfonate	355-46-4	0.87 U	0.87	2.6	1
14027	Perfluorohexanoic acid	307-24-4	0.43 U	0.43	1.7	1
14027	Perfluorononanoic acid	375-95-1	0.43 U	0.43	1.7	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.3 U	1.3	3.9	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5 J**	0.87	2.6	1
14027	Perfluoropentanoic acid	2706-90-3	0.87 U	0.87	2.6	1
14027	Perfluorotetradecanoic acid	376-06-7	0.87 U	0.87	2.6	1
14027	Perfluorotridecanoic acid	72629-94-8	0.87 U	0.87	2.6	1
14027	Perfluoroundecanoic acid	2058-94-8	0.87 U	0.87	2.6	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,380**	7.80	34.9	1
01650	**Calcium**	7440-70-2	**7,450**	2.90	34.9	1
01654	**Iron**	7439-89-6	**20,500**	7.02	34.9	1
01657	**Magnesium**	7439-95-4	**6,150**	2.12	17.4	1
06958	**Manganese**	7439-96-5	**542**	0.0724	0.872	1
01662	**Potassium**	7440-09-7	**1,700**	14.6	87.2	1
01667	**Sodium**	7440-23-5	**45.7 J**	14.6	174	1
06972	**Zinc**	7440-66-6	**45.2**	0.209	3.49	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.158 J**	0.0813	0.349	2
06125	**Arsenic**	7440-38-2	**6.20**	0.112	0.698	2
06126	**Barium**	7440-39-3	**64.6**	0.158	0.698	2
06127	**Beryllium**	7440-41-7	**0.577**	0.0091	0.174	2
06128	**Cadmium**	7440-43-9	**0.209**	0.0300	0.174	2
06131	**Chromium**	7440-47-3	**10.8**	0.152	0.698	2
06132	**Cobalt**	7440-48-4	**9.23**	0.0272	0.174	2
06133	**Copper**	7440-50-8	**11.7**	0.0935	0.698	2
06135	**Lead**	7439-92-1	**12.9**	0.0194	0.349	2
06139	**Nickel**	7440-02-0	**14.9**	0.174	0.698	2
06141	**Selenium**	7782-49-2	**0.138 J**	0.0872	0.698	2
06142	**Silver**	7440-22-4	**0.0742 J**	0.0255	0.174	2
06145	**Thallium**	7440-28-0	**0.224**	0.0218	0.174	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:20
SDG#: SGB49-11

C. T. Male Associates
ELLE Sample #: SW 9225396
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.5**	0.0371	0.174	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,700**	461	1,380	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 13:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 21:01	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:20
SDG#: SGB49-11

C. T. Male Associates
ELLE Sample #: SW 9225396
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:08	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	3	17293245031A	10/19/2017 23:15	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS07-170922 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017
SDG#: SGB49-12FD

C. T. Male Associates
ELLE Sample #: SW 9225397
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	1.0 U	1.0	3.0	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2 J**	1.0	3.0	1
14027	Perfluorodecanoic acid	335-76-2	1.0 U	1.0	3.0	1
14027	Perfluorododecanoic acid	307-55-1	1.0 U	1.0	3.0	1
14027	Perfluoroheptanoic acid	375-85-9	1.0 U	1.0	3.0	1
14027	Perfluorohexanesulfonate	355-46-4	1.0 U	1.0	3.0	1
14027	Perfluorohexanoic acid	307-24-4	0.50 U	0.50	2.0	1
14027	Perfluorononanoic acid	375-95-1	0.50 U	0.50	2.0	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.8 J**	1.5	4.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.0**	1.0	3.0	1
14027	Perfluoropentanoic acid	2706-90-3	1.0 U	1.0	3.0	1
14027	Perfluorotetradecanoic acid	376-06-7	1.0 U	1.0	3.0	1
14027	Perfluorotridecanoic acid	72629-94-8	1.0 U	1.0	3.0	1
14027	Perfluoroundecanoic acid	2058-94-8	1.0 U	1.0	3.0	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,370**	9.09	40.7	1
01650	**Calcium**	7440-70-2	**15,900**	3.39	40.7	1
01654	**Iron**	7439-89-6	**23,600**	8.19	40.7	1
01657	**Magnesium**	7439-95-4	**10,600**	2.47	20.3	1
06958	**Manganese**	7439-96-5	**746**	0.0844	1.02	1
01662	**Potassium**	7440-09-7	**1,620**	17.0	102	1
01667	**Sodium**	7440-23-5	**50.1 J**	17.0	203	1
06972	**Zinc**	7440-66-6	**48.4**	0.244	4.07	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.148 J**	0.0948	0.407	2
06125	**Arsenic**	7440-38-2	**5.95**	0.130	0.814	2
06126	**Barium**	7440-39-3	**73.5**	0.185	0.814	2
06127	**Beryllium**	7440-41-7	**0.552**	0.0107	0.203	2
06128	**Cadmium**	7440-43-9	**0.298**	0.0350	0.203	2
06131	**Chromium**	7440-47-3	**10.4**	0.177	0.814	2
06132	**Cobalt**	7440-48-4	**11.7**	0.0317	0.203	2
06133	**Copper**	7440-50-8	**12.2**	0.109	0.814	2
06135	**Lead**	7439-92-1	**13.5**	0.0226	0.407	2
06139	**Nickel**	7440-02-0	**16.1**	0.203	0.814	2
06141	**Selenium**	7782-49-2	**0.117 J**	0.102	0.814	2
06142	**Silver**	7440-22-4	**0.0993 J**	0.0297	0.203	2
06145	**Thallium**	7440-28-0	**0.351**	0.0254	0.203	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS07-170922 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017
SDG#: SGB49-12FD

C. T. Male Associates
ELLE Sample #: SW 9225397
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.6**	0.0433	0.203	2
Wet Chemistry		**SM 5310 B modified-2000**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**36,300**	151	452	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
		SW-846 9045D modified	**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 14:19	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 21:05	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS07-170922 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017
SDG#: SGB49-12FD

C. T. Male Associates
ELLE Sample #: SW 9225397
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031A	10/19/2017 23:37	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17269039402B	09/26/2017 20:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13BKG

C. T. Male Associates
ELLE Sample #: SW 9225398
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.78 U	0.78	2.3	1
14027	Perfluorobutanoic acid	375-22-4	0.78 U	0.78	2.3	1
14027	Perfluorodecanoic acid	335-76-2	0.78 U	0.78	2.3	1
14027	Perfluorododecanoic acid	307-55-1	0.78 U	0.78	2.3	1
14027	Perfluoroheptanoic acid	375-85-9	0.78 U	0.78	2.3	1
14027	Perfluorohexanesulfonate	355-46-4	0.78 U	0.78	2.3	1
14027	Perfluorohexanoic acid	307-24-4	0.39 U	0.39	1.6	1
14027	Perfluorononanoic acid	375-95-1	0.39 U	0.39	1.6	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2 J**	1.2	3.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3 J**	0.78	2.3	1
14027	Perfluoropentanoic acid	2706-90-3	0.78 U	0.78	2.3	1
14027	Perfluorotetradecanoic acid	376-06-7	0.78 U	0.78	2.3	1
14027	Perfluorotridecanoic acid	72629-94-8	0.78 U	0.78	2.3	1
14027	Perfluoroundecanoic acid	2058-94-8	0.78 U	0.78	2.3	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,800**	7.72	34.5	1
01650	**Calcium**	7440-70-2	**91,700**	14.4	173	5
01654	**Iron**	7439-89-6	**14,100**	6.95	34.5	1
01657	**Magnesium**	7439-95-4	**25,900**	2.10	17.3	1
06958	**Manganese**	7439-96-5	**314**	0.0717	0.864	1
01662	**Potassium**	7440-09-7	**665**	14.4	86.4	1
01667	**Sodium**	7440-23-5	**40.2 J**	14.4	173	1
06972	**Zinc**	7440-66-6	**31.0**	0.207	3.45	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0805 U	0.0805	0.345	2
06125	**Arsenic**	7440-38-2	**4.20**	0.111	0.691	2
06126	**Barium**	7440-39-3	**22.2**	0.157	0.691	2
06127	**Beryllium**	7440-41-7	**0.191 J**	0.0226	0.432	5
	Reporting limits were raised due to interference from the sample matrix.					
06128	**Cadmium**	7440-43-9	**0.0763 J**	0.0297	0.173	2
06131	**Chromium**	7440-47-3	**5.45**	0.150	0.691	2
06132	**Cobalt**	7440-48-4	**5.26**	0.0269	0.173	2
06133	**Copper**	7440-50-8	**5.86**	0.0926	0.691	2
06135	**Lead**	7439-92-1	**7.20**	0.0192	0.345	2
06139	**Nickel**	7440-02-0	**8.47**	0.172	0.691	2
06141	Selenium	7782-49-2	0.0864 U	0.0864	0.691	2
06142	**Silver**	7440-22-4	**0.0414 J**	0.0252	0.173	2
06145	**Thallium**	7440-28-0	**0.0484 J**	0.0216	0.173	2
06148	**Vanadium**	7440-62-2	**5.79**	0.0368	0.173	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13BKG

C. T. Male Associates
ELLE Sample #: SW 9225398
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**26,800**	170	511	1
	One of the two Continuing calibration Verification standards associated with the sample was unable to be quantified. The sample was repeated outside of the 28 day holding time with confirming results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 14:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	10/02/2017 18:56	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:16	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 10:28	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/09/2017 21:27	Bradley M Berlot	5
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13BKG

C. T. Male Associates
ELLE Sample #: SW 9225398
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 10:28	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 10:28	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	2	17293245031A	10/19/2017 23:50	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402B	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D08-3-5' MS Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13MS

C. T. Male Associates
ELLE Sample #: SW 9225399
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**4.5**	0.77	2.3	1
14027	**Perfluorobutanoic acid**	375-22-4	**5.8**	0.77	2.3	1
14027	**Perfluorodecanoic acid**	335-76-2	**5.5**	0.77	2.3	1
14027	**Perfluorododecanoic acid**	307-55-1	**6.1**	0.77	2.3	1
14027	**Perfluoroheptanoic acid**	375-85-9	**5.2**	0.77	2.3	1
14027	**Perfluorohexanesulfonate**	355-46-4	**4.9**	0.77	2.3	1
14027	**Perfluorohexanoic acid**	307-24-4	**5.2**	0.38	1.5	1
14027	**Perfluorononanoic acid**	375-95-1	**5.3**	0.38	1.5	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.7**	1.2	3.5	1
14027	**Perfluorooctanoic acid**	335-67-1	**6.7**	0.77	2.3	1
14027	**Perfluoropentanoic acid**	2706-90-3	**5.7**	0.77	2.3	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**5.7**	0.77	2.3	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**5.8**	0.77	2.3	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**5.3**	0.77	2.3	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,180**	6.49	29.0	1
01650	**Calcium**	7440-70-2	**93,700**	12.1	145	5
01654	**Iron**	7439-89-6	**14,000**	5.84	29.0	1
01657	**Magnesium**	7439-95-4	**27,200**	1.76	14.5	1
06958	**Manganese**	7439-96-5	**337**	0.0602	0.726	1
01662	**Potassium**	7440-09-7	**1,700**	12.1	72.6	1
01667	**Sodium**	7440-23-5	**800**	12.1	145	1
06972	**Zinc**	7440-66-6	**65.2**	0.174	2.90	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.993**	0.0676	0.290	2
06125	**Arsenic**	7440-38-2	**4.98**	0.0929	0.581	2
06126	**Barium**	7440-39-3	**27.5**	0.132	0.581	2
06127	**Beryllium**	7440-41-7	**0.755**	0.0190	0.363	5
	Reporting limits were raised due to interference from the sample matrix.					
06128	**Cadmium**	7440-43-9	**0.833**	0.0250	0.145	2
06131	**Chromium**	7440-47-3	**14.4**	0.126	0.581	2
06132	**Cobalt**	7440-48-4	**38.7**	0.0226	0.145	2
06133	**Copper**	7440-50-8	**12.2**	0.0778	0.581	2
06135	**Lead**	7439-92-1	**9.03**	0.0161	0.290	2
06139	**Nickel**	7440-02-0	**14.2**	0.145	0.581	2
06141	**Selenium**	7782-49-2	**1.42**	0.0726	0.581	2
06142	**Silver**	7440-22-4	**7.32**	0.0212	0.145	2
06145	**Thallium**	7440-28-0	**0.354**	0.0181	0.145	2
06148	**Vanadium**	7440-62-2	**12.8**	0.0309	0.145	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13MS

C. T. Male Associates
ELLE Sample #: SW 9225399
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**62,900**	682	2,050	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**4.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 07:48	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	10/02/2017 19:07	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:28	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 10:37	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/09/2017 21:31	Bradley M Berlot	5
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 10:37	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 10:37	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	2	17293245031A	10/20/2017 12:03	James S Mathiot	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D08-3-5' MSD Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13MSD

C. T. Male Associates
ELLE Sample #: SW 9225400
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**4.5**	0.79	2.4	1
14027	**Perfluorobutanoic acid**	375-22-4	**5.9**	0.79	2.4	1
14027	**Perfluorodecanoic acid**	335-76-2	**6.1**	0.79	2.4	1
14027	**Perfluorododecanoic acid**	307-55-1	**6.5**	0.79	2.4	1
14027	**Perfluoroheptanoic acid**	375-85-9	**5.3**	0.79	2.4	1
14027	**Perfluorohexanesulfonate**	355-46-4	**5.6**	0.79	2.4	1
14027	**Perfluorohexanoic acid**	307-24-4	**5.6**	0.40	1.6	1
14027	**Perfluorononanoic acid**	375-95-1	**5.6**	0.40	1.6	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**6.5**	1.2	3.6	1
14027	**Perfluorooctanoic acid**	335-67-1	**7.5**	0.79	2.4	1
14027	**Perfluoropentanoic acid**	2706-90-3	**5.9**	0.79	2.4	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**6.0**	0.79	2.4	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**6.2**	0.79	2.4	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**5.9**	0.79	2.4	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,930**	7.24	32.4	1
01650	**Calcium**	7440-70-2	**86,500**	13.5	162	5
01654	**Iron**	7439-89-6	**14,400**	6.52	32.4	1
01657	**Magnesium**	7439-95-4	**26,800**	1.97	16.2	1
06958	**Manganese**	7439-96-5	**630**	0.0672	0.810	1
01662	**Potassium**	7440-09-7	**1,900**	13.5	81.0	1
01667	**Sodium**	7440-23-5	**897**	13.5	162	1
06972	**Zinc**	7440-66-6	**75.3**	0.194	3.24	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.945**	0.0755	0.324	2
06125	**Arsenic**	7440-38-2	**5.79**	0.104	0.648	2
06126	**Barium**	7440-39-3	**71.5**	0.147	0.648	2
06127	**Beryllium**	7440-41-7	**0.812**	0.0212	0.405	5
	Reporting limits were raised due to interference from the sample matrix.					
06128	**Cadmium**	7440-43-9	**0.847**	0.0279	0.162	2
06131	**Chromium**	7440-47-3	**13.7**	0.141	0.648	2
06132	**Cobalt**	7440-48-4	**42.4**	0.0253	0.162	2
06133	**Copper**	7440-50-8	**13.5**	0.0868	0.648	2
06135	**Lead**	7439-92-1	**8.75**	0.0180	0.324	2
06139	**Nickel**	7440-02-0	**15.2**	0.161	0.648	2
06141	**Selenium**	7782-49-2	**1.54**	0.0810	0.648	2
06142	**Silver**	7440-22-4	**7.70**	0.0237	0.162	2
06145	**Thallium**	7440-28-0	**0.385**	0.0203	0.162	2
06148	**Vanadium**	7440-62-2	**14.8**	0.0345	0.162	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13MSD

C. T. Male Associates
ELLE Sample #: SW 9225400
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**4.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 08:09	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	10/02/2017 19:11	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:32	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 10:40	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/09/2017 21:32	Bradley M Berlot	5
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 10:40	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 10:40	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D08-3-5' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13DUP

C. T. Male Associates
ELLE Sample #: SW 9225401
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,570**	8.81	39.4	1
01650	**Calcium**	7440-70-2	**103,000**	16.4	197	5
01654	**Iron**	7439-89-6	**13,300**	7.94	39.4	1
01657	**Magnesium**	7439-95-4	**38,000**	2.40	19.7	1
06958	**Manganese**	7439-96-5	**448**	0.0818	0.986	1
01662	**Potassium**	7440-09-7	**575**	16.5	98.6	1
01667	**Sodium**	7440-23-5	**47.5 J**	16.5	197	1
06972	**Zinc**	7440-66-6	**31.4**	0.237	3.94	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0919 U	0.0919	0.394	2
06125	**Arsenic**	7440-38-2	**3.97**	0.126	0.789	2
06126	**Barium**	7440-39-3	**35.3**	0.179	0.789	2
06127	**Beryllium**	7440-41-7	**0.181 J**	0.0258	0.493	5
	Reporting limits were raised due to interference from the sample matrix.					
06128	**Cadmium**	7440-43-9	**0.0960 J**	0.0339	0.197	2
06131	**Chromium**	7440-47-3	**4.79**	0.172	0.789	2
06132	**Cobalt**	7440-48-4	**4.47**	0.0308	0.197	2
06133	**Copper**	7440-50-8	**6.60**	0.106	0.789	2
06135	**Lead**	7439-92-1	**6.99**	0.0219	0.394	2
06139	**Nickel**	7440-02-0	**8.12**	0.196	0.789	2
06141	Selenium	7782-49-2	0.0986 U	0.0986	0.789	2
06142	**Silver**	7440-22-4	**0.0372 J**	0.0288	0.197	2
06145	**Thallium**	7440-28-0	**0.0565 J**	0.0246	0.197	2
06148	**Vanadium**	7440-62-2	**5.45**	0.0420	0.197	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,200**	158	473	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.77**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**4.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**4.7**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-3-5' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:30
SDG#: SGB49-13DUP

C. T. Male Associates
ELLE Sample #: SW 9225401
ELLE Group #: 1854285
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	10/02/2017 19:03	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 20:24	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 10:34	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/09/2017 21:29	Bradley M Berlot	5
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 10:34	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 10:34	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031A	10/20/2017 22:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17270039402B	09/27/2017 19:40	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	2	17272820003A	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-7-8' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:45
SDG#: SGB49-14

C. T. Male Associates
ELLE Sample #: SW 9225402
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.82 U	0.82	2.5	1
14027	Perfluorobutanoic acid	375-22-4	0.82 U	0.82	2.5	1
14027	Perfluorodecanoic acid	335-76-2	0.82 U	0.82	2.5	1
14027	Perfluorododecanoic acid	307-55-1	0.82 U	0.82	2.5	1
14027	Perfluoroheptanoic acid	375-85-9	0.82 U	0.82	2.5	1
14027	Perfluorohexanesulfonate	355-46-4	0.82 U	0.82	2.5	1
14027	Perfluorohexanoic acid	307-24-4	0.41 U	0.41	1.6	1
14027	Perfluorononanoic acid	375-95-1	0.41 U	0.41	1.6	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4 J**	1.2	3.7	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2 J**	0.82	2.5	1
14027	Perfluoropentanoic acid	2706-90-3	0.82 U	0.82	2.5	1
14027	Perfluorotetradecanoic acid	376-06-7	0.82 U	0.82	2.5	1
14027	Perfluorotridecanoic acid	72629-94-8	0.82 U	0.82	2.5	1
14027	Perfluoroundecanoic acid	2058-94-8	0.82 U	0.82	2.5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,340**	8.47	37.9	1
01650	**Calcium**	7440-70-2	**78,700**	15.8	189	5
01654	**Iron**	7439-89-6	**15,300**	7.62	37.9	1
01657	**Magnesium**	7439-95-4	**27,200**	2.30	18.9	1
06958	**Manganese**	7439-96-5	**373**	0.0786	0.947	1
01662	**Potassium**	7440-09-7	**802**	15.8	94.7	1
01667	**Sodium**	7440-23-5	**43.2 J**	15.8	189	1
06972	**Zinc**	7440-66-6	**34.7**	0.227	3.79	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0883 U	0.0883	0.379	2
06125	**Arsenic**	7440-38-2	**4.38**	0.121	0.758	2
06126	**Barium**	7440-39-3	**27.1**	0.172	0.758	2
06127	**Beryllium**	7440-41-7	**0.201**	0.0099	0.189	2
06128	**Cadmium**	7440-43-9	**0.0811 J**	0.0326	0.189	2
06131	**Chromium**	7440-47-3	**6.97**	0.165	0.758	2
06132	**Cobalt**	7440-48-4	**7.47**	0.0295	0.189	2
06133	**Copper**	7440-50-8	**6.86**	0.102	0.758	2
06135	**Lead**	7439-92-1	**8.73**	0.0210	0.379	2
06139	**Nickel**	7440-02-0	**9.50**	0.189	0.758	2
06141	Selenium	7782-49-2	0.0947 U	0.0947	0.758	2
06142	**Silver**	7440-22-4	**0.104 J**	0.0277	0.189	2
06145	**Thallium**	7440-28-0	**0.0788 J**	0.0237	0.189	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-7-8' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:45
SDG#: SGB49-14

C. T. Male Associates
ELLE Sample #: SW 9225402
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.96**	0.0403	0.189	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,800**	273	819	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.70**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 15:00	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	10/02/2017 19:19	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 21:08	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/09/2017 21:35	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-7-8' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 09:45
SDG#: SGB49-14

C. T. Male Associates
ELLE Sample #: SW 9225402
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031A	10/20/2017 22:47	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-10-11' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 10:20
SDG#: SGB49-15

C. T. Male Associates
ELLE Sample #: SW 9225403
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.80 U	0.80	2.4	1
14027	Perfluorobutanoic acid	375-22-4	0.80 U	0.80	2.4	1
14027	Perfluorodecanoic acid	335-76-2	0.80 U	0.80	2.4	1
14027	Perfluorododecanoic acid	307-55-1	0.80 U	0.80	2.4	1
14027	Perfluoroheptanoic acid	375-85-9	0.80 U	0.80	2.4	1
14027	Perfluorohexanesulfonate	355-46-4	0.80 U	0.80	2.4	1
14027	Perfluorohexanoic acid	307-24-4	0.40 U	0.40	1.6	1
14027	Perfluorononanoic acid	375-95-1	0.40 U	0.40	1.6	1
14027	Perfluoro-octanesulfonate	1763-23-1	1.2 U	1.2	3.6	1
14027	Perfluorooctanoic acid	335-67-1	0.80 U	0.80	2.4	1
14027	Perfluoropentanoic acid	2706-90-3	0.80 U	0.80	2.4	1
14027	Perfluorotetradecanoic acid	376-06-7	0.80 U	0.80	2.4	1
14027	Perfluorotridecanoic acid	72629-94-8	0.80 U	0.80	2.4	1
14027	Perfluoroundecanoic acid	2058-94-8	0.80 U	0.80	2.4	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,840**	9.88	44.2	1
01650	**Calcium**	7440-70-2	**43,800**	3.68	44.2	1
01654	**Iron**	7439-89-6	**10,400**	8.90	44.2	1
01657	**Magnesium**	7439-95-4	**16,300**	2.69	22.1	1
06958	**Manganese**	7439-96-5	**361**	0.0917	1.11	1
01662	**Potassium**	7440-09-7	**573**	18.5	111	1
01667	**Sodium**	7440-23-5	**32.0 J**	18.5	221	1
06972	**Zinc**	7440-66-6	**17.9**	0.265	4.42	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.103 U	0.103	0.442	2
06125	**Arsenic**	7440-38-2	**5.96**	0.141	0.884	2
06126	**Barium**	7440-39-3	**35.3**	0.201	0.884	2
06127	**Beryllium**	7440-41-7	**0.153 J**	0.0116	0.221	2
06128	**Cadmium**	7440-43-9	**0.0697 J**	0.0380	0.221	2
06131	**Chromium**	7440-47-3	**3.36**	0.192	0.884	2
06132	**Cobalt**	7440-48-4	**5.05**	0.0345	0.221	2
06133	**Copper**	7440-50-8	**7.39**	0.118	0.884	2
06135	**Lead**	7439-92-1	**5.35**	0.0245	0.442	2
06139	**Nickel**	7440-02-0	**5.08**	0.220	0.884	2
06141	**Selenium**	7782-49-2	**0.117 J**	0.111	0.884	2
06142	**Silver**	7440-22-4	**0.164 J**	0.0323	0.221	2
06145	**Thallium**	7440-28-0	**0.109 J**	0.0276	0.221	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-10-11' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 10:20
SDG#: SGB49-15

C. T. Male Associates
ELLE Sample #: SW 9225403
ELLE Group #: 1854285
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**2.89**	0.0471	0.221	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,000**	356	1,070	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.55**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277004	10/08/2017 15:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277004	10/04/2017 10:30	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172701063704	09/30/2017 21:12	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172701063704D	10/04/2017 11:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-10-11' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 10:20
SDG#: SGB49-15

C. T. Male Associates
ELLE Sample #: SW 9225403
ELLE Group #: 1854285
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172701063704B	10/04/2017 11:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172701063704A	10/04/2017 11:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172701063704	09/27/2017 00:00	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031A	10/20/2017 23:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17277004	Sample number(s): 9225386,9225388,9225390-9225391,9225394-9225400,9225402-9225403		
Perfluorobutanesulfonate	1.0 U	1.0	3.0
Perfluorobutanoic acid	1.0 U	1.0	3.0
Perfluorodecanoic acid	1.0 U	1.0	3.0
Perfluorododecanoic acid	1.0 U	1.0	3.0
Perfluoroheptanoic acid	1.0 U	1.0	3.0
Perfluorohexanesulfonate	1.0 U	1.0	3.0
Perfluorohexanoic acid	0.50 U	0.50	2.0
Perfluorononanoic acid	0.50 U	0.50	2.0
Perfluoro-octanesulfonate	1.5 U	1.5	4.5
Perfluorooctanoic acid	1.0 U	1.0	3.0
Perfluoropentanoic acid	1.0 U	1.0	3.0
Perfluorotetradecanoic acid	1.0 U	1.0	3.0
Perfluorotridecanoic acid	1.0 U	1.0	3.0
Perfluoroundecanoic acid	1.0 U	1.0	3.0
Batch number: 17283014	Sample number(s): 9225387,9225389		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17270007	Sample number(s): 9225392		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	2 J	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
Batch number: 17278016	Sample number(s): 9225393		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172701063704	Sample number(s): 9225394-9225403		
Aluminum	8.94 U	8.94	40.0
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172701063704A	Sample number(s): 9225394-9225403		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172701063704B	Sample number(s): 9225394-9225403		
Selenium	0.100 U	0.100	0.800
Batch number: 172701063704D	Sample number(s): 9225394-9225403		
Barium	0.182 U	0.182	0.800
Batch number: 17282667632B	Sample number(s): 9225387-9225391,9225394-9225395		
TOC	100 U	100	300
Batch number: 17293245031A	Sample number(s): 9225386,9225396-9225399,9225401-9225403		
TOC	180 J	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17277004	Sample number(s): 9225386,9225388,9225390-9225391,9225394-9225400,9225402-9225403								
Perfluorobutanesulfonate	6.01	5.84			97		70-130		
Perfluorobutanoic acid	6.80	7.33			108		70-130		
Perfluorodecanoic acid	6.80	7.19			106		70-130		
Perfluorododecanoic acid	6.80	6.95			102		70-130		
Perfluoroheptanoic acid	6.80	5.92			87		70-130		
Perfluorohexanesulfonate	6.43	6.09			95		70-130		
Perfluorohexanoic acid	6.80	7.05			104		70-130		
Perfluorononanoic acid	6.80	6.68			98		70-130		
Perfluoro-octanesulfonate	6.50	6.42			99		70-130		
Perfluorooctanoic acid	6.80	6.57			97		70-130		
Perfluoropentanoic acid	6.80	6.79			100		70-130		
Perfluorotetradecanoic acid	6.80	7.18			106		70-130		
Perfluorotridecanoic acid	6.80	7.83			115		70-130		
Perfluoroundecanoic acid	6.80	6.52			96		70-130		
Batch number: 17283014	Sample number(s): 9225387,9225389								
Perfluorobutanesulfonate	1.20	1.13	1.20	1.07	94	89	70-130	5	30
Perfluorobutanoic acid	1.36	1.34	1.36	1.42	98	104	70-130	6	30
Perfluorodecanoic acid	1.36	1.24	1.36	1.39	91	102	70-130	11	30
Perfluorododecanoic acid	1.36	1.38	1.36	1.49	101	110	70-130	8	30
Perfluoroheptanoic acid	1.36	1.14	1.36	1.34	84	98	70-130	16	30
Perfluorohexanesulfonate	1.29	1.10	1.29	1.22	85	95	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	1.36	1.11	1.36	1.42	82	105	70-130	24	30
Perfluorononanoic acid	1.36	1.52	1.36	1.43	112	105	70-130	6	30
Perfluoro-octanesulfonate	1.30	1.21	1.30	1.16	93	89	70-130	5	30
Perfluorooctanoic acid	1.36	1.43	1.36	1.23	105	90	70-130	15	30
Perfluoropentanoic acid	1.36	1.29	1.36	1.30	95	96	70-130	1	30
Perfluorotetradecanoic acid	1.36	1.29	1.36	1.39	95	102	70-130	7	30
Perfluorotridecanoic acid	1.36	1.28	1.36	1.25	94	92	70-130	2	30
Perfluoroundecanoic acid	1.36	1.53	1.36	1.40	112	103	70-130	8	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17270007	Sample number(s): 9225392								
Perfluorobutanesulfonate	12.03	11.3	12.03	11.82	94	98	70-130	4	30
Perfluorobutanoic Acid	13.6	14.06	13.6	14.29	103	105	70-130	2	30
Perfluorodecanoic acid	13.6	14.44	13.6	13.78	106	101	70-130	5	30
Perfluorododecanoic acid	13.6	13.41	13.6	13.23	99	97	70-130	1	30
Perfluoroheptanoic acid	13.6	13.71	13.6	13.41	101	99	70-130	2	30
Perfluorohexanesulfonate	12.86	12.17	12.86	11.85	95	92	70-130	3	30
Perfluorohexanoic acid	13.6	13.24	13.6	13.17	97	97	70-130	1	30
Perfluorononanoic acid	13.6	11.93	13.6	13.39	88	98	70-130	12	30
Perfluoro-octanesulfonate	13	12.88	13	12.21	99	94	70-130	5	30
Perfluorooctanoic acid	13.6	13.35	13.6	12.75	98	94	70-130	5	30
Perfluoropentanoic Acid	13.6	12.81	13.6	14.22	94	105	70-130	10	30
Perfluorotetradecanoic acid	13.6	13.08	13.6	13.57	96	100	70-130	4	30
Perfluorotridecanoic acid	13.6	13.26	13.6	11.81	97	87	70-130	12	30
Perfluoroundecanoic acid	13.6	15.14	13.6	13.31	111	98	70-130	13	30
Batch number: 17278016	Sample number(s): 9225393								
Perfluorobutanesulfonate	12.03	13.16	12.03	12.5	109	104	70-130	5	30
Perfluorobutanoic Acid	13.6	15.24	13.6	16.05	112	118	70-130	5	30
Perfluorodecanoic acid	13.6	15.12	13.6	15.82	111	116	70-130	5	30
Perfluorododecanoic acid	13.6	14.61	13.6	15.76	107	116	70-130	8	30
Perfluoroheptanoic acid	13.6	13.39	13.6	13.28	98	98	70-130	1	30
Perfluorohexanesulfonate	12.86	13.61	12.86	14.6	106	114	70-130	7	30
Perfluorohexanoic acid	13.6	15.14	13.6	16.19	111	119	70-130	7	30
Perfluorononanoic acid	13.6	14.24	13.6	16.3	105	120	70-130	13	30
Perfluoro-octanesulfonate	13	13.52	13	15.94	104	123	70-130	16	30
Perfluorooctanoic acid	13.6	14.47	13.6	15.59	106	115	70-130	7	30
Perfluoropentanoic Acid	13.6	14.37	13.6	14.5	106	107	70-130	1	30
Perfluorotetradecanoic acid	13.6	14.25	13.6	14.89	105	110	70-130	4	30
Perfluorotridecanoic acid	13.6	13.53	13.6	15.49	100	114	70-130	13	30
Perfluoroundecanoic acid	13.6	13.98	13.6	15.35	103	113	70-130	9	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172701063704	Sample number(s): 9225394-9225403								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Aluminum	200	227.85			114		80-120		
Calcium	400	408.05			102		80-120		
Iron	100	103.14			103		80-120		
Magnesium	200	204.88			102		80-120		
Manganese	50	52.71			105		80-120		
Potassium	1000	1024.47			102		80-120		
Sodium	1000	1035.1			104		80-120		
Zinc	50	50.83			102		80-120		
Batch number: 172701063704A	Sample number(s): 9225394-9225403								
Antimony	0.600	0.646			108		80-120		
Arsenic	1.00	0.961			96		80-120		
Beryllium	0.400	0.397			99		80-120		
Cadmium	0.500	0.516			103		80-120		
Chromium	5.00	5.08			102		80-120		
Cobalt	25	24.36			97		80-120		
Copper	5.00	4.89			98		80-120		
Lead	1.50	1.57			105		80-120		
Nickel	5.00	5.06			101		80-120		
Silver	5.00	5.06			101		80-120		
Thallium	0.200	0.197			99		80-120		
Vanadium	5.00	5.00			100		80-120		
Batch number: 172701063704B	Sample number(s): 9225394-9225403								
Selenium	1.00	1.00			100		80-120		
Batch number: 172701063704D	Sample number(s): 9225394-9225403								
Barium	5.00	5.10			102		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17282667632B	Sample number(s): 9225387-9225391,9225394-9225395								
TOC	7150	6347.23			89		47-143		
Batch number: 17293245031A	Sample number(s): 9225386,9225396-9225399,9225401-9225403								
TOC	7150	6606.9			92		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17269039402A	Sample number(s): 9225386-9225388								
pH	7.00	6.99			100		95-105		
Batch number: 17269039402B	Sample number(s): 9225389-9225391,9225394-9225397								
pH	7.00	6.99			100		95-105		
Batch number: 17270039402A	Sample number(s): 9225402-9225403								
pH	7.00	6.97			100		95-105		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17270039402B	Sample number(s): 9225398,9225401								
pH	7.00	6.97			100		95-105		
	%	%	%	%					
Batch number: 17272820003A	Sample number(s): 9225386-9225391,9225394-9225401								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		
Batch number: 17272820003B	Sample number(s): 9225402-9225403								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17277004	Sample number(s): 9225386,9225388,9225390-9225391,9225394-9225400,9225402-9225403 UNSPK: 9225398									
Perfluorobutanesulfonate	0.75 U	4.42	4.35	4.55	4.35	98	96	70-130	0	30
Perfluorobutanoic acid	0.75 U	5.00	5.51	5.15	5.66	110	110	70-130	3	30
Perfluorodecanoic acid	0.75 U	5.00	5.26	5.15	5.83	105	113	70-130	10	30
Perfluorododecanoic acid	0.75 U	5.00	5.81	5.15	6.19	116	120	70-130	6	30
Perfluoroheptanoic acid	0.75 U	5.00	5.02	5.15	5.12	100	99	70-130	2	30
Perfluorohexanesulfonate	0.75 U	4.73	4.69	4.87	5.37	99	110	70-130	13	30
Perfluorohexanoic acid	0.37 U	5.00	5.02	5.15	5.33	100	103	70-130	6	30
Perfluorononanoic acid	0.37 U	5.00	5.04	5.15	5.35	101	104	70-130	6	30
Perfluoro-octanesulfonate	1.13	4.78	5.50	4.92	6.23	91	104	70-130	13	30
Perfluorooctanoic acid	1.26	5.00	6.44	5.15	7.18	104	115	70-130	11	30
Perfluoropentanoic acid	0.75 U	5.00	5.41	5.15	5.69	108	110	70-130	5	30
Perfluorotetradecanoic acid	0.75 U	5.00	5.50	5.15	5.77	110	112	70-130	5	30
Perfluorotridecanoic acid	0.75 U	5.00	5.57	5.15	5.94	111	115	70-130	6	30
Perfluoroundecanoic acid	0.75 U	5.00	5.05	5.15	5.67	101	110	70-130	12	30
Batch number: 17283014	Sample number(s): 9225387,9225389 UNSPK: 9225387									
Perfluorobutanesulfonate	0.19 U	0.904	0.892			99		70-130		
Perfluorobutanoic acid	0.282	1.02	1.06			76		70-130		
Perfluorodecanoic acid	0.19 U	1.02	0.916			89		70-130		
Perfluorododecanoic acid	0.19 U	1.02	1.01			99		70-130		
Perfluoroheptanoic acid	0.344	1.02	1.06			70		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	0.19 U	0.967	0.853			88		70-130		
Perfluorohexanoic acid	0.303	1.02	0.992			67*		70-130		
Perfluorononanoic acid	0.164	1.02	1.01			83		70-130		
Perfluoro-octanesulfonate	0.615	0.977	1.67			108		70-130		
Perfluorooctanoic acid	3.63	1.02	3.53			-9*		70-130		
Perfluoropentanoic acid	0.204	1.02	0.991			77		70-130		
Perfluorotetradecanoic acid	0.19 U	1.02	0.931			91		70-130		
Perfluorotridecanoic acid	0.19 U	1.02	0.820			80		70-130		
Perfluoroundecanoic acid	0.19 U	1.02	0.824			81		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172701063704	Sample number(s): 9225394-9225403 UNSPK: 9225398									
Aluminum	4591.19	138.89	5918.49	155.04	6627.78	956 (2)	1314 (2)	75-125	11	20
Calcium	87743.34	277.78	89684.24	310.08	82746.66	699 (2)	-1611 (2)	75-125	8	20
Iron	13459.88	69.44	13389.98	77.52	13819.85	-101 (2)	464 (2)	75-125	3	20
Magnesium	24772.38	138.89	26008.35	155.04	25615.84	890 (2)	544 (2)	75-125	2	20
Manganese	300.93	34.72	322.12	38.76	602.77	61 (2)	779 (2)	75-125	61*	20
Potassium	636.06	694.44	1628.34	775.19	1822.17	143*	153*	75-125	11	20
Sodium	38.45	694.44	765.55	775.19	858.35	105	106	75-125	11	20
Zinc	29.69	34.72	62.36	38.76	72.02	94	109	75-125	14	20
Batch number: 172701063704A	Sample number(s): 9225394-9225403 UNSPK: 9225398									
Antimony	0.0770 U	0.833	0.950	0.930	0.905	114	97	75-125	5	20
Arsenic	4.02	1.39	4.77	1.55	5.54	54*	98	75-125	15	20
Beryllium	0.183	0.556	0.723	0.620	0.778	97	96	75-125	7	20
Cadmium	0.0731	0.694	0.798	0.775	0.811	104	95	75-125	2	20
Chromium	5.21	6.94	13.79	7.75	13.14	123	102	75-125	5	20
Cobalt	5.03	34.72	37.03	38.76	40.62	92	92	75-125	9	20
Copper	5.60	6.94	11.65	7.75	12.88	87	94	75-125	10	20
Lead	6.89	2.08	8.65	2.33	8.37	84	64*	75-125	3	20
Nickel	8.11	6.94	13.57	7.75	14.55	79	83	75-125	7	20
Silver	0.0396	6.94	7.00	7.75	7.36	100	94	75-125	5	20
Thallium	0.0463	0.278	0.339	0.310	0.368	105	104	75-125	8	20
Vanadium	5.55	6.94	12.27	7.75	14.16	97	111	75-125	14	20
Batch number: 172701063704B	Sample number(s): 9225394-9225403 UNSPK: 9225398									
Selenium	0.0826 U	1.39	1.35	1.55	1.48	98	95	75-125	9	20
Batch number: 172701063704D	Sample number(s): 9225394-9225403 UNSPK: 9225398									
Barium	21.22	6.94	26.33	7.75	68.43	74*	609*	75-125	89*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17282667632B	Sample number(s): 9225387-9225391,9225394-9225395 UNSPK: P225311									

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
TOC	4793.17	9390	14588.16			104		47-143		
Batch number: 17293245031A	Sample number(s): 9225386,9225396-9225399,9225401-9225403 UNSPK: 9225398									
TOC	25607.96	19582	60156.66			176*		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172701063704	Sample number(s): 9225394-9225403 BKG: 9225398			
Aluminum	4591.19	4371.98	5	20
Calcium	87743.34	98717.7	12	20
Iron	13459.88	12692.65	6	20
Magnesium	24772.38	36394.66	38*	20
Manganese	300.93	428.88	35*	20
Potassium	636.06	550.34	14	20
Sodium	38.45	45.44	17 (1)	20
Zinc	29.69	30.03	1	20
Batch number: 172701063704A	Sample number(s): 9225394-9225403 BKG: 9225398			
Antimony	0.0770 U	0.0879 U	0 (1)	20
Arsenic	4.02	3.80	6	20
Beryllium	0.183	0.174	5 (1)	20
Cadmium	0.0731	0.0919	23* (1)	20
Chromium	5.21	4.58	13	20
Cobalt	5.03	4.28	16	20
Copper	5.60	6.32	12	20
Lead	6.89	6.69	3	20
Nickel	8.11	7.77	4	20
Silver	0.0396	0.0356	11 (1)	20
Thallium	0.0463	0.0541	15 (1)	20
Vanadium	5.55	5.22	6	20
Batch number: 172701063704B	Sample number(s): 9225394-9225403 BKG: 9225398			
Selenium	0.0826 U	0.0943 U	0 (1)	20
Batch number: 172701063704D	Sample number(s): 9225394-9225403 BKG: 9225398			
Barium	21.22	33.81	46*	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17282667632B	Sample number(s): 9225387-9225391,9225394-9225395 BKG: P225311			
TOC	4793.17	5432.79	13*	7
Batch number: 17293245031A	Sample number(s): 9225386,9225396-9225399,9225401-9225403 BKG: 9225398			
TOC	25607.96	30853.9	19*	7
	Std. Units	Std. Units		
Batch number: 17269039402A	Sample number(s): 9225386-9225388 BKG: P225317			
pH	6.89	6.95	1	3
Batch number: 17269039402B	Sample number(s): 9225389-9225391,9225394-9225397 BKG: 9225396			
pH	8.08	8.09	0	3
Batch number: 17270039402A	Sample number(s): 9225402-9225403 BKG: P227013			
pH	9.52	9.65	1	3
Batch number: 17270039402B	Sample number(s): 9225398,9225401 BKG: 9225398			
pH	8.73	8.77	0	3
	%	%		
Batch number: 17272820003A	Sample number(s): 9225386-9225391,9225394-9225401 BKG: 9225398, P225398			
Moisture	4.32	4.66	8*	5
Moisture	4.32	4.66	8*	5
Moisture Duplicate	4.32	4.66	8*	5
Batch number: 17272820003B	Sample number(s): 9225402-9225403 BKG: P225414			
Moisture	6.18	6.65	7*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17270007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9225392	78	79	70	79	71	84
Blank	87	86	82	100	93	100
LCS	84	85	59	89	77	89
LCSD	97	92	54	107	68	103

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17270007

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
9225392	81	92	88	78	93	99
Blank	90	85	84	88	88	100
LCS	90	82	104	75	73	76
LCSD	110	79	119	88	97	92
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9225392	105
Blank	99
LCS	70
LCSD	77
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17277004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9225386	59	58*	59	54	53	52
9225388	58	57*	56	50	50	54
9225390	60	61*	61	55	56	60
9225391	59	58*	59	55	51	51
9225394	59	64*	67	63	64	66
9225395	66	69*	68	58	65	66
9225396	59	62*	63	51	47	47
9225397	58	59*	60	64	62	59
9225398	69	74	71	72	68	75
9225399	67	71	67	60	60	60
9225400	64	66*	66	74	70	68
9225402	61	64*	68	61	66	66
9225403	60	62*	62	64	65	61
Blank	66	65*	67	64	65	67
LCS	66	65*	65	60	59	59
MS	67	71	67	60	60	60
MSD	64	66*	66	74	70	68

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277004

Limits:	54-95	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9225386	55	60	68	54	53	47
9225388	51	57	65	58	50	51
9225390	60	54	70	55	55	49
9225391	58	57	71	57	56	48
9225394	65	63	68	64	64	64
9225395	61	64	83	63	69	71
9225396	56	58	75	63	66	64
9225397	62	62	64	62	62	66
9225398	70	71	72	71	71	71
9225399	68	69	76	69	65	67
9225400	69	68	73	74	66	71
9225402	68	62	72	64	66	71
9225403	65	61	60	59	59	63
Blank	64	63	75	71	74	72
LCS	65	69	72	65	58	63
MS	68	69	76	69	65	67
MSD	69	68	73	74	66	71

Limits:	44-115	42-118	37-124	36-121	25-134	15-135
	13C2-PFTeDA					
9225386	49					
9225388	48					
9225390	45					
9225391	43					
9225394	66					
9225395	72					
9225396	63					
9225397	67					
9225398	73					
9225399	69					
9225400	71					
9225402	68					
9225403	61					
Blank	75					
LCS	64					
MS	69					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277004

	13C2-PFTeDA
MSD	71
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17278016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9225393	79	76	75	98	87	79
Blank	87	85	81	98	94	87
LCS	81	87	76	84	83	85
LCSD	80	84	75	80	79	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9225393	79	75	78	82	76	71
Blank	84	87	89	87	85	84
LCS	85	75	75	84	84	91
LCSD	75	73	72	80	75	79
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9225393	75
Blank	94
LCS	94
LCSD	83
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17283014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9225387	55	52*	50	55	58	58
9225389	63	61*	57	60	63	64
Blank	60	62*	57	62	63	61
LCS	64	67*	59	67	65	69
LCSD	61	60*	59	64	64	69
MS	54	51*	49	60	61	69

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 13:39

Group Number: 1854285

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17283014

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	37-107	70-130	34-118	43-115	32-125	45-114
9225387	56	50	65	61	57	59
9225389	62	61	69	56	63	51
Blank	66	59	64	66	64	64
LCS	63	66	60	71	69	75
LCSD	68	69	59	67	65	66
MS	56	53	70	54	61	55
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9225387	49
9225389	49
Blank	59
LCS	72
LCSD	61
MS	49
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1854285 9225386-403

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47401

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 3242100.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250 mL Plastic HNO3	Soil: 250 mL Plastic	Soil: 350 mL plastic (PFCs (14))	Soil: 4 oz ONG (TOC, pH, Moisture)	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
1. SG3-S20-0-0.5'	0	0.5	ft	09/22/2017	0930	Soil	N	2			1	1		NA	NO	PFCs (14), moisture content,
2. SG3-S20-0.5-1'	0.5	1	ft	9-22-17	0935	S	N	2			1	1				pH, TOC
3. SG3-S20-1-1.5'	1	1.5	ft	9-22-17	0940	S	N	2			1	1				
4. SG3-S29-0-0.5'	0	0.5	ft	9-22-17	1135	S	N	2			1	1				
5. SG3-S29-0.5-1'	0.5	1	ft	9-22-17	1140	S	N	2			1	1				
6. SG3-S29-1-1.5'	1	1.5	ft	9-22-17	1145	S	N	2			1	1				
7. SG-3-LTB47-170922	—	—	—	9-22-17	AM	W	N	1	1							Trip blank by ELLE
8. SG-3-LTB48-170922	—	—	—	9-22-17	AM	W	N	1	1							Trip blank by ELLE
9.																
10.																

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	RAK DJZ	Zander	Y	9-22-17	1630			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: Esander	Date 9-23-17	Time 1000
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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37191 1854285 9225366-403

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52286

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dorpay	Name: Latham, NY
email: mdorpay@barr.com pdf	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 3242/021.03

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: PFCs (14)	Soil: 4 oz. glass - TOC, pH, Moist., metals	Soil: % Solids	Preservative Code	Field Filtered Y/N
										A	A			
										1	1			
1. SG3-D08-0-0.5'	0	0.5	ft.	09/22/2017	09:05	S	N	2		1	1			
2. SG3-D08-0.5-1'	0.5	1	ft.	09/22/2017	09:15	S	N	2		1	1			
3. SG3-D08-1-1.5'	1	1.5	ft.	09/22/2017	09:20	S	N	2		1	1			
4. (Rep) FD507-170922				09/22/2017		S	N	2		1	1			
5. SG3-D08-3-5'	3	5	ft.	09/22/2017	09:30	S	Y	6		3	3			
6. SG3-D08-7-8'	7	8	ft.	09/22/2017	09:45	S	N	2		1	1			
7. SG3-D08-10-11'	10	11	ft.	09/22/2017	10:20	S	N	2		1	1			
8. SG3-D06-0-0.5'	0	0.5	ft.	09/22/2017	11:25	S	N	2		1	1			
9. SG3-D06-0.5-1'	0.5	1	ft.	09/22/2017	11:35	S	N	2		1	1			
10. SG3-D06-1-1.5'	1	1.5	ft.	09/22/2017	11:40	S	Y	6		3	3			

Metals = TAL cations excluding Hg

BARR USE ONLY							
Sampled by: RQM/KAM	Relinquished by: Derek Zander	On Ice? Y N	Date 9-22-17	Time 1630	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: E Zander	Date 9-23-17	Time 1000
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location: Lancaster, PA.							

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Sample Administration Receipt Documentation Log

Doc Log ID: 195372

Group Number(s): 1854285

Client: BARR Engineering Co

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/23/2017 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL unpre plastic botles

Unpacked by Melvin Sanchez (8943) at 14:03 on 09/23/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.7	DT	Wet	Y	Bagged	N
2	DT42-02	1.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 01, 2017 13:39

Project: SGPP - Bennington

Account #: 37191
Group Number: 1854292
SDG: SGB50
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D06-0-0.5' Soil	09/22/2017 11:25	9225412
SG3-D06-0.5-1' Soil	09/22/2017 11:35	9225413
SG3-D06-1-1.5' Soil	09/22/2017 11:40	9225414
SG3-D06-1-1.5' MS Soil	09/22/2017 11:40	9225415
SG3-D06-1-1.5' MSD Soil	09/22/2017 11:40	9225416
SG3-D06-1-1.5' Dupl Soil	09/22/2017 11:40	9225417
SG3-D06-3-4' Soil	09/22/2017 11:50	9225418
SG3-D06-8-9' Soil	09/22/2017 12:05	9225419

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1854292

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9225418

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17277008 (Sample number(s): 9225412-9225416, 9225418-9225419 UNSPK: 9225414)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9225418

SW-846 6010C, Metals

Batch #: 172651063704 (Sample number(s): 9225412-9225419 UNSPK: 9225414 BKG: 9225414)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Potassium, Zinc, Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Magnesium, Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Potassium, Sodium

SW-846 6020A, Metals

Batch #: 172651063704A (Sample number(s): 9225412-9225419 UNSPK: 9225414 BKG: 9225414)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Copper, Lead, Nickel, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Chromium, Copper, Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Beryllium, Cobalt, Copper, Lead

Batch #: 172651063704B (Sample number(s): 9225412-9225419 UNSPK: 9225414 BKG: 9225414)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Selenium

Batch #: 172651063704D (Sample number(s): 9225412-9225419 UNSPK: 9225414 BKG: 9225414)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9225414, 9225415, 9225417, 9225418

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9225413, 9225414, 9225417, 9225418, 9225419

The pH was measured in water at 20.1 C.

Sample #s: 9225412

The pH was measured in water at 20.2 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17272820003B (Sample number(s): 9225412-9225419 BKG: P225398, P9225414)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

REVISED

Sample Description: **SG3-D06-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:25
SDG#: SGB50-01

C. T. Male Associates
ELLE Sample #: SW 9225412
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.24 J**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,350**	7.94	35.5	1
01650	**Calcium**	7440-70-2	**58,300**	14.8	178	5
01654	**Iron**	7439-89-6	**15,600**	7.15	35.5	1
01657	**Magnesium**	7439-95-4	**20,800**	2.16	17.8	1
06958	**Manganese**	7439-96-5	**343**	0.0737	0.888	1
01662	**Potassium**	7440-09-7	**690**	14.8	88.8	1
01667	**Sodium**	7440-23-5	**30.8 J**	14.8	178	1
06972	**Zinc**	7440-66-6	**36.4**	0.213	3.55	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.183 J**	0.0828	0.355	2
06125	**Arsenic**	7440-38-2	**5.89**	0.114	0.711	2
06126	**Barium**	7440-39-3	**26.4**	0.161	0.711	2
06127	**Beryllium**	7440-41-7	**0.234**	0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.102 J**	0.0306	0.178	2
06131	**Chromium**	7440-47-3	**6.14**	0.155	0.711	2
06132	**Cobalt**	7440-48-4	**6.82**	0.0277	0.178	2
06133	**Copper**	7440-50-8	**16.3**	0.0952	0.711	2
06135	**Lead**	7439-92-1	**17.9**	0.0197	0.355	2
06139	**Nickel**	7440-02-0	**10.4**	0.177	0.711	2
06141	**Selenium**	7782-49-2	**0.395 J**	0.0888	0.711	2
06142	**Silver**	7440-22-4	**0.0560 J**	0.0259	0.178	2
06145	**Thallium**	7440-28-0	**0.0903 J**	0.0222	0.178	2
06148	**Vanadium**	7440-62-2	**6.89**	0.0378	0.178	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D06-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:25
SDG#: SGB50-01

C. T. Male Associates
ELLE Sample #: SW 9225412
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,000**	403	1,210	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.43**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/09/2017 02:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:30	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 17:34	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:25	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:25	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:25
SDG#: SGB50-01

C. T. Male Associates
ELLE Sample #: SW 9225412
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:25	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 23:13	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:35
SDG#: SGB50-02

C. T. Male Associates
ELLE Sample #: SW 9225413
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20 J**	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38 J**	0.27	0.82	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.22 J**	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,740**	9.43	42.2	1
01650	**Calcium**	7440-70-2	**51,200**	3.51	42.2	1
01654	**Iron**	7439-89-6	**13,400**	8.50	42.2	1
01657	**Magnesium**	7439-95-4	**20,300**	2.56	21.1	1
06958	**Manganese**	7439-96-5	**677**	0.0876	1.06	1
01662	**Potassium**	7440-09-7	**865**	17.6	106	1
01667	**Sodium**	7440-23-5	**33.7 J**	17.6	211	1
06972	**Zinc**	7440-66-6	**43.9**	0.253	4.22	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.128 J**	0.0984	0.422	2
06125	**Arsenic**	7440-38-2	**5.83**	0.135	0.844	2
06126	**Barium**	7440-39-3	**37.5**	0.192	0.844	2
06127	**Beryllium**	7440-41-7	**0.249**	0.0111	0.211	2
06128	**Cadmium**	7440-43-9	**0.0948 J**	0.0363	0.211	2
06131	**Chromium**	7440-47-3	**7.69**	0.184	0.844	2
06132	**Cobalt**	7440-48-4	**79.7**	0.0329	0.211	2
06133	**Copper**	7440-50-8	**21.4**	0.113	0.844	2
06135	**Lead**	7439-92-1	**10.3**	0.0234	0.422	2
06139	**Nickel**	7440-02-0	**13.1**	0.210	0.844	2
06141	**Selenium**	7782-49-2	**0.244 J**	0.106	0.844	2
06142	**Silver**	7440-22-4	**0.112 J**	0.0308	0.211	2
06145	**Thallium**	7440-28-0	**0.112 J**	0.0264	0.211	2
06148	**Vanadium**	7440-62-2	**8.21**	0.0450	0.211	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:35
SDG#: SGB50-02

C. T. Male Associates
ELLE Sample #: SW 9225413
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,000**	180	541	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 05:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 17:39	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:28	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:28	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:35
SDG#: SGB50-02

C. T. Male Associates
ELLE Sample #: SW 9225413
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:28	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 01:21	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03BKG

C. T. Male Associates
ELLE Sample #: SW 9225414
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.076 U	0.076	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.076 U	0.076	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.69	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.16 J**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,450**	7.75	34.7	1
01650	**Calcium**	7440-70-2	**65,400**	14.4	173	5
01654	**Iron**	7439-89-6	**19,900**	6.98	34.7	1
01657	**Magnesium**	7439-95-4	**20,100**	2.11	17.3	1
06958	**Manganese**	7439-96-5	**506**	0.0719	0.867	1
01662	**Potassium**	7440-09-7	**983**	14.5	86.7	1
01667	**Sodium**	7440-23-5	**36.5 J**	14.5	173	1
06972	**Zinc**	7440-66-6	**39.4**	0.208	3.47	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.141 J**	0.0808	0.347	2
06125	**Arsenic**	7440-38-2	**7.48**	0.111	0.693	2
06126	**Barium**	7440-39-3	**49.2**	0.157	0.693	2
06127	**Beryllium**	7440-41-7	**0.331**	0.0091	0.173	2
06128	**Cadmium**	7440-43-9	**0.111 J**	0.0298	0.173	2
06131	**Chromium**	7440-47-3	**11.5**	0.151	0.693	2
06132	**Cobalt**	7440-48-4	**10.7**	0.0270	0.173	2
06133	**Copper**	7440-50-8	**18.0**	0.0929	0.693	2
06135	**Lead**	7439-92-1	**13.7**	0.0192	0.347	2
06139	**Nickel**	7440-02-0	**12.9**	0.173	0.693	2
06141	**Selenium**	7782-49-2	**0.335 J**	0.0867	0.693	2
06142	**Silver**	7440-22-4	**0.0371 J**	0.0253	0.173	2
06145	**Thallium**	7440-28-0	**0.121 J**	0.0217	0.173	2
06148	**Vanadium**	7440-62-2	**8.60**	0.0369	0.173	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03BKG

C. T. Male Associates
ELLE Sample #: SW 9225414
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**16,900**	204	611	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.64**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 05:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:07	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 16:33	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 18:53	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 18:53	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03BKG

C. T. Male Associates
ELLE Sample #: SW 9225414
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 18:53	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 23:35	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402C	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D06-1-1.5' MS Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03MS

C. T. Male Associates
ELLE Sample #: SW 9225415
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.97**	0.17	0.51	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.3**	0.17	0.51	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.2**	0.17	0.51	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.2**	0.17	0.51	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.0**	0.17	0.51	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.98**	0.17	0.51	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.3**	0.085	0.34	1
14027	**Perfluorononanoic acid**	375-95-1	**1.2**	0.085	0.34	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	0.25	0.76	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.17	0.51	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.3**	0.17	0.51	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.2**	0.17	0.51	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.1**	0.17	0.51	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.2**	0.17	0.51	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**9,260**	9.25	41.4	1
01650	**Calcium**	7440-70-2	**73,200**	17.2	207	5
01654	**Iron**	7439-89-6	**16,700**	8.33	41.4	1
01657	**Magnesium**	7439-95-4	**24,000**	2.52	20.7	1
06958	**Manganese**	7439-96-5	**501**	0.0859	1.04	1
01662	**Potassium**	7440-09-7	**2,630**	17.3	104	1
01667	**Sodium**	7440-23-5	**1,110**	17.3	207	1
06972	**Zinc**	7440-66-6	**85.5**	0.248	4.14	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.56**	0.0965	0.414	2
06125	**Arsenic**	7440-38-2	**11.3**	0.132	0.828	2
06126	**Barium**	7440-39-3	**60.9**	0.188	0.828	2
06127	**Beryllium**	7440-41-7	**1.27**	0.0108	0.207	2
06128	**Cadmium**	7440-43-9	**1.23**	0.0356	0.207	2
06131	**Chromium**	7440-47-3	**22.2**	0.180	0.828	2
06132	**Cobalt**	7440-48-4	**67.9**	0.0323	0.207	2
06133	**Copper**	7440-50-8	**31.5**	0.111	0.828	2
06135	**Lead**	7439-92-1	**17.8**	0.0230	0.414	2
06139	**Nickel**	7440-02-0	**26.4**	0.206	0.828	2
06141	**Selenium**	7782-49-2	**2.68**	0.104	0.828	2
06142	**Silver**	7440-22-4	**11.7**	0.0302	0.207	2
06145	**Thallium**	7440-28-0	**0.609**	0.0259	0.207	2
06148	**Vanadium**	7440-62-2	**24.2**	0.0441	0.207	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03MS

C. T. Male Associates
ELLE Sample #: SW 9225415
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,200**	652	1,960	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**6.2**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 03:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:18	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 16:46	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:02	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:02	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:02	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 23:48	James S Mathiot	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03MS

C. T. Male Associates
ELLE Sample #: SW 9225415
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D06-1-1.5' MSD Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03MSD

C. T. Male Associates
ELLE Sample #: SW 9225416
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**0.88**	0.16	0.48	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2**	0.16	0.48	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.1**	0.16	0.48	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.1**	0.16	0.48	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.1**	0.16	0.48	1
14027	**Perfluorohexanesulfonate**	355-46-4	**0.92**	0.16	0.48	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.1**	0.081	0.32	1
14027	**Perfluorononanoic acid**	375-95-1	**1.0**	0.081	0.32	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	0.24	0.73	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.1**	0.16	0.48	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.1**	0.16	0.48	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.1**	0.16	0.48	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.2**	0.16	0.48	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.1**	0.16	0.48	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,070**	7.45	33.3	1
01650	**Calcium**	7440-70-2	**65,000**	13.9	167	5
01654	**Iron**	7439-89-6	**19,000**	6.70	33.3	1
01657	**Magnesium**	7439-95-4	**17,500**	2.02	16.7	1
06958	**Manganese**	7439-96-5	**523**	0.0691	0.833	1
01662	**Potassium**	7440-09-7	**2,150**	13.9	83.3	1
01667	**Sodium**	7440-23-5	**867**	13.9	167	1
06972	**Zinc**	7440-66-6	**92.3**	0.200	3.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.03**	0.0776	0.333	2
06125	**Arsenic**	7440-38-2	**6.77**	0.107	0.666	2
06126	**Barium**	7440-39-3	**38.6**	0.151	0.666	2
06127	**Beryllium**	7440-41-7	**0.830**	0.0087	0.167	2
06128	**Cadmium**	7440-43-9	**0.880**	0.0287	0.167	2
06131	**Chromium**	7440-47-3	**14.5**	0.145	0.666	2
06132	**Cobalt**	7440-48-4	**49.6**	0.0260	0.167	2
06133	**Copper**	7440-50-8	**20.6**	0.0893	0.666	2
06135	**Lead**	7439-92-1	**9.10**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**17.4**	0.166	0.666	2
06141	**Selenium**	7782-49-2	**1.88**	0.0833	0.666	2
06142	**Silver**	7440-22-4	**8.75**	0.0243	0.167	2
06145	**Thallium**	7440-28-0	**0.458**	0.0208	0.167	2
06148	**Vanadium**	7440-62-2	**15.1**	0.0355	0.167	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03MSD

C. T. Male Associates
ELLE Sample #: SW 9225416
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**6.2**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 04:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:22	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 16:50	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/29/2017 16:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:06	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:06	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:06	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D06-1-1.5' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03DUP

C. T. Male Associates
ELLE Sample #: SW 9225417
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,040**	9.44	42.2	1
01650	**Calcium**	7440-70-2	**66,800**	17.6	211	5
01654	**Iron**	7439-89-6	**18,100**	8.50	42.2	1
01657	**Magnesium**	7439-95-4	**20,100**	2.56	21.1	1
06958	**Manganese**	7439-96-5	**610**	0.0876	1.06	1
01662	**Potassium**	7440-09-7	**781**	17.6	106	1
01667	**Sodium**	7440-23-5	**29.7 J**	17.6	211	1
06972	**Zinc**	7440-66-6	**38.0**	0.253	4.22	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.30**	0.0984	0.422	2
06125	**Arsenic**	7440-38-2	**7.29**	0.135	0.844	2
06126	**Barium**	7440-39-3	**32.9**	0.192	0.844	2
06127	**Beryllium**	7440-41-7	**0.257**	0.0111	0.211	2
06128	**Cadmium**	7440-43-9	**0.118 J**	0.0363	0.211	2
06131	**Chromium**	7440-47-3	**9.59**	0.184	0.844	2
06132	**Cobalt**	7440-48-4	**16.3**	0.0329	0.211	2
06133	**Copper**	7440-50-8	**25.8**	0.113	0.844	2
06135	**Lead**	7439-92-1	**9.07**	0.0234	0.422	2
06139	**Nickel**	7440-02-0	**11.9**	0.210	0.844	2
06141	**Selenium**	7782-49-2	**0.382 J**	0.106	0.844	2
06142	**Silver**	7440-22-4	**0.0323 J**	0.0308	0.211	2
06145	**Thallium**	7440-28-0	**0.109 J**	0.0264	0.211	2
06148	**Vanadium**	7440-62-2	**7.02**	0.0450	0.211	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,200**	184	553	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.61**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**6.2**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**6.7**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-1-1.5' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:40
SDG#: SGB50-03DUP

C. T. Male Associates
ELLE Sample #: SW 9225417
ELLE Group #: 1854292
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:14	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 16:42	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 18:59	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 18:59	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 18:59	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 01:56	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402C	09/27/2017 19:40	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:50
SDG#: SGB50-04

C. T. Male Associates
ELLE Sample #: SW 9225418
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078 U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078 U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.70	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,410**	8.27	37.0	1
01650	**Calcium**	7440-70-2	**110,000**	15.4	185	5
01654	**Iron**	7439-89-6	**18,900**	7.45	37.0	1
01657	**Magnesium**	7439-95-4	**31,300**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**2,650**	0.384	4.63	5
01662	**Potassium**	7440-09-7	**692**	15.5	92.5	1
01667	**Sodium**	7440-23-5	**37.9 J**	15.5	185	1
06972	**Zinc**	7440-66-6	**44.5**	0.222	3.70	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0862 U	0.0862	0.370	2
06125	**Arsenic**	7440-38-2	**8.91**	0.118	0.740	2
06126	**Barium**	7440-39-3	**448**	0.168	0.740	2
06127	**Beryllium**	7440-41-7	**0.557**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.284**	0.0318	0.185	2
06131	**Chromium**	7440-47-3	**4.58**	0.161	0.740	2
06132	**Cobalt**	7440-48-4	**18.2**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**9.37**	0.0992	0.740	2
06135	**Lead**	7439-92-1	**8.08**	0.0205	0.370	2
06139	**Nickel**	7440-02-0	**13.2**	0.184	0.740	2
06141	**Selenium**	7782-49-2	**0.132 J**	0.0925	0.740	2
06142	**Silver**	7440-22-4	**0.119 J**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**1.18**	0.0231	0.185	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:50
SDG#: SGB50-04

C. T. Male Associates
ELLE Sample #: SW 9225418
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.61**	0.0394	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**30,000**	182	547	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.69**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**3.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 06:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 18:34	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 18:34	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 17:43	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:31	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 11:50
SDG#: SGB50-04

C. T. Male Associates
ELLE Sample #: SW 9225418
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:31	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:31	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 02:09	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 12:05
SDG#: SGB50-05

C. T. Male Associates
ELLE Sample #: SW 9225419
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.086 U	0.086	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.086 U	0.086	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,720**	7.61	34.0	1
01650	**Calcium**	7440-70-2	**23,600**	2.83	34.0	1
01654	**Iron**	7439-89-6	**9,500**	6.85	34.0	1
01657	**Magnesium**	7439-95-4	**8,150**	2.07	17.0	1
06958	**Manganese**	7439-96-5	**313**	0.0706	0.851	1
01662	**Potassium**	7440-09-7	**413**	14.2	85.1	1
01667	**Sodium**	7440-23-5	**21.5 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**20.8**	0.204	3.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0793 U	0.0793	0.340	2
06125	**Arsenic**	7440-38-2	**3.61**	0.109	0.681	2
06126	**Barium**	7440-39-3	**26.7**	0.155	0.681	2
06127	**Beryllium**	7440-41-7	**0.165 J**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**0.0713 J**	0.0293	0.170	2
06131	**Chromium**	7440-47-3	**4.64**	0.148	0.681	2
06132	**Cobalt**	7440-48-4	**8.10**	0.0265	0.170	2
06133	**Copper**	7440-50-8	**7.57**	0.0912	0.681	2
06135	**Lead**	7439-92-1	**5.55**	0.0189	0.340	2
06139	**Nickel**	7440-02-0	**6.02**	0.170	0.681	2
06141	Selenium	7782-49-2	0.0851 U	0.0851	0.681	2
06142	**Silver**	7440-22-4	**0.0871 J**	0.0248	0.170	2
06145	**Thallium**	7440-28-0	**0.115 J**	0.0213	0.170	2
06148	**Vanadium**	7440-62-2	**2.75**	0.0362	0.170	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 12:05
SDG#: SGB50-05

C. T. Male Associates
ELLE Sample #: SW 9225419
ELLE Group #: 1854292
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,390**	368	1,100	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277008	10/08/2017 06:26	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277008	10/04/2017 16:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172651063704	09/29/2017 17:47	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172651063704D	09/28/2017 19:34	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172651063704B	09/28/2017 19:34	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/23/2017 10:00
Collection Date/Time: 09/22/2017 12:05
SDG#: SGB50-05

C. T. Male Associates
ELLE Sample #: SW 9225419
ELLE Group #: 1854292
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172651063704A	09/28/2017 19:34	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172651063704	09/25/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 02:22	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17270039402A	09/27/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17272820003B	09/29/2017 12:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17277008	Sample number(s): 9225412-9225416,9225418-9225419		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	mg/kg	mg/kg	mg/kg
Batch number: 172651063704	Sample number(s): 9225412-9225419		
Aluminum	8.94 U	8.94	40.0
Calcium	5.24 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.419 J	0.240	4.00
Batch number: 172651063704A	Sample number(s): 9225412-9225419		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.299 J	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200

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Quality Control Summary

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Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Batch number: 172651063704B	Sample number(s): 9225412-9225419		
Selenium	0.100 U	0.100	0.800
Batch number: 172651063704D	Sample number(s): 9225412-9225419		
Barium	0.182 U	0.182	0.800
Batch number: 17293245031B	Sample number(s): 9225412-9225415,9225417-9225419		
TOC	180 J	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17277008	Sample number(s): 9225412-9225416,9225418-9225419								
Perfluorobutanesulfonate	1.20	1.08			89		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.47			108		70-130		
Perfluorododecanoic acid	1.36	1.40			103		70-130		
Perfluoroheptanoic acid	1.36	1.21			89		70-130		
Perfluorohexanesulfonate	1.29	1.24			97		70-130		
Perfluorohexanoic acid	1.36	1.38			102		70-130		
Perfluorononanoic acid	1.36	1.30			96		70-130		
Perfluoro-octanesulfonate	1.30	1.33			102		70-130		
Perfluorooctanoic acid	1.36	1.39			102		70-130		
Perfluoropentanoic acid	1.36	1.43			105		70-130		
Perfluorotetradecanoic acid	1.36	1.46			107		70-130		
Perfluorotridecanoic acid	1.36	1.44			106		70-130		
Perfluoroundecanoic acid	1.36	1.30			96		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172651063704	Sample number(s): 9225412-9225419								
Aluminum	200	202.5			101		80-120		
Calcium	400	397.31			99		80-120		
Iron	100	99.37			99		80-120		
Magnesium	200	199.58			100		80-120		
Manganese	50	50.26			101		80-120		
Potassium	1000	980.66			98		80-120		
Sodium	1000	975.18			98		80-120		
Zinc	50	48.95			98		80-120		
Batch number: 172651063704A	Sample number(s): 9225412-9225419								
Antimony	0.600	0.691			115		80-120		

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Client Name: C. T. Male Associates
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LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Arsenic	1.00	1.10			110		80-120		
Beryllium	0.400	0.440			110		80-120		
Cadmium	0.500	0.552			110		80-120		
Chromium	5.00	5.60			112		80-120		
Cobalt	25	26.95			108		80-120		
Copper	5.00	5.56			111		80-120		
Lead	1.50	1.63			108		80-120		
Nickel	5.00	5.59			112		80-120		
Silver	5.00	5.44			109		80-120		
Thallium	0.200	0.202			101		80-120		
Vanadium	5.00	5.26			105		80-120		
Batch number: 172651063704B	Sample number(s): 9225412-9225419								
Selenium	1.00	1.08			108		80-120		
Batch number: 172651063704D	Sample number(s): 9225412-9225419								
Barium	5.00	5.45			109		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17293245031B	Sample number(s): 9225412-9225415,9225417-9225419								
TOC	7150	6606.9			92		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17270039402A	Sample number(s): 9225412-9225413,9225418-9225419								
pH	7.00	6.97			100		95-105		
Batch number: 17270039402C	Sample number(s): 9225414,9225417								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17272820003B	Sample number(s): 9225412-9225419								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

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MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17277008	Sample number(s): 9225412-9225416,9225418-9225419 UNSPK: 9225414									
Perfluorobutanesulfonate	0.14 U	0.954	0.907	0.911	0.828	95	91	70-130	9	30
Perfluorobutanoic acid	0.14 U	1.08	1.20	1.03	1.10	111	107	70-130	8	30
Perfluorodecanoic acid	0.14 U	1.08	1.11	1.03	0.991	103	96	70-130	12	30
Perfluorododecanoic acid	0.14 U	1.08	1.16	1.03	1.05	107	102	70-130	10	30
Perfluoroheptanoic acid	0.14 U	1.08	0.974	1.03	1.03	90	100	70-130	6	30
Perfluorohexanesulfonate	0.14 U	1.02	0.921	0.974	0.860	90	88	70-130	7	30
Perfluorohexanoic acid	0.071 U	1.08	1.19	1.03	1.01	110	98	70-130	16	30
Perfluorononanoic acid	0.071 U	1.08	1.13	1.03	0.943	105	92	70-130	18	30
Perfluoro-octanesulfonate	0.21 U	1.03	1.11	0.985	1.10	108	112	70-130	1	30
Perfluorooctanoic acid	0.148	1.08	1.24	1.03	1.01	102	84	70-130	21	30
Perfluoropentanoic acid	0.14 U	1.08	1.18	1.03	1.03	109	100	70-130	13	30
Perfluorotetradecanoic acid	0.14 U	1.08	1.08	1.03	1.03	100	100	70-130	5	30
Perfluorotridecanoic acid	0.14 U	1.08	1.02	1.03	1.10	95	107	70-130	8	30
Perfluoroundecanoic acid	0.14 U	1.08	1.12	1.03	1.00	104	97	70-130	12	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172651063704	Sample number(s): 9225412-9225419 UNSPK: 9225414									
Aluminum	5110.76	194.17	8690	156.25	7570.83	1843 (2)	1574 (2)	75-125	14	20
Calcium	61298.46	388.35	68671.75	312.5	60932.52	1899 (2)	-117 (2)	75-125	12	20
Iron	18706.65	97.09	15696.27	78.13	17817.53	-3101 (2)	-1138 (2)	75-125	13	20
Magnesium	18885.22	194.17	22491.19	156.25	16436.95	1857 (2)	-1567 (2)	75-125	31*	20
Manganese	474.62	48.54	469.77	39.06	490.94	-10 (2)	42 (2)	75-125	4	20
Potassium	921.87	970.87	2464.27	781.25	2013.74	159*	140*	75-125	20	20
Sodium	34.26	970.87	1039.39	781.25	812.89	104	100	75-125	24*	20
Zinc	36.93	48.54	80.21	39.06	86.55	89	127*	75-125	8	20
Batch number: 172651063704A	Sample number(s): 9225412-9225419 UNSPK: 9225414									
Antimony	0.133	1.17	1.46	0.938	0.967	114	89	75-125	41*	20
Arsenic	7.01	1.94	10.55	1.56	6.35	182*	-43 (2)	75-125	50*	20
Beryllium	0.310	0.777	1.19	0.625	0.778	113	75	75-125	42*	20
Cadmium	0.104	0.971	1.15	0.781	0.826	108	92	75-125	33*	20
Chromium	10.82	9.71	20.86	7.81	13.62	103	36*	75-125	42*	20
Cobalt	10.05	48.54	63.73	39.06	46.55	111	93	75-125	31*	20
Copper	16.93	9.71	29.51	7.81	19.28	130*	30*	75-125	42*	20
Lead	12.81	2.91	16.69	2.34	8.54	133 (2)	-182 (2)	75-125	65*	20
Nickel	12.07	9.71	24.74	7.81	16.32	130*	54*	75-125	41*	20
Silver	0.0348	9.71	10.97	7.81	8.20	113	105	75-125	29*	20
Thallium	0.114	0.388	0.571	0.313	0.430	118	101	75-125	28*	20
Vanadium	8.07	9.71	22.71	7.81	14.21	151*	79	75-125	46*	20
Batch number: 172651063704B	Sample number(s): 9225412-9225419 UNSPK: 9225414									
Selenium	0.315	1.94	2.51	1.56	1.76	113	93	75-125	35*	20

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Quality Control Summary

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Group Number: 1854292

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172651063704D	Sample number(s): 9225412-9225419 UNSPK: 9225414									
Barium	46.2	9.71	57.11	7.81	36.25	112 (2)	-127 (2)	75-125	45*	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17293245031B	Sample number(s): 9225412-9225415,9225417-9225419 UNSPK: 9225414									
TOC	15819.5	18349	30238.53			79		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172651063704	Sample number(s): 9225412-9225419 BKG: 9225414			
Aluminum	5110.76	3790.89	30*	20
Calcium	61298.46	62698	2	20
Iron	18706.65	16944.99	10	20
Magnesium	18885.22	18866.19	0	20
Manganese	474.62	572.31	19	20
Potassium	921.87	732.98	23*	20
Sodium	34.26	27.83	21* (1)	20
Zinc	36.93	35.65	4	20
Batch number: 172651063704A	Sample number(s): 9225412-9225419 BKG: 9225414			
Antimony	0.133	1.21	161* (1)	20
Arsenic	7.01	6.84	2	20
Beryllium	0.310	0.241	25* (1)	20
Cadmium	0.104	0.111	6 (1)	20
Chromium	10.82	8.99	18	20
Cobalt	10.05	15.33	42*	20
Copper	16.93	24.2	35*	20
Lead	12.81	8.51	40*	20
Nickel	12.07	11.12	8	20
Silver	0.0348	0.0303	14 (1)	20
Thallium	0.114	0.102	11 (1)	20
Vanadium	8.07	6.58	20	20
Batch number: 172651063704B	Sample number(s): 9225412-9225419 BKG: 9225414			
Selenium	0.315	0.359	13 (1)	20

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Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172651063704D	Sample number(s): 9225412-9225419 BKG: 9225414			
Barium	46.2	30.9	40*	20
	mg/kg	mg/kg		
Batch number: 17293245031B	Sample number(s): 9225412-9225415,9225417-9225419 BKG: 9225414			
TOC	15819.5	16157.58	2	7
	Std. Units	Std. Units		
Batch number: 17270039402A	Sample number(s): 9225412-9225413,9225418-9225419 BKG: P227013			
pH	9.52	9.65	1	3
Batch number: 17270039402C	Sample number(s): 9225414,9225417 BKG: 9225414			
pH	8.64	8.61	0	3
	%	%		
Batch number: 17272820003B	Sample number(s): 9225412-9225419 BKG: 9225414, P225414			
Moisture	6.18	6.65	7*	5
Moisture	6.18	6.65	7*	5
Moisture Duplicate	6.18	6.65	7*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9225412	95	98	93	103	103	96
9225413	83	92	92	77	83	86
9225414	83	83	83	80	90	86
9225415	89	89	95	86	97	92
9225416	86	91	100	87	97	87
9225418	60	69*	72	68	73	65
9225419	83	88	82	74	82	84
Blank	91	93	95	91	94	90
LCS	90	97	98	92	92	93
MS	89	89	95	86	97	92
MSD	86	91	100	87	97	87

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Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277008

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	54-95	70-130	34-118	43-115	32-125	45-114
9225412	101	96	107	103	100	101
9225413	84	92	98	95	89	92
9225414	79	94	90	87	82	92
9225415	95	93	88	89	87	98
9225416	92	98	100	93	94	91
9225418	65	69	62	66	72	66
9225419	80	85	88	89	87	95
Blank	90	100	108	94	96	99
LCS	90	95	101	95	94	96
MS	95	93	88	89	87	98
MSD	92	98	100	93	94	91
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9225412	89
9225413	96
9225414	95
9225415	94
9225416	104
9225418	68
9225419	89
Blank	99
LCS	103
MS	94
MSD	104
Limits:	20-127

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37191 1854292 9225412-19

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52286

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dorpay	Name: Lathrup, NY
email: mdorpay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 3242/001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: PFCs (14)	Soil: 4oz. glass - TOC, pH, Moist., metals	Soil: % Solids
										A	A	
										1	1	
1. SG3-D08-0-0.5'	0	0.5	ft.	09/22/2017	09:05	S	N	2		1	1	
2. SG3-D08-0.5-1'	0.5	1	ft.	09/22/2017	09:15	S	N	2		1	1	
3. SG3-D08-1-1.5'	1	1.5	ft.	09/22/2017	09:20	S	N	2		1	1	
4. (was) FDS07-170922				09/22/2017		S	N	2		1	1	
5. SG3-D08-3-5'	3	5	ft.	09/22/2017	09:30	S	Y	6		3	3	
6. SG3-D08-7-8'	7	8	ft.	09/22/2017	09:45	S	N	2		1	1	
7. SG3-D08-10-11'	10	11	ft.	09/22/2017	10:20	S	N	2		1	1	
8. SG3-D06-0-0.5'	0	0.5	ft.	09/22/2017	11:25	S	N	2		1	1	
9. SG3-D06-0.5-1'	0.5	1	ft.	09/22/2017	11:35	S	N	2		1	1	
10. SG3-D06-1-1.5'	1	1.5	ft.	09/22/2017	11:40	S	Y	6		3	3	

Preservative Code

Field Filtered Y/N

Metals = TAL cations excluding Hg

BARR USE ONLY

Sampled by: RQM/KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Ellie Zander — On Ice? Y N — Date 9-22-17 — Time 1630

Received by:

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date 9-23-17 — Time 1000

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1854292 922541Z-19

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52289

COC 2 of 3

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: PFCs (14)	Soil: 4o2, glass, TOC, pH, Moist., Metals	Soil: % Solids	Preservative Code	Field Filtered Y/N
										A	A			
										1	1			
1. SG3-D06-3-4'	3	4	ft.	09/22/2017	11:50	S	N	2		1	1			
2. SG3-D06-8-9'	8	9	ft.	09/22/2017	12:05	S	N	2		1	1			Metals = TAL cations excluding Hg
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY							
Sampled by: RQM/KAM	Relinquished by:	On Ice? Y (N)	Date 9-22-17	Time 1637	Received by:	Date	Time
Barr Proj. Manager: STC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9-23-17	Time 1000
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Folder; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195372

Group Number(s): 1854292

Client: BARR Engineering Co

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/23/2017 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL unpre plastic botles

Unpacked by Melvin Sanchez (8943) at 14:03 on 09/23/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.7	DT	Wet	Y	Bagged	N
2	DT42-02	1.3	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 10, 2017 10:11

Project: SGPP - Bennington

Account #: 37191
Group Number: 1855035
SDG: SGB51
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D25-0-0.5' Soil	09/22/2017 15:45	9228623
SG3-D25-0.5-1' Soil	09/22/2017 15:50	9228624
SG3-D25-1-1.5' Soil	09/22/2017 15:55	9228625
SG3-D25-3-4' Soil	09/22/2017 16:00	9228626
SG3-D25-8-9' Soil	09/22/2017 16:40	9228627
SG3-D25-18-19' Soil	09/22/2017 16:50	9228628
SG3-D25-6.5-7.5' Soil	09/23/2017 07:10	9228629
SG3-D24-0-0.5' Soil	09/23/2017 12:55	9228630
SG3-D24-0.5-1' Soil	09/23/2017 13:00	9228631
SG3-D24-1-1.5' Soil	09/23/2017 13:05	9228632
SG3-LTB49-170923 Blank Water	09/23/2017	9228633
SG3-LTB50-170923 Blank Water	09/23/2017	9228634
SG3-D24-3-4' Soil	09/23/2017 13:10	9228635
SG3-D24-9-10' Soil	09/23/2017 13:30	9228636
SG3-D24-18-19' Soil	09/23/2017 13:45	9228637
SG3-D24-28-29' Soil	09/23/2017 14:05	9228638
SG3-D24-38-39' Soil	09/23/2017 15:00	9228639
SG3-D24-48-49' Soil	09/24/2017 09:25	9228640
SG3-D24-58-59' Soil	09/24/2017 10:35	9228641
SG3-D24-68-69' Soil	09/24/2017 11:00	9228642

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1855035

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9228633, 9228634

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample #s: 9228642

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9228630

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Batch #: 17277009 (Sample number(s): 9228623-9228629, 9228631-9228632, 9228635-9228642 UNSPK: 9228623)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorooctanoic acid. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9228642

Batch #: 17290007 (Sample number(s): 9228630 UNSPK: P250901)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MS

SW-846 6010C, Metals

Sample #s: 9228640, 9228641

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172711063701 (Sample number(s): 9228623-9228632, 9228635-9228642 UNSPK: 9228623 BKG: 9228623)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Iron, Manganese

SW-846 6020A, Metals

Batch #: 172761063701A (Sample number(s): 9228628-9228632, 9228635-9228642 UNSPK: 9228629 BKG: 9228629)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Thallium, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Cobalt, Nickel

Batch #: 172761063701D (Sample number(s): 9228628-9228632, 9228635-9228642 UNSPK: 9228629 BKG: 9228629)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

Batch #: 172901063701A (Sample number(s): 9228623-9228627 UNSPK: P266296 BKG: P266296)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Lead

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Arsenic, Cadmium, Lead, Thallium

Batch #: 172901063701D (Sample number(s): 9228623-9228627 UNSPK: P266296 BKG: P266296)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9228627

This sample missed the TOC Soil Combustion hold time by 1 hours and 36 minutes.

Sample #s: 9228628

This sample missed the TOC Soil Combustion hold time by 2 hours and 10 minutes.

Sample #s: 9228626, 9228631

This sample was originally analyzed within the 28 day hold, however a sample miss injection caused erroneous results. The sample was repeated outside of the hold time and per the client, the result reported.

Sample #s: 9228625

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range result.

Sample #s: 9228624

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

Sample #s: 9228623

This sample was originally analzyed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

Batch #: 17293049531A (Sample number(s): 9228627-9228632, 9228636-9228639 UNSPK: 9228627 BKG: 9228627)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: TOC Solids/Sludges Combustion

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9228626

The pH was measured in water at 19.5 C.

Sample #s: 9228637

The pH was measured in water at 19.6 C.

Sample #s: 9228636, 9228638

The pH was measured in water at 19.7 C.

Sample #s: 9228624, 9228625, 9228628, 9228631, 9228635, 9228639

The pH was measured in water at 19.8 C.

Sample #s: 9228623, 9228630, 9228642

The pH was measured in water at 19.9 C.

Sample #s: 9228627, 9228629, 9228632, 9228640

The pH was measured in water at 20 C.

Sample #s: 9228641

The pH was measured in water at 20.1 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17272820008A (Sample number(s): 9228623-9228632 BKG: 9228627)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Batch #: 17272820008B (Sample number(s): 9228635-9228642 BKG: 9228637)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: SG3-D25-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:45
SDG#: SGB51-01

C. T. Male Associates
ELLE Sample #: SW 9228623
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.44	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.44	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.44	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.44	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.44	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.44	1
14027	Perfluorohexanoic acid	307-24-4	0.073 U	0.073	0.29	1
14027	Perfluorononanoic acid	375-95-1	0.073 U	0.073	0.29	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.22 U	0.22	0.66	1
14027	Perfluorooctanoic acid	335-67-1	0.15 U	0.15	0.44	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.44	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.44	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.44	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.44	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,280**	8.71	39.0	1
01650	**Calcium**	7440-70-2	**101,000**	16.2	195	5
01654	**Iron**	7439-89-6	**9,200**	7.85	39.0	1
01657	**Magnesium**	7439-95-4	**32,000**	2.37	19.5	1
06958	**Manganese**	7439-96-5	**327**	0.0809	0.975	1
01662	**Potassium**	7440-09-7	**443**	16.3	97.5	1
01667	**Sodium**	7440-23-5	**39.0 J**	16.3	195	1
06972	**Zinc**	7440-66-6	**20.7**	0.234	3.90	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0953 U	0.0953	0.409	2
06125	**Arsenic**	7440-38-2	**5.42**	0.131	0.818	2
06126	**Barium**	7440-39-3	**56.0**	0.186	0.818	2
06127	**Beryllium**	7440-41-7	**0.193 J**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.113 J**	0.0352	0.204	2
06131	**Chromium**	7440-47-3	**3.27**	0.178	0.818	2
06132	**Cobalt**	7440-48-4	**10.2**	0.0319	0.204	2
06133	**Copper**	7440-50-8	**8.74**	0.110	0.818	2
06135	**Lead**	7439-92-1	**8.14**	0.0227	0.409	2
06139	**Nickel**	7440-02-0	**7.32**	0.204	0.818	2
06141	**Selenium**	7782-49-2	**0.120 J**	0.102	0.818	2
06142	**Silver**	7440-22-4	**0.0538 J**	0.0299	0.204	2
06145	**Thallium**	7440-28-0	**0.219**	0.0256	0.204	2
06148	**Vanadium**	7440-62-2	**4.03**	0.0436	0.204	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D25-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:45
SDG#: SGB51-01

C. T. Male Associates
ELLE Sample #: SW 9228623
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**27,600**	215	644	1
	This sample was originally analzyed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.70**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 15:52	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 15:04	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 14:30	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172901063701D	10/19/2017 10:35	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172901063701B	10/19/2017 10:35	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:45
SDG#: SGB51-01

C. T. Male Associates
ELLE Sample #: SW 9228623
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172901063701A	10/19/2017 10:35	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172901063701	10/18/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	2	17293245031B	10/20/2017 03:22	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:50
SDG#: SGB51-02

C. T. Male Associates
ELLE Sample #: SW 9228624
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,320**	8.17	36.5	1
01650	**Calcium**	7440-70-2	**108,000**	15.2	183	5
01654	**Iron**	7439-89-6	**9,270**	7.36	36.5	1
01657	**Magnesium**	7439-95-4	**33,500**	2.22	18.3	1
06958	**Manganese**	7439-96-5	**252**	0.0758	0.914	1
01662	**Potassium**	7440-09-7	**464**	15.3	91.4	1
01667	**Sodium**	7440-23-5	**41.7 J**	15.3	183	1
06972	**Zinc**	7440-66-6	**19.6**	0.219	3.65	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0916 U	0.0916	0.393	2
06125	**Arsenic**	7440-38-2	**6.42**	0.126	0.786	2
06126	**Barium**	7440-39-3	**27.5**	0.178	0.786	2
06127	**Beryllium**	7440-41-7	**0.140 J**	0.0103	0.197	2
06128	**Cadmium**	7440-43-9	**0.0904 J**	0.0338	0.197	2
06131	**Chromium**	7440-47-3	**2.96**	0.171	0.786	2
06132	**Cobalt**	7440-48-4	**5.73**	0.0307	0.197	2
06133	**Copper**	7440-50-8	**7.68**	0.105	0.786	2
06135	**Lead**	7439-92-1	**6.30**	0.0218	0.393	2
06139	**Nickel**	7440-02-0	**7.21**	0.196	0.786	2
06141	**Selenium**	7782-49-2	**0.111 J**	0.0983	0.786	2
06142	**Silver**	7440-22-4	**0.0295 J**	0.0287	0.197	2
06145	**Thallium**	7440-28-0	**0.164 J**	0.0246	0.197	2
06148	**Vanadium**	7440-62-2	**3.51**	0.0419	0.197	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:50
SDG#: SGB51-02

C. T. Male Associates
ELLE Sample #: SW 9228624
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,800**	192	575	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.94**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 16:13	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 15:27	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 14:54	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172901063701D	10/19/2017 10:38	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172901063701B	10/19/2017 10:38	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:50
SDG#: SGB51-02

C. T. Male Associates
ELLE Sample #: SW 9228624
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172901063701A	10/19/2017 10:38	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172901063701	10/18/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	2	17293245031B	10/20/2017 03:35	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401A	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:55
SDG#: SGB51-03

C. T. Male Associates
ELLE Sample #: SW 9228625
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.079 U	0.079	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.079 U	0.079	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,360**	9.41	42.1	1
01650	**Calcium**	7440-70-2	**98,500**	17.5	211	5
01654	**Iron**	7439-89-6	**8,500**	8.47	42.1	1
01657	**Magnesium**	7439-95-4	**28,100**	2.56	21.1	1
06958	**Manganese**	7439-96-5	**219**	0.0874	1.05	1
01662	**Potassium**	7440-09-7	**431**	17.6	105	1
01667	**Sodium**	7440-23-5	**36.3 J**	17.6	211	1
06972	**Zinc**	7440-66-6	**17.4**	0.253	4.21	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0962 U	0.0962	0.413	2
06125	**Arsenic**	7440-38-2	**4.69**	0.132	0.826	2
06126	**Barium**	7440-39-3	**19.0**	0.187	0.826	2
06127	**Beryllium**	7440-41-7	**0.128 J**	0.0108	0.206	2
06128	**Cadmium**	7440-43-9	**0.0735 J**	0.0355	0.206	2
06131	**Chromium**	7440-47-3	**2.90**	0.180	0.826	2
06132	**Cobalt**	7440-48-4	**11.1**	0.0322	0.206	2
06133	**Copper**	7440-50-8	**7.09**	0.111	0.826	2
06135	**Lead**	7439-92-1	**5.44**	0.0229	0.413	2
06139	**Nickel**	7440-02-0	**7.36**	0.206	0.826	2
06141	Selenium	7782-49-2	0.103 U	0.103	0.826	2
06142	Silver	7440-22-4	0.0301 U	0.0301	0.206	2
06145	**Thallium**	7440-28-0	**0.0549 J**	0.0258	0.206	2
06148	**Vanadium**	7440-62-2	**3.80**	0.0440	0.206	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:55
SDG#: SGB51-03

C. T. Male Associates
ELLE Sample #: SW 9228625
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**23,300**	169	508	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range result.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**9.01**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 16:33	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 15:30	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 14:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172901063701D	10/19/2017 10:47	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172901063701B	10/19/2017 10:47	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 15:55
SDG#: SGB51-03

C. T. Male Associates
ELLE Sample #: SW 9228625
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172901063701A	10/19/2017 10:47	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172901063701	10/18/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293245031B	10/20/2017 03:48	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401A	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:00
SDG#: SGB51-04

C. T. Male Associates
ELLE Sample #: SW 9228626
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.083 U	0.083	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.083 U	0.083	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.75	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,010**	8.03	35.9	1
01650	**Calcium**	7440-70-2	**105,000**	15.0	180	5
01654	**Iron**	7439-89-6	**7,750**	7.23	35.9	1
01657	**Magnesium**	7439-95-4	**29,900**	2.18	18.0	1
06958	**Manganese**	7439-96-5	**228**	0.0746	0.898	1
01662	**Potassium**	7440-09-7	**366**	15.0	89.8	1
01667	**Sodium**	7440-23-5	**36.7 J**	15.0	180	1
06972	**Zinc**	7440-66-6	**16.3**	0.216	3.59	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0913 U	0.0913	0.392	2
06125	**Arsenic**	7440-38-2	**3.93**	0.125	0.783	2
06126	**Barium**	7440-39-3	**18.1**	0.178	0.783	2
06127	**Beryllium**	7440-41-7	**0.141 J**	0.0103	0.196	2
06128	**Cadmium**	7440-43-9	**0.0531 J**	0.0337	0.196	2
06131	**Chromium**	7440-47-3	**2.66**	0.170	0.783	2
06132	**Cobalt**	7440-48-4	**3.61**	0.0306	0.196	2
06133	**Copper**	7440-50-8	**5.32**	0.105	0.783	2
06135	**Lead**	7439-92-1	**4.41**	0.0217	0.392	2
06139	**Nickel**	7440-02-0	**6.00**	0.195	0.783	2
06141	Selenium	7782-49-2	0.0979 U	0.0979	0.783	2
06142	Silver	7440-22-4	0.0286 U	0.0286	0.196	2
06145	**Thallium**	7440-28-0	**0.0597 J**	0.0245	0.196	2
06148	**Vanadium**	7440-62-2	**3.68**	0.0417	0.196	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:00
SDG#: SGB51-04

C. T. Male Associates
ELLE Sample #: SW 9228626
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,440**	**J**	1,540	4,630	1
	This sample was originally analyzed within the 28 day hold, however a sample miss injection caused erroneous results. The sample was repeated outside of the hold time and per the client, the result reported.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.86**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 16:54	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 15:34	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:08	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172901063701D	10/19/2017 10:50	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:00
SDG#: SGB51-04

C. T. Male Associates
ELLE Sample #: SW 9228626
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172901063701B	10/19/2017 10:50	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172901063701A	10/19/2017 10:50	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172901063701	10/18/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17297667631A	10/25/2017 22:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17271039401A	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:40
SDG#: SGB51-05

C. T. Male Associates
ELLE Sample #: SW 9228627
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.076 U	0.076	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.076 U	0.076	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.69	1
14027	Perfluorooctanoic acid	335-67-1	0.15 U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,590**	8.42	37.7	1
01650	**Calcium**	7440-70-2	**19,600**	3.13	37.7	1
01654	**Iron**	7439-89-6	**11,200**	7.58	37.7	1
01657	**Magnesium**	7439-95-4	**8,930**	2.29	18.8	1
06958	**Manganese**	7439-96-5	**286**	0.0781	0.941	1
01662	**Potassium**	7440-09-7	**992**	15.7	94.1	1
01667	**Sodium**	7440-23-5	**35.8 J**	15.7	188	1
06972	**Zinc**	7440-66-6	**18.6**	0.226	3.77	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0732 U	0.0732	0.314	2
06125	**Arsenic**	7440-38-2	**3.77**	0.101	0.628	2
06126	**Barium**	7440-39-3	**42.3**	0.143	0.628	2
06127	**Beryllium**	7440-41-7	**0.293**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.0726 J**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**3.86**	0.137	0.628	2
06132	**Cobalt**	7440-48-4	**6.43**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**7.46**	0.0842	0.628	2
06135	**Lead**	7439-92-1	**6.53**	0.0174	0.314	2
06139	**Nickel**	7440-02-0	**6.54**	0.156	0.628	2
06141	**Selenium**	7782-49-2	**0.108 J**	0.0785	0.628	2
06142	Silver	7440-22-4	0.0229 U	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.119 J**	0.0196	0.157	2
06148	**Vanadium**	7440-62-2	**5.73**	0.0335	0.157	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:40
SDG#: SGB51-05

C. T. Male Associates
ELLE Sample #: SW 9228627
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,310**	140	420	1
	This sample missed the TOC Soil Combustion hold time by 1 hours and 36 minutes.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.58**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 17:14	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:12	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172901063701D	10/19/2017 10:53	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172901063701B	10/19/2017 10:53	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:40
SDG#: SGB51-05

C. T. Male Associates
ELLE Sample #: SW 9228627
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172901063701A	10/19/2017 10:53	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172901063701	10/18/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 01:36	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401A	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:50
SDG#: SGB51-06

C. T. Male Associates
ELLE Sample #: SW 9228628
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.087 U	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087 U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,730**	8.33	37.3	1
01650	**Calcium**	7440-70-2	**20,000**	3.10	37.3	1
01654	**Iron**	7439-89-6	**7,940**	7.50	37.3	1
01657	**Magnesium**	7439-95-4	**7,610**	2.27	18.6	1
06958	**Manganese**	7439-96-5	**215**	0.0774	0.932	1
01662	**Potassium**	7440-09-7	**887**	15.6	93.2	1
01667	**Sodium**	7440-23-5	**32.3 J**	15.6	186	1
06972	**Zinc**	7440-66-6	**13.4**	0.224	3.73	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.102 U	0.102	0.439	2
06125	**Arsenic**	7440-38-2	**3.40**	0.140	0.877	2
06126	**Barium**	7440-39-3	**40.1**	0.199	0.877	2
06127	**Beryllium**	7440-41-7	**0.274**	0.0115	0.219	2
06128	**Cadmium**	7440-43-9	**0.0377 J**	0.0377	0.219	2
06131	**Chromium**	7440-47-3	**4.25**	0.191	0.877	2
06132	**Cobalt**	7440-48-4	**7.13**	0.0342	0.219	2
06133	**Copper**	7440-50-8	**6.07**	0.118	0.877	2
06135	**Lead**	7439-92-1	**5.90**	0.0243	0.439	2
06139	**Nickel**	7440-02-0	**4.86**	0.218	0.877	2
06141	Selenium	7782-49-2	0.110 U	0.110	0.877	2
06142	**Silver**	7440-22-4	**0.0322 J**	0.0320	0.219	2
06145	**Thallium**	7440-28-0	**0.112 J**	0.0274	0.219	2
06148	**Vanadium**	7440-62-2	**4.99**	0.0467	0.219	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:50
SDG#: SGB51-06

C. T. Male Associates
ELLE Sample #: SW 9228628
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,770**	262	785	1
	This sample missed the TOC Soil Combustion hold time by 2 hours and 10 minutes.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.60**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 17:35	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:16	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 16:46	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 16:46	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/22/2017 16:50
SDG#: SGB51-06

C. T. Male Associates
ELLE Sample #: SW 9228628
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 16:46	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 02:10	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401A	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D25-6.5-7.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 07:10
SDG#: SGB51-07

C. T. Male Associates
ELLE Sample #: SW 9228629
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,310**	8.70	38.9	1
01650	**Calcium**	7440-70-2	**20,800**	3.24	38.9	1
01654	**Iron**	7439-89-6	**16,500**	7.83	38.9	1
01657	**Magnesium**	7439-95-4	**8,420**	2.36	19.5	1
06958	**Manganese**	7439-96-5	**604**	0.0807	0.973	1
01662	**Potassium**	7440-09-7	**1,090**	16.2	97.3	1
01667	**Sodium**	7440-23-5	**41.9 J**	16.2	195	1
06972	**Zinc**	7440-66-6	**34.8**	0.233	3.89	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.137 J**	0.106	0.454	2
06125	**Arsenic**	7440-38-2	**6.35**	0.145	0.908	2
06126	**Barium**	7440-39-3	**87.0**	0.206	0.908	2
06127	**Beryllium**	7440-41-7	**0.514**	0.0119	0.227	2
06128	**Cadmium**	7440-43-9	**0.129 J**	0.0390	0.227	2
06131	**Chromium**	7440-47-3	**6.81**	0.197	0.908	2
06132	**Cobalt**	7440-48-4	**21.1**	0.0354	0.227	2
06133	**Copper**	7440-50-8	**18.6**	0.122	0.908	2
06135	**Lead**	7439-92-1	**9.58**	0.0252	0.454	2
06139	**Nickel**	7440-02-0	**17.4**	0.226	0.908	2
06141	**Selenium**	7782-49-2	**0.180 J**	0.113	0.908	2
06142	Silver	7440-22-4	0.0331 U	0.0331	0.227	2
06145	**Thallium**	7440-28-0	**0.352**	0.0284	0.227	2
06148	**Vanadium**	7440-62-2	**9.13**	0.0483	0.227	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D25-6.5-7.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9228629
ELLE Group #: 1855035
Matrix: Soil

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 07:10
SDG#: SGB51-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,900**	225	674	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.45**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 18:37	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:19	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 16:28	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 16:28	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-6.5-7.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 07:10
SDG#: SGB51-07

C. T. Male Associates
ELLE Sample #: SW 9228629
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 16:28	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 02:58	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 12:55
SDG#: SGB51-08

C. T. Male Associates
ELLE Sample #: SW 9228630
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.21 J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.28 J**	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.16 J**	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.6**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**18,300**	8.74	39.1	1
01650	**Calcium**	7440-70-2	**1,000**	3.26	39.1	1
01654	**Iron**	7439-89-6	**31,700**	39.3	196	5
01657	**Magnesium**	7439-95-4	**5,660**	2.38	19.6	1
06958	**Manganese**	7439-96-5	**876**	0.0811	0.978	1
01662	**Potassium**	7440-09-7	**2,150**	16.3	97.8	1
01667	**Sodium**	7440-23-5	**74.4 J**	16.3	196	1
06972	**Zinc**	7440-66-6	**87.2**	0.235	3.91	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.117 J**	0.110	0.471	2
06125	**Arsenic**	7440-38-2	**9.49**	0.151	0.941	2
06126	**Barium**	7440-39-3	**103**	0.214	0.941	2
06127	**Beryllium**	7440-41-7	**0.686**	0.0123	0.235	2
06128	**Cadmium**	7440-43-9	**0.334**	0.0405	0.235	2
06131	**Chromium**	7440-47-3	**18.4**	0.205	0.941	2
06132	**Cobalt**	7440-48-4	**15.2**	0.0367	0.235	2
06133	**Copper**	7440-50-8	**24.3**	0.126	0.941	2
06135	**Lead**	7439-92-1	**19.4**	0.0261	0.471	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 12:55
SDG#: SGB51-08

C. T. Male Associates
ELLE Sample #: SW 9228630
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**29.7**	0.234	0.941	2
06141	**Selenium**	7782-49-2	**0.363 J**	0.118	0.941	2
06142	**Silver**	7440-22-4	**0.118 J**	0.0344	0.235	2
06145	**Thallium**	7440-28-0	**0.191 J**	0.0294	0.235	2
06148	**Vanadium**	7440-62-2	**22.4**	0.0501	0.235	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,680**	733	2,200	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.48**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 08:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 15:38	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:23	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 16:49	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 12:55
SDG#: SGB51-08

C. T. Male Associates
ELLE Sample #: SW 9228630
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 16:49	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 16:49	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 03:11	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:00
SDG#: SGB51-09

C. T. Male Associates
ELLE Sample #: SW 9228631
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**17,100**	9.04	40.5	1
01650	**Calcium**	7440-70-2	**715**	3.37	40.5	1
01654	**Iron**	7439-89-6	**30,900**	40.7	202	5
01657	**Magnesium**	7439-95-4	**5,840**	2.46	20.2	1
06958	**Manganese**	7439-96-5	**705**	0.0839	1.01	1
01662	**Potassium**	7440-09-7	**2,230**	16.9	101	1
01667	**Sodium**	7440-23-5	**82.2 J**	16.9	202	1
06972	**Zinc**	7440-66-6	**70.7**	0.243	4.05	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.226 J**	0.101	0.435	2
06125	**Arsenic**	7440-38-2	**11.4**	0.139	0.871	2
06126	**Barium**	7440-39-3	**92.2**	0.198	0.871	2
06127	**Beryllium**	7440-41-7	**0.777**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.260**	0.0374	0.218	2
06131	**Chromium**	7440-47-3	**19.3**	0.189	0.871	2
06132	**Cobalt**	7440-48-4	**19.2**	0.0340	0.218	2
06133	**Copper**	7440-50-8	**28.4**	0.117	0.871	2
06135	**Lead**	7439-92-1	**18.3**	0.0242	0.435	2
06139	**Nickel**	7440-02-0	**34.3**	0.217	0.871	2
06141	**Selenium**	7782-49-2	**0.300 J**	0.109	0.871	2
06142	**Silver**	7440-22-4	**0.0372 J**	0.0318	0.218	2
06145	**Thallium**	7440-28-0	**0.197 J**	0.0272	0.218	2
06148	**Vanadium**	7440-62-2	**22.9**	0.0464	0.218	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D24-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:00
SDG#: SGB51-09

C. T. Male Associates
ELLE Sample #: SW 9228631
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,290**	463	1,390	1
	This sample was originally analyzed within the 28 day hold, however a sample miss injection caused erroneous results. The sample was repeated outside of the hold time and per the client, the result reported.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.80**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 19:18	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 15:49	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:27	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 16:59	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:00
SDG#: SGB51-09

C. T. Male Associates
ELLE Sample #: SW 9228631
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 16:59	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 16:59	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/26/2017 13:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:05
SDG#: SGB51-10

C. T. Male Associates
ELLE Sample #: SW 9228632
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.43 J**	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**19,500**	8.68	38.9	1
01650	**Calcium**	7440-70-2	**1,160**	3.23	38.9	1
01654	**Iron**	7439-89-6	**36,800**	39.1	194	5
01657	**Magnesium**	7439-95-4	**7,330**	2.36	19.4	1
06958	**Manganese**	7439-96-5	**834**	0.0806	0.971	1
01662	**Potassium**	7440-09-7	**2,790**	16.2	97.1	1
01667	**Sodium**	7440-23-5	**122 J**	16.2	194	1
06972	**Zinc**	7440-66-6	**80.4**	0.233	3.89	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.154 J**	0.0963	0.413	2
06125	**Arsenic**	7440-38-2	**12.4**	0.132	0.826	2
06126	**Barium**	7440-39-3	**121**	0.188	0.826	2
06127	**Beryllium**	7440-41-7	**0.736**	0.0108	0.207	2
06128	**Cadmium**	7440-43-9	**0.247**	0.0355	0.207	2
06131	**Chromium**	7440-47-3	**20.2**	0.180	0.826	2
06132	**Cobalt**	7440-48-4	**18.8**	0.0322	0.207	2
06133	**Copper**	7440-50-8	**42.8**	0.111	0.826	2
06135	**Lead**	7439-92-1	**18.8**	0.0229	0.413	2
06139	**Nickel**	7440-02-0	**39.7**	0.206	0.826	2
06141	**Selenium**	7782-49-2	**0.245 J**	0.103	0.826	2
06142	**Silver**	7440-22-4	**0.0316 J**	0.0302	0.207	2
06145	**Thallium**	7440-28-0	**0.171 J**	0.0258	0.207	2
06148	**Vanadium**	7440-62-2	**23.0**	0.0440	0.207	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D24-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:05
SDG#: SGB51-10

C. T. Male Associates
ELLE Sample #: SW 9228632
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,820**	616	1,850	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.04**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 19:38	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 15:53	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:30	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:02	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:02	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:05
SDG#: SGB51-10

C. T. Male Associates
ELLE Sample #: SW 9228632
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:02	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 03:32	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008A	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB49-170923 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017
SDG#: SGB51-11TB

C. T. Male Associates
ELLE Sample #: WW 9228633
ELLE Group #: 1855035
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17270007	09/30/2017 12:39	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270007	09/27/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB50-170923 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017
SDG#: SGB51-12TB

C. T. Male Associates
ELLE Sample #: WW 9228634
ELLE Group #: 1855035
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of extraction standard 13C2-PFTeDA was outside QC acceptance criteria in the opening CCV associated with this sample. Since the recovery of 13C2-PFTeDA was within acceptance criteria in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17270007	09/30/2017 12:59	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270007	09/27/2017 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:10
SDG#: SGB51-13

C. T. Male Associates
ELLE Sample #: SW 9228635
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.59 J**	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,800**	8.50	38.0	1
01650	**Calcium**	7440-70-2	**1,890**	3.17	38.0	1
01654	**Iron**	7439-89-6	**36,500**	38.3	190	5
01657	**Magnesium**	7439-95-4	**7,440**	2.31	19.0	1
06958	**Manganese**	7439-96-5	**843**	0.0789	0.951	1
01662	**Potassium**	7440-09-7	**3,480**	15.9	95.1	1
01667	**Sodium**	7440-23-5	**271**	15.9	190	1
06972	**Zinc**	7440-66-6	**78.5**	0.228	3.80	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.180 J**	0.0865	0.371	2
06125	**Arsenic**	7440-38-2	**13.5**	0.119	0.742	2
06126	**Barium**	7440-39-3	**120**	0.169	0.742	2
06127	**Beryllium**	7440-41-7	**0.824**	0.0097	0.186	2
06128	**Cadmium**	7440-43-9	**0.228**	0.0319	0.186	2
06131	**Chromium**	7440-47-3	**25.1**	0.161	0.742	2
06132	**Cobalt**	7440-48-4	**18.5**	0.0290	0.186	2
06133	**Copper**	7440-50-8	**41.0**	0.0995	0.742	2
06135	**Lead**	7439-92-1	**20.3**	0.0206	0.371	2
06139	**Nickel**	7440-02-0	**42.5**	0.185	0.742	2
06141	**Selenium**	7782-49-2	**0.182 J**	0.0928	0.742	2
06142	**Silver**	7440-22-4	**0.0666 J**	0.0271	0.186	2
06145	**Thallium**	7440-28-0	**0.186**	0.0232	0.186	2
06148	**Vanadium**	7440-62-2	**29.0**	0.0395	0.186	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:10
SDG#: SGB51-13

C. T. Male Associates
ELLE Sample #: SW 9228635
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,050**	**J**	1,650	4,940	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.82**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
	%Moisture Calc						
00111	**Moisture**	n.a.	**13.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 19:59	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 15:57	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:34	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:05	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:05	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:10
SDG#: SGB51-13

C. T. Male Associates
ELLE Sample #: SW 9228635
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:05	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 05:16	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:30
SDG#: SGB51-14

C. T. Male Associates
ELLE Sample #: SW 9228636
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**17,100**	8.26	36.9	1
01650	**Calcium**	7440-70-2	**39,400**	3.07	36.9	1
01654	**Iron**	7439-89-6	**30,500**	37.2	185	5
01657	**Magnesium**	7439-95-4	**14,300**	2.24	18.5	1
06958	**Manganese**	7439-96-5	**802**	0.0766	0.923	1
01662	**Potassium**	7440-09-7	**3,160**	15.4	92.3	1
01667	**Sodium**	7440-23-5	**93.9 J**	15.4	185	1
06972	**Zinc**	7440-66-6	**72.0**	0.222	3.69	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.163 J**	0.0955	0.410	2
06125	**Arsenic**	7440-38-2	**10.0**	0.131	0.820	2
06126	**Barium**	7440-39-3	**123**	0.186	0.820	2
06127	**Beryllium**	7440-41-7	**0.586**	0.0107	0.205	2
06128	**Cadmium**	7440-43-9	**0.230**	0.0353	0.205	2
06131	**Chromium**	7440-47-3	**19.7**	0.178	0.820	2
06132	**Cobalt**	7440-48-4	**15.6**	0.0320	0.205	2
06133	**Copper**	7440-50-8	**31.0**	0.110	0.820	2
06135	**Lead**	7439-92-1	**16.2**	0.0228	0.410	2
06139	**Nickel**	7440-02-0	**33.5**	0.204	0.820	2
06141	**Selenium**	7782-49-2	**0.157 J**	0.103	0.820	2
06142	**Silver**	7440-22-4	**0.0513 J**	0.0299	0.205	2
06145	**Thallium**	7440-28-0	**0.194 J**	0.0256	0.205	2
06148	**Vanadium**	7440-62-2	**22.5**	0.0437	0.205	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D24-9-10' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9228636
ELLE Group #: 1855035
Matrix: Soil

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:30
SDG#: SGB51-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,240**	1,300	3,900	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.37**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 20:19	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:00	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:38	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:08	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:08	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:30
SDG#: SGB51-14

C. T. Male Associates
ELLE Sample #: SW 9228636
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:08	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 03:45	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D24-18-19' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:45
SDG#: SGB51-15

C. T. Male Associates
ELLE Sample #: SW 9228637
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.081 U	0.081	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.081 U	0.081	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.73	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,200**	7.60	34.0	1
01650	**Calcium**	7440-70-2	**62,700**	14.2	170	5
01654	**Iron**	7439-89-6	**27,300**	34.2	170	5
01657	**Magnesium**	7439-95-4	**17,200**	2.07	17.0	1
06958	**Manganese**	7439-96-5	**638**	0.0706	0.850	1
01662	**Potassium**	7440-09-7	**3,140**	14.2	85.0	1
01667	**Sodium**	7440-23-5	**90.4 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**66.9**	0.204	3.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.174 J**	0.0731	0.314	2
06125	**Arsenic**	7440-38-2	**9.12**	0.100	0.627	2
06126	**Barium**	7440-39-3	**91.3**	0.142	0.627	2
06127	**Beryllium**	7440-41-7	**0.598**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.213**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**21.1**	0.136	0.627	2
06132	**Cobalt**	7440-48-4	**14.3**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**37.4**	0.0841	0.627	2
06135	**Lead**	7439-92-1	**15.2**	0.0174	0.314	2
06139	**Nickel**	7440-02-0	**32.2**	0.156	0.627	2
06141	**Selenium**	7782-49-2	**0.267 J**	0.0784	0.627	2
06142	**Silver**	7440-22-4	**0.145 J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.157**	0.0196	0.157	2
06148	**Vanadium**	7440-62-2	**20.9**	0.0334	0.157	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:45
SDG#: SGB51-15

C. T. Male Associates
ELLE Sample #: SW 9228637
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,900**	1,340	4,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.59**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**10.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 20:40	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 16:04	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:04	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:42	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:11	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:11	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 13:45
SDG#: SGB51-15

C. T. Male Associates
ELLE Sample #: SW 9228637
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:11	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 03:58	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17276820006A	10/03/2017 14:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 14:05
SDG#: SGB51-16

C. T. Male Associates
ELLE Sample #: SW 9228638
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,600**	9.84	44.0	1
01650	**Calcium**	7440-70-2	**47,100**	3.66	44.0	1
01654	**Iron**	7439-89-6	**29,100**	8.86	44.0	1
01657	**Magnesium**	7439-95-4	**13,900**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**673**	0.0913	1.10	1
01662	**Potassium**	7440-09-7	**2,940**	18.4	110	1
01667	**Sodium**	7440-23-5	**87.9 J**	18.4	220	1
06972	**Zinc**	7440-66-6	**69.6**	0.264	4.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.123 J**	0.104	0.444	2
06125	**Arsenic**	7440-38-2	**12.4**	0.142	0.889	2
06126	**Barium**	7440-39-3	**93.4**	0.202	0.889	2
06127	**Beryllium**	7440-41-7	**0.763**	0.0116	0.222	2
06128	**Cadmium**	7440-43-9	**0.221 J**	0.0382	0.222	2
06131	**Chromium**	7440-47-3	**17.3**	0.193	0.889	2
06132	**Cobalt**	7440-48-4	**16.8**	0.0347	0.222	2
06133	**Copper**	7440-50-8	**33.5**	0.119	0.889	2
06135	**Lead**	7439-92-1	**17.7**	0.0247	0.444	2
06139	**Nickel**	7440-02-0	**40.6**	0.221	0.889	2
06141	**Selenium**	7782-49-2	**0.218 J**	0.111	0.889	2
06142	**Silver**	7440-22-4	**0.0420 J**	0.0324	0.222	2
06145	**Thallium**	7440-28-0	**0.130 J**	0.0278	0.222	2
06148	**Vanadium**	7440-62-2	**17.3**	0.0473	0.222	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 14:05
SDG#: SGB51-16

C. T. Male Associates
ELLE Sample #: SW 9228638
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,500**	2,530	7,600	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 21:00	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:52	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:14	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:14	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 14:05
SDG#: SGB51-16

C. T. Male Associates
ELLE Sample #: SW 9228638
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:14	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 04:11	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 15:00
SDG#: SGB51-17

C. T. Male Associates
ELLE Sample #: SW 9228639
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078 U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078 U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.70	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,700**	6.92	31.0	1
01650	**Calcium**	7440-70-2	**56,800**	12.9	155	5
01654	**Iron**	7439-89-6	**29,400**	31.2	155	5
01657	**Magnesium**	7439-95-4	**15,400**	1.88	15.5	1
06958	**Manganese**	7439-96-5	**617**	0.0642	0.774	1
01662	**Potassium**	7440-09-7	**2,780**	12.9	77.4	1
01667	**Sodium**	7440-23-5	**80.2 J**	12.9	155	1
06972	**Zinc**	7440-66-6	**70.4**	0.186	3.10	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.144 J**	0.106	0.455	2
06125	**Arsenic**	7440-38-2	**8.97**	0.146	0.910	2
06126	**Barium**	7440-39-3	**82.9**	0.207	0.910	2
06127	**Beryllium**	7440-41-7	**0.631**	0.0119	0.228	2
06128	**Cadmium**	7440-43-9	**0.296**	0.0391	0.228	2
06131	**Chromium**	7440-47-3	**16.5**	0.198	0.910	2
06132	**Cobalt**	7440-48-4	**13.0**	0.0355	0.228	2
06133	**Copper**	7440-50-8	**26.3**	0.122	0.910	2
06135	**Lead**	7439-92-1	**13.9**	0.0253	0.455	2
06139	**Nickel**	7440-02-0	**28.8**	0.227	0.910	2
06141	**Selenium**	7782-49-2	**0.195 J**	0.114	0.910	2
06142	**Silver**	7440-22-4	**0.0769 J**	0.0332	0.228	2
06145	**Thallium**	7440-28-0	**0.176 J**	0.0284	0.228	2
06148	**Vanadium**	7440-62-2	**16.8**	0.0485	0.228	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D24-38-39' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 15:00
SDG#: SGB51-17

C. T. Male Associates
ELLE Sample #: SW 9228639
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,900**	1,260	3,780	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 21:21	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 16:08	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:08	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 15:56	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:17	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:17	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: **SG3-D24-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/23/2017 15:00
SDG#: SGB51-17

C. T. Male Associates
ELLE Sample #: SW 9228639
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:17	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531A	10/21/2017 04:24	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 09:25
SDG#: SGB51-18

C. T. Male Associates
ELLE Sample #: SW 9228640
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,370**	43.0	192	5
01650	**Calcium**	7440-70-2	**261**	16.0	192	5
01654	**Iron**	7439-89-6	**11,300**	38.7	192	5
01657	**Magnesium**	7439-95-4	**305**	11.7	96.1	5
06958	**Manganese**	7439-96-5	**450**	0.0798	0.961	1
01662	**Potassium**	7440-09-7	**368 J**	80.3	481	5
01667	Sodium	7440-23-5	80.3 U	80.3	961	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**54.9**	1.15	19.2	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0815 U	0.0815	0.350	2
06125	**Arsenic**	7440-38-2	**15.7**	0.112	0.700	2
06126	**Barium**	7440-39-3	**18.4**	0.159	0.700	2
06127	**Beryllium**	7440-41-7	**0.416**	0.0092	0.175	2
06128	**Cadmium**	7440-43-9	**0.156 J**	0.0301	0.175	2
06131	**Chromium**	7440-47-3	**1.69**	0.152	0.700	2
06132	**Cobalt**	7440-48-4	**4.57**	0.0273	0.175	2
06133	**Copper**	7440-50-8	**16.9**	0.0938	0.700	2
06135	**Lead**	7439-92-1	**13.1**	0.0194	0.350	2
06139	**Nickel**	7440-02-0	**13.7**	0.174	0.700	2
06141	**Selenium**	7782-49-2	**0.197 J**	0.0875	0.700	2
06142	Silver	7440-22-4	0.0255 U	0.0255	0.175	2
06145	**Thallium**	7440-28-0	**0.163 J**	0.0219	0.175	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 09:25
SDG#: SGB51-18

C. T. Male Associates
ELLE Sample #: SW 9228640
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.87**	0.0373	0.175	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,460**	164	491	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**20.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 21:42	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 16:00	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172711063701	10/03/2017 16:11	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:20	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 09:25
SDG#: SGB51-18

C. T. Male Associates
ELLE Sample #: SW 9228640
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:20	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:20	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 05:55	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039401B	09/28/2017 18:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 10:35
SDG#: SGB51-19

C. T. Male Associates
ELLE Sample #: SW 9228641
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,600**	53.6	240	5
01650	**Calcium**	7440-70-2	**875**	20.0	240	5
01654	**Iron**	7439-89-6	**34,800**	48.2	240	5
01657	**Magnesium**	7439-95-4	**978**	14.6	120	5
06958	**Manganese**	7439-96-5	**1,010**	0.497	5.99	5
01662	**Potassium**	7440-09-7	**862**	100	599	5
01667	Sodium	7440-23-5	100 U	100	1,200	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**131**	1.44	24.0	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.444 J**	0.108	0.462	2
06125	**Arsenic**	7440-38-2	**51.6**	0.148	0.924	2
06126	**Barium**	7440-39-3	**50.9**	0.210	0.924	2
06127	**Beryllium**	7440-41-7	**1.38**	0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.571**	0.0397	0.231	2
06131	**Chromium**	7440-47-3	**9.34**	0.201	0.924	2
06132	**Cobalt**	7440-48-4	**21.9**	0.0360	0.231	2
06133	**Copper**	7440-50-8	**47.2**	0.124	0.924	2
06135	**Lead**	7439-92-1	**19.8**	0.0256	0.462	2
06139	**Nickel**	7440-02-0	**50.8**	0.230	0.924	2
06141	**Selenium**	7782-49-2	**0.305 J**	0.116	0.924	2
06142	Silver	7440-22-4	0.0337 U	0.0337	0.231	2
06145	**Thallium**	7440-28-0	**0.437**	0.0289	0.231	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 10:35
SDG#: SGB51-19

C. T. Male Associates
ELLE Sample #: SW 9228641
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**25.8**	0.0492	0.231	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**646**	212	637	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 22:43	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172711063701	10/03/2017 16:19	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:24	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 10:35
SDG#: SGB51-19

C. T. Male Associates
ELLE Sample #: SW 9228641
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:24	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:24	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 06:08	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 11:00
SDG#: SGB51-20

C. T. Male Associates
ELLE Sample #: SW 9228642
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,600**	9.82	43.9	1
01650	**Calcium**	7440-70-2	**548**	3.66	43.9	1
01654	**Iron**	7439-89-6	**29,300**	8.84	43.9	1
01657	**Magnesium**	7439-95-4	**591**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**1,250**	0.0912	1.10	1
01662	**Potassium**	7440-09-7	**427**	18.3	110	1
01667	**Sodium**	7440-23-5	**29.1 J**	18.3	220	1
06972	**Zinc**	7440-66-6	**121**	0.264	4.39	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.300 J**	0.107	0.460	2
06125	**Arsenic**	7440-38-2	**73.4**	0.147	0.920	2
06126	**Barium**	7440-39-3	**60.0**	0.209	0.920	2
06127	**Beryllium**	7440-41-7	**2.24**	0.0121	0.230	2
06128	**Cadmium**	7440-43-9	**0.701**	0.0396	0.230	2
06131	**Chromium**	7440-47-3	**9.54**	0.200	0.920	2
06132	**Cobalt**	7440-48-4	**15.6**	0.0359	0.230	2
06133	**Copper**	7440-50-8	**45.0**	0.123	0.920	2
06135	**Lead**	7439-92-1	**28.8**	0.0255	0.460	2
06139	**Nickel**	7440-02-0	**53.2**	0.229	0.920	2
06141	**Selenium**	7782-49-2	**0.312 J**	0.115	0.920	2
06142	Silver	7440-22-4	0.0336 U	0.0336	0.230	2
06145	**Thallium**	7440-28-0	**0.691**	0.0288	0.230	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D24-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 11:00
SDG#: SGB51-20

C. T. Male Associates
ELLE Sample #: SW 9228642
ELLE Group #: 1855035
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**33.5**		0.0490	0.230	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**707**	**J**	312	937	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.93**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17277009	10/11/2017 23:04	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17277009	10/04/2017 16:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 16:07	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:27	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2

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REVISED

Sample Description: **SG3-D24-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/24/2017 11:00
SDG#: SGB51-20

C. T. Male Associates
ELLE Sample #: SW 9228642
ELLE Group #: 1855035
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:27	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:27	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 06:21	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820008B	09/29/2017 20:43	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17277009	Sample number(s): 9228623-9228629,9228631-9228632,9228635-9228642		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17290007	Sample number(s): 9228630		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17270007	Sample number(s): 9228633-9228634		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	2 J	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172711063701	Sample number(s): 9228623-9228632,9228635-9228642		
Aluminum	8.94 U	8.94	40.0
Calcium	5.52 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.865 J	0.240	4.00
Batch number: 172761063701A	Sample number(s): 9228628-9228632,9228635-9228642		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172761063701B	Sample number(s): 9228628-9228632,9228635-9228642		
Selenium	0.100 U	0.100	0.800
Batch number: 172761063701D	Sample number(s): 9228628-9228632,9228635-9228642		
Barium	0.182 U	0.182	0.800
Batch number: 172901063701A	Sample number(s): 9228623-9228627		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Copper	0.107 U	0.107	0.800
Lead	0.0242 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172901063701B	Sample number(s): 9228623-9228627		
Selenium	0.100 U	0.100	0.800
Batch number: 172901063701D	Sample number(s): 9228623-9228627		
Barium	0.182 U	0.182	0.800
Batch number: 17293049531A	Sample number(s): 9228627-9228632,9228636-9228639		
TOC	100 U	100	300
Batch number: 17293049531B	Sample number(s): 9228635,9228640-9228642		
TOC	100 U	100	300
Batch number: 17293245031B	Sample number(s): 9228623-9228625		
TOC	180 J	100	300
Batch number: 17297667631A	Sample number(s): 9228626		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17277009	Sample number(s): 9228623-9228629,9228631-9228632,9228635-9228642								
Perfluorobutanesulfonate	1.20	1.09	1.20	1.14	91	95	70-130	4	30
Perfluorobutanoic acid	1.36	1.49	1.36	1.43	109	105	70-130	4	30
Perfluorodecanoic acid	1.36	1.31	1.36	1.13	96	83	70-130	15	30
Perfluorododecanoic acid	1.36	1.45	1.36	1.32	107	97	70-130	10	30
Perfluoroheptanoic acid	1.36	1.43	1.36	1.21	105	89	70-130	17	30
Perfluorohexanesulfonate	1.29	1.23	1.29	1.09	96	85	70-130	12	30
Perfluorohexanoic acid	1.36	1.34	1.36	1.28	98	94	70-130	4	30
Perfluorononanoic acid	1.36	1.27	1.36	1.26	93	92	70-130	1	30
Perfluoro-octanesulfonate	1.30	1.35	1.30	1.26	104	97	70-130	6	30
Perfluorooctanoic acid	1.36	1.43	1.36	1.05	105	77	70-130	31*	30
Perfluoropentanoic acid	1.36	1.26	1.36	1.36	93	100	70-130	7	30
Perfluorotetradecanoic acid	1.36	1.33	1.36	1.30	98	95	70-130	2	30
Perfluorotridecanoic acid	1.36	1.22	1.36	1.23	90	91	70-130	1	30
Perfluoroundecanoic acid	1.36	1.28	1.36	1.23	94	91	70-130	3	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17290007	Sample number(s): 9228630								
Perfluorobutanesulfonate	1.20	1.23	1.20	1.24	103	104	70-130	1	30
Perfluorobutanoic acid	1.36	1.43	1.36	1.36	105	100	70-130	5	30
Perfluorodecanoic acid	1.36	1.42	1.36	1.48	104	109	70-130	5	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.42	104	105	70-130	1	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.44	111	106	70-130	5	30
Perfluorohexanesulfonate	1.29	1.33	1.29	1.30	104	101	70-130	2	30
Perfluorohexanoic acid	1.36	1.44	1.36	1.38	106	101	70-130	4	30
Perfluorononanoic acid	1.36	1.58	1.36	1.44	116	106	70-130	9	30
Perfluoro-octanesulfonate	1.30	1.43	1.30	1.45	110	111	70-130	1	30
Perfluorooctanoic acid	1.36	1.60	1.36	1.48	118	109	70-130	8	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.35	106	99	70-130	7	30
Perfluorotetradecanoic acid	1.36	1.38	1.36	1.40	101	103	70-130	2	30
Perfluorotridecanoic acid	1.36	1.46	1.36	1.51	107	111	70-130	4	30
Perfluoroundecanoic acid	1.36	1.33	1.36	1.39	98	102	70-130	4	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17270007	Sample number(s): 9228633-9228634								
Perfluorobutanesulfonate	12.03	11.3	12.03	11.82	94	98	70-130	4	30
Perfluorobutanoic Acid	13.6	14.06	13.6	14.29	103	105	70-130	2	30
Perfluorodecanoic acid	13.6	14.44	13.6	13.78	106	101	70-130	5	30
Perfluorododecanoic acid	13.6	13.41	13.6	13.23	99	97	70-130	1	30
Perfluoroheptanoic acid	13.6	13.71	13.6	13.41	101	99	70-130	2	30
Perfluorohexanesulfonate	12.86	12.17	12.86	11.85	95	92	70-130	3	30
Perfluorohexanoic acid	13.6	13.24	13.6	13.17	97	97	70-130	1	30
Perfluorononanoic acid	13.6	11.93	13.6	13.39	88	98	70-130	12	30
Perfluoro-octanesulfonate	13	12.88	13	12.21	99	94	70-130	5	30
Perfluorooctanoic acid	13.6	13.35	13.6	12.75	98	94	70-130	5	30
Perfluoropentanoic Acid	13.6	12.81	13.6	14.22	94	105	70-130	10	30
Perfluorotetradecanoic acid	13.6	13.08	13.6	13.57	96	100	70-130	4	30
Perfluorotridecanoic acid	13.6	13.26	13.6	11.81	97	87	70-130	12	30
Perfluoroundecanoic acid	13.6	15.14	13.6	13.31	111	98	70-130	13	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172711063701	Sample number(s): 9228623-9228632,9228635-9228642								
Aluminum	200	222.6			111		80-120		
Calcium	400	406.42			102		80-120		
Iron	100	102.57			103		80-120		
Magnesium	200	203.9			102		80-120		
Manganese	50	52.09			104		80-120		
Potassium	1000	1039.66			104		80-120		
Sodium	1000	1030.73			103		80-120		
Zinc	50	51.67			103		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 172761063701A	Sample number(s): 9228628-9228632,9228635-9228642								
Antimony	0.600	0.511			85		80-120		
Arsenic	1.00	0.912			91		80-120		
Beryllium	0.400	0.417			104		80-120		
Cadmium	0.500	0.506			101		80-120		
Chromium	5.00	5.54			111		80-120		
Cobalt	25	26.84			107		80-120		
Copper	5.00	5.73			115		80-120		
Lead	1.50	1.55			104		80-120		
Nickel	5.00	5.24			105		80-120		
Silver	5.00	5.31			106		80-120		
Thallium	0.200	0.225			113		80-120		
Vanadium	5.00	5.33			107		80-120		
Batch number: 172761063701B	Sample number(s): 9228628-9228632,9228635-9228642								
Selenium	1.00	1.03			103		80-120		
Batch number: 172761063701D	Sample number(s): 9228628-9228632,9228635-9228642								
Barium	5.00	5.07			101		80-120		
Batch number: 172901063701A	Sample number(s): 9228623-9228627								
Antimony	0.600	0.585			98		80-120		
Arsenic	1.00	1.06			106		80-120		
Beryllium	0.400	0.396			99		80-120		
Cadmium	0.500	0.465			93		80-120		
Chromium	5.00	5.23			105		80-120		
Cobalt	25	26.28			105		80-120		
Copper	5.00	5.23			105		80-120		
Lead	1.50	1.39			93		80-120		
Nickel	5.00	5.25			105		80-120		
Silver	5.00	5.30			106		80-120		
Thallium	0.200	0.220			110		80-120		
Vanadium	5.00	5.21			104		80-120		
Batch number: 172901063701B	Sample number(s): 9228623-9228627								
Selenium	1.00	1.05			105		80-120		
Batch number: 172901063701D	Sample number(s): 9228623-9228627								
Barium	5.00	4.92			98		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17293049531A	Sample number(s): 9228627-9228632,9228636-9228639								
TOC	7150	5845.73			82		47-143		
Batch number: 17293049531B	Sample number(s): 9228635,9228640-9228642								
TOC	7150	5845.73			82		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293245031B	Sample number(s): 9228623-9228625								
TOC	7150	6606.9			92		47-143		
Batch number: 17297667631A	Sample number(s): 9228626								
TOC	7150	6903.25			97		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17271039401A	Sample number(s): 9228624-9228628								
pH	7.00	6.92			99		95-105		
Batch number: 17271039401B	Sample number(s): 9228623,9228629-9228632,9228636-9228640								
pH	7.00	6.92			99		95-105		
Batch number: 17271039402A	Sample number(s): 9228635,9228641-9228642								
pH	7.00	7.01			100		95-105		
	%	%	%	%					
Batch number: 17272820008A	Sample number(s): 9228623-9228632								
Moisture	89.5	89.38			100		99-101		
Batch number: 17272820008B	Sample number(s): 9228635-9228636,9228638-9228642								
Moisture	89.5	89.38			100		99-101		
Batch number: 17276820006A	Sample number(s): 9228637								
Moisture	89.5	89.28			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17277009	Sample number(s): 9228623-9228629,9228631-9228632,9228635-9228642 UNSPK: 9228623									
Perfluorobutanesulfonate	0.14 U	0.898	0.824			92		70-130		
Perfluorobutanoic acid	0.14 U	1.02	1.09			107		70-130		
Perfluorodecanoic acid	0.14 U	1.02	0.997			98		70-130		
Perfluorododecanoic acid	0.14 U	1.02	1.01			100		70-130		
Perfluoroheptanoic acid	0.14 U	1.02	0.981			97		70-130		
Perfluorohexanesulfonate	0.14 U	0.960	0.911			95		70-130		
Perfluorohexanoic acid	0.070 U	1.02	1.00			99		70-130		
Perfluorononanoic acid	0.070 U	1.02	1.15			114		70-130		
Perfluoro-octanesulfonate	0.21 U	0.970	0.966			100		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	0.14 U	1.02	1.03			101		70-130		
Perfluoropentanoic acid	0.14 U	1.02	1.03			102		70-130		
Perfluorotetradecanoic acid	0.14 U	1.02	1.01			100		70-130		
Perfluorotridecanoic acid	0.14 U	1.02	0.842			83		70-130		
Perfluoroundecanoic acid	0.14 U	1.02	1.04			103		70-130		
Batch number: 17290007	Sample number(s): 9228630 UNSPK: P250901									
Perfluorobutanesulfonate	0.19 U	1.13	1.28			113		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.33			104		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.35			105		70-130		
Perfluorododecanoic acid	0.19 U	1.28	1.26			98		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.45			113		70-130		
Perfluorohexanesulfonate	0.19 U	1.21	1.34			111		70-130		
Perfluorohexanoic acid	0.095 U	1.28	1.30			101		70-130		
Perfluorononanoic acid	0.095 U	1.28	1.33			104		70-130		
Perfluoro-octanesulfonate	0.29 U	1.23	1.43			116		70-130		
Perfluorooctanoic acid	0.19 U	1.28	1.44			113		70-130		
Perfluoropentanoic acid	0.19 U	1.28	1.36			106		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.28			99		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.29			100		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.39			109		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172711063701	Sample number(s): 9228623-9228632,9228635-9228642 UNSPK: 9228623									
Aluminum	2182.67	160	3781.68	196.08	4195.4	999 (2)	1026 (2)	75-125	10	20
Calcium	97248.02	320	107003.59	392.16	108229.03	3049 (2)	2800 (2)	75-125	1	20
Iron	8827.18	80	12535.59	98.04	9580.74	4636 (2)	769 (2)	75-125	27*	20
Magnesium	30649.37	160	27904.62	196.08	33553.69	-1715 (2)	1481 (2)	75-125	18	20
Manganese	313.45	40	262.25	49.02	374.37	-128 (2)	124 (2)	75-125	35*	20
Potassium	425.03	800	1589.23	980.39	1806.83	146*	141*	75-125	13	20
Sodium	37.39	800	886.21	980.39	1058.93	106	104	75-125	18	20
Zinc	19.83	40	64.19	49.02	67.9	111	98	75-125	6	20
Batch number: 172761063701A	Sample number(s): 9228628-9228632,9228635-9228642 UNSPK: 9228629									
Antimony	0.118	1.11	0.932	1.05	0.743	73*	59*	75-125	23*	20
Arsenic	5.49	1.85	7.33	1.75	7.40	100	109	75-125	1	20
Beryllium	0.444	0.741	1.19	0.702	1.09	101	92	75-125	9	20
Cadmium	0.112	0.926	1.05	0.877	0.979	101	99	75-125	7	20
Chromium	5.89	9.26	15.71	8.77	15.48	106	109	75-125	1	20
Cobalt	18.2	46.3	58.13	43.86	64.84	86	106	75-125	11	20
Copper	16.1	9.26	23.49	8.77	23.53	80	85	75-125	0	20
Lead	8.27	2.78	12.25	2.63	11.3	143*	115	75-125	8	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Nickel	15.03	9.26	21.85	8.77	21.58	74*	75	75-125	1	20
Silver	0.0286 U	9.26	9.30	8.77	8.88	100	101	75-125	5	20
Thallium	0.304	0.370	0.674	0.351	0.564	100	74*	75-125	18	20
Vanadium	7.89	9.26	18.79	8.77	16.56	118	99	75-125	13	20
Batch number: 172761063701B	Sample number(s): 9228628-9228632,9228635-9228642 UNSPK: 9228629									
Selenium	0.156	1.85	2.00	1.75	1.83	100	95	75-125	9	20
Batch number: 172761063701D	Sample number(s): 9228628-9228632,9228635-9228642 UNSPK: 9228629									
Barium	75.15	9.26	117.36	8.77	83.43	456 (2)	94 (2)	75-125	34*	20
Batch number: 172901063701A	Sample number(s): 9228623-9228627 UNSPK: P266296									
Antimony	1.96	1.01	2.72	1.17	1.82	75	-11*	75-125	39*	20
Arsenic	6.41	1.68	7.55	1.94	7.73	68*	68*	75-125	2	20
Beryllium	0.452	0.672	1.15	0.777	1.16	104	91	75-125	1	20
Cadmium	0.130	0.840	0.899	0.971	1.02	92	92	75-125	13	20
Chromium	14.94	8.40	23.56	9.71	25.35	103	107	75-125	7	20
Cobalt	6.72	42.02	48.28	48.54	56.43	99	102	75-125	16	20
Copper	30.02	8.40	40.5	9.71	37.38	125	76	75-125	8	20
Lead	150.84	2.52	184.73	2.91	97.12	1344 (2)	-1844 (2)	75-125	62*	20
Nickel	15.28	8.40	22.2	9.71	25.15	82	102	75-125	12	20
Silver	0.0288	8.40	8.37	9.71	9.89	99	102	75-125	17	20
Thallium	0.116	0.336	0.405	0.388	0.412	86	76	75-125	2	20
Vanadium	21.37	8.40	31.2	9.71	32.58	117	116	75-125	4	20
Batch number: 172901063701B	Sample number(s): 9228623-9228627 UNSPK: P266296									
Selenium	0.204	1.68	1.78	1.94	2.06	94	96	75-125	15	20
Batch number: 172901063701D	Sample number(s): 9228623-9228627 UNSPK: P266296									
Barium	43.63	8.40	48.08	9.71	54.05	53 (2)	107 (2)	75-125	12	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17293049531A	Sample number(s): 9228627-9228632,9228636-9228639 UNSPK: 9228627									
TOC	2025.77	10920	17776.88			144*		47-143		
Batch number: 17293049531B	Sample number(s): 9228635,9228640-9228642 UNSPK: 9228635									
TOC	3489.36	72630	54794.19			71		47-143		
Batch number: 17293245031B	Sample number(s): 9228623-9228625 UNSPK: P225414									
TOC	15819.5	18349	30238.53			79		47-143		
Batch number: 17297667631A	Sample number(s): 9228626 UNSPK: P228624									
TOC	23549.67	31260	47697.92			77		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172711063701	Sample number(s): 9228623-9228632,9228635-9228642 BKG: 9228623			
Aluminum	2182.67	2413.97	10	20
Calcium	97248.02	100316.29	3	20
Iron	8827.18	9938.72	12	20
Magnesium	30649.37	31876.34	4	20
Manganese	313.45	273.54	14	20
Potassium	425.03	410.16	4 (1)	20
Sodium	37.39	39.66	6 (1)	20
Zinc	19.83	23.76	18	20
Batch number: 172761063701A	Sample number(s): 9228628-9228632,9228635-9228642 BKG: 9228629			
Antimony	0.118	0.0961	21* (1)	20
Arsenic	5.49	5.27	4	20
Beryllium	0.444	0.406	9 (1)	20
Cadmium	0.112	0.110	2 (1)	20
Chromium	5.89	5.38	9	20
Cobalt	18.2	11.08	49*	20
Copper	16.1	14.15	13	20
Lead	8.27	7.55	9	20
Nickel	15.03	11.08	30*	20
Silver	0.0286 U	0.0239 U	0 (1)	20
Thallium	0.304	0.271	12 (1)	20
Vanadium	7.89	6.95	13	20
Batch number: 172761063701B	Sample number(s): 9228628-9228632,9228635-9228642 BKG: 9228629			
Selenium	0.156	0.167	7 (1)	20
Batch number: 172761063701D	Sample number(s): 9228628-9228632,9228635-9228642 BKG: 9228629			
Barium	75.15	76.16	1	20
Batch number: 172901063701A	Sample number(s): 9228623-9228627 BKG: P266296			
Antimony	1.96	13.9	151*	20
Arsenic	6.41	5.21	21*	20
Beryllium	0.452	0.479	6 (1)	20
Cadmium	0.130	0.0768	51* (1)	20
Chromium	14.94	14.69	2	20
Cobalt	6.72	7.58	12	20
Copper	30.02	30.37	1	20
Lead	150.84	554.43	114*	20
Nickel	15.28	14.46	5	20
Silver	0.0288	0.0321	11 (1)	20
Thallium	0.116	0.0868	29* (1)	20
Vanadium	21.37	21.52	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172901063701B	Sample number(s): 9228623-9228627 BKG: P266296			
Selenium	0.204	0.175	15 (1)	20
Batch number: 172901063701D	Sample number(s): 9228623-9228627 BKG: P266296			
Barium	43.63	43.3	1	20
	mg/kg	mg/kg		
Batch number: 17293049531A	Sample number(s): 9228627-9228632,9228636-9228639 BKG: 9228627			
TOC	2025.77	4528.55	76*	7
Batch number: 17293049531B	Sample number(s): 9228635,9228640-9228642 BKG: 9228635			
TOC	3489.36	3427.03	2 (1)	7
Batch number: 17293245031B	Sample number(s): 9228623-9228625 BKG: P225414			
TOC	15819.5	16157.58	2	7
Batch number: 17297667631A	Sample number(s): 9228626 BKG: P228624			
TOC	23549.67	24517.34	4	7
	Std. Units	Std. Units		
Batch number: 17271039401A	Sample number(s): 9228624-9228628 BKG: P232905			
pH	5.32	5.46	3	3
Batch number: 17271039401B	Sample number(s): 9228623,9228629-9228632,9228636-9228640 BKG: 9228623			
pH	8.70	8.84	2	3
Batch number: 17271039402A	Sample number(s): 9228635,9228641-9228642 BKG: 9228635			
pH	7.82	7.81	0	3
	%	%		
Batch number: 17272820008A	Sample number(s): 9228623-9228632 BKG: 9228627			
Moisture	12.19	11.4	7*	5
Batch number: 17272820008B	Sample number(s): 9228635-9228636,9228638-9228642 BKG: P228637			
Moisture	9.43	11.2	17*	5
Batch number: 17276820006A	Sample number(s): 9228637 BKG: 9228637			
Moisture	10.21	10.6	4	5

Surrogate Quality Control

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17270007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228633	81	76	70	87	71	68
9228634	78	76	67	87	81	85
Blank	87	86	82	100	93	100
LCS	84	85	59	89	77	89
LCSD	97	92	54	107	68	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9228633	77	83	88	80	83	83
9228634	83	83	89	86	101	105
Blank	90	85	84	88	88	100
LCS	90	82	104	75	73	76
LCSD	110	79	119	88	97	92
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9228633	97
9228634	115
Blank	99
LCS	70
LCSD	77
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17277009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228623	90	88	81	87	106	113
9228624	100	92	95	95	99	97
9228625	98	97	93	113	113	112
9228626	101	99	92	107	111	106
9228627	74	74	77	73	85	69
9228628	83	84	93	88	94	85
9228629	77	74	88	78	100	90
9228631	91	89	88	97	103	94
9228632	80	78	85	91	105	98
9228635	81	80	85	84	82	78
9228636	85	86	87	86	86	92
9228637	104	102	94	111	118	112

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228638	88	92	88	88	87	96
9228639	92	93	90	89	91	88
9228640	84	80	82	87	86	93
9228641	87	84	98	88	100	89
9228642	70	69*	79	75	102	86
Blank	99	100	91	102	111	110
LCS	94	100	95	104	99	100
LCSD	99	101	94	99	99	108
MS	90	87	88	99	98	102
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9228623	103	84	75	96	98	99
9228624	106	111	87	109	103	108
9228625	114	106	97	97	107	99
9228626	107	105	92	105	108	102
9228627	69	85	71	80	81	89
9228628	78	92	74	65	73	78
9228629	83	97	87	83	84	88
9228631	99	114	96	95	124	111
9228632	100	87	80	88	85	83
9228635	87	78	76	91	90	89
9228636	87	97	86	91	93	85
9228637	113	108	87	113	124	120
9228638	83	93	86	108	108	103
9228639	87	91	87	92	104	98
9228640	94	86	85	84	93	91
9228641	94	101	93	96	97	95
9228642	84	93	76	77	77	75
Blank	103	102	107	107	98	98
LCS	95	97	103	97	105	102
LCSD	109	100	111	120	122	116
MS	97	94	93	95	101	108
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17277009

	13C2-PFTeDA
9228623	89
9228624	97
9228625	91
9228626	98
9228627	82
9228628	68
9228629	79
9228631	100
9228632	80
9228635	82
9228636	85
9228637	111
9228638	92
9228639	93
9228640	82
9228641	89
9228642	77
Blank	97
LCS	93
LCSD	103
MS	93
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17290007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228630	73	72	80	76	81	83
Blank	101	102	110	124*	110	130*
LCS	87	92	94	96	88	93
LCSD	94	99	98	107	108	112
MS	42	45*	71	49	65	49
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9228630	79	86	91	91	96	101
Blank	108	95	100	116	106	99
LCS	85	83	83	97	85	79

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:11

Group Number: 1855035

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17290007

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCSD	95	86	93	97	96	85
MS	47	65	48	50	43	43
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9228630	89
Blank	110
LCS	83
LCSD	89
MS	42
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1855035 9228623-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47411
COC 1 of 84 DK

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Grour .lwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Sample Depth Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: PFCs (14)	Soil: 4oz glass - TOC, pH, Moist., metals	Soil: % Solids
										A	A	
										-	1	
										Preservative Code		
										Field Filtered Y/N		
1. SG3-D25-0-0.5'	0	0.5	ft.	09/22/2017	15:45	S	N	2		1	1	
2. SG3-D25-0.5-1'	0.5	1	ft.	09/22/2017	15:50	S	N	2		1	1	
3. SG3-D25-1-1.5'	1	1.5	ft.	09/22/2017	15:55	S	N	2		1	1	
4. SG3-D25-3-4'	3	4	ft.	09/22/2017	16:00	S	N	2		1	1	
5. SG3-D25-8-9'	8	9	ft.	09/22/2017	16:40	S	N	2		1	1	
6. SG3-D25-18-19'	18	19	ft.	09/22/2017	16:50	S	N	2		1	1	
7. SG3-D25-6.5-7.5'	6.5	7.5	ft.	09/23/2017	07:10	S	N	2		1	1	
8. SG3-D24-0-0.5'	0	0.5	ft	09/23/2017	12:55	S	N	2		1	1	
9. SG3-D24-0.5-1'	0.5	1	ft	09/23/2017	13:00	S	N	2		1	1	
10. SG3-D24-1-1.5'	1	1.5	ft	09/23/2017	13:05	S	N	2		1	1	

Metals = cations (TAL) excluding Hg

BARR USE ONLY							
Sampled by: RQM/DJZ/KAM	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/26/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 24.3			Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Project Documents; Pink Copy: Send to Data Management Administrators.

37191 1855035 9228623-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47410
COC 2 of 4 DTZ

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr,	Address: 50 Century Hill RD.
Name: Michael Dupay	Name: Latham, NY.
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3PP	Barr Project No: 32421009.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

№	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water — 750 ml plastic Trip blank	Soil — 250 ml plastic / PFCs (14)	Soil — 4 oz glass / TOC; pH, moist, metals	Soil — % Solids	Preservative Code	Field Filtered Y/N	Comments
1.	SG3-LTB49-170923				09/23/2017		water	N	2	2						Trip blank prepared By ELLE
2.	SG3-LTB50-170923				09/23/2017		water	N	2	2						Trip blank prepared by ELLE
3.	SG3-D24-3-4	3	4	ft.	09/23/2017	13:10	S	N	2		1	1				Metals = Cations, (TAL)
4.	SG3-D24-9-10	9	10	ft.	09/23/2017	13:30	S	N	2		1	1				excluding Hg
5.	SG3-D24-18-19'	18	19	ft.	09/23/2017	13:45	S	N	2		1	1				
6.	SG3-D24-28-29'	28	29	ft.	09/23/2017	14:05	S	N	2		1	1				
7.	SG3-D24-38-39'	38	39'	ft	09/23/2017	15:00	S	N	2		1	1				
8.	SG3-D24-48-49'	48	49	ft	09/24/2017	09:25	S	N	2		1	1				
9.	SG3-D24-58-59	58	59	ft.	09/24/2017	10:35	S	N	2		1	1				
10.	SG3-D24-68-69	68	69	ft	09/24/2017	11:00	S	N	2		1	1				

BARR USE ONLY

Sampled by: RQM | DJZ | KAM
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster PA

Relinquished by: Jeremy Zander — On Ice? (Y) N — Date 9-25-17 — Time 1700
Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time
Received by: — Date 9/26/17 — Time 933

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 24/3.1 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195483

Group Number(s): 1855035

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/26/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 11:56 on 09/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.1	DT	Wet	Y	Bagged	N
2	DT131	2.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 27, 2017 09:34

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1855037
SDG: SGB52
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D11-0-0.5' Soil	09/25/2017 09:30	9228646
SG3-D11-0.5-1' Soil	09/25/2017 09:45	9228647
SG3-D11-1-1.5' Soil	09/25/2017 09:55	9228648
SG3-D11-3-4' Soil	09/25/2017 10:10	9228649
SG3-D11-8-9' Soil	09/25/2017 10:25	9228650
SG3-D11-18-19' Soil	09/25/2017 10:35	9228651
SG3-D11-28-29' Soil	09/25/2017 11:05	9228652
SG3-FDS08-170925 Soil	09/25/2017	9228653
SG3-D11-38-39' Soil	09/25/2017 12:50	9228654
SG3-D11-48-49' Soil	09/25/2017 13:30	9228655
SG3-D11-48-49' MS Soil	09/25/2017 13:30	9228656
SG3-D11-48-49' MSD Soil	09/25/2017 13:30	9228657
SG3-D11-48-49' Dupl Soil	09/25/2017 13:30	9228658
SG3-D11-58-59' Soil	09/25/2017 14:00	9228659
SG3-D11-68-69' Soil	09/25/2017 15:55	9228660

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1855037

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9228655

The recovery for several labeled compounds used as extraction standards is outside the QC acceptance limits. The recovery for the labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike(s), indicating a matrix effect.

Sample #s: 9228646, 9228647, 9228648, 9228649, 9228650, 9228651, 9228652, 9228653, 9228654, 9228656, 9228657, 9228659, 9228660

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17278005 (Sample number(s): 9228646-9228647, 9228653, 9228655-9228657 UNSPK: 9228655)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9228646, 9228647, 9228653, 9228655, 9228656, 9228657, Blank, LCS, MS, MSD

Batch #: 17291007 (Sample number(s): 9228648-9228652, 9228654, 9228659-9228660 UNSPK: 9228648)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9228648, 9228649, 9228650, 9228651, 9228652, 9228654, 9228659, 9228660, MS

SW-846 6010C, Metals

Batch #: 172711063701 (Sample number(s): 9228646-9228647 UNSPK: P228623 BKG: P228623)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Iron, Manganese

Batch #: 172711063702 (Sample number(s): 9228648-9228660 UNSPK: 9228655 BKG: 9228655)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium, Manganese, Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172711063702A (Sample number(s): 9228648-9228660 UNSPK: 9228655 BKG: 9228655)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Thallium, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Silver

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Silver, Thallium

Batch #: 172711063702B (Sample number(s): 9228648-9228660 UNSPK: 9228655 BKG: 9228655)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Selenium

Batch #: 172711063702D (Sample number(s): 9228648-9228660 UNSPK: 9228655 BKG: 9228655)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 172761063701A (Sample number(s): 9228646-9228647 UNSPK: P228629 BKG: P228629)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Thallium, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Cobalt, Nickel

Batch #: 172761063701D (Sample number(s): 9228646-9228647 UNSPK: P228629 BKG: P228629)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9228650

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

Batch #: 17293049532A (Sample number(s): 9228652-9228653 UNSPK: 9228653 BKG: 9228653)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17294049531A (Sample number(s): 9228654-9228656, 9228658-9228660 UNSPK: 9228655 BKG: 9228655)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9228650

The pH was measured in water at 19.6 C.

Sample #s: 9228647, 9228649, 9228651, 9228660

The pH was measured in water at 19.7 C.

Sample #s: 9228648, 9228658, 9228659

The pH was measured in water at 19.8 C.

Sample #s: 9228646, 9228653

The pH was measured in water at 19.9 C.

Sample #s: 9228652, 9228655

The pH was measured in water at 20 C.

Sample #s: 9228654

The pH was measured in water at 20.1 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17272820010A (Sample number(s): 9228646-9228660 BKG: 9228655)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: **SG3-D11-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:30
SDG#: SGB52-01

C. T. Male Associates
ELLE Sample #: SW 9228646
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25 J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.77**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,960**	7.59	34.0	1
01650	**Calcium**	7440-70-2	**58,600**	14.1	170	5
01654	**Iron**	7439-89-6	**30,000**	34.2	170	5
01657	**Magnesium**	7439-95-4	**22,400**	2.06	17.0	1
06958	**Manganese**	7439-96-5	**1,690**	0.353	4.25	5
01662	**Potassium**	7440-09-7	**1,000**	14.2	85.0	1
01667	**Sodium**	7440-23-5	**39.8 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**60.3**	0.204	3.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.198 J**	0.0942	0.404	2
06125	**Arsenic**	7440-38-2	**8.91**	0.129	0.809	2
06126	**Barium**	7440-39-3	**55.6**	0.184	0.809	2
06127	**Beryllium**	7440-41-7	**0.420**	0.0106	0.202	2
06128	**Cadmium**	7440-43-9	**0.227**	0.0348	0.202	2
06131	**Chromium**	7440-47-3	**12.6**	0.176	0.809	2
06132	**Cobalt**	7440-48-4	**10.1**	0.0315	0.202	2
06133	**Copper**	7440-50-8	**33.7**	0.108	0.809	2
06135	**Lead**	7439-92-1	**11.7**	0.0224	0.404	2
06139	**Nickel**	7440-02-0	**21.9**	0.201	0.809	2
06141	**Selenium**	7782-49-2	**0.981**	0.101	0.809	2
06142	**Silver**	7440-22-4	**0.0635 J**	0.0295	0.202	2
06145	**Thallium**	7440-28-0	**0.125 J**	0.0253	0.202	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:30
SDG#: SGB52-01

C. T. Male Associates
ELLE Sample #: SW 9228646
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.9**	0.0431	0.202	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,100**	1,120	3,360	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/18/2017 07:50	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 16:11	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	10/03/2017 16:34	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172711063701	10/03/2017 16:34	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 16:11	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	10/03/2017 16:34	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 16:11	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 16:11	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 16:11	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:36	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:30
SDG#: SGB52-01

C. T. Male Associates
ELLE Sample #: SW 9228646
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:36	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:36	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 06:33	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:45
SDG#: SGB52-02

C. T. Male Associates
ELLE Sample #: SW 9228647
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,460**	9.78	43.8	1
01650	**Calcium**	7440-70-2	**47,300**	3.64	43.8	1
01654	**Iron**	7439-89-6	**11,600**	8.81	43.8	1
01657	**Magnesium**	7439-95-4	**15,800**	2.66	21.9	1
06958	**Manganese**	7439-96-5	**321**	0.0908	1.09	1
01662	**Potassium**	7440-09-7	**450**	18.3	109	1
01667	**Sodium**	7440-23-5	**28.2 J**	18.3	219	1
06972	**Zinc**	7440-66-6	**22.8**	0.263	4.38	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0782 U	0.0782	0.336	2
06125	**Arsenic**	7440-38-2	**7.12**	0.107	0.671	2
06126	**Barium**	7440-39-3	**56.3**	0.152	0.671	2
06127	**Beryllium**	7440-41-7	**0.218**	0.0088	0.168	2
06128	**Cadmium**	7440-43-9	**0.0874 J**	0.0289	0.168	2
06131	**Chromium**	7440-47-3	**5.13**	0.146	0.671	2
06132	**Cobalt**	7440-48-4	**6.36**	0.0262	0.168	2
06133	**Copper**	7440-50-8	**11.1**	0.0900	0.671	2
06135	**Lead**	7439-92-1	**7.45**	0.0186	0.336	2
06139	**Nickel**	7440-02-0	**9.29**	0.167	0.671	2
06141	**Selenium**	7782-49-2	**0.139 J**	0.0839	0.671	2
06142	Silver	7440-22-4	0.0245 U	0.0245	0.168	2
06145	**Thallium**	7440-28-0	**0.108 J**	0.0210	0.168	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:45
SDG#: SGB52-02

C. T. Male Associates
ELLE Sample #: SW 9228647
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.19**	0.0357	0.168	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,700**	320	961	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.77**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/10/2017 11:32	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063701	09/30/2017 16:15	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172761063701D	10/06/2017 17:39	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:45
SDG#: SGB52-02

C. T. Male Associates
ELLE Sample #: SW 9228647
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172761063701B	10/06/2017 17:39	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172761063701A	10/06/2017 17:39	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063701	09/29/2017 00:20	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	172761063701	10/03/2017 23:00	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 06:46	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:55
SDG#: SGB52-03

C. T. Male Associates
ELLE Sample #: SW 9228648
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.079 U	0.079	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.079 U	0.079	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,010**	8.81	39.4	1
01650	**Calcium**	7440-70-2	**25,600**	3.28	39.4	1
01654	**Iron**	7439-89-6	**17,800**	7.93	39.4	1
01657	**Magnesium**	7439-95-4	**10,900**	2.40	19.7	1
06958	**Manganese**	7439-96-5	**409**	0.0818	0.986	1
01662	**Potassium**	7440-09-7	**1,270**	16.5	98.6	1
01667	**Sodium**	7440-23-5	**27.9 J**	16.5	197	1
06972	**Zinc**	7440-66-6	**35.2**	0.237	3.94	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.191 J**	0.0919	0.394	2
06125	**Arsenic**	7440-38-2	**6.74**	0.126	0.789	2
06126	**Barium**	7440-39-3	**72.1**	0.179	0.789	2
06127	**Beryllium**	7440-41-7	**0.430**	0.0103	0.197	2
06128	**Cadmium**	7440-43-9	**0.112 J**	0.0339	0.197	2
06131	**Chromium**	7440-47-3	**7.81**	0.172	0.789	2
06132	**Cobalt**	7440-48-4	**11.5**	0.0308	0.197	2
06133	**Copper**	7440-50-8	**16.1**	0.106	0.789	2
06135	**Lead**	7439-92-1	**9.59**	0.0219	0.394	2
06139	**Nickel**	7440-02-0	**15.1**	0.196	0.789	2
06141	**Selenium**	7782-49-2	**0.131 J**	0.0986	0.789	2
06142	**Silver**	7440-22-4	**0.0376 J**	0.0288	0.197	2
06145	**Thallium**	7440-28-0	**0.247**	0.0246	0.197	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:55
SDG#: SGB52-03

C. T. Male Associates
ELLE Sample #: SW 9228648
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.28**	0.0420	0.197	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,760**	441	1,320	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 19:52	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:11	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 16:42	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:11	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:53	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 09:55
SDG#: SGB52-03

C. T. Male Associates
ELLE Sample #: SW 9228648
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:53	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:53	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 06:59	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:10
SDG#: SGB52-04

C. T. Male Associates
ELLE Sample #: SW 9228649
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,830**	9.74	43.6	1
01650	**Calcium**	7440-70-2	**25,800**	3.63	43.6	1
01654	**Iron**	7439-89-6	**16,200**	8.77	43.6	1
01657	**Magnesium**	7439-95-4	**8,820**	2.65	21.8	1
06958	**Manganese**	7439-96-5	**394**	0.0904	1.09	1
01662	**Potassium**	7440-09-7	**1,300**	18.2	109	1
01667	**Sodium**	7440-23-5	**26.1 J**	18.2	218	1
06972	**Zinc**	7440-66-6	**34.1**	0.261	4.36	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.124 J**	0.102	0.436	2
06125	**Arsenic**	7440-38-2	**6.56**	0.139	0.871	2
06126	**Barium**	7440-39-3	**70.0**	0.198	0.871	2
06127	**Beryllium**	7440-41-7	**0.470**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.134 J**	0.0375	0.218	2
06131	**Chromium**	7440-47-3	**7.74**	0.190	0.871	2
06132	**Cobalt**	7440-48-4	**13.2**	0.0340	0.218	2
06133	**Copper**	7440-50-8	**16.5**	0.117	0.871	2
06135	**Lead**	7439-92-1	**11.2**	0.0242	0.436	2
06139	**Nickel**	7440-02-0	**15.7**	0.217	0.871	2
06141	**Selenium**	7782-49-2	**0.161 J**	0.109	0.871	2
06142	**Silver**	7440-22-4	**0.0346 J**	0.0318	0.218	2
06145	**Thallium**	7440-28-0	**0.260**	0.0272	0.218	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:10
SDG#: SGB52-04

C. T. Male Associates
ELLE Sample #: SW 9228649
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.81**	0.0464	0.218	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,280**	706	2,120	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 20:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:15	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 16:48	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:15	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:56	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:10
SDG#: SGB52-04

C. T. Male Associates
ELLE Sample #: SW 9228649
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:56	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:56	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 07:51	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:25
SDG#: SGB52-05

C. T. Male Associates
ELLE Sample #: SW 9228650
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,850**	6.97	31.2	1
01650	**Calcium**	7440-70-2	**24,300**	2.59	31.2	1
01654	**Iron**	7439-89-6	**17,500**	6.27	31.2	1
01657	**Magnesium**	7439-95-4	**9,990**	1.89	15.6	1
06958	**Manganese**	7439-96-5	**571**	0.0647	0.779	1
01662	**Potassium**	7440-09-7	**1,230**	13.0	77.9	1
01667	**Sodium**	7440-23-5	**27.1 J**	13.0	156	1
06972	**Zinc**	7440-66-6	**36.1**	0.187	3.12	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.106 J**	0.0726	0.312	2
06125	**Arsenic**	7440-38-2	**6.22**	0.0997	0.623	2
06126	**Barium**	7440-39-3	**107**	0.142	0.623	2
06127	**Beryllium**	7440-41-7	**0.508**	0.0082	0.156	2
06128	**Cadmium**	7440-43-9	**0.192**	0.0268	0.156	2
06131	**Chromium**	7440-47-3	**7.22**	0.136	0.623	2
06132	**Cobalt**	7440-48-4	**15.3**	0.0243	0.156	2
06133	**Copper**	7440-50-8	**17.8**	0.0835	0.623	2
06135	**Lead**	7439-92-1	**22.7**	0.0173	0.312	2
06139	**Nickel**	7440-02-0	**16.3**	0.155	0.623	2
06141	**Selenium**	7782-49-2	**0.177 J**	0.0779	0.623	2
06142	**Silver**	7440-22-4	**0.0369 J**	0.0228	0.156	2
06145	**Thallium**	7440-28-0	**0.468**	0.0195	0.156	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:25
SDG#: SGB52-05

C. T. Male Associates
ELLE Sample #: SW 9228650
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.18**	0.0332	0.156	2
Wet Chemistry		**SM 5310 B modified-2000**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,600**	254	761	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
		SW-846 9045D modified	**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.38**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 20:33	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:25	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:04	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:25	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:25
SDG#: SGB52-05

C. T. Male Associates
ELLE Sample #: SW 9228650
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 08:04	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:35
SDG#: SGB52-06

C. T. Male Associates
ELLE Sample #: SW 9228651
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,700**	8.67	38.8	1
01650	**Calcium**	7440-70-2	**13,000**	3.23	38.8	1
01654	**Iron**	7439-89-6	**23,700**	7.80	38.8	1
01657	**Magnesium**	7439-95-4	**7,490**	2.36	19.4	1
06958	**Manganese**	7439-96-5	**492**	0.0805	0.969	1
01662	**Potassium**	7440-09-7	**1,550**	16.2	96.9	1
01667	**Sodium**	7440-23-5	**33.4 J**	16.2	194	1
06972	**Zinc**	7440-66-6	**49.6**	0.233	3.88	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.118 J**	0.0903	0.388	2
06125	**Arsenic**	7440-38-2	**7.63**	0.124	0.776	2
06126	**Barium**	7440-39-3	**95.1**	0.176	0.776	2
06127	**Beryllium**	7440-41-7	**0.632**	0.0102	0.194	2
06128	**Cadmium**	7440-43-9	**0.217**	0.0333	0.194	2
06131	**Chromium**	7440-47-3	**11.2**	0.169	0.776	2
06132	**Cobalt**	7440-48-4	**12.3**	0.0302	0.194	2
06133	**Copper**	7440-50-8	**22.3**	0.104	0.776	2
06135	**Lead**	7439-92-1	**12.3**	0.0215	0.388	2
06139	**Nickel**	7440-02-0	**20.0**	0.193	0.776	2
06141	**Selenium**	7782-49-2	**0.227 J**	0.0969	0.776	2
06142	**Silver**	7440-22-4	**0.0284 J**	0.0283	0.194	2
06145	**Thallium**	7440-28-0	**0.307**	0.0242	0.194	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:35
SDG#: SGB52-06

C. T. Male Associates
ELLE Sample #: SW 9228651
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.0**	0.0413	0.194	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,420**	600	1,800	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.43**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 20:53	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:29	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:07	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:29	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D11-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 10:35
SDG#: SGB52-06

C. T. Male Associates
ELLE Sample #: SW 9228651
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:08	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049531B	10/21/2017 08:17	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 11:05
SDG#: SGB52-07

C. T. Male Associates
ELLE Sample #: SW 9228652
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,310**	9.13	40.9	1
01650	**Calcium**	7440-70-2	**4,510**	3.40	40.9	1
01654	**Iron**	7439-89-6	**31,200**	41.1	204	5
01657	**Magnesium**	7439-95-4	**2,370**	2.48	20.4	1
06958	**Manganese**	7439-96-5	**1,200**	0.0848	1.02	1
01662	**Potassium**	7440-09-7	**1,250**	17.1	102	1
01667	**Sodium**	7440-23-5	**22.3 J**	17.1	204	1
06972	**Zinc**	7440-66-6	**51.6**	0.245	4.09	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.141 J**	0.0952	0.409	2
06125	**Arsenic**	7440-38-2	**12.8**	0.131	0.817	2
06126	**Barium**	7440-39-3	**126**	0.186	0.817	2
06127	**Beryllium**	7440-41-7	**0.588**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.166 J**	0.0351	0.204	2
06131	**Chromium**	7440-47-3	**12.5**	0.178	0.817	2
06132	**Cobalt**	7440-48-4	**20.2**	0.0319	0.204	2
06133	**Copper**	7440-50-8	**32.2**	0.110	0.817	2
06135	**Lead**	7439-92-1	**20.9**	0.0227	0.409	2
06139	**Nickel**	7440-02-0	**24.7**	0.204	0.817	2
06141	**Selenium**	7782-49-2	**0.227 J**	0.102	0.817	2
06142	**Silver**	7440-22-4	**0.0445 J**	0.0298	0.204	2
06145	**Thallium**	7440-28-0	**0.413**	0.0255	0.204	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 11:05
SDG#: SGB52-07

C. T. Male Associates
ELLE Sample #: SW 9228652
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.2**	0.0435	0.204	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,580**	492	1,480	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.38**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 21:14	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:17	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:33	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	10/05/2017 17:52	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D11-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 11:05
SDG#: SGB52-07

C. T. Male Associates
ELLE Sample #: SW 9228652
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049532A	10/21/2017 08:56	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402A	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS08-170925 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017
SDG#: SGB52-08FD

C. T. Male Associates
ELLE Sample #: SW 9228653
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,760**	8.45	37.8	1
01650	**Calcium**	7440-70-2	**11,400**	3.15	37.8	1
01654	**Iron**	7439-89-6	**22,400**	7.61	37.8	1
01657	**Magnesium**	7439-95-4	**6,560**	2.30	18.9	1
06958	**Manganese**	7439-96-5	**443**	0.0784	0.945	1
01662	**Potassium**	7440-09-7	**1,440**	15.8	94.5	1
01667	**Sodium**	7440-23-5	**31.5 J**	15.8	189	1
06972	**Zinc**	7440-66-6	**49.2**	0.227	3.78	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.116 J**	0.0881	0.378	2
06125	**Arsenic**	7440-38-2	**7.00**	0.121	0.756	2
06126	**Barium**	7440-39-3	**77.8**	0.172	0.756	2
06127	**Beryllium**	7440-41-7	**0.598**	0.0099	0.189	2
06128	**Cadmium**	7440-43-9	**0.199**	0.0325	0.189	2
06131	**Chromium**	7440-47-3	**12.4**	0.164	0.756	2
06132	**Cobalt**	7440-48-4	**14.5**	0.0295	0.189	2
06133	**Copper**	7440-50-8	**21.0**	0.101	0.756	2
06135	**Lead**	7439-92-1	**11.8**	0.0210	0.378	2
06139	**Nickel**	7440-02-0	**18.3**	0.188	0.756	2
06141	**Selenium**	7782-49-2	**0.166 J**	0.0945	0.756	2
06142	**Silver**	7440-22-4	**0.0415 J**	0.0276	0.189	2
06145	**Thallium**	7440-28-0	**0.230**	0.0236	0.189	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS08-170925 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017
SDG#: SGB52-08FD

C. T. Male Associates
ELLE Sample #: SW 9228653
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.8**	0.0402	0.189	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,390**	342	1,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.44**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/10/2017 13:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:37	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	10/05/2017 17:23	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-FDS08-170925 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017
SDG#: SGB52-08FD

C. T. Male Associates
ELLE Sample #: SW 9228653
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17293049532A	10/21/2017 09:09	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 12:50
SDG#: SGB52-09

C. T. Male Associates
ELLE Sample #: SW 9228654
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,680**	7.02	31.4	1
01650	**Calcium**	7440-70-2	**26,900**	2.62	31.4	1
01654	**Iron**	7439-89-6	**31,400**	31.6	157	5
01657	**Magnesium**	7439-95-4	**15,100**	1.91	15.7	1
06958	**Manganese**	7439-96-5	**918**	0.0652	0.785	1
01662	**Potassium**	7440-09-7	**971**	13.1	78.5	1
01667	**Sodium**	7440-23-5	**34.7 J**	13.1	157	1
06972	**Zinc**	7440-66-6	**58.7**	0.189	3.14	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.123 J**	0.0732	0.314	2
06125	**Arsenic**	7440-38-2	**13.1**	0.101	0.628	2
06126	**Barium**	7440-39-3	**79.9**	0.143	0.628	2
06127	**Beryllium**	7440-41-7	**0.557**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.168**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**10.9**	0.137	0.628	2
06132	**Cobalt**	7440-48-4	**19.7**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**33.5**	0.0842	0.628	2
06135	**Lead**	7439-92-1	**28.1**	0.0174	0.314	2
06139	**Nickel**	7440-02-0	**28.2**	0.156	0.628	2
06141	**Selenium**	7782-49-2	**0.209 J**	0.0785	0.628	2
06142	**Silver**	7440-22-4	**0.0389 J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.350**	0.0196	0.157	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 12:50
SDG#: SGB52-09

C. T. Male Associates
ELLE Sample #: SW 9228654
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.8**	0.0335	0.157	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,880**	353	1,060	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 21:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:33	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:40	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 12:50
SDG#: SGB52-09

C. T. Male Associates
ELLE Sample #: SW 9228654
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 16:01	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10BKG

C. T. Male Associates
ELLE Sample #: SW 9228655
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.41 J**	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**0.10 J**	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.24 J**	0.18	0.55	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.20 J**	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1

The recovery for several labeled compounds used as extraction standards is outside the QC acceptance limits. The recovery for the labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike(s), indicating a matrix effect.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,900**	8.28	37.0	1
01650	**Calcium**	7440-70-2	**12,300**	3.08	37.0	1
01654	**Iron**	7439-89-6	**32,400**	37.3	185	5
01657	**Magnesium**	7439-95-4	**6,230**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**665**	0.0769	0.926	1
01662	**Potassium**	7440-09-7	**1,540**	15.5	92.6	1
01667	**Sodium**	7440-23-5	**29.3 J**	15.5	185	1
06972	**Zinc**	7440-66-6	**63.7**	0.222	3.70	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.161 J**	0.0863	0.370	2
06125	**Arsenic**	7440-38-2	**12.5**	0.119	0.741	2
06126	**Barium**	7440-39-3	**83.0**	0.168	0.741	2
06127	**Beryllium**	7440-41-7	**0.586**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.170 J**	0.0319	0.185	2
06131	**Chromium**	7440-47-3	**16.3**	0.161	0.741	2
06132	**Cobalt**	7440-48-4	**20.5**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**32.8**	0.0993	0.741	2
06135	**Lead**	7439-92-1	**15.2**	0.0206	0.370	2
06139	**Nickel**	7440-02-0	**25.6**	0.184	0.741	2
06141	**Selenium**	7782-49-2	**0.252 J**	0.0926	0.741	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10BKG

C. T. Male Associates
ELLE Sample #: SW 9228655
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.294**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.287**	0.0232	0.185	2
06148	**Vanadium**	7440-62-2	**16.4**	0.0395	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,090**	180	539	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.46**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/19/2017 00:16	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 15:55	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 15:55	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:16	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 15:55	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 22:49	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 15:55	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 15:55	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 22:49	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:35	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10BKG

C. T. Male Associates
ELLE Sample #: SW 9228655
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:35	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:35	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 16:14	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10MS

C. T. Male Associates
ELLE Sample #: SW 9228656
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.3**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.2**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.1**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.3**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**19,000**	9.53	42.6	1
01650	**Calcium**	7440-70-2	**15,600**	3.55	42.6	1
01654	**Iron**	7439-89-6	**34,100**	42.9	213	5
01657	**Magnesium**	7439-95-4	**9,180**	2.59	21.3	1
06958	**Manganese**	7439-96-5	**613**	0.0885	1.07	1
01662	**Potassium**	7440-09-7	**3,150**	17.8	107	1
01667	**Sodium**	7440-23-5	**1,030**	17.8	213	1
06972	**Zinc**	7440-66-6	**112**	0.256	4.26	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**38.2**	0.0993	0.426	2
06125	**Arsenic**	7440-38-2	**27.6**	0.136	0.853	2
06126	**Barium**	7440-39-3	**311**	0.194	0.853	2
06127	**Beryllium**	7440-41-7	**5.52**	0.0112	0.213	2
06128	**Cadmium**	7440-43-9	**5.66**	0.0367	0.213	2
06131	**Chromium**	7440-47-3	**38.3**	0.185	0.853	2
06132	**Cobalt**	7440-48-4	**68.4**	0.0333	0.213	2
06133	**Copper**	7440-50-8	**56.2**	0.114	0.853	2
06135	**Lead**	7439-92-1	**32.0**	0.0237	0.426	2
06139	**Nickel**	7440-02-0	**84.3**	0.212	0.853	2
06141	**Selenium**	7782-49-2	**15.2**	0.107	0.853	2
06142	**Silver**	7440-22-4	**5.60**	0.0311	0.213	2
06145	**Thallium**	7440-28-0	**16.1**	0.0266	0.213	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10MS

C. T. Male Associates
ELLE Sample #: SW 9228656
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**74.2**	0.0454	0.213	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**25,100**	729	2,190	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**11.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/10/2017 07:46	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 16:05	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 16:05	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:32	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 16:05	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:00	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 16:05	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 16:05	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:00	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:44	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:44	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:44	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 16:27	James S Mathiot	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10MS

C. T. Male Associates
ELLE Sample #: SW 9228656
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10MSD

C. T. Male Associates
ELLE Sample #: SW 9228657
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.18	0.55	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.4**	0.18	0.55	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.18	0.55	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.18	0.55	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.2**	0.18	0.55	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.18	0.55	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.091	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.091	0.36	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	0.27	0.82	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.18	0.55	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.18	0.55	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.18	0.55	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.18	0.55	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.3**	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**19,800**	8.21	36.7	1
01650	**Calcium**	7440-70-2	**10,700**	3.06	36.7	1
01654	**Iron**	7439-89-6	**33,000**	37.0	184	5
01657	**Magnesium**	7439-95-4	**6,310**	2.23	18.4	1
06958	**Manganese**	7439-96-5	**724**	0.0762	0.919	1
01662	**Potassium**	7440-09-7	**3,220**	15.3	91.9	1
01667	**Sodium**	7440-23-5	**909**	15.3	184	1
06972	**Zinc**	7440-66-6	**107**	0.220	3.67	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**32.2**	0.0856	0.367	2
06125	**Arsenic**	7440-38-2	**26.1**	0.118	0.735	2
06126	**Barium**	7440-39-3	**313**	0.167	0.735	2
06127	**Beryllium**	7440-41-7	**5.47**	0.0096	0.184	2
06128	**Cadmium**	7440-43-9	**4.76**	0.0316	0.184	2
06131	**Chromium**	7440-47-3	**36.3**	0.160	0.735	2
06132	**Cobalt**	7440-48-4	**64.1**	0.0287	0.184	2
06133	**Copper**	7440-50-8	**55.8**	0.0985	0.735	2
06135	**Lead**	7439-92-1	**30.4**	0.0204	0.367	2
06139	**Nickel**	7440-02-0	**74.6**	0.183	0.735	2
06141	**Selenium**	7782-49-2	**14.5**	0.0919	0.735	2
06142	**Silver**	7440-22-4	**4.88**	0.0268	0.184	2
06145	**Thallium**	7440-28-0	**14.0**	0.0230	0.184	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10MSD

C. T. Male Associates
ELLE Sample #: SW 9228657
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**68.3**	0.0391	0.184	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**11.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17278005	10/10/2017 08:07	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17278005	10/05/2017 20:50	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:46	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:46	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:35	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:46	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 23:04	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:46	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:46	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 23:04	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:47	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:47	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:47	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D11-48-49' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10DUP

C. T. Male Associates
ELLE Sample #: SW 9228658
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,480**	10.1	45.2	1
01650	**Calcium**	7440-70-2	**8,430**	3.76	45.2	1
01654	**Iron**	7439-89-6	**38,700**	45.5	226	5
01657	**Magnesium**	7439-95-4	**4,500**	2.75	22.6	1
06958	**Manganese**	7439-96-5	**558**	0.0938	1.13	1
01662	**Potassium**	7440-09-7	**1,270**	18.9	113	1
01667	**Sodium**	7440-23-5	**26.7 J**	18.9	226	1
06972	**Zinc**	7440-66-6	**70.9**	0.271	4.52	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.135 J**	0.105	0.452	2
06125	**Arsenic**	7440-38-2	**15.3**	0.145	0.904	2
06126	**Barium**	7440-39-3	**70.8**	0.205	0.904	2
06127	**Beryllium**	7440-41-7	**0.626**	0.0118	0.226	2
06128	**Cadmium**	7440-43-9	**0.145 J**	0.0389	0.226	2
06131	**Chromium**	7440-47-3	**14.5**	0.197	0.904	2
06132	**Cobalt**	7440-48-4	**17.1**	0.0353	0.226	2
06133	**Copper**	7440-50-8	**31.2**	0.121	0.904	2
06135	**Lead**	7439-92-1	**14.8**	0.0251	0.452	2
06139	**Nickel**	7440-02-0	**24.3**	0.225	0.904	2
06141	**Selenium**	7782-49-2	**0.205 J**	0.113	0.904	2
06142	**Silver**	7440-22-4	**0.0661 J**	0.0330	0.226	2
06145	**Thallium**	7440-28-0	**0.217 J**	0.0282	0.226	2
06148	**Vanadium**	7440-62-2	**16.1**	0.0481	0.226	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**1,600**	202	607	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.43**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00118	**Moisture**	n.a.	**11.5**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**10.8**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-48-49' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 13:30
SDG#: SGB52-10DUP

C. T. Male Associates
ELLE Sample #: SW 9228658
ELLE Group #: 1855037
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 16:02	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 16:02	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 16:29	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 16:02	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	09/30/2017 22:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 16:02	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 16:02	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	09/30/2017 22:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 11:41	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 11:41	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 11:41	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 16:40	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 14:00
SDG#: SGB52-11

C. T. Male Associates
ELLE Sample #: SW 9228659
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20 J**	0.18	0.55	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.19 J**	0.18	0.55	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.21 J**	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15 J**	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.35 J**	0.18	0.55	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.28 J**	0.18	0.55	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.24 J**	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,700**	9.82	44.0	1
01650	**Calcium**	7440-70-2	**2,890**	3.66	44.0	1
01654	**Iron**	7439-89-6	**31,400**	44.2	220	5
01657	**Magnesium**	7439-95-4	**2,480**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**671**	0.0912	1.10	1
01662	**Potassium**	7440-09-7	**1,730**	18.4	110	1
01667	**Sodium**	7440-23-5	**36.7 J**	18.4	220	1
06972	**Zinc**	7440-66-6	**79.9**	0.264	4.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.174 J**	0.102	0.440	2
06125	**Arsenic**	7440-38-2	**13.5**	0.141	0.879	2
06126	**Barium**	7440-39-3	**91.9**	0.200	0.879	2
06127	**Beryllium**	7440-41-7	**0.957**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.239**	0.0378	0.220	2
06131	**Chromium**	7440-47-3	**23.2**	0.191	0.879	2
06132	**Cobalt**	7440-48-4	**20.9**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**28.9**	0.118	0.879	2
06135	**Lead**	7439-92-1	**20.3**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**27.1**	0.219	0.879	2
06141	**Selenium**	7782-49-2	**0.188 J**	0.110	0.879	2
06142	**Silver**	7440-22-4	**0.0905 J**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**0.423**	0.0275	0.220	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 14:00
SDG#: SGB52-11

C. T. Male Associates
ELLE Sample #: SW 9228659
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.5**	0.0468	0.220	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,060**	309	926	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.47**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/21/2017 23:55	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:36	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	10/05/2017 17:49	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:21	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 14:00
SDG#: SGB52-11

C. T. Male Associates
ELLE Sample #: SW 9228659
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:21	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:21	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 16:53	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 15:55
SDG#: SGB52-12

C. T. Male Associates
ELLE Sample #: SW 9228660
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077 U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077 U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.69	1
14027	Perfluorooctanoic acid	335-67-1	0.15 U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,700**	9.07	40.6	1
01650	**Calcium**	7440-70-2	**3,100**	3.38	40.6	1
01654	**Iron**	7439-89-6	**33,700**	40.8	203	5
01657	**Magnesium**	7439-95-4	**2,640**	2.47	20.3	1
06958	**Manganese**	7439-96-5	**807**	0.0842	1.01	1
01662	**Potassium**	7440-09-7	**1,430**	16.9	101	1
01667	**Sodium**	7440-23-5	**29.5 J**	16.9	203	1
06972	**Zinc**	7440-66-6	**67.0**	0.244	4.06	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.190 J**	0.0946	0.406	2
06125	**Arsenic**	7440-38-2	**14.2**	0.130	0.812	2
06126	**Barium**	7440-39-3	**111**	0.184	0.812	2
06127	**Beryllium**	7440-41-7	**1.06**	0.0106	0.203	2
06128	**Cadmium**	7440-43-9	**0.275**	0.0349	0.203	2
06131	**Chromium**	7440-47-3	**18.7**	0.177	0.812	2
06132	**Cobalt**	7440-48-4	**19.0**	0.0317	0.203	2
06133	**Copper**	7440-50-8	**30.0**	0.109	0.812	2
06135	**Lead**	7439-92-1	**21.8**	0.0225	0.406	2
06139	**Nickel**	7440-02-0	**28.0**	0.202	0.812	2
06141	**Selenium**	7782-49-2	**0.196 J**	0.101	0.812	2
06142	**Silver**	7440-22-4	**0.0928 J**	0.0296	0.203	2
06145	**Thallium**	7440-28-0	**0.556**	0.0254	0.203	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 15:55
SDG#: SGB52-12

C. T. Male Associates
ELLE Sample #: SW 9228660
ELLE Group #: 1855037
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.4**	0.0432	0.203	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,120**	306	917	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.60**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 22:57	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172711063702	10/05/2017 17:59	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172711063702	10/05/2017 17:56	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172711063702D	10/06/2017 12:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/26/2017 09:35
Collection Date/Time: 09/25/2017 15:55
SDG#: SGB52-12

C. T. Male Associates
ELLE Sample #: SW 9228660
ELLE Group #: 1855037
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172711063702B	10/06/2017 12:24	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172711063702A	10/06/2017 12:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172711063702	09/28/2017 23:35	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 17:05	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010A	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17278005	Sample number(s): 9228646-9228647,9228653,9228655-9228657		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17291007	Sample number(s): 9228648-9228652,9228654,9228659-9228660		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	mg/kg	mg/kg	mg/kg
Batch number: 172711063701	Sample number(s): 9228646-9228647		
Aluminum	8.94 U	8.94	40.0
Calcium	5.52 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Sodium	16.7 U	16.7	200
Zinc	0.865 J	0.240	4.00
Batch number: 172711063702	Sample number(s): 9228648-9228660		
Aluminum	8.94 U	8.94	40.0
Calcium	9.08 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	1.68	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	1.49 J	0.240	4.00
Batch number: 172711063702A	Sample number(s): 9228648-9228660		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172711063702B	Sample number(s): 9228648-9228660		
Selenium	0.100 U	0.100	0.800
Batch number: 172711063702D	Sample number(s): 9228648-9228660		
Barium	0.182 U	0.182	0.800
Batch number: 172761063701A	Sample number(s): 9228646-9228647		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172761063701B	Sample number(s): 9228646-9228647		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Selenium	0.100	U	0.100	0.800
Batch number: 172761063701D	Sample number(s): 9228646-9228647			
Barium	0.182	U	0.182	0.800
Batch number: 17293049531B	Sample number(s): 9228646-9228651			
TOC	100	U	100	300
Batch number: 17293049532A	Sample number(s): 9228652-9228653			
TOC	100	U	100	300
Batch number: 17294049531A	Sample number(s): 9228654-9228656,9228658-9228660			
TOC	180	J	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17278005	Sample number(s): 9228646-9228647,9228653,9228655-9228657								
Perfluorobutanesulfonate	1.20	1.25			104		70-130		
Perfluorobutanoic acid	1.36	1.45			107		70-130		
Perfluorodecanoic acid	1.36	1.49			110		70-130		
Perfluorododecanoic acid	1.36	1.49			110		70-130		
Perfluoroheptanoic acid	1.36	1.34			98		70-130		
Perfluorohexanesulfonate	1.29	1.34			104		70-130		
Perfluorohexanoic acid	1.36	1.39			102		70-130		
Perfluorononanoic acid	1.36	1.45			106		70-130		
Perfluoro-octanesulfonate	1.30	1.47			113		70-130		
Perfluorooctanoic acid	1.36	1.54			113		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.50			110		70-130		
Perfluorotridecanoic acid	1.36	1.59			117		70-130		
Perfluoroundecanoic acid	1.36	1.38			101		70-130		
Batch number: 17291007	Sample number(s): 9228648-9228652,9228654,9228659-9228660								
Perfluorobutanesulfonate	1.20	1.10	1.20	1.22	92	101	70-130	10	30
Perfluorobutanoic acid	1.36	1.41	1.36	1.46	103	107	70-130	4	30
Perfluorodecanoic acid	1.36	1.25	1.36	1.25	92	92	70-130	0	30
Perfluorododecanoic acid	1.36	1.28	1.36	1.30	94	96	70-130	2	30
Perfluoroheptanoic acid	1.36	1.31	1.36	1.42	96	105	70-130	8	30
Perfluorohexanesulfonate	1.29	1.14	1.29	1.14	89	88	70-130	1	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.45	99	106	70-130	7	30
Perfluorononanoic acid	1.36	1.37	1.36	1.58	100	116	70-130	15	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	0.999	1.30	1.30	77	100	70-130	26	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.42	96	104	70-130	8	30
Perfluoropentanoic acid	1.36	1.34	1.36	1.45	98	107	70-130	8	30
Perfluorotetradecanoic acid	1.36	1.19	1.36	1.44	87	106	70-130	19	30
Perfluorotridecanoic acid	1.36	1.23	1.36	1.37	90	101	70-130	11	30
Perfluoroundecanoic acid	1.36	1.38	1.36	1.38	102	102	70-130	0	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172711063701	Sample number(s): 9228646-9228647								
Aluminum	200	222.6			111		80-120		
Calcium	400	406.42			102		80-120		
Iron	100	102.57			103		80-120		
Magnesium	200	203.9			102		80-120		
Manganese	50	52.09			104		80-120		
Potassium	1000	1039.66			104		80-120		
Sodium	1000	1030.73			103		80-120		
Zinc	50	51.67			103		80-120		
Batch number: 172711063702	Sample number(s): 9228648-9228660								
Aluminum	200	217.03			109		80-120		
Calcium	400	394.54			99		80-120		
Iron	100	100.33			100		80-120		
Magnesium	200	196.59			98		80-120		
Manganese	50	53.29			107		80-120		
Potassium	1000	993.96			99		80-120		
Sodium	1000	982.68			98		80-120		
Zinc	50	49.65			99		80-120		
Batch number: 172711063702A	Sample number(s): 9228648-9228660								
Antimony	0.600	0.618			103		80-120		
Arsenic	1.00	1.01			101		80-120		
Beryllium	0.400	0.359			90		80-120		
Cadmium	0.500	0.511			102		80-120		
Chromium	5.00	5.04			101		80-120		
Cobalt	25	22.92			92		80-120		
Copper	5.00	5.13			103		80-120		
Lead	1.50	1.51			101		80-120		
Nickel	5.00	4.95			99		80-120		
Silver	5.00	5.10			102		80-120		
Thallium	0.200	0.188			94		80-120		
Vanadium	5.00	4.95			99		80-120		
Batch number: 172711063702B	Sample number(s): 9228648-9228660								
Selenium	1.00	1.06			106		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 172711063702D	Sample number(s): 9228648-9228660								
Barium	5.00	5.23			105		80-120		
Batch number: 172761063701A	Sample number(s): 9228646-9228647								
Antimony	0.600	0.511			85		80-120		
Arsenic	1.00	0.912			91		80-120		
Beryllium	0.400	0.417			104		80-120		
Cadmium	0.500	0.506			101		80-120		
Chromium	5.00	5.54			111		80-120		
Cobalt	25	26.84			107		80-120		
Copper	5.00	5.73			115		80-120		
Lead	1.50	1.55			104		80-120		
Nickel	5.00	5.24			105		80-120		
Silver	5.00	5.31			106		80-120		
Thallium	0.200	0.225			113		80-120		
Vanadium	5.00	5.33			107		80-120		
Batch number: 172761063701B	Sample number(s): 9228646-9228647								
Selenium	1.00	1.03			103		80-120		
Batch number: 172761063701D	Sample number(s): 9228646-9228647								
Barium	5.00	5.07			101		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17293049531B	Sample number(s): 9228646-9228651								
TOC	7150	5845.73			82		47-143		
Batch number: 17293049532A	Sample number(s): 9228652-9228653								
TOC	7150	4827.44			68		47-143		
Batch number: 17294049531A	Sample number(s): 9228654-9228656,9228658-9228660								
TOC	7150	6494.4			91		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17271039402A	Sample number(s): 9228646-9228652								
pH	7.00	7.01			100		95-105		
Batch number: 17271039402B	Sample number(s): 9228653-9228655,9228658-9228660								
pH	7.00	7.01			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17272820010A	Sample number(s): 9228646-9228660								
Moisture	89.5	89.38			100		99-101		
Moisture	89.5	89.38			100		99-101		
Moisture Duplicate	89.5	89.38			100		99-101		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17278005	Sample number(s): 9228646-9228647,9228653,9228655-9228657 UNSPK: 9228655									
Perfluorobutanesulfonate	0.16 U	1.09	0.955	0.969	0.954	87	98	70-130	0	30
Perfluorobutanoic acid	0.364	1.24	1.31	1.10	1.22	76	78	70-130	6	30
Perfluorodecanoic acid	0.16 U	1.24	1.18	1.10	1.35	96	123	70-130	13	30
Perfluorododecanoic acid	0.16 U	1.24	1.36	1.10	1.35	110	123	70-130	0	30
Perfluoroheptanoic acid	0.16 U	1.24	1.10	1.10	1.08	89	98	70-130	2	30
Perfluorohexanesulfonate	0.16 U	1.17	0.993	1.04	1.12	85	108	70-130	12	30
Perfluorohexanoic acid	0.081 U	1.24	1.14	1.10	1.23	92	112	70-130	8	30
Perfluorononanoic acid	0.0901	1.24	1.30	1.10	1.11	98	93	70-130	16	30
Perfluoro-octanesulfonate	0.24 U	1.18	0.964	1.05	1.06	82	101	70-130	9	30
Perfluorooctanoic acid	0.16 U	1.24	1.22	1.10	1.18	99	107	70-130	4	30
Perfluoropentanoic acid	0.16 U	1.24	1.24	1.10	1.27	100	116	70-130	2	30
Perfluorotetradecanoic acid	0.214	1.24	1.38	1.10	1.43	94	111	70-130	4	30
Perfluorotridecanoic acid	0.178	1.24	1.42	1.10	1.54	100	124	70-130	8	30
Perfluoroundecanoic acid	0.16 U	1.24	1.26	1.10	1.17	102	106	70-130	7	30
Batch number: 17291007	Sample number(s): 9228648-9228652,9228654,9228659-9228660 UNSPK: 9228648									
Perfluorobutanesulfonate	0.14 U	1.06	1.02			97		70-130		
Perfluorobutanoic acid	0.14 U	1.19	1.32			110		70-130		
Perfluorodecanoic acid	0.14 U	1.19	1.28			107		70-130		
Perfluorododecanoic acid	0.14 U	1.19	1.34			113		70-130		
Perfluoroheptanoic acid	0.14 U	1.19	1.22			102		70-130		
Perfluorohexanesulfonate	0.14 U	1.13	1.16			103		70-130		
Perfluorohexanoic acid	0.072 U	1.19	1.12			94		70-130		
Perfluorononanoic acid	0.072 U	1.19	1.24			104		70-130		
Perfluoro-octanesulfonate	0.22 U	1.14	1.02			89		70-130		
Perfluorooctanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluoropentanoic acid	0.14 U	1.19	1.13			94		70-130		
Perfluorotetradecanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluorotridecanoic acid	0.14 U	1.19	1.18			99		70-130		
Perfluoroundecanoic acid	0.14 U	1.19	1.20			101		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172711063701	Sample number(s): 9228646-9228647 UNSPK: P228623									
Aluminum	2182.67	160	3781.68	196.08	4195.4	999 (2)	1026 (2)	75-125	10	20
Calcium	97248.02	320	107003.59	392.16	108229.03	3049 (2)	2800 (2)	75-125	1	20
Iron	8827.18	80	12535.59	98.04	9580.74	4636 (2)	769 (2)	75-125	27*	20
Magnesium	30649.37	160	27904.62	196.08	33553.69	-1715 (2)	1481 (2)	75-125	18	20
Manganese	313.45	40	262.25	49.02	374.37	-128 (2)	124 (2)	75-125	35*	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Potassium	425.03	800	1589.23	980.39	1806.83	146*	141*	75-125	13	20
Sodium	37.39	800	886.21	980.39	1058.93	106	104	75-125	18	20
Zinc	19.83	40	64.19	49.02	67.9	111	98	75-125	6	20
Batch number: 172711063702	Sample number(s): 9228648-9228660 UNSPK: 9228655									
Aluminum	9612.94	188.68	16817.2	162.6	17540.52	3818 (2)	4875 (2)	75-125	4	20
Calcium	10856.81	377.36	13803.58	325.2	9458.48	781 (2)	-430 (2)	75-125	37*	20
Iron	28676.97	94.34	30221.9	81.3	29201.2	1638 (2)	645 (2)	75-125	3	20
Magnesium	5509.37	188.68	8125.31	162.6	5582.69	1386 (2)	45 (2)	75-125	37*	20
Manganese	588.5	47.17	542.7	40.65	640.79	-97 (2)	129 (2)	75-125	17	20
Potassium	1362.57	943.4	2789.15	813.01	2845.51	151*	182*	75-125	2	20
Sodium	25.93	943.4	914.68	813.01	804.83	94	96	75-125	13	20
Zinc	56.39	47.17	99.38	40.65	94.87	91	95	75-125	5	20
Batch number: 172711063702A	Sample number(s): 9228648-9228660 UNSPK: 9228655									
Antimony	0.142	1.13	33.85	0.976	28.49	2977*	2905*	75-125	17	20
Arsenic	11.04	1.89	24.4	1.63	23.11	708 (2)	742 (2)	75-125	5	20
Beryllium	0.519	0.755	4.88	0.650	4.84	578*	665*	75-125	1	20
Cadmium	0.150	0.943	5.01	0.813	4.21	515*	500*	75-125	17	20
Chromium	14.43	9.43	33.91	8.13	32.15	206*	218*	75-125	5	20
Cobalt	18.18	47.17	60.55	40.65	56.72	90	95	75-125	7	20
Copper	29.03	9.43	49.77	8.13	49.35	220*	250*	75-125	1	20
Lead	13.44	2.83	28.36	2.44	26.94	527 (2)	554 (2)	75-125	5	20
Nickel	22.62	9.43	74.58	8.13	66.07	551*	534*	75-125	12	20
Silver	0.260	9.43	4.96	8.13	4.32	50*	50*	75-125	14	20
Thallium	0.254	0.377	14.24	0.325	12.42	3707*	3740*	75-125	14	20
Vanadium	14.47	9.43	65.7	8.13	60.49	543*	566*	75-125	8	20
Batch number: 172711063702B	Sample number(s): 9228648-9228660 UNSPK: 9228655									
Selenium	0.223	1.89	13.44	1.63	12.79	700*	773*	75-125	5	20
Batch number: 172711063702D	Sample number(s): 9228648-9228660 UNSPK: 9228655									
Barium	73.43	9.43	275.66	8.13	276.59	2144 (2)	2499 (2)	75-125	0	20
Batch number: 172761063701A	Sample number(s): 9228646-9228647 UNSPK: P228629									
Antimony	0.118	1.11	0.932	1.05	0.743	73*	59*	75-125	23*	20
Arsenic	5.49	1.85	7.33	1.75	7.40	100	109	75-125	1	20
Beryllium	0.444	0.741	1.19	0.702	1.09	101	92	75-125	9	20
Cadmium	0.112	0.926	1.05	0.877	0.979	101	99	75-125	7	20
Chromium	5.89	9.26	15.71	8.77	15.48	106	109	75-125	1	20
Cobalt	18.2	46.3	58.13	43.86	64.84	86	106	75-125	11	20
Copper	16.1	9.26	23.49	8.77	23.53	80	85	75-125	0	20
Lead	8.27	2.78	12.25	2.63	11.3	143*	115	75-125	8	20
Nickel	15.03	9.26	21.85	8.77	21.58	74*	75	75-125	1	20

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Silver	0.0286 U	9.26	9.30	8.77	8.88	100	101	75-125	5	20
Thallium	0.304	0.370	0.674	0.351	0.564	100	74*	75-125	18	20
Vanadium	7.89	9.26	18.79	8.77	16.56	118	99	75-125	13	20
Batch number: 172761063701B	Sample number(s): 9228646-9228647 UNSPK: P228629									
Selenium	0.156	1.85	2.00	1.75	1.83	100	95	75-125	9	20
Batch number: 172761063701D	Sample number(s): 9228646-9228647 UNSPK: P228629									
Barium	75.15	9.26	117.36	8.77	83.43	456 (2)	94 (2)	75-125	34*	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17293049531B	Sample number(s): 9228646-9228651 UNSPK: P228635									
TOC	3489.36	72630	54794.19			71		47-143		
Batch number: 17293049532A	Sample number(s): 9228652-9228653 UNSPK: 9228653									
TOC	1228.86	40050	30213.62			72		47-143		
Batch number: 17294049531A	Sample number(s): 9228654-9228656,9228658-9228660 UNSPK: 9228655									
TOC	2734.93	19350	22224.37			101		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172711063701	Sample number(s): 9228646-9228647 BKG: P228623			
Aluminum	2182.67	2413.97	10	20
Calcium	97248.02	100316.29	3	20
Iron	8827.18	9938.72	12	20
Magnesium	30649.37	31876.34	4	20
Manganese	313.45	273.54	14	20
Potassium	425.03	410.16	4 (1)	20
Sodium	37.39	39.66	6 (1)	20
Zinc	19.83	23.76	18	20
Batch number: 172711063702	Sample number(s): 9228648-9228660 BKG: 9228655			
Aluminum	9612.94	7503.98	25*	20
Calcium	10856.81	7459.44	37*	20
Iron	28676.97	34206.63	18	20
Magnesium	5509.37	3982.79	32*	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Manganese	588.5	493.9	17	20
Potassium	1362.57	1127.09	19	20
Sodium	25.93	23.67	9 (1)	20
Zinc	56.39	62.72	11	20
Batch number: 172711063702A	Sample number(s): 9228648-9228660 BKG: 9228655			
Antimony	0.142	0.120	17 (1)	20
Arsenic	11.04	13.55	20	20
Beryllium	0.519	0.554	7 (1)	20
Cadmium	0.150	0.128	16 (1)	20
Chromium	14.43	12.85	12	20
Cobalt	18.18	15.09	19	20
Copper	29.03	27.64	5	20
Lead	13.44	13.08	3	20
Nickel	22.62	21.48	5	20
Silver	0.260	0.0585	127* (1)	20
Thallium	0.254	0.192	28* (1)	20
Vanadium	14.47	14.21	2	20
Batch number: 172711063702B	Sample number(s): 9228648-9228660 BKG: 9228655			
Selenium	0.223	0.182	20 (1)	20
Batch number: 172711063702D	Sample number(s): 9228648-9228660 BKG: 9228655			
Barium	73.43	62.68	16	20
Batch number: 172761063701A	Sample number(s): 9228646-9228647 BKG: P228629			
Antimony	0.118	0.0961	21* (1)	20
Arsenic	5.49	5.27	4	20
Beryllium	0.444	0.406	9 (1)	20
Cadmium	0.112	0.110	2 (1)	20
Chromium	5.89	5.38	9	20
Cobalt	18.2	11.08	49*	20
Copper	16.1	14.15	13	20
Lead	8.27	7.55	9	20
Nickel	15.03	11.08	30*	20
Silver	0.0286 U	0.0239 U	0 (1)	20
Thallium	0.304	0.271	12 (1)	20
Vanadium	7.89	6.95	13	20
Batch number: 172761063701B	Sample number(s): 9228646-9228647 BKG: P228629			
Selenium	0.156	0.167	7 (1)	20
Batch number: 172761063701D	Sample number(s): 9228646-9228647 BKG: P228629			
Barium	75.15	76.16	1	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17293049531B	Sample number(s): 9228646-9228651 BKG: P228635			
TOC	3489.36	3427.03	2 (1)	7
Batch number: 17293049532A	Sample number(s): 9228652-9228653 BKG: 9228653			
TOC	1228.86	1414.53	14* (1)	7
Batch number: 17294049531A	Sample number(s): 9228654-9228656,9228658-9228660 BKG: 9228655			
TOC	2734.93	1418.08	63* (1)	7
	Std. Units	Std. Units		
Batch number: 17271039402A	Sample number(s): 9228646-9228652 BKG: P228635			
pH	7.82	7.81	0	3
Batch number: 17271039402B	Sample number(s): 9228653-9228655,9228658-9228660 BKG: 9228655			
pH	8.46	8.43	0	3
	%	%		
Batch number: 17272820010A	Sample number(s): 9228646-9228660 BKG: 9228655, P228655			
Moisture	11.54	10.84	6*	5
Moisture	11.54	10.84	6*	5
Moisture Duplicate	11.54	10.84	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17278005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228646	66	64*	72	69	76	73
9228647	59	56*	56	59	60	52
9228653	59	60*	62	56	67	59
9228655	30*	34*	63	34*	59	36*
9228656	36*	37*	52	38*	60	35*
9228657	36*	34*	50	36*	55	35*
Blank	68	67*	60	62	63	62
LCS	62	60*	56	61	62	63
MS	36*	37*	52	38*	60	35*

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17278005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MSD	36*	34*	50	36*	55	35*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9228646	73	71	69	70	69	68
9228647	58	56	57	60	63	64
9228653	60	73	61	63	67	63
9228655	32*	52	29*	33*	26	25
9228656	39*	58	39	39	44	42
9228657	38*	52	38	37	42	41
Blank	67	64	68	73	76	80
LCS	63	62	68	66	72	69
MS	39*	58	39	39	44	42
MSD	38*	52	38	37	42	41
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9228646	73
9228647	64
9228653	67
9228655	24
9228656	45
9228657	45
Blank	81
LCS	66
MS	45
MSD	45
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17291007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228648	46	46*	56	48	59	49
9228649	57	58*	69	54	69	52
9228650	67	69*	71	66	81	68
9228651	64	66*	66	63	70	66

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1855037
Reported: 10/27/2017 09:34

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17291007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9228652	50	49*	66	51	66	51
9228654	54	54*	61	53	65	59
9228659	42	41*	60	46	71	51
9228660	43	42*	62	44	69	45
Blank	86	83	75	96	73	87
LCS	85	84	79	92	89	89
LCSD	81	80	78	75	78	76
MS	44	47*	57	47	62	50
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9228648	52	77	51	53	51	46
9228649	60	78	63	60	61	61
9228650	76	82	69	76	84	72
9228651	63	80	68	70	74	69
9228652	62	81	63	58	56	53
9228654	63	68	59	52	56	46
9228659	46	79	49	47	44	40
9228660	47	75	48	50	50	46
Blank	100	90	93	94	92	95
LCS	96	94	91	94	85	87
LCSD	90	82	88	84	77	71
MS	54	66	54	55	54	49
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9228648	44
9228649	57
9228650	64
9228651	59
9228652	50
9228654	45
9228659	39
9228660	42
Blank	80
LCS	82
LCSD	63

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:34

Group Number: 1855037

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17291007

	13C2-PFTeDA
MS	46
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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37191 1855037 9228646-CO

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52290
COC 3 of 5 4 052

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Lathram, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic / PFCs (1)	Soil: 4oz glass / Tox, pH, moist, metals	Soil: % Solids	Preservative Code	Field Filtered Y/N
										A	A			
										1	1			
1. SG3-D11-0-0.5'	0	0.5	ft.	09/25/2017	09:30	S	N	2		1	1			
2. SG3-D11-0.5-1'	0.5	1	ft.	09/25/2017	09:45	S	N	2		1	1			
3. SG3-D11-1-1.5'	1	1.5	ft.	09/25/2017	09:55	S	N	2		1	1			
4. SG3-D11-3-4'	3	4	ft.	09/25/2017	10:10	S	N	2		1	1			
5. SG3-D11-8-9'	8	9	ft.	09/25/2017	10:25	S	N	2		1	1			
6. SG3-D11-18-19'	18	19	ft.	09/25/2017	10:35	S	N	2		1	1			
7. SG3-D11-28-29'	28	29	ft.	09/25/2017	11:05	S	N	2		1	1			
8. SG3-FDS08-170925	/	/	/	09/25/2017	/	S	N	2		1	1			
9. SG3-D11-38-39'	38	39	ft.	09/25/2017	12:50	S	N	2		1	1			
10. SG3-D11-48-49'	48	49	ft.	09/25/2017	13:30	S	MS	2		3	3			

metals = cations (TAL) Excluding Hg

BARR USE ONLY

Sampled by: RAM, DJZ, KAM
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y N — Date 9/25/17 — Time 1700
Relinquished by: [signature] On Ice? Y N — Date — Time
Received by: — Date — Time
Received by: [signature] — Date 9/26/17 — Time 933

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other: [signature]
Air Bill Number:

Lab WO: Temperature on Receipt (°C): 24/3.1 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1855037 9228646-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52291

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill RD
Name: Michael Dupay	Name: Lathram, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic / PFCs (1); 4oz glass / TOC, pH, moist, metals	% Solids	Preservative Code	Field Filtered Y/N
1.	SG3-D11-58-59'	58	59	ft.	09/25/2017	1400	S	N	2		1 1		Metals = Cations (TAL) Excluding Hg	
2.	SG3-D11-68-69'	68	69	ft.	09/25/2017	1555	S	N	2		1 1			
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY

Sampled by: RAM, DSZ, KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 9-25-17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 9/26/17 Time 952

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.4/3.1 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 195483

Group Number(s): 1855037

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/26/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 11:56 on 09/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.1	DT	Wet	Y	Bagged	N
2	DT131	2.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 29, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1854824
SDG: SGB53
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-Troll/Cable-RB1 Blank Water	09/25/2017 15:40	9227816
SG3-Troll/Cable-RB2 Blank Water	09/25/2017 15:55	9227817
SG3-Troll/Cable-RB3 Blank Water	09/25/2017 16:00	9227818
SG3-Troll/Cable-RB4 Blank Water	09/25/2017 16:05	9227819
SG3-Troll/Cable-RB5 Blank Water	09/25/2017 16:10	9227820
SG3-Troll/Cable-RB6 Blank Water	09/25/2017 16:15	9227821
SG3-Troll/Cable-RB7 Blank Water	09/25/2017 16:20	9227822
SG3-Troll/Cable-RB8 Blank Water	09/25/2017 16:25	9227823
SG3-LTB49-170925 Water	09/25/2017	9227824
SG3-LTB50-170925 Water	09/25/2017	9227825

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1854824

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9227816, 9227817, 9227818, 9227821, 9227822

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample #s: 9227823, 9227824, 9227825

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample #s: 9227819, 9227820

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Batch #: 17270005 (Sample number(s): 9227816-9227825)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate, 6:2 fluorotelomersulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 6:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9227816, 9227817, 9227818, 9227819, 9227820, 9227821, 9227822, 9227823, 9227824, 9227825, Blank, LCS, LCSD

Sample Description: SG3-Troll/Cable-RB1 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227816
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 15:40 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB1G3 SDG#: SGB53-01RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**2**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**71**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 16:04	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB1 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227816
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 15:40 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB1G3 SDG#: SGB53-01RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB2 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227817
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 15:55 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB2G3 SDG#: SGB53-02RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**12**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**4**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**5**		0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**430**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 16:25	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB2 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227817
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 15:55 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB2G3 SDG#: SGB53-02RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB3 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227818
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:00 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB3G3 SDG#: SGB53-03RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**16**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 16:45	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB4 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227819
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:05 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB4G3 SDG#: SGB53-04RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**13**		0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**2**	**J**	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**5**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**6**		0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**2**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**440**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB4 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227819
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:05 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB4G3 SDG#: SGB53-04RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 17:06	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB5 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227820
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:10 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB5G3 SDG#: SGB53-05RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**Perfluorobutanesulfonate**	375-73-5	**0.8**	**J**	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**3**		0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**4**		1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**2**	**J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**3**	**J**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**97**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB5 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227820
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:10 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB5G3 SDG#: SGB53-05RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 17:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB6 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227821
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:15 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB6G3 SDG#: SGB53-06RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**9**		0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**2**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**5**		0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**320**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 17:47	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB6 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227821
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:15 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB6G3 SDG#: SGB53-06RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB7 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227822
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:20 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB7G3 SDG#: SGB53-07RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	**Perfluorohexanesulfonate**	355-46-4	**1**	**J**	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**21**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 18:08	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB8 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227823
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:25 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB8G3 SDG#: SGB53-08RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**32**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-Troll/Cable-RB8 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9227823
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017 16:25 by KAM

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB8G3 SDG#: SGB53-08RB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 19:09	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB49-170925 Water
SGPP - North Bennington

ELLE Sample # WW 9227824
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

49LTB SDG#: SGB53-09TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB49-170925 Water
SGPP - North Bennington

ELLE Sample # WW 9227824
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

49LTB SDG#: SGB53-09TB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 19:30	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB50-170925 Water
SGPP - North Bennington

ELLE Sample # WW 9227825
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

50LTB SDG#: SGB53-10TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits in the blank associated with this sample. The data quality is not impacted by this result.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV) associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB50-170925 Water
SGPP - North Bennington

ELLE Sample # WW 9227825
ELLE Group # 1854824
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/25/2017

Submitted: 09/26/2017 09:35
Reported: 09/29/2017 14:30

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

50LTB SDG#: SGB53-10TB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17270005	09/28/2017 19:50	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17270005	09/27/2017 09:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:30

Group Number: 1854824

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17270005	Sample number(s): 9227816-9227825			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17270005	Sample number(s): 9227816-9227825								
6:2 fluorotelomersulfonate	12.89	22.25	12.89	14.47	173*	112	70-130	42*	30
8:2 fluorotelomersulfonate	13.03	19.57	13.03	16.89	150*	130	70-130	15	30
NEtFOSAA	13.6	13.68	13.6	14.87	101	109	70-130	8	30
NMeFOSAA	13.6	13.7	13.6	13.78	101	101	70-130	1	30
Perfluorobutanesulfonate	12.03	12.82	12.03	12.41	107	103	70-130	3	30
Perfluorobutanoic Acid	13.6	14.21	13.6	13.57	104	100	70-130	5	30
Perfluorodecanoic acid	13.6	16.13	13.6	15.15	119	111	70-130	6	30
Perfluorododecanoic acid	13.6	13.84	13.6	15.1	102	111	70-130	9	30
Perfluoroheptanoic acid	13.6	13.79	13.6	14.97	101	110	70-130	8	30
Perfluorohexanesulfonate	12.86	10.91	12.86	12.7	85	99	70-130	15	30
Perfluorohexanoic acid	13.6	14	13.6	13.32	103	98	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/29/2017 14:30

Group Number: 1854824

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.85	13.6	13.68	109	101	70-130	8	30
Perfluoro-octanesulfonate	13	12.98	13	11.85	100	91	70-130	9	30
Perfluorooctanoic acid	13.6	14.2	13.6	14.3	104	105	70-130	1	30
Perfluoropentanoic Acid	13.6	13.24	13.6	13.39	97	98	70-130	1	30
Perfluorotetradecanoic acid	13.6	14.9	13.6	14.06	110	103	70-130	6	30
Perfluorotridecanoic acid	13.6	12.41	13.6	13.07	91	96	70-130	5	30
Perfluoroundecanoic acid	13.6	14.81	13.6	15.01	109	110	70-130	1	30
PFOSA	13.6	11.17	13.6	13.23	82	97	70-130	17	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17270005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9227816	88	92	87	98	97	90
9227817	81	80	79	87	90	82
9227818	89	92	83	86	95	81
9227819	79	80	80	84	87	85
9227820	74	75	75	81	83	74
9227821	86	87	79	89	86	81
9227822	79	83	76	81	84	84
9227823	79	80	77	83	90	73
9227824	79	81	79	82	84	83
9227825	91	92	87	91	89	85
Blank	99	101	99	110	109	107
LCS	86	90	84	89	93	93
LCSD	88	87	85	97	90	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9227816	101	93	87	91	84	98
9227817	78	85	85	89	90	106
9227818	89	94	84	93	90	92
9227819	93	81	78	81	78	80
9227820	110	83	81	88	82	126
9227821	103	93	92	105	86	107
9227822	89	85	85	92	88	82
9227823	80	83	85	94	84	69

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1854824
Reported: 09/29/2017 14:30

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17270005

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9227824	80	83	78	91	81	79
9227825	97	91	92	95	87	76
Blank	152*	107	105	99	98	118
LCS	82	93	82	82	84	77
LCSD	90	93	88	97	85	84
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9227816	82	94	105	97	96	5*
9227817	81	103	114	96	90	1*
9227818	94	101	113	101	94	10*
9227819	79	75	86	77	73	1*
9227820	62	69	69	51	81	19*
9227821	80	92	103	84	78	57*
9227822	81	86	97	84	81	2*
9227823	95	81	98	83	84	3*
9227824	86	82	109	83	81	6*
9227825	99	94	128	94	95	18*
Blank	94	91	99	98	96	60*
LCS	81	90	96	94	97	2*
LCSD	85	87	87	85	91	47*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1854824 S-922781 6-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47402

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: PFC (19) - 250 mL Plastic	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-Troll/Cable-RB1	—	—	—	09/25/2017	1540	W	N	2	2			PFC (19)
2. SG3-Troll/Cable-RB2	—	—	—	9-25-17	1555	W	N	2	2			
3. SG3-Troll/Cable-RB3	—	—	—	9-25-17	1600	W	N	2	2			
4. SG3-Troll/Cable-RB4	—	—	—	9-25-17	1605	W	N	2	2			*Rush
5. SG3-Troll/Cable-RB5	—	—	—	9-25-17	1610	W	N	2	2			
6. SG3-Troll/Cable-RB6	—	—	—	9-25-17	1615	W	N	2	2			ASAP*
7. SG3-Troll/Cable-RB7	—	—	—	9-25-17	1620	W	N	2	2			
8. SG3-Troll/Cable-RB8	—	—	—	9-25-17	1625	W	N	2	2			
9. SG3-LTB49-170925	—	—	—	9/25/17	—	W	N	1	1			
10. SG3-LTB50-170925	—	—	—	09/25/2017	—	W	N	1	1			

BARR USE ONLY

Sampled by: KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] — On Ice? Y N: Y — Date: 9-25-17 — Time: 1700

Relinquished by: — On Ice? Y N: — Date: — Time: —

Received by: — Date: — Time: —

Received by: [signature] — Date: 9/26/17 — Time: 935

Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other: —

Air Bill Number:

Lab WO: — Temperature on Receipt (°C): 2.1 — Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Report; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 195472

Group Number(s): 1854824

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/26/2017 9:35
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mL Bottles)

Unpacked by Wyatt Shiffler (12792) at 10:41 on 09/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 02, 2017

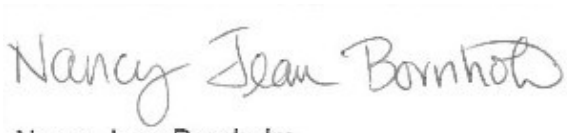
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1855662
SDG: SGB54
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FB-Tote1 Blank Water	09/26/2017 16:45	9232282
SG3-FB-Tote2 Blank Water	09/26/2017 16:40	9232283
SG3-FB-Flatwater Blank Water	09/26/2017 16:30	9232284
SG3-FB-10" Casing Blank Water	09/26/2017 16:35	9232285
SG3-FB-Sample Sleeve Blank Water	09/26/2017 16:55	9232286
SG3-FB-6" Casing Blank Water	09/26/2017 16:50	9232287

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1855662

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9232282, 9232283, 9232284, 9232285, 9232286

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9232287

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary.

Batch #: 17271003 (Sample number(s): 9232282-9232287)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, 6:2 fluorotelomersulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 6:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9232287

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9232282, 9232283, 9232284, 9232285, 9232287, Blank, LCS, LCSD

Sample Description: SG3-FB-Tote1 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232282
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:45 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3T1 SDG#: SGB54-01FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	09/30/2017 19:19	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB-Tote2 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232283
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:40 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3T2 SDG#: SGB54-02FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	09/30/2017 19:39	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB-Flatwater Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232284
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:30 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3FL SDG#: SGB54-03FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	09/30/2017 20:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB-10" Casing Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232285
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:35 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S310C SDG#: SGB54-04FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	**Perfluorobutanoic Acid**	375-22-4	**7**	**J**	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**3**		0.5	2	1
10954	**Perfluorododecanoic acid**	307-55-1	**0.9**	**J**	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**3**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.7**	**J**	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**6**		0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	10/01/2017 17:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB-Sample Sleeve Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232286
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:55 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3SS SDG#: SGB54-05FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	09/30/2017 20:41	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FB-6" Casing Blank Water
SGPP - North Bennington

ELLE Sample # WW 9232287
ELLE Group # 1855662
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/26/2017 16:50 by RQM

Submitted: 09/27/2017 09:30
Reported: 10/02/2017 15:18

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S306C SDG#: SGB54-06FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17271003	10/01/2017 17:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17271003	09/28/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1855662
Reported: 10/02/2017 15:18

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17271003	Sample number(s): 9232282-9232287			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17271003	Sample number(s): 9232282-9232287								
6:2 fluorotelomersulfonate	12.89	16.16	12.89	22.67	125	176*	70-130	34*	30
8:2 fluorotelomersulfonate	13.03	15.1	13.03	13.67	116	105	70-130	10	30
NEtFOSAA	13.6	12.72	13.6	13.33	94	98	70-130	5	30
NMeFOSAA	13.6	14.72	13.6	15.65	108	115	70-130	6	30
Perfluorobutanesulfonate	12.03	13.07	12.03	13.31	109	111	70-130	2	30
Perfluorobutanoic Acid	13.6	15.28	13.6	16.61	112	122	70-130	8	30
Perfluorodecanoic acid	13.6	17.47	13.6	18.87	128	139*	70-130	8	30
Perfluorododecanoic acid	13.6	14.82	13.6	14.29	109	105	70-130	4	30
Perfluoroheptanoic acid	13.6	16.14	13.6	16.09	119	118	70-130	0	30
Perfluorohexanesulfonate	12.86	13.76	12.86	12.99	107	101	70-130	6	30
Perfluorohexanoic acid	13.6	16.96	13.6	15.52	125	114	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/02/2017 15:18

Group Number: 1855662

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.51	13.6	13.97	107	103	70-130	4	30
Perfluoro-octanesulfonate	13	13.73	13	13.78	106	106	70-130	0	30
Perfluorooctanoic acid	13.6	15.26	13.6	16.37	112	120	70-130	7	30
Perfluoropentanoic Acid	13.6	15.68	13.6	14.73	115	108	70-130	6	30
Perfluorotetradecanoic acid	13.6	14.92	13.6	15.22	110	112	70-130	2	30
Perfluorotridecanoic acid	13.6	14.02	13.6	13.9	103	102	70-130	1	30
Perfluoroundecanoic acid	13.6	15.69	13.6	16.12	115	119	70-130	3	30
PFOSA	13.6	15.11	13.6	15.37	111	113	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17271003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9232282	78	75	79	78	72	77
9232283	78	79	82	79	86	76
9232284	78	82	90	73	80	76
9232285	79	78	77	78	82	76
9232286	82	76	87	81	80	79
9232287	75	110	120	73	77	79
Blank	89	88	88	99	99	101
LCS	92	89	87	94	100	103
LCSD	82	83	79	88	93	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9232282	86	75	77	81	79	83
9232283	104	82	79	77	82	82
9232284	98	80	85	85	79	83
9232285	91	77	86	83	78	85
9232286	81	83	77	77	79	72
9232287	186*	71	74	120	65	116
Blank	99	94	87	94	92	97
LCS	90	104	88	92	95	84
LCSD	71	84	82	83	84	88
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1855662
Reported: 10/02/2017 15:18

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17271003

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9232282	63	79	77	74	71	28*
9232283	57	72	69	69	69	20*
9232284	65	87	77	71	69	34*
9232285	81	92	86	80	72	35*
9232286	71	81	79	81	79	70
9232287	41	58	33	40	47	44*
Blank	67	90	81	82	83	69*
LCS	70	92	80	89	85	60*
LCSD	61	78	78	81	74	54*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1859662 9232282-67

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47414

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250ml Field Blank	Water A	Water N	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-FB-Tote1				09/26/2017	16:45	Water	N	2	2					
2. SG3-FB-Tote2				09/26/2017	16:40	Water	N	2	2					
3. SG3-FB-Flatwater				09/26/2017	16:30	Water	N	2	2					
4. SG3-FB-10"casing				09/26/2017	16:35	Water	N	2	2					
5. SG3-FB-Sample Sleeve				09/26/2017	16:55	Water	N	2	2					
6. SG3-FB-6"casing				09/26/2017	16:50	water	N	2	2					
7.														
8.														
9.														
10.														

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM/KAM	(RQM)	(Y) N	9/26/17	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 9/27/17	Time 930
Barr DQ Manager: MDD							
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:				Temperature on Receipt (°C): 0.7/1.3 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Report; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195604

Group Number(s): 1855662

Client: Barr Engineering co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/27/2017 9:30
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 15:47 on 09/27/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.7	DT	Wet	Y	Bagged	N
2	DT131	1.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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F 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 27, 2017 09:26

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1855663
SDG: SGB55
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D11-78-79' Soil	09/26/2017 08:55	9232288
SG3-D11-88-89' Soil	09/26/2017 09:00	9232289
SG3-D11-99-100' Soil	09/26/2017 09:25	9232290
SG3-D11-113-114' Soil	09/26/2017 14:10	9232291
SG3-D11-118-119' Soil	09/26/2017 14:50	9232292
SG3-FBS07-170926 Blank Water	09/26/2017 14:50	9232293
SG3-LTB51-170926 Blank Water	09/26/2017	9232294
SG3-LTB52-170926 Blank Water	09/26/2017	9232295

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1855663

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9232293, 9232294

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside of the method holding time and labeled compounds used as extraction standards are within QC acceptance limits. The data reported is from the initial trial and comparable results were observed between the two extractions.

Sample #s: 9232288, 9232289, 9232290, 9232291, 9232292

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17274001 (Sample number(s): 9232293-9232295)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9232293, 9232294

Batch #: 17291007 (Sample number(s): 9232288-9232292 UNSPK: P228648)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9232288, 9232290, 9232291, MS

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9232290, 9232291, 9232292

This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.

Batch #: 17294049531A (Sample number(s): 9232288-9232292 UNSPK: P228655 BKG: P228655)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9232288, 9232289

The pH was measured in water at 19.7 C.

Sample #s: 9232292

The pH was measured in water at 19.8 C.

Sample #s: 9232290, 9232291

The pH was measured in water at 20 C.

Sample Description: **SG3-D11-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 08:55
SDG#: SGB55-01

C. T. Male Associates
ELLE Sample #: SW 9232288
ELLE Group #: 1855663
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**613**	182	547	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 23:17	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 08:55
SDG#: SGB55-01

C. T. Male Associates
ELLE Sample #: SW 9232288
ELLE Group #: 1855663
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 17:18	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010B	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 09:00
SDG#: SGB55-02

C. T. Male Associates
ELLE Sample #: SW 9232289
ELLE Group #: 1855663
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**913 J**	507	1,520	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.16**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 23:38	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 09:00
SDG#: SGB55-02

C. T. Male Associates
ELLE Sample #: SW 9232289
ELLE Group #: 1855663
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 18:10	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010B	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-99-100' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 09:25
SDG#: SGB55-03

C. T. Male Associates
ELLE Sample #: SW 9232290
ELLE Group #: 1855663
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**48,800**	180	541	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.66**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-99-100' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 09:25
SDG#: SGB55-03

C. T. Male Associates
ELLE Sample #: SW 9232290
ELLE Group #: 1855663
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/20/2017 23:58	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 18:23	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039402B	09/28/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010B	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-113-114' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 14:10
SDG#: SGB55-04

C. T. Male Associates
ELLE Sample #: SW 9232291
ELLE Group #: 1855663
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.17 J**	0.088	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.088 U	0.088	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.79	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**62,100**	182	545	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.87**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-113-114' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 14:10
SDG#: SGB55-04

C. T. Male Associates
ELLE Sample #: SW 9232291
ELLE Group #: 1855663
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/21/2017 00:19	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 18:36	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039403A	09/28/2017 19:50	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010B	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D11-118-119' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 14:50
SDG#: SGB55-05

C. T. Male Associates
ELLE Sample #: SW 9232292
ELLE Group #: 1855663
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,400**	237	712	1
	This sample was originally analyzed within the 28 day holding time, however it is above the calibration range. A repeat trial confirmed the over-range results.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 14:50
SDG#: SGB55-05

C. T. Male Associates
ELLE Sample #: SW 9232292
ELLE Group #: 1855663
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/21/2017 00:39	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
02079	TOC	SM 5310 B modified-2000	1	17294049531A	10/21/2017 18:49	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17271039403A	09/28/2017 19:50	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17272820010B	09/29/2017 22:17	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FBS07-170926 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017 14:50
SDG#: SGB55-06RB

C. T. Male Associates
ELLE Sample #: WW 9232293
ELLE Group #: 1855663
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside of the method holding time and labeled compounds used as extraction standards are within QC acceptance limits. The data reported is from the initial trial and comparable results were observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 05:50	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB51-170926 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017
SDG#: SGB55-07TB

C. T. Male Associates
ELLE Sample #: WW 9232294
ELLE Group #: 1855663
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside of the method holding time and labeled compounds used as extraction standards are within QC acceptance limits. The data reported is from the initial trial and comparable results were observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 06:10	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB52-170926 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/27/2017 09:30
Collection Date/Time: 09/26/2017
SDG#: SGB55-08TB

C. T. Male Associates
ELLE Sample #: WW 9232295
ELLE Group #: 1855663
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 06:31	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17291007	Sample number(s): 9232288-9232292		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17274001	Sample number(s): 9232293-9232295		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 17294049531A	Sample number(s): 9232288-9232292		
TOC	180 J	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17291007	Sample number(s): 9232288-9232292								
Perfluorobutanesulfonate	1.20	1.10	1.20	1.22	92	101	70-130	10	30
Perfluorobutanoic acid	1.36	1.41	1.36	1.46	103	107	70-130	4	30
Perfluorodecanoic acid	1.36	1.25	1.36	1.25	92	92	70-130	0	30
Perfluorododecanoic acid	1.36	1.28	1.36	1.30	94	96	70-130	2	30
Perfluoroheptanoic acid	1.36	1.31	1.36	1.42	96	105	70-130	8	30
Perfluorohexanesulfonate	1.29	1.14	1.29	1.14	89	88	70-130	1	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.45	99	106	70-130	7	30
Perfluorononanoic acid	1.36	1.37	1.36	1.58	100	116	70-130	15	30
Perfluoro-octanesulfonate	1.30	0.999	1.30	1.30	77	100	70-130	26	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.42	96	104	70-130	8	30
Perfluoropentanoic acid	1.36	1.34	1.36	1.45	98	107	70-130	8	30
Perfluorotetradecanoic acid	1.36	1.19	1.36	1.44	87	106	70-130	19	30
Perfluorotridecanoic acid	1.36	1.23	1.36	1.37	90	101	70-130	11	30
Perfluoroundecanoic acid	1.36	1.38	1.36	1.38	102	102	70-130	0	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17274001	Sample number(s): 9232293-9232295								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17294049531A	Sample number(s): 9232288-9232292								
TOC	7150	6494.4			91		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17271039402B	Sample number(s): 9232288-9232290								
pH	7.00	7.01			100		95-105		
Batch number: 17271039403A	Sample number(s): 9232291-9232292								
pH	7.00	7.01			100		95-105		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17272820010B	Sample number(s): 9232288-9232292								
Moisture	89.5	89.38			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17291007	Sample number(s): 9232288-9232292 UNSPK: P228648									
Perfluorobutanesulfonate	0.14 U	1.06	1.02			97		70-130		
Perfluorobutanoic acid	0.14 U	1.19	1.32			110		70-130		
Perfluorodecanoic acid	0.14 U	1.19	1.28			107		70-130		
Perfluorododecanoic acid	0.14 U	1.19	1.34			113		70-130		
Perfluoroheptanoic acid	0.14 U	1.19	1.22			102		70-130		
Perfluorohexanesulfonate	0.14 U	1.13	1.16			103		70-130		
Perfluorohexanoic acid	0.072 U	1.19	1.12			94		70-130		
Perfluorononanoic acid	0.072 U	1.19	1.24			104		70-130		
Perfluoro-octanesulfonate	0.22 U	1.14	1.02			89		70-130		
Perfluorooctanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluoropentanoic acid	0.14 U	1.19	1.13			94		70-130		
Perfluorotetradecanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluorotridecanoic acid	0.14 U	1.19	1.18			99		70-130		
Perfluoroundecanoic acid	0.14 U	1.19	1.20			101		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17294049531A	Sample number(s): 9232288-9232292 UNSPK: P228655									
TOC	2734.93	19350	22224.37			101		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 17294049531A	Sample number(s): 9232288-9232292 BKG: P228655			
TOC	2734.93	1418.08	63* (1)	7

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
Batch number: 17271039402B	Sample number(s): 9232288-9232290 BKG: P228655			
pH	8.46	8.43	0	3
Batch number: 17271039403A	Sample number(s): 9232291-9232292 BKG: 9232291			
pH	8.87	8.90	0	3
	%	%		
Batch number: 17272820010B	Sample number(s): 9232288-9232292 BKG: P232273			
Moisture	7.44	7.50	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9232293	120	114	88	140*	111	124
9232294	119	113	90	136*	126	134*
9232295	97	94	71	116	85	97
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9232293	123*	127*	134	120*	149*	136*
9232294	123*	114	129	108	119	112
9232295	97	92	108	87	101	97
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17274001

	13C2-PFTeDA
9232293	120*
9232294	106
9232295	92
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17291007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9232288	52	53*	65	51	61	50
9232289	76	75	75	79	80	81
9232290	56	56*	60	54	55	54
9232291	50	51*	50	51	54	47
9232292	69	72	68	60	62	62
Blank	86	83	75	96	73	87
LCS	85	84	79	92	89	89
LCSD	81	80	78	75	78	76
MS	44	47*	57	47	62	50
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9232288	53	67	58	56	50	52
9232289	83	91	86	85	83	80
9232290	56	69	66	70	68	63
9232291	49	60	52	54	47	46
9232292	71	86	80	75	71	76
Blank	100	90	93	94	92	95
LCS	96	94	91	94	85	87
LCSD	90	82	88	84	77	71
MS	54	66	54	55	54	49
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:26

Group Number: 1855663

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17291007

	13C2-PFTeDA
9232288	46
9232289	71
9232290	57
9232291	41
9232292	62
Blank	80
LCS	82
LCSD	63
MS	46
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1855663 92322288-95

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47404

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr., Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No: 45621004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250ml Plastic	Soil 250ml Plastic	Soil 4oz Glass	% Solids	Preservative Code	Field Filtered Y/N	Comments
1. SG3-D11-78-79'	78	79	Ft.	09/26/2017	0855	S	N	2		1	1				(14) PFCs, moisture content, TOC, pH.
2. SG3-D11-88-89'	88	89	Ft	09/26/2017	0900	S	N	2		1	1				
3. SG3-D11-99-100'	99	100	Ft	09/26/2017	0925	S	N	2		1	1				
4. SG3-D11-113-114'	113	114	Ft.	09/26/2017	1410	S	N	2		1	1				samples in 2 coolers
5. SG3-D11-118-119'	118	119	Ft.	09/26/2017	1450	S	N	2		1	1				
6. SG3-FBS07-170926	—	—	—	09/26/2017	1450	W	N	2	2						Rinsate Blank
7. SG3-LTB51-170926	—	—	—	"	PM	W	N	2	2						Prepared by ELLE 8-28-17
8. SG3-LTB52-170926	—	—	—	—	PM	W	N	2	2						Prepared by ELLE 8-18-17 8-24-17
9.															
10.															

BARR USE ONLY

Sampled by: DJS / RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y N Date 9/27/2017 Time 1730

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 9/27/17 Time 930

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.7/1.3 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 195604

Group Number(s): 1855663

Client: Barr Engineering co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/27/2017 9:30
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 13:18 on 09/27/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.7	DT	Wet	Y	Bagged	N
2	DT131	1.3	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 27, 2017 09:01

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1856374
SDG: SGB56
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR1-28-29' Soil	09/27/2017 10:35	9235175
SG3-MW-BR1-28-29' MS Soil	09/27/2017 10:35	9235176
SG3-MW-BR1-28-29' MSD Soil	09/27/2017 10:35	9235177
SG3-MW-BR1-28-29' Dupl Soil	09/27/2017 10:35	9235178
SG3-MW-BR1-38-39' Soil	09/27/2017 11:05	9235179
SG3-MW-BR1-48-49' Soil	09/27/2017 11:10	9235180
SG3-MW-BR1-31-32' Soil	09/27/2017 11:25	9235181
SG3-MW-BR1-58-59' Soil	09/27/2017 11:50	9235182
SG3-MW-BR1-68-69' Soil	09/27/2017 13:30	9235183
SG3-MW-BR1-78-79' Soil	09/27/2017 15:05	9235184
SG3-D11-128-129' Soil	09/27/2017 10:00	9235185
SG3-D11-138-139' Soil	09/27/2017 10:40	9235186
SG3-D11-144-145' Soil	09/27/2017 11:45	9235187
SG3-LTB53-170927 Blank Water	09/27/2017	9235188
SG3-LTB54-170927 Blank Water	09/27/2017	9235189

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1856374

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9235182, 9235183, 9235184

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9235179, 9235180

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Batch #: 17281008 (Sample number(s): 9235175-9235177, 9235181-9235187 UNSPK: 9235175)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorooctanoic acid, Perfluorodecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9235176, 9235177, 9235182, 9235183, 9235184, MS, MSD

Batch #: 17290007 (Sample number(s): 9235179-9235180 UNSPK: P250901)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9235179, 9235180, MS

SW-846 6010C, Metals

Sample #s: 9235185, 9235186, 9235187

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172721063704 (Sample number(s): 9235175-9235187 UNSPK: 9235175 BKG: 9235175)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Potassium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Manganese, Calcium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Iron

SW-846 6020A, Metals

Batch #: 172721063704A (Sample number(s): 9235175-9235187 UNSPK: 9235175 BKG: 9235175)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Nickel

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Chromium, Lead, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Cadmium, Chromium, Cobalt, Vanadium

SW-846 9045D modified, Wet Chemistry

Sample #s: 9235178, 9235181, 9235182, 9235185, 9235187

The pH was measured in water at 19.8 C.

Sample #s: 9235175, 9235179, 9235186

The pH was measured in water at 19.9 C.

Sample #s: 9235180, 9235183, 9235184

The pH was measured in water at 20 C.

Sample Description: **SG3-MW-BR1-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01BKG

C. T. Male Associates
ELLE Sample #: SW 9235175
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,900**	8.17	36.6	1
01650	**Calcium**	7440-70-2	**982**	3.04	36.6	1
01654	**Iron**	7439-89-6	**32,500**	36.8	183	5
01657	**Magnesium**	7439-95-4	**1,530**	2.22	18.3	1
06958	**Manganese**	7439-96-5	**439**	0.0759	0.914	1
01662	**Potassium**	7440-09-7	**978**	15.3	91.4	1
01667	**Sodium**	7440-23-5	**45.9 J**	15.3	183	1
06972	**Zinc**	7440-66-6	**43.3**	0.219	3.66	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0852	0.366	2
06125	**Arsenic**	7440-38-2	**10.8**	0.117	0.731	2
06126	**Barium**	7440-39-3	**58.5**	0.166	0.731	2
06127	**Beryllium**	7440-41-7	**0.693**	0.0096	0.183	2
06128	**Cadmium**	7440-43-9	**0.0971 J**	0.0315	0.183	2
06131	**Chromium**	7440-47-3	**18.4**	0.159	0.731	2
06132	**Cobalt**	7440-48-4	**25.9**	0.0285	0.183	2
06133	**Copper**	7440-50-8	**20.8**	0.0980	0.731	2
06135	**Lead**	7439-92-1	**17.2**	0.0203	0.366	2
06139	**Nickel**	7440-02-0	**19.2**	0.182	0.731	2
06141	Selenium	7782-49-2	0.0914 U	0.0914	0.731	2
06142	Silver	7440-22-4	0.0267 U	0.0267	0.183	2
06145	**Thallium**	7440-28-0	**0.389**	0.0229	0.183	2
06148	**Vanadium**	7440-62-2	**29.5**	0.0390	0.183	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01BKG

C. T. Male Associates
ELLE Sample #: SW 9235175
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**685 J**	245	735	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 13:52	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:02	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 18:43	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:30	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 01:57	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:06	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:30	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:06	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01BKG

C. T. Male Associates
ELLE Sample #: SW 9235175
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:30	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/21/2017 22:29	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401A	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR1-28-29' MS Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01MS

C. T. Male Associates
ELLE Sample #: SW 9235176
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	**0.91**	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	**1.1**	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	**1.1**	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	**1.1**	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	**1.1**	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	**0.96**	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	**0.95**	0.076	0.30	1
14027	Perfluorononanoic acid	375-95-1	**1.0**	0.076	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	**1.1**	0.23	0.68	1
14027	Perfluorooctanoic acid	335-67-1	**1.1**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	**1.1**	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	**1.0**	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	**1.0**	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	**1.1**	0.15	0.46	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	Aluminum	7429-90-5	**20,000**	7.68	34.4	1
01650	Calcium	7440-70-2	**1,220**	2.86	34.4	1
01654	Iron	7439-89-6	**32,200**	34.6	172	5
01657	Magnesium	7439-95-4	**1,830**	2.09	17.2	1
06958	Manganese	7439-96-5	**562**	0.0713	0.859	1
01662	Potassium	7440-09-7	**2,350**	14.3	85.9	1
01667	Sodium	7440-23-5	**878**	14.3	172	1
06972	Zinc	7440-66-6	**85.3**	0.206	3.44	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	Antimony	7440-36-0	**0.659**	0.0801	0.344	2
06125	Arsenic	7440-38-2	**9.60**	0.110	0.687	2
06126	Barium	7440-39-3	**69.1**	0.156	0.687	2
06127	Beryllium	7440-41-7	**1.44**	0.0090	0.172	2
06128	Cadmium	7440-43-9	**0.933**	0.0295	0.172	2
06131	Chromium	7440-47-3	**24.4**	0.149	0.687	2
06132	Cobalt	7440-48-4	**62.0**	0.0268	0.172	2
06133	Copper	7440-50-8	**28.2**	0.0921	0.687	2
06135	Lead	7439-92-1	**17.6**	0.0191	0.344	2
06139	Nickel	7440-02-0	**28.2**	0.171	0.687	2
06141	Selenium	7782-49-2	**1.51**	0.0859	0.687	2
06142	Silver	7440-22-4	**8.84**	0.0251	0.172	2
06145	Thallium	7440-28-0	**0.731**	0.0215	0.172	2
06148	Vanadium	7440-62-2	**33.6**	0.0366	0.172	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01MS

C. T. Male Associates
ELLE Sample #: SW 9235176
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,800**	1,460	4,390	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**11.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/15/2017 12:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:13	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 18:53	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:39	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:01	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:13	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:39	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:13	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:39	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/21/2017 23:20	James S Mathiot	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01MSD

C. T. Male Associates
ELLE Sample #: SW 9235177
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.20	0.61	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.20	0.61	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.20	0.61	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.20	0.61	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.10	0.40	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.3**	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**	0.20	0.61	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.5**	0.20	0.61	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**22,900**	7.04	31.5	1
01650	**Calcium**	7440-70-2	**1,250**	2.62	31.5	1
01654	**Iron**	7439-89-6	**30,500**	31.7	157	5
01657	**Magnesium**	7439-95-4	**1,930**	1.91	15.7	1
06958	**Manganese**	7439-96-5	**437**	0.0654	0.787	1
01662	**Potassium**	7440-09-7	**2,310**	13.1	78.7	1
01667	**Sodium**	7440-23-5	**781**	13.1	157	1
06972	**Zinc**	7440-66-6	**80.7**	0.189	3.15	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.585**	0.0734	0.315	2
06125	**Arsenic**	7440-38-2	**11.1**	0.101	0.630	2
06126	**Barium**	7440-39-3	**66.9**	0.143	0.630	2
06127	**Beryllium**	7440-41-7	**1.36**	0.0083	0.157	2
06128	**Cadmium**	7440-43-9	**0.859**	0.0271	0.157	2
06131	**Chromium**	7440-47-3	**23.1**	0.137	0.630	2
06132	**Cobalt**	7440-48-4	**62.4**	0.0246	0.157	2
06133	**Copper**	7440-50-8	**29.0**	0.0844	0.630	2
06135	**Lead**	7439-92-1	**18.6**	0.0175	0.315	2
06139	**Nickel**	7440-02-0	**29.7**	0.157	0.630	2
06141	**Selenium**	7782-49-2	**1.44**	0.0787	0.630	2
06142	**Silver**	7440-22-4	**8.45**	0.0230	0.157	2
06145	**Thallium**	7440-28-0	**0.709**	0.0197	0.157	2
06148	**Vanadium**	7440-62-2	**35.2**	0.0335	0.157	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01MSD

C. T. Male Associates
ELLE Sample #: SW 9235177
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**11.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/15/2017 12:57	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:16	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 18:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:42	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:02	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:15	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:42	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:15	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:42	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01DUP

C. T. Male Associates
ELLE Sample #: SW 9235178
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,600**	10.1	45.4	1
01650	**Calcium**	7440-70-2	**868**	3.78	45.4	1
01654	**Iron**	7439-89-6	**25,400**	9.13	45.4	1
01657	**Magnesium**	7439-95-4	**1,500**	2.76	22.7	1
06958	**Manganese**	7439-96-5	**538**	0.0941	1.13	1
01662	**Potassium**	7440-09-7	**1,090**	18.9	113	1
01667	**Sodium**	7440-23-5	**50.9 J**	18.9	227	1
06972	**Zinc**	7440-66-6	**35.4**	0.272	4.54	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.135 J**	0.106	0.454	2
06125	**Arsenic**	7440-38-2	**7.61**	0.145	0.907	2
06126	**Barium**	7440-39-3	**54.5**	0.206	0.907	2
06127	**Beryllium**	7440-41-7	**0.602**	0.0119	0.227	2
06128	**Cadmium**	7440-43-9	**0.0751 J**	0.0390	0.227	2
06131	**Chromium**	7440-47-3	**14.7**	0.197	0.907	2
06132	**Cobalt**	7440-48-4	**19.5**	0.0354	0.227	2
06133	**Copper**	7440-50-8	**17.7**	0.122	0.907	2
06135	**Lead**	7439-92-1	**15.4**	0.0252	0.454	2
06139	**Nickel**	7440-02-0	**17.0**	0.226	0.907	2
06141	Selenium	7782-49-2	0.113 U	0.113	0.907	2
06142	Silver	7440-22-4	0.0331 U	0.0331	0.227	2
06145	**Thallium**	7440-28-0	**0.393**	0.0283	0.227	2
06148	**Vanadium**	7440-62-2	**22.5**	0.0483	0.227	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**718 J**	246	738	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**11.8**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**11.3**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-28-29' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:35
SDG#: SGB56-01DUP

C. T. Male Associates
ELLE Sample #: SW 9235178
ELLE Group #: 1856374
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 18:50	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:36	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:00	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:11	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:36	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:36	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/21/2017 23:33	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401A	09/29/2017 18:20	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:05
SDG#: SGB56-02

C. T. Male Associates
ELLE Sample #: SW 9235179
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,300**	7.28	32.6	1
01650	**Calcium**	7440-70-2	**561**	2.71	32.6	1
01654	**Iron**	7439-89-6	**25,400**	32.8	163	5
01657	**Magnesium**	7439-95-4	**782**	1.98	16.3	1
06958	**Manganese**	7439-96-5	**892**	0.0675	0.814	1
01662	**Potassium**	7440-09-7	**701**	13.6	81.4	1
01667	**Sodium**	7440-23-5	**28.0 J**	13.6	163	1
06972	**Zinc**	7440-66-6	**30.6**	0.195	3.26	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.114 J**	0.0758	0.326	2
06125	**Arsenic**	7440-38-2	**9.55**	0.104	0.651	2
06126	**Barium**	7440-39-3	**57.0**	0.148	0.651	2
06127	**Beryllium**	7440-41-7	**0.518**	0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.0777 J**	0.0280	0.163	2
06131	**Chromium**	7440-47-3	**12.4**	0.142	0.651	2
06132	**Cobalt**	7440-48-4	**21.4**	0.0254	0.163	2
06133	**Copper**	7440-50-8	**16.2**	0.0872	0.651	2
06135	**Lead**	7439-92-1	**13.1**	0.0181	0.326	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:05
SDG#: SGB56-02

C. T. Male Associates
ELLE Sample #: SW 9235179
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**13.7**	0.162	0.651	2
06141	**Selenium**	7782-49-2	**0.0879 J**	0.0814	0.651	2
06142	Silver	7440-22-4	0.0238 U	0.0238	0.163	2
06145	**Thallium**	7440-28-0	**0.521**	0.0203	0.163	2
06148	**Vanadium**	7440-62-2	**18.6**	0.0347	0.163	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**803 J**	303	909	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.96**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 08:31	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:24	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:04	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:48	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:05	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:05
SDG#: SGB56-02

C. T. Male Associates
ELLE Sample #: SW 9235179
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:20	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:48	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:48	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/21/2017 23:46	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401A	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:10
SDG#: SGB56-03

C. T. Male Associates
ELLE Sample #: SW 9235180
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078 U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078 U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.70	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,880**	8.10	36.2	1
01650	**Calcium**	7440-70-2	**352**	3.02	36.2	1
01654	**Iron**	7439-89-6	**22,700**	7.29	36.2	1
01657	**Magnesium**	7439-95-4	**526**	2.20	18.1	1
06958	**Manganese**	7439-96-5	**1,290**	0.0752	0.906	1
01662	**Potassium**	7440-09-7	**729**	15.1	90.6	1
01667	**Sodium**	7440-23-5	**22.7 J**	15.1	181	1
06972	**Zinc**	7440-66-6	**36.8**	0.217	3.62	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.138 J**	0.0844	0.362	2
06125	**Arsenic**	7440-38-2	**10.1**	0.116	0.725	2
06126	**Barium**	7440-39-3	**70.8**	0.164	0.725	2
06127	**Beryllium**	7440-41-7	**0.611**	0.0095	0.181	2
06128	**Cadmium**	7440-43-9	**0.189**	0.0312	0.181	2
06131	**Chromium**	7440-47-3	**8.73**	0.158	0.725	2
06132	**Cobalt**	7440-48-4	**16.6**	0.0283	0.181	2
06133	**Copper**	7440-50-8	**16.7**	0.0971	0.725	2
06135	**Lead**	7439-92-1	**13.0**	0.0201	0.362	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:10
SDG#: SGB56-03

C. T. Male Associates
ELLE Sample #: SW 9235180
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**14.4**	0.180	0.725	2
06141	Selenium	7782-49-2	0.0906 U	0.0906	0.725	2
06142	Silver	7440-22-4	0.0264 U	0.0264	0.181	2
06145	**Thallium**	7440-28-0	**0.324**	0.0226	0.181	2
06148	**Vanadium**	7440-62-2	**12.0**	0.0386	0.181	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**839 J**	371	1,110	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.96**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 08:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:08	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 17:51	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:07	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:10
SDG#: SGB56-03

C. T. Male Associates
ELLE Sample #: SW 9235180
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:23	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 17:51	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 17:51	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/21/2017 23:59	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401A	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-31-32' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:25
SDG#: SGB56-04

C. T. Male Associates
ELLE Sample #: SW 9235181
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,510**	7.74	34.6	1
01650	**Calcium**	7440-70-2	**344**	2.88	34.6	1
01654	**Iron**	7439-89-6	**9,310**	6.97	34.6	1
01657	**Magnesium**	7439-95-4	**591**	2.10	17.3	1
06958	**Manganese**	7439-96-5	**100**	0.0718	0.865	1
01662	**Potassium**	7440-09-7	**633**	14.5	86.5	1
01667	**Sodium**	7440-23-5	**30.7 J**	14.5	173	1
06972	**Zinc**	7440-66-6	**20.3**	0.208	3.46	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0894 J**	0.0807	0.346	2
06125	**Arsenic**	7440-38-2	**3.11**	0.111	0.692	2
06126	**Barium**	7440-39-3	**24.2**	0.157	0.692	2
06127	**Beryllium**	7440-41-7	**0.318**	0.0091	0.173	2
06128	Cadmium	7440-43-9	0.0298 U	0.0298	0.173	2
06131	**Chromium**	7440-47-3	**5.84**	0.151	0.692	2
06132	**Cobalt**	7440-48-4	**4.33**	0.0270	0.173	2
06133	**Copper**	7440-50-8	**11.7**	0.0928	0.692	2
06135	**Lead**	7439-92-1	**8.16**	0.0192	0.346	2
06139	**Nickel**	7440-02-0	**8.61**	0.172	0.692	2
06141	Selenium	7782-49-2	0.0865 U	0.0865	0.692	2
06142	Silver	7440-22-4	0.0253 U	0.0253	0.173	2
06145	**Thallium**	7440-28-0	**0.133 J**	0.0216	0.173	2
06148	**Vanadium**	7440-62-2	**8.05**	0.0369	0.173	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-31-32' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:25
SDG#: SGB56-04

C. T. Male Associates
ELLE Sample #: SW 9235181
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**594 J**	225	676	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.86**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 14:53	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:19	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:00	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:11	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:30	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:00	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-31-32' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:25
SDG#: SGB56-04

C. T. Male Associates
ELLE Sample #: SW 9235181
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:00	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 00:12	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401A	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:50
SDG#: SGB56-05

C. T. Male Associates
ELLE Sample #: SW 9235182
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.17 J**	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.085 U	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,420**	7.01	31.4	1
01650	**Calcium**	7440-70-2	**376**	2.61	31.4	1
01654	**Iron**	7439-89-6	**34,600**	31.6	157	5
01657	**Magnesium**	7439-95-4	**499**	1.91	15.7	1
06958	**Manganese**	7439-96-5	**1,080**	0.0651	0.785	1
01662	**Potassium**	7440-09-7	**884**	13.1	78.5	1
01667	**Sodium**	7440-23-5	**21.9 J**	13.1	157	1
06972	**Zinc**	7440-66-6	**57.6**	0.188	3.14	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.142 J**	0.0731	0.314	2
06125	**Arsenic**	7440-38-2	**12.9**	0.100	0.628	2
06126	**Barium**	7440-39-3	**119**	0.142	0.628	2
06127	**Beryllium**	7440-41-7	**0.640**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.235**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**9.66**	0.137	0.628	2
06132	**Cobalt**	7440-48-4	**26.0**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**32.9**	0.0841	0.628	2
06135	**Lead**	7439-92-1	**23.5**	0.0174	0.314	2
06139	**Nickel**	7440-02-0	**21.8**	0.156	0.628	2
06141	**Selenium**	7782-49-2	**0.126 J**	0.0785	0.628	2
06142	**Silver**	7440-22-4	**0.0633 J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.822**	0.0196	0.157	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:50
SDG#: SGB56-05

C. T. Male Associates
ELLE Sample #: SW 9235182
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.3**		0.0334	0.157	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,210**	**J**	454	1,360	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.93**		0.0100	0.0100	1
	The pH was measured in water at 19.8 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/15/2017 14:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:28	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:22	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:03	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:12	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:32	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:50
SDG#: SGB56-05

C. T. Male Associates
ELLE Sample #: SW 9235182
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:03	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:32	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:03	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 00:25	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:30
SDG#: SGB56-06

C. T. Male Associates
ELLE Sample #: SW 9235183
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,670**	7.13	31.9	1
01650	**Calcium**	7440-70-2	**85,500**	13.3	159	5
01654	**Iron**	7439-89-6	**20,900**	6.42	31.9	1
01657	**Magnesium**	7439-95-4	**45,800**	9.69	79.7	5
06958	**Manganese**	7439-96-5	**807**	0.0662	0.797	1
01662	**Potassium**	7440-09-7	**839**	13.3	79.7	1
01667	**Sodium**	7440-23-5	**39.9 J**	13.3	159	1
06972	**Zinc**	7440-66-6	**43.0**	0.191	3.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.138 J**	0.0743	0.319	2
06125	**Arsenic**	7440-38-2	**9.90**	0.102	0.638	2
06126	**Barium**	7440-39-3	**79.1**	0.145	0.638	2
06127	**Beryllium**	7440-41-7	**0.510**	0.0084	0.159	2
06128	**Cadmium**	7440-43-9	**0.136 J**	0.0274	0.159	2
06131	**Chromium**	7440-47-3	**7.48**	0.139	0.638	2
06132	**Cobalt**	7440-48-4	**19.6**	0.0249	0.159	2
06133	**Copper**	7440-50-8	**20.6**	0.0855	0.638	2
06135	**Lead**	7439-92-1	**15.4**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**16.7**	0.159	0.638	2
06141	**Selenium**	7782-49-2	**0.104 J**	0.0797	0.638	2
06142	**Silver**	7440-22-4	**0.0314 J**	0.0233	0.159	2
06145	**Thallium**	7440-28-0	**0.332**	0.0199	0.159	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:30
SDG#: SGB56-06

C. T. Male Associates
ELLE Sample #: SW 9235183
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**11.4**	0.0340	0.159	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,270**	265	794	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 15:35	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/11/2017 01:31	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172721063704	10/11/2017 01:31	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:26	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:06	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:13	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:35	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:30
SDG#: SGB56-06

C. T. Male Associates
ELLE Sample #: SW 9235183
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:06	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:35	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:06	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 00:38	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 15:05
SDG#: SGB56-07

C. T. Male Associates
ELLE Sample #: SW 9235184
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,960**	8.72	39.0	1
01650	**Calcium**	7440-70-2	**5,130**	3.25	39.0	1
01654	**Iron**	7439-89-6	**36,100**	39.2	195	5
01657	**Magnesium**	7439-95-4	**3,470**	2.37	19.5	1
06958	**Manganese**	7439-96-5	**929**	0.0809	0.975	1
01662	**Potassium**	7440-09-7	**1,150**	16.3	97.5	1
01667	**Sodium**	7440-23-5	**30.0 J**	16.3	195	1
06972	**Zinc**	7440-66-6	**59.2**	0.234	3.90	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.169 J**	0.0909	0.390	2
06125	**Arsenic**	7440-38-2	**16.1**	0.125	0.780	2
06126	**Barium**	7440-39-3	**76.6**	0.177	0.780	2
06127	**Beryllium**	7440-41-7	**0.751**	0.0102	0.195	2
06128	**Cadmium**	7440-43-9	**0.210**	0.0335	0.195	2
06131	**Chromium**	7440-47-3	**11.0**	0.170	0.780	2
06132	**Cobalt**	7440-48-4	**20.7**	0.0304	0.195	2
06133	**Copper**	7440-50-8	**32.6**	0.105	0.780	2
06135	**Lead**	7439-92-1	**18.3**	0.0216	0.390	2
06139	**Nickel**	7440-02-0	**24.2**	0.194	0.780	2
06141	**Selenium**	7782-49-2	**0.128 J**	0.0975	0.780	2
06142	**Silver**	7440-22-4	**0.0386 J**	0.0285	0.195	2
06145	**Thallium**	7440-28-0	**0.343**	0.0244	0.195	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 15:05
SDG#: SGB56-07

C. T. Male Associates
ELLE Sample #: SW 9235184
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.7**		0.0415	0.195	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,550**	**J**	645	1,930	1
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.29**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/15/2017 15:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:43	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172721063704	10/08/2017 19:30	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:09	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:15	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:37	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 15:05
SDG#: SGB56-07

C. T. Male Associates
ELLE Sample #: SW 9235184
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:09	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:37	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:09	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 00:51	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:00
SDG#: SGB56-08

C. T. Male Associates
ELLE Sample #: SW 9235185
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**36,300**	39.3	176	5
01650	**Calcium**	7440-70-2	**33,800**	14.6	176	5
01654	**Iron**	7439-89-6	**51,100**	35.4	176	5
01657	**Magnesium**	7439-95-4	**21,500**	10.7	87.9	5
06958	**Manganese**	7439-96-5	**1,230**	0.365	4.40	5
01662	**Potassium**	7440-09-7	**1,690**	73.4	440	5
01667	**Sodium**	7440-23-5	**105 J**	73.4	879	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**125**	1.05	17.6	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.265 J**	0.0819	0.352	2
06125	**Arsenic**	7440-38-2	**15.5**	0.113	0.703	2
06126	**Barium**	7440-39-3	**145**	0.160	0.703	2
06127	**Beryllium**	7440-41-7	**4.64**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**1.02**	0.0302	0.176	2
06131	**Chromium**	7440-47-3	**24.0**	0.153	0.703	2
06132	**Cobalt**	7440-48-4	**14.4**	0.0274	0.176	2
06133	**Copper**	7440-50-8	**38.0**	0.0942	0.703	2
06135	**Lead**	7439-92-1	**34.6**	0.0195	0.352	2
06139	**Nickel**	7440-02-0	**52.6**	0.175	0.703	2
06141	**Selenium**	7782-49-2	**0.224 J**	0.0879	0.703	2
06142	**Silver**	7440-22-4	**0.264**	0.0257	0.176	2
06145	**Thallium**	7440-28-0	**1.18**	0.0220	0.176	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:00
SDG#: SGB56-08

C. T. Male Associates
ELLE Sample #: SW 9235185
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**56.1**	0.0374	0.176	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,400**	370	1,110	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/12/2017 16:57	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172721063704	10/12/2017 02:29	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172721063704	10/11/2017 01:46	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:12	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:16	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:39	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:00
SDG#: SGB56-08

C. T. Male Associates
ELLE Sample #: SW 9235185
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:12	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:39	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:12	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 01:04	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:40
SDG#: SGB56-09

C. T. Male Associates
ELLE Sample #: SW 9235186
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,760**	47.7	214	5
01650	**Calcium**	7440-70-2	**932**	17.8	214	5
01654	**Iron**	7439-89-6	**87,600**	43.0	214	5
01657	**Magnesium**	7439-95-4	**5,650**	13.0	107	5
06958	**Manganese**	7439-96-5	**1,390**	0.443	5.34	5
01662	**Potassium**	7440-09-7	**2,390**	89.2	534	5
01667	Sodium	7440-23-5	89.2 U	89.2	1,070	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**225**	1.28	21.4	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.822**	0.0995	0.427	2
06125	**Arsenic**	7440-38-2	**41.1**	0.137	0.854	2
06126	**Barium**	7440-39-3	**22.7**	0.194	0.854	2
06127	**Beryllium**	7440-41-7	**9.30**	0.0112	0.214	2
06128	**Cadmium**	7440-43-9	**1.87**	0.0367	0.214	2
06131	**Chromium**	7440-47-3	**10.1**	0.186	0.854	2
06132	**Cobalt**	7440-48-4	**75.1**	0.0333	0.214	2
06133	**Copper**	7440-50-8	**74.8**	0.114	0.854	2
06135	**Lead**	7439-92-1	**65.5**	0.0237	0.427	2
06139	**Nickel**	7440-02-0	**127**	0.213	0.854	2
06141	**Selenium**	7782-49-2	**0.149 J**	0.107	0.854	2
06142	**Silver**	7440-22-4	**0.0331 J**	0.0312	0.214	2
06145	**Thallium**	7440-28-0	**0.458**	0.0267	0.214	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:40
SDG#: SGB56-09

C. T. Male Associates
ELLE Sample #: SW 9235186
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.9**	0.0455	0.214	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**824 J**	381	1,140	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.79**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/15/2017 15:21	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172721063704	10/12/2017 02:32	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172721063704	10/12/2017 02:32	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172721063704	10/11/2017 01:50	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:15	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:18	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:42	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:40
SDG#: SGB56-09

C. T. Male Associates
ELLE Sample #: SW 9235186
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:15	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:42	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:15	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 01:56	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-144-145' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:45
SDG#: SGB56-10

C. T. Male Associates
ELLE Sample #: SW 9235187
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,480**	37.1	166	5
01650	**Calcium**	7440-70-2	**385**	13.8	166	5
01654	**Iron**	7439-89-6	**10,700**	33.4	166	5
01657	**Magnesium**	7439-95-4	**871**	10.1	83.1	5
06958	**Manganese**	7439-96-5	**336**	0.689	8.31	10
01662	**Potassium**	7440-09-7	**506**	69.3	415	5
01667	Sodium	7440-23-5	69.3 U	69.3	831	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**58.3**	1.99	33.2	10
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.152 J**	0.0774	0.332	2
06125	**Arsenic**	7440-38-2	**15.3**	0.106	0.664	2
06126	**Barium**	7440-39-3	**35.2**	0.151	0.664	2
06127	**Beryllium**	7440-41-7	**2.10**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.279**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**6.66**	0.145	0.664	2
06132	**Cobalt**	7440-48-4	**14.7**	0.0259	0.166	2
06133	**Copper**	7440-50-8	**27.7**	0.0890	0.664	2
06135	**Lead**	7439-92-1	**8.49**	0.0184	0.332	2
06139	**Nickel**	7440-02-0	**32.0**	0.165	0.664	2
06141	**Selenium**	7782-49-2	**0.192 J**	0.0831	0.664	2
06142	**Silver**	7440-22-4	**0.0298 J**	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.339**	0.0208	0.166	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-144-145' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:45
SDG#: SGB56-10

C. T. Male Associates
ELLE Sample #: SW 9235187
ELLE Group #: 1856374
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.43**	0.0354	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**422 J**	234	702	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17281008	10/13/2017 15:47	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17281008	10/09/2017 08:55	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172721063704	10/12/2017 02:38	Jonathan J Allen	10
01662	Potassium	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172721063704	10/12/2017 02:35	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172721063704	10/12/2017 02:38	Jonathan J Allen	10
06124	Antimony	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172721063704D	10/09/2017 18:18	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172721063704A	10/12/2017 02:19	Sarah L Burt	2
06128	Cadmium	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172721063704A	10/11/2017 22:44	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-144-145' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 11:45
SDG#: SGB56-10

C. T. Male Associates
ELLE Sample #: SW 9235187
ELLE Group #: 1856374
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172721063704B	10/09/2017 18:18	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172721063704A	10/11/2017 22:44	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172721063704A	10/09/2017 18:18	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172721063704	10/02/2017 05:30	James L Mertz	1
02079	TOC	SM 5310 B modified-2000	1	17294049532A	10/22/2017 02:09	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820010A	10/04/2017 22:31	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB53-170927 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017
SDG#: SGB56-11TB

C. T. Male Associates
ELLE Sample #: WW 9235188
ELLE Group #: 1856374
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/10/2017 19:20	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB54-170927 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017
SDG#: SGB56-12TB

C. T. Male Associates
ELLE Sample #: WW 9235189
ELLE Group #: 1856374
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/10/2017 19:40	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17281008	Sample number(s): 9235175-9235177,9235181-9235187		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17290007	Sample number(s): 9235179-9235180		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17274001	Sample number(s): 9235188-9235189		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172721063704	Sample number(s): 9235175-9235187		
Aluminum	8.94 U	8.94	40.0
Calcium	12.9 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	9.03 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.587 J	0.240	4.00
Batch number: 172721063704A	Sample number(s): 9235175-9235187		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172721063704B	Sample number(s): 9235175-9235187		
Selenium	0.100 U	0.100	0.800
Batch number: 172721063704D	Sample number(s): 9235175-9235187		
Barium	0.182 U	0.182	0.800
Batch number: 17294049532A	Sample number(s): 9235175-9235176,9235178-9235187		
TOC	180 J	100	300

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17281008	Sample number(s): 9235175-9235177,9235181-9235187								
Perfluorobutanesulfonate	1.20	1.10			91		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.40			103		70-130		
Perfluorododecanoic acid	1.36	1.37			101		70-130		
Perfluoroheptanoic acid	1.36	1.22			90		70-130		
Perfluorohexanesulfonate	1.29	1.19			92		70-130		
Perfluorohexanoic acid	1.36	1.34			99		70-130		
Perfluorononanoic acid	1.36	1.36			100		70-130		
Perfluoro-octanesulfonate	1.30	1.20			92		70-130		
Perfluorooctanoic acid	1.36	1.43			105		70-130		
Perfluoropentanoic acid	1.36	1.35			100		70-130		
Perfluorotetradecanoic acid	1.36	1.37			101		70-130		
Perfluorotridecanoic acid	1.36	1.51			111		70-130		
Perfluoroundecanoic acid	1.36	1.28			94		70-130		
Batch number: 17290007	Sample number(s): 9235179-9235180								
Perfluorobutanesulfonate	1.20	1.23	1.20	1.24	103	104	70-130	1	30
Perfluorobutanoic acid	1.36	1.43	1.36	1.36	105	100	70-130	5	30
Perfluorodecanoic acid	1.36	1.42	1.36	1.48	104	109	70-130	5	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.42	104	105	70-130	1	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.44	111	106	70-130	5	30
Perfluorohexanesulfonate	1.29	1.33	1.29	1.30	104	101	70-130	2	30
Perfluorohexanoic acid	1.36	1.44	1.36	1.38	106	101	70-130	4	30
Perfluorononanoic acid	1.36	1.58	1.36	1.44	116	106	70-130	9	30
Perfluoro-octanesulfonate	1.30	1.43	1.30	1.45	110	111	70-130	1	30
Perfluorooctanoic acid	1.36	1.60	1.36	1.48	118	109	70-130	8	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.35	106	99	70-130	7	30
Perfluorotetradecanoic acid	1.36	1.38	1.36	1.40	101	103	70-130	2	30
Perfluorotridecanoic acid	1.36	1.46	1.36	1.51	107	111	70-130	4	30
Perfluoroundecanoic acid	1.36	1.33	1.36	1.39	98	102	70-130	4	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17274001	Sample number(s): 9235188-9235189								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172721063704	Sample number(s): 9235175-9235187								
Aluminum	200	227.68			114		80-120		
Calcium	400	405.87			101		80-120		
Iron	100	101.85			102		80-120		
Magnesium	200	206.56			103		80-120		
Manganese	50	51.7			103		80-120		
Potassium	1000	1051.14			105		80-120		
Sodium	1000	1022.33			102		80-120		
Zinc	50	51.19			102		80-120		
Batch number: 172721063704A	Sample number(s): 9235175-9235187								
Antimony	0.600	0.675			113		80-120		
Arsenic	1.00	1.03			103		80-120		
Beryllium	0.400	0.432			108		80-120		
Cadmium	0.500	0.522			104		80-120		
Chromium	5.00	5.25			105		80-120		
Cobalt	25	24.16			97		80-120		
Copper	5.00	5.27			105		80-120		
Lead	1.50	1.59			106		80-120		
Nickel	5.00	5.35			107		80-120		
Silver	5.00	5.54			111		80-120		
Thallium	0.200	0.216			108		80-120		
Vanadium	5.00	5.38			108		80-120		
Batch number: 172721063704B	Sample number(s): 9235175-9235187								
Selenium	1.00	1.05			105		80-120		
Batch number: 172721063704D	Sample number(s): 9235175-9235187								
Barium	5.00	5.00			100		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17294049532A	Sample number(s): 9235175-9235176,9235178-9235187								
TOC	7150	5580.11			78		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17272039401A	Sample number(s): 9235175,9235178-9235181								
pH	7.00	6.91			99		95-105		
Batch number: 17272039401B	Sample number(s): 9235182-9235187								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
pH	7.00	6.91			99		95-105		
	%	%	%	%					
Batch number: 17277820010A	Sample number(s): 9235175-9235187								
Moisture	89.5	89.05			99		99-101		
Moisture	89.5	89.05			99		99-101		
Moisture Duplicate	89.5	89.05			99		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17281008	Sample number(s): 9235175-9235177,9235181-9235187 UNSPK: 9235175									
Perfluorobutanesulfonate	0.17 U	0.807	0.803	1.07	1.09	99	101	70-130	30	30
Perfluorobutanoic acid	0.17 U	0.913	0.947	1.21	1.34	104	110	70-130	34*	30
Perfluorodecanoic acid	0.17 U	0.913	0.929	1.21	1.31	102	108	70-130	34*	30
Perfluorododecanoic acid	0.17 U	0.913	0.955	1.21	1.27	105	105	70-130	29	30
Perfluoroheptanoic acid	0.17 U	0.913	0.962	1.21	1.34	105	110	70-130	33*	30
Perfluorohexanesulfonate	0.17 U	0.863	0.848	1.15	1.12	98	97	70-130	27	30
Perfluorohexanoic acid	0.083 U	0.913	0.835	1.21	1.35	91	111	70-130	47*	30
Perfluorononanoic acid	0.083 U	0.913	0.900	1.21	1.11	99	91	70-130	21	30
Perfluoro-octanesulfonate	0.25 U	0.872	0.935	1.16	1.12	107	97	70-130	18	30
Perfluorooctanoic acid	0.17 U	0.913	0.971	1.21	1.35	106	111	70-130	32*	30
Perfluoropentanoic acid	0.17 U	0.913	0.978	1.21	1.26	107	103	70-130	25	30
Perfluorotetradecanoic acid	0.17 U	0.913	0.896	1.21	1.28	98	106	70-130	35*	30
Perfluorotridecanoic acid	0.17 U	0.913	0.902	1.21	1.25	99	103	70-130	32*	30
Perfluoroundecanoic acid	0.17 U	0.913	0.958	1.21	1.29	105	107	70-130	30	30
Batch number: 17290007	Sample number(s): 9235179-9235180 UNSPK: P250901									
Perfluorobutanesulfonate	0.19 U	1.13	1.28			113		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.33			104		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.35			105		70-130		
Perfluorododecanoic acid	0.19 U	1.28	1.26			98		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.45			113		70-130		
Perfluorohexanesulfonate	0.19 U	1.21	1.34			111		70-130		
Perfluorohexanoic acid	0.095 U	1.28	1.30			101		70-130		
Perfluorononanoic acid	0.095 U	1.28	1.33			104		70-130		
Perfluoro-octanesulfonate	0.29 U	1.23	1.43			116		70-130		
Perfluorooctanoic acid	0.19 U	1.28	1.44			113		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	0.19 U	1.28	1.36			106		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.28			99		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.29			100		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.39			109		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172721063704	Sample number(s): 9235175-9235187 UNSPK: 9235175									
Aluminum	14928.74	151.52	17637.28	138.89	20169.16	1788 (2)	3773 (2)	75-125	13	20
Calcium	866.23	303.03	1079.42	277.78	1104.19	70*	86	75-125	2	20
Iron	28629.33	75.76	28360.75	69.44	26877.91	-355 (2)	-2522 (2)	75-125	5	20
Magnesium	1346.89	151.52	1614.8	138.89	1703.33	177 (2)	257 (2)	75-125	5	20
Manganese	387.58	37.88	496.05	34.72	385.02	286 (2)	-7 (2)	75-125	25*	20
Potassium	862.6	757.58	2068.42	694.44	2040.78	159*	170*	75-125	1	20
Sodium	40.45	757.58	774.39	694.44	688.48	97	93	75-125	12	20
Zinc	38.18	37.88	75.24	34.72	71.16	98	95	75-125	6	20
Batch number: 172721063704A	Sample number(s): 9235175-9235187 UNSPK: 9235175									
Antimony	0.134	0.909	0.581	0.833	0.516	49*	46*	75-125	12	20
Arsenic	9.51	1.52	8.47	1.39	9.82	-69 (2)	22 (2)	75-125	15	20
Beryllium	0.611	0.606	1.27	0.556	1.20	109	106	75-125	6	20
Cadmium	0.0857	0.758	0.823	0.694	0.758	97	97	75-125	8	20
Chromium	16.24	7.58	21.52	6.94	20.38	70*	60*	75-125	5	20
Cobalt	22.81	37.88	54.67	34.72	55.01	84	93	75-125	1	20
Copper	18.39	7.58	24.85	6.94	25.6	85	104	75-125	3	20
Lead	15.21	2.27	15.48	2.08	16.42	12 (2)	58 (2)	75-125	6	20
Nickel	16.92	7.58	24.85	6.94	26.22	105	134*	75-125	5	20
Silver	0.0235 U	7.58	7.79	6.94	7.45	103	107	75-125	5	20
Thallium	0.343	0.303	0.645	0.278	0.625	100	102	75-125	3	20
Vanadium	25.98	7.58	29.62	6.94	31.07	48*	73*	75-125	5	20
Batch number: 172721063704B	Sample number(s): 9235175-9235187 UNSPK: 9235175									
Selenium	0.0806 U	1.52	1.33	1.39	1.27	88	91	75-125	5	20
Batch number: 172721063704D	Sample number(s): 9235175-9235187 UNSPK: 9235175									
Barium	51.63	7.58	60.98	6.94	59.01	123 (2)	106 (2)	75-125	3	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17294049532A	Sample number(s): 9235175-9235176,9235178-9235187 UNSPK: 9235175									
TOC	603.84	38700	28890.32			73		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172721063704	Sample number(s): 9235175-9235187 BKG: 9235175			
Aluminum	14928.74	12898.22	15	20
Calcium	866.23	765.87	12	20
Iron	28629.33	22441.81	24*	20
Magnesium	1346.89	1326.81	2	20
Manganese	387.58	474.49	20	20
Potassium	862.6	964.68	11	20
Sodium	40.45	44.89	10 (1)	20
Zinc	38.18	31.23	20	20
Batch number: 172721063704A	Sample number(s): 9235175-9235187 BKG: 9235175			
Antimony	0.134	0.119	12 (1)	20
Arsenic	9.51	6.72	34*	20
Beryllium	0.611	0.531	14 (1)	20
Cadmium	0.0857	0.0663	26* (1)	20
Chromium	16.24	12.98	22*	20
Cobalt	22.81	17.24	28*	20
Copper	18.39	15.6	16	20
Lead	15.21	13.62	11	20
Nickel	16.92	15.02	12	20
Silver	0.0235 U	0.0292 U	0 (1)	20
Thallium	0.343	0.346	1 (1)	20
Vanadium	25.98	19.85	27*	20
Batch number: 172721063704B	Sample number(s): 9235175-9235187 BKG: 9235175			
Selenium	0.0806 U	0.100 U	0 (1)	20
Batch number: 172721063704D	Sample number(s): 9235175-9235187 BKG: 9235175			
Barium	51.63	48.06	7	20
	mg/kg	mg/kg		
Batch number: 17294049532A	Sample number(s): 9235175-9235176,9235178-9235187 BKG: 9235175			
TOC	603.84	632.88	5 (1)	7
	Std. Units	Std. Units		
Batch number: 17272039401A	Sample number(s): 9235175,9235178-9235181 BKG: 9235175			
pH	7.98	7.89	1	3
Batch number: 17272039401B	Sample number(s): 9235182-9235187 BKG: 9235185			
pH	8.09	8.02	1	3
	%	%		
Batch number: 17277820010A	Sample number(s): 9235175-9235187 BKG: 9235175, P235175			
Moisture	11.78	11.28	4	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture	11.78	11.28	4	5
Moisture Duplicate	11.78	11.28	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235188	89	91	83	101	84	87
9235189	98	99	93	108	100	97
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9235188	98	88	93	100	94	89
9235189	105	93	91	112	111	111
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9235188	77
9235189	105
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17281008

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1856374
Reported: 10/27/2017 09:01

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17281008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235175	71	72	83	71	89	70
9235176	56	53*	70	69	77	66
9235177	59	58*	66	57	65	60
9235181	83	90	82	84	79	82
9235182	53	54*	73	54	72	55
9235183	65	69*	83	68	84	71
9235184	55	55*	74	56	71	63
9235185	74	78	80	74	82	78
9235186	79	77	82	82	87	84
9235187	77	74	71	81	73	78
Blank	95	96	88	109	97	101
LCS	93	97	92	93	92	100
MS	56	53*	70	69	77	66
MSD	59	58*	66	57	65	60
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9235175	72	85	79	78	76	80
9235176	57	74	54	56	59	58
9235177	53	72	63	64	63	66
9235181	87	85	98	88	105	92
9235182	53	68	54	57	56	56
9235183	67	75	71	71	72	71
9235184	56	75	58	55	58	61
9235185	77	84	84	75	84	91
9235186	80	80	67	77	69	71
9235187	73	80	84	82	81	81
Blank	93	96	92	95	85	88
LCS	91	93	104	112	101	109
MS	57	74	54	56	59	58
MSD	53	72	63	64	63	66
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9235175	92
9235176	68
9235177	69

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17281008

	13C2-PFTeDA
9235181	92
9235182	55
9235183	77
9235184	66
9235185	88
9235186	77
9235187	83
Blank	105
LCS	117
MS	68
MSD	69
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17290007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235179	53	53*	78	52	76	53
9235180	46	44*	67	51	73	49
Blank	101	102	110	124*	110	130*
LCS	87	92	94	96	88	93
LCSD	94	99	98	107	108	112
MS	42	45*	71	49	65	49
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9235179	52	81	59	64	67	64
9235180	48	70	44	55	53	51
Blank	108	95	100	116	106	99
LCS	85	83	83	97	85	79
LCSD	95	86	93	97	96	85
MS	47	65	48	50	43	43
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9235179	67
9235180	53

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 09:01

Group Number: 1856374

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17290007

	13C2-PFTeDA
Blank	110
LCS	83
LCSD	89
MS	42
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1856374 9235175-69 Samples in 2 coolers

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: № 47363

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd,
Name: Michael Dupay	Name: Lathrup, NY
email: mdupay	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 4502100400

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic / PFCs (7)	Soil: 4oz glass / TOC, pH, moist, metals	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MW-BR1-28-29'	28	29	ft	09/27/2017	10:35	S	Y	6		3	3		Metals = cations	
2. SG3-MW-BR1-38-39'	38	39	ft	09/27/2017	11:05	S	N	2		1	1		(Total) Excluding Hg	
3. SG3-MW-BR1-48-49'	48	49	ft	09/27/2017	11:10	S	N	2		1	1			
4. SG3-MW-BR1-31-32'	31	32	ft	09/27/2017	11:25	S	N	2		1	1			
5. SG3-MW-BR1-58-59'	58	59	ft.	09/27/2017	11:50	S	N	2		1	1			
6. SG3-MW-BR1-68-69'	68	69	ft.	09/27/2017	13:30	S	N	2		1	1			
7. SG3-MW-BR1-78-79'	78	79	ft.	09/27/2017	15:05	S	N	2		1	1			
8.														
9.														
10.														

BARR USE ONLY		Relinquished by	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	RQM/KAM/DJZ		☒ N	9/27/17	17:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	9/28/17	0945
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C): 2.1, 3.0			Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location:	Lancaster, PA							

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1856374 923575-89 Samples in 2 coolers

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47405

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT MALE
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGAP Bennington	Barr Project No: 23/27 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water: 250mL plastic HNO3 preserved	Soil: 250mL-Plastic (PFCs (1) 4oz glass/TAL, pH, Moisture, metals	% Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D11-128-129'	128	129	ft	09/27/2017	1000	Soil	N	2		1 1				Metals = Cations (TAL) Excluding Hg
2. SG3-D11-138-139'	138	139	ft	9-27-17	1040	S	N	2		1 1				
3. SG3-D11-144-145'	144	145	ft	9-27-17	1145	S	N	2		1 1				
4. SG3-LTB53-170927	—	—	—	—	AM	W	N	2	1					prepared by ELLE 9-28-17
5. SG3-LTB54-170927	—	—	—	—	AM	W	N	2	1					prepared by ELLE 9-28-17
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY

Sampled by: DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: Derek Zander — On Ice? Y N — Date 9-27-17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 9/28/17 — Time 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.7 3.0 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195748

Group Number(s): 1856374

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/28/2017 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpres.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:48 on 09/28/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.0	DT	Wet	Y	Bagged	N
2	DT42-02	2.7	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-MW-BR1-28-29'	9/27/2017 10:30	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 27, 2017 11:37

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1856375
SDG: SGB57
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S33-0-0.5' Soil	09/27/2017 09:15	9235190
SG3-S33-0.5-1' Soil	09/27/2017 09:20	9235191
SG3-S33-1-1.5' Soil	09/27/2017 09:25	9235192
SG3-S33-3-4' Soil	09/27/2017 09:55	9235193
SG3-S33-8-9' Soil	09/27/2017 10:15	9235194
SG3-S40-0-0.5' Soil	09/27/2017 12:15	9235195
SG3-S40-0-0.5' MS Soil	09/27/2017 12:15	9235196
SG3-S40-0-0.5' MSD Soil	09/27/2017 12:15	9235197
SG3-S40-0-0.5' Dupl Soil	09/27/2017 12:15	9235198
SG3-S40-0.5-1' Soil	09/27/2017 12:20	9235199
SG3-S40-1-1.5' Soil	09/27/2017 12:25	9235200
SG3-FB14-170927 Blank Water	09/27/2017 12:30	9235201
SG3-FD13-170927 Soil	09/27/2017	9235202
SG3-S40-3-4' Soil	09/27/2017 13:05	9235203
SG3-S40-8-9' Soil	09/27/2017 13:30	9235204

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
ELLE Group #: 1856375

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9235201

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside of the method holding time and labeled compounds used as extraction standards are within QC acceptance limits. The data reported is from the initial trial and comparable results were observed between the two extractions.

Sample #s: 9235190, 9235191, 9235192, 9235193, 9235194, 9235195, 9235196, 9235197, 9235199, 9235200, 9235202, 9235203, 9235204

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17274001 (Sample number(s): 9235201)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9235201

Batch #: 17283001 (Sample number(s): 9235190-9235197, 9235199-9235200, 9235202-9235204 UNSPK: 9235195)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9235190, 9235191, 9235192, 9235193, 9235194, 9235195, 9235196, 9235197, 9235199, 9235200, 9235202,

9235203, 9235204, LCS, MS, MSD

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17294049531B (Sample number(s): 9235190-9235193, 9235199-9235200 UNSPK: P232273 BKG: P232273)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9235190, 9235191, 9235200, 9235204

The pH was measured in water at 19.9 C.

Sample #s: 9235198, 9235199, 9235202, 9235203

The pH was measured in water at 20 C.

Sample #s: 9235192, 9235193, 9235194, 9235195

The pH was measured in water at 20.1 C.

Sample Description: **SG3-S33-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:15
SDG#: SGB57-01

C. T. Male Associates
ELLE Sample #: SW 9235190
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.38 J**	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.34 J**	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.30 J**	0.12	0.47	1
14027	**Perfluorononanoic acid**	375-95-1	**0.34 J**	0.12	0.47	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.60 J**	0.35	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**10**	0.23	0.70	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.26 J**	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**30,600**	1,540	4,620	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.45**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 16:32	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:15
SDG#: SGB57-01

C. T. Male Associates
ELLE Sample #: SW 9235190
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 20:45	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:20
SDG#: SGB57-02

C. T. Male Associates
ELLE Sample #: SW 9235191
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.73	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.41 J**	0.24	0.73	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.73	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.73	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.68 J**	0.24	0.73	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.73	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.52**	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**12**	0.24	0.73	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.32 J**	0.24	0.73	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.73	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.73	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.73	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,400**	1,210	3,640	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.48**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**19.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 17:33	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:20
SDG#: SGB57-02

C. T. Male Associates
ELLE Sample #: SW 9235191
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 20:58	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:25
SDG#: SGB57-03

C. T. Male Associates
ELLE Sample #: SW 9235192
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.23 J**	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.37 J**	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.24 J**	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**10**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,460**	959	2,880	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.54**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 17:54	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:25
SDG#: SGB57-03

C. T. Male Associates
ELLE Sample #: SW 9235192
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 21:11	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:55
SDG#: SGB57-04

C. T. Male Associates
ELLE Sample #: SW 9235193
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36 J**	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,400**	511	1,530	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/15/2017 10:34	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 09:55
SDG#: SGB57-04

C. T. Male Associates
ELLE Sample #: SW 9235193
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 21:24	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039401B	09/29/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:15
SDG#: SGB57-05

C. T. Male Associates
ELLE Sample #: SW 9235194
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078 U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078 U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.70	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.21 J**	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,500**	313	939	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.18**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 18:35	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S33-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 10:15
SDG#: SGB57-05

C. T. Male Associates
ELLE Sample #: SW 9235194
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631A	10/25/2017 01:01	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:15
SDG#: SGB57-06BKG

C. T. Male Associates
ELLE Sample #: SW 9235195
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.81	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.38 J**	0.27	0.81	1
14027	Perfluorodecanoic acid	335-76-2	0.27 U	0.27	0.81	1
14027	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.81	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.39 J**	0.27	0.81	1
14027	Perfluorohexanesulfonate	355-46-4	0.27 U	0.27	0.81	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.21 J**	0.14	0.54	1
14027	**Perfluorononanoic acid**	375-95-1	**0.25 J**	0.14	0.54	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.54 J**	0.41	1.2	1
14027	**Perfluorooctanoic acid**	335-67-1	**9.2**	0.27	0.81	1
14027	Perfluoropentanoic acid	2706-90-3	0.27 U	0.27	0.81	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.81	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.81	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27 U	0.27	0.81	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**30,700**	613	1,840	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.29**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**29.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 18:56	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:15
SDG#: SGB57-06BKG

C. T. Male Associates
ELLE Sample #: SW 9235195
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 01:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0-0.5' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:15
SDG#: SGB57-06MS

C. T. Male Associates
ELLE Sample #: SW 9235196
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.25	0.74	1
14027	**Perfluorobutanoic acid**	375-22-4	**2.0**	0.25	0.74	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.25	0.74	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.25	0.74	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.25	0.74	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.7**	0.25	0.74	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.12	0.50	1
14027	**Perfluorononanoic acid**	375-95-1	**2.1**	0.12	0.50	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.3**	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**10**	0.25	0.74	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.8**	0.25	0.74	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.25	0.74	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.25	0.74	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.25	0.74	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**157,000**	4,570	13,700	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**29.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 15:10	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 01:26	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0-0.5' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:15
SDG#: SGB57-06MSD

C. T. Male Associates
ELLE Sample #: SW 9235197
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.4**	0.23	0.68	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.9**	0.23	0.68	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.23	0.68	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.8**	0.23	0.68	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.9**	0.23	0.68	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.23	0.68	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.11	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.0**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**10**	0.23	0.68	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.23	0.68	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.23	0.68	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.5**	0.23	0.68	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**29.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 15:30	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0-0.5' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:15
SDG#: SGB57-06DUP

C. T. Male Associates
ELLE Sample #: SW 9235198
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,000**	1,080	3,240	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.25**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**29.8**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**29.3**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 22:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:20
SDG#: SGB57-07

C. T. Male Associates
ELLE Sample #: SW 9235199
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.72	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.30 J**	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.72	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.34 J**	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.72	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.26 J**	0.12	0.48	1
14027	**Perfluorononanoic acid**	375-95-1	**0.18 J**	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**8.5**	0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.72	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,400**	1,130	3,380	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.31**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**26.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 19:16	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:20
SDG#: SGB57-07

C. T. Male Associates
ELLE Sample #: SW 9235199
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 21:37	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:25
SDG#: SGB57-08

C. T. Male Associates
ELLE Sample #: SW 9235200
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.72	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.72	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.72	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.72	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.30 J**	0.24	0.72	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.72	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.19 J**	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**6.9**	0.24	0.72	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.72	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.72	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.72	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.72	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,600**	1,090	3,260	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.45**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 19:37	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:25
SDG#: SGB57-08

C. T. Male Associates
ELLE Sample #: SW 9235200
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17294049531B	10/21/2017 21:50	James S Mathiot	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FB14-170927 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 12:30
SDG#: SGB57-09FB

C. T. Male Associates
ELLE Sample #: WW 9235201
ELLE Group #: 1856375
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside of the method holding time and labeled compounds used as extraction standards are within QC acceptance limits. The data reported is from the initial trial and comparable results were observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 07:33	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD13-170927 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017
SDG#: SGB57-10FD

C. T. Male Associates
ELLE Sample #: SW 9235202
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28 J**	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.27 J**	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.20 J**	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**8.4**	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,900**	834	2,500	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.37**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**24.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 19:57	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD13-170927 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017
SDG#: SGB57-10FD

C. T. Male Associates
ELLE Sample #: SW 9235202
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 02:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:05
SDG#: SGB57-11

C. T. Male Associates
ELLE Sample #: SW 9235203
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.55 J**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,080**	261	784	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.79**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 20:18	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:05
SDG#: SGB57-11

C. T. Male Associates
ELLE Sample #: SW 9235203
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 03:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:30
SDG#: SGB57-12

C. T. Male Associates
ELLE Sample #: SW 9235204
ELLE Group #: 1856375
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.19 J**	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.29 J**	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.17 J**	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087 U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	**Perfluorooctanoic acid**	335-67-1	**5.2**	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,530**	1,080	3,230	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.94**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17283001	10/13/2017 20:38	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-S40-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/28/2017 09:45
Collection Date/Time: 09/27/2017 13:30
SDG#: SGB57-12

C. T. Male Associates
ELLE Sample #: SW 9235204
ELLE Group #: 1856375
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17283001	10/10/2017 08:30	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 22:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17272039402A	09/29/2017 19:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820008A	10/04/2017 20:38	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17283001	Sample number(s): 9235190-9235197,9235199-9235200,9235202-9235204		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17274001	Sample number(s): 9235201		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 17294049531B	Sample number(s): 9235190-9235193,9235199-9235200		
TOC	180 J	100	300
Batch number: 17297667631A	Sample number(s): 9235194		
TOC	100 U	100	300
Batch number: 17297667631B	Sample number(s): 9235195-9235196,9235198,9235202-9235204		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17283001	Sample number(s): 9235190-9235197,9235199-9235200,9235202-9235204								
Perfluorobutanesulfonate	1.20	1.13			94		70-130		
Perfluorobutanoic acid	1.36	1.37			101		70-130		
Perfluorodecanoic acid	1.36	1.15			85		70-130		
Perfluorododecanoic acid	1.36	1.33			98		70-130		
Perfluoroheptanoic acid	1.36	1.33			98		70-130		
Perfluorohexanesulfonate	1.29	1.11			86		70-130		
Perfluorohexanoic acid	1.36	1.33			98		70-130		
Perfluorononanoic acid	1.36	1.43			105		70-130		
Perfluoro-octanesulfonate	1.30	1.29			99		70-130		
Perfluorooctanoic acid	1.36	1.28			94		70-130		
Perfluoropentanoic acid	1.36	1.36			100		70-130		
Perfluorotetradecanoic acid	1.36	1.37			101		70-130		
Perfluorotridecanoic acid	1.36	1.26			92		70-130		
Perfluoroundecanoic acid	1.36	1.42			104		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17274001	Sample number(s): 9235201								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17294049531B	Sample number(s): 9235190-9235193,9235199-9235200								

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
TOC	7150	6494.4			91		47-143		
Batch number: 17297667631A	Sample number(s): 9235194								
TOC	7150	6903.25			97		47-143		
Batch number: 17297667631B	Sample number(s): 9235195-9235196,9235198,9235202-9235204								
TOC	7150	6903.25			97		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17272039401B	Sample number(s): 9235190-9235193								
pH	7.00	6.91			99		95-105		
Batch number: 17272039402A	Sample number(s): 9235194-9235195,9235198-9235200,9235202-9235204								
pH	7.00	6.96			99		95-105		
	%	%	%	%					
Batch number: 17277820008A	Sample number(s): 9235190-9235200,9235202-9235204								
Moisture	89.5	89.21			100		99-101		
Moisture	89.5	89.21			100		99-101		
Moisture Duplicate	89.5	89.21			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17283001	Sample number(s): 9235190-9235197,9235199-9235200,9235202-9235204 UNSPK: 9235195									
Perfluorobutanesulfonate	0.19 U	1.05	0.916	0.962	1.01	88	105	70-130	10	30
Perfluorobutanoic acid	0.268	1.18	1.42	1.09	1.31	98	96	70-130	8	30
Perfluorodecanoic acid	0.19 U	1.18	1.18	1.09	1.06	100	98	70-130	11	30
Perfluorododecanoic acid	0.19 U	1.18	1.22	1.09	1.23	103	113	70-130	1	30
Perfluoroheptanoic acid	0.275	1.18	1.24	1.09	1.36	82	99	70-130	9	30
Perfluorohexanesulfonate	0.19 U	1.12	1.20	1.03	1.11	107	108	70-130	8	30
Perfluorohexanoic acid	0.144	1.18	1.18	1.09	1.20	88	97	70-130	1	30
Perfluorononanoic acid	0.172	1.18	1.46	1.09	1.06	109	82	70-130	32*	30
Perfluoro-octanesulfonate	0.382	1.13	1.61	1.04	1.40	109	98	70-130	14	30
Perfluorooctanoic acid	6.43	1.18	7.02	1.09	7.17	49 (2)	68 (2)	70-130	2	30
Perfluoropentanoic acid	0.19 U	1.18	1.26	1.09	1.09	106	100	70-130	14	30
Perfluorotetradecanoic acid	0.19 U	1.18	1.22	1.09	1.18	103	109	70-130	3	30
Perfluorotridecanoic acid	0.19 U	1.18	1.10	1.09	1.05	93	97	70-130	5	30
Perfluoroundecanoic acid	0.19 U	1.18	1.14	1.09	1.16	96	107	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17294049531B	Sample number(s): 9235190-9235193,9235199-9235200 UNSPK: P232273									
TOC	6125	25890	18507.33			48		47-143		
Batch number: 17297667631A	Sample number(s): 9235194 UNSPK: P228624									
TOC	23549.67	31260	47697.92			77		47-143		
Batch number: 17297667631B	Sample number(s): 9235195-9235196,9235198,9235202-9235204 UNSPK: 9235195									
TOC	21523.89	96150	110512.82			93		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17294049531B	Sample number(s): 9235190-9235193,9235199-9235200 BKG: P232273			
TOC	6125	9050.15	39* (1)	7
Batch number: 17297667631A	Sample number(s): 9235194 BKG: P228624			
TOC	23549.67	24517.34	4	7
Batch number: 17297667631B	Sample number(s): 9235195-9235196,9235198,9235202-9235204 BKG: 9235195			
TOC	21523.89	22486.73	4	7
	Std. Units	Std. Units		
Batch number: 17272039401B	Sample number(s): 9235190-9235193 BKG: P235185			
pH	8.09	8.02	1	3
Batch number: 17272039402A	Sample number(s): 9235194-9235195,9235198-9235200,9235202-9235204 BKG: 9235195			
pH	7.29	7.25	1	3
	%	%		
Batch number: 17277820008A	Sample number(s): 9235190-9235200,9235202-9235204 BKG: 9235195, P235195			
Moisture	29.78	29.34	1	5
Moisture	29.78	29.34	1	5
Moisture Duplicate	29.78	29.34	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235201	106	100	75	133*	95	131*
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9235201	110	99	148*	110	110	106
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9235201	91
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17283001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235190	56	59*	60	59	61	68
9235191	44	46*	52	47	55	46
9235192	56	56*	57	58	57	64
9235193	64	62*	61	62	65	64
9235194	53	52*	58	59	66	57
9235195	56	56*	57	51	50	54
9235196	51	53*	53	57	53	63
9235197	50	52*	49	51	50	51
9235199	54	55*	52	63	56	63
9235200	50	48*	48	51	49	50
9235202	54	57*	55	57	48	58
9235203	50	51*	52	53	63	55

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17283001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9235204	47	52*	47	50	49	53
Blank	84	86	81	81	81	83
LCS	63	61*	60	61	61	69
MS	51	53*	53	57	53	63
MSD	50	52*	49	51	50	51
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9235190	59	63	68	60	58	59
9235191	55	61	54	56	55	61
9235192	58	60	59	58	60	58
9235193	67	69	58	69	66	67
9235194	55	58	55	61	57	57
9235195	54	58	62	61	51	61
9235196	55	55	58	56	52	56
9235197	53	56	60	61	51	56
9235199	57	49	59	62	52	60
9235200	53	58	63	56	49	57
9235202	56	68	64	62	50	57
9235203	55	48	45	55	57	53
9235204	51	55	51	55	41	51
Blank	92	94	96	89	84	93
LCS	66	61	61	70	77	74
MS	55	55	58	56	52	56
MSD	53	56	60	61	51	56
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9235190	55
9235191	59
9235192	56
9235193	61
9235194	53
9235195	54
9235196	52
9235197	49
9235199	56

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/27/2017 11:37

Group Number: 1856375

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17283001

	13C2-PFTeDA
9235200	52
9235202	51
9235203	53
9235204	43
Blank	78
LCS	71
MS	52
MSD	49
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1856375 9235190-204

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ SD ☐ MN Other: VT

COC Number: № 47364
COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr., Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml Plastic	Soil: 250ml Plastic	Soil: 4oz Glass	% Solids	Preservative Code	Field Filtered Y/N	Notes
									N	4	A N				
1 SG3-S33-0-0.5'	0	0.5	ft	09/27/2017	0915	S	N	2		1	1				14 PFCs, moisture
2 SG3-S33-0.5-1'	0.5	1	ft	09/27/2017	0920	S	N	2		1	1				content, TOC, pH,
3 SG3-S33-1-1.5'	1	1.5	ft	09/27/2017	0925	S	N	2		1	1				
4 SG3-S33-3-4'	3	4	ft	09/27/2017	0955	S	N	2		1	1				
5 SG3-S33-8-9'	8	9	ft	09/27/2017	1015	S	N	2		1	1				
6 SG3-S40-0-0.5'	0	0.5	ft	09/27/2017	1215	S	Y	6		3	3				
7 SG3-S40-0.5-1'	0.5	1	ft	09/27/2017	1220	S	N	2		1	1				
8 SG3-S40-1-1.5'	1	1.5	ft	09/27/2017	1225	S	N	2		1	1				
9 SG3-FB14-170927	—	—	—	09/27/2017	1230	~~S~~ W	N	2	2						Field Blank
10 SG3-FD13-170927	—	—	—	09/27/2017	—	S	N	2		1	1				

BARR USE ONLY

Sampled by: LC/RAK
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster, PA

Relinquished by: Robert Kosloski — On Ice? (Y) N — Date 9.27.17 — Time 1700 — Received by:

Relinquished by: — On Ice? Y N — Date — Time — Received by: — Date 9/28/17 — Time 0945

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.7 3.0 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Final Report; Pink Copy: Send to Data Management Administrators.

37191 1856375 9235190-204

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ MN ☐ SD Other: VT

COC Number: № 47365

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic	Soil: 250ml Plastic	Soil: 4 oz Glass	% Solids
Preservative Code									A	A	A	
Field Filtered Y/N									N	N	N	
1. SG3-540-3-4'	3	4	ft	09/27/2017	1305	S	N	2		1	1	
2. SG3-540-8-9'	8	9	ft	09/27/2017	1330	S	N	2		1	1	
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY

Sampled by: LC/DAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kortenhof — On Ice? Y (N) — Date: 9.27.17 — Time: 1700

Received by:

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date: 9/28/17 — Time: 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO:

Temperature on Receipt (°C): 2.2-1.0 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Report; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 195748

Group Number(s): 1856375

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/28/2017 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpres.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:48 on 09/28/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.0	DT	Wet	Y	Bagged	N
2	DT42-02	2.7	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-MW-BR1-28-29'	9/27/2017 10:30	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 04, 2017

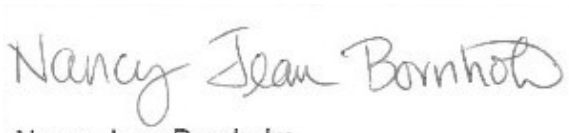
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1856847
SDG: SGB58
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-CityWaterTruck-170928 Water	09/28/2017 10:45	9237444
SG3-CityWaterHose-170928 Water	09/28/2017 10:50	9237445
SG3-CityWaterFracTk-170928 Water	09/28/2017 11:35	9237446
Trip Blank Water	09/28/2017	9237447
SG3-AfterPOET-170928 Water	09/28/2017 14:40	9237448

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1856847

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9237444, 9237445, 9237446, 9237447

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9237448

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Batch #: 17274004 (Sample number(s): 9237444-9237447 UNSPK: 9237444)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 6:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9237444, 9237445, 9237446, 9237447, Blank, LCS, LCSD, MS

Batch #: 17276003 (Sample number(s): 9237448 UNSPK: 9237448)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9237448, Blank, LCS, LCSD, MS

Sample Description: SG3-CityWaterTruck-170928 Water
SGPP - North Bennington

ELLE Sample # GW 9237444
ELLE Group # 1856847
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/28/2017 10:45 by KJM

Submitted: 09/29/2017 09:35
Reported: 10/04/2017 13:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB581 SDG#: SGB58-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.8**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**2**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 19:39	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterHose-170928 Water
SGPP - North Bennington

ELLE Sample # GW 9237445
ELLE Group # 1856847
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/28/2017 10:50 by KJM

Submitted: 09/29/2017 09:35
Reported: 10/04/2017 13:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB582 SDG#: SGB58-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 20:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterFracTk-170928 Water
SGPP - North Bennington

ELLE Sample # GW 9237446
ELLE Group # 1856847
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/28/2017 11:35 by KJM

Submitted: 09/29/2017 09:35
Reported: 10/04/2017 13:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB583 SDG#: SGB58-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.8**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.8**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**0.9**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 21:01	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9237447
ELLE Group # 1856847
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/28/2017 by KJM

Submitted: 09/29/2017 09:35
Reported: 10/04/2017 13:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB584 SDG#: SGB58-04TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 21:22	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-AfterPOET-170928 Water
SGPP - North Bennington

ELLE Sample # GW 9237448
ELLE Group # 1856847
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/28/2017 14:40 by KJM

Submitted: 09/29/2017 09:35
Reported: 10/04/2017 13:31

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB585 SDG#: SGB58-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276003	10/04/2017 02:25	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17276003	10/03/2017 07:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1856847
Reported: 10/04/2017 13:31

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17274004	Sample number(s): 9237444-9237447			
6:2 fluorotelomersulfonate	4	J	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	2	J	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
Batch number: 17276003	Sample number(s): 9237448			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/04/2017 13:31

Group Number: 1856847

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17274004	Sample number(s): 9237444-9237447								
6:2 fluorotelomersulfonate	12.89	19.15	12.89	13.06	149*	101	70-130	38*	30
8:2 fluorotelomersulfonate	13.03	14.39	13.03	14.9	110	114	70-130	3	30
NEtFOSAA	13.6	13.61	13.6	13.23	100	97	70-130	3	30
NMeFOSAA	13.6	13.8	13.6	14.78	101	109	70-130	7	30
Perfluorobutanesulfonate	12.03	11.85	12.03	10.83	99	90	70-130	9	30
Perfluorobutanoic Acid	13.6	13.27	13.6	13.09	98	96	70-130	1	30
Perfluorodecanoic acid	13.6	16.76	13.6	15.61	123	115	70-130	7	30
Perfluorododecanoic acid	13.6	12.8	13.6	12.69	94	93	70-130	1	30
Perfluoroheptanoic acid	13.6	14.21	13.6	14.43	105	106	70-130	2	30
Perfluorohexanesulfonate	12.86	11.68	12.86	12.6	91	98	70-130	8	30
Perfluorohexanoic acid	13.6	13.57	13.6	12.72	100	94	70-130	6	30
Perfluorononanoic acid	13.6	13.11	13.6	12.51	96	92	70-130	5	30
Perfluoro-octanesulfonate	13	11.36	13	11.85	87	91	70-130	4	30
Perfluorooctanoic acid	13.6	12.9	13.6	14.05	95	103	70-130	9	30
Perfluoropentanoic Acid	13.6	13.7	13.6	13.32	101	98	70-130	3	30
Perfluorotetradecanoic acid	13.6	12.61	13.6	12.84	93	94	70-130	2	30
Perfluorotridecanoic acid	13.6	11.74	13.6	11.11	86	82	70-130	6	30
Perfluoroundecanoic acid	13.6	14.1	13.6	13.42	104	99	70-130	5	30
PFOSA	13.6	15.9	13.6	13.68	117	101	70-130	15	30
Batch number: 17276003	Sample number(s): 9237448								
6:2 fluorotelomersulfonate	12.89	15.96	12.89	15.7	124	122	70-130	2	30
8:2 fluorotelomersulfonate	13.03	13.12	13.03	13.99	101	107	70-130	6	30
NEtFOSAA	13.6	13.74	13.6	14.04	101	103	70-130	2	30
NMeFOSAA	13.6	15.15	13.6	14.84	111	109	70-130	2	30
Perfluorobutanesulfonate	12.03	12.12	12.03	10.96	101	91	70-130	10	30
Perfluorobutanoic Acid	13.6	14.2	13.6	13.72	104	101	70-130	3	30
Perfluorodecanoic acid	13.6	14.81	13.6	13.2	109	97	70-130	11	30
Perfluorododecanoic acid	13.6	14.37	13.6	13.43	106	99	70-130	7	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.79	95	94	70-130	1	30
Perfluorohexanesulfonate	12.86	13.56	12.86	11.92	105	93	70-130	13	30
Perfluorohexanoic acid	13.6	14.63	13.6	13.57	108	100	70-130	8	30
Perfluorononanoic acid	13.6	12.45	13.6	14.37	92	106	70-130	14	30
Perfluoro-octanesulfonate	13	14.76	13	13.96	114	107	70-130	6	30
Perfluorooctanoic acid	13.6	11.92	13.6	12.4	88	91	70-130	4	30
Perfluoropentanoic Acid	13.6	12.82	13.6	13.59	94	100	70-130	6	30
Perfluorotetradecanoic acid	13.6	14.22	13.6	13.56	105	100	70-130	5	30
Perfluorotridecanoic acid	13.6	11.71	13.6	11.21	86	82	70-130	4	30
Perfluoroundecanoic acid	13.6	14.06	13.6	13.15	103	97	70-130	7	30
PFOSA	13.6	14.64	13.6	14.94	108	110	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1856847
Reported: 10/04/2017 13:31

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17274004	Sample number(s): 9237444-9237447 UNSPK: 9237444										
6:2 fluorotelomersulfonate	3	U	12.86	13.87			108		70-130		
8:2 fluorotelomersulfonate	4	U	13	15.29			118		70-130		
NEtFOSAA	1	U	13.57	14.1			104		70-130		
NMeFOSAA	1	U	13.57	13.66			101		70-130		
Perfluorobutanesulfonate	0.8	U	12	11.56			96		70-130		
Perfluorobutanoic Acid	3	U	13.57	13.83			102		70-130		
Perfluorodecanoic acid	0.5	U	13.57	13.54			100		70-130		
Perfluorododecanoic acid	0.5	U	13.57	13.1			97		70-130		
Perfluoroheptanoic acid	0.908		13.57	14.59			101		70-130		
Perfluorohexanesulfonate	1	U	12.83	13.38			104		70-130		
Perfluorohexanoic acid	0.813		13.57	13.52			94		70-130		
Perfluorononanoic acid	0.6	U	13.57	12.77			94		70-130		
Perfluoro-octanesulfonate	2	U	12.97	12.67			98		70-130		
Perfluorooctanoic acid	2.44		13.57	16.51			104		70-130		
Perfluoropentanoic Acid	1.01		13.57	13.79			94		70-130		
Perfluorotetradecanoic acid	0.5	U	13.57	12.03			89		70-130		
Perfluorotridecanoic acid	0.5	U	13.57	13.04			96		70-130		
Perfluoroundecanoic acid	1	U	13.57	12.72			94		70-130		
PFOSA	3	U	13.57	14.23			105		70-130		
Batch number: 17276003	Sample number(s): 9237448 UNSPK: 9237448										
6:2 fluorotelomersulfonate	3	U	12.94	18.75			145*		70-130		
8:2 fluorotelomersulfonate	4	U	13.08	16.09			123		70-130		
NEtFOSAA	1	U	13.65	16.03			117		70-130		
NMeFOSAA	1	U	13.65	11.62			85		70-130		
Perfluorobutanesulfonate	0.8	U	12.07	11.04			91		70-130		
Perfluorobutanoic Acid	3	U	13.65	13.8			101		70-130		
Perfluorodecanoic acid	0.5	U	13.65	14.97			110		70-130		
Perfluorododecanoic acid	0.5	U	13.65	13.53			99		70-130		
Perfluoroheptanoic acid	0.5	U	13.65	13.23			97		70-130		
Perfluorohexanesulfonate	1	U	12.91	10.74			83		70-130		
Perfluorohexanoic acid	0.6	U	13.65	12.71			93		70-130		
Perfluorononanoic acid	0.6	U	13.65	13.31			98		70-130		
Perfluoro-octanesulfonate	2	U	13.05	11.36			87		70-130		
Perfluorooctanoic acid	0.6	U	13.65	12.99			95		70-130		
Perfluoropentanoic Acid	0.5	U	13.65	13.16			96		70-130		
Perfluorotetradecanoic acid	0.5	U	13.65	13.1			96		70-130		
Perfluorotridecanoic acid	0.5	U	13.65	12.44			91		70-130		
Perfluoroundecanoic acid	1	U	13.65	12.98			95		70-130		
PFOSA	3	U	13.65	14.91			109		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1856847
Reported: 10/04/2017 13:31

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17274004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237444	103	119	143	98	115	112
9237445	91	106	121	102	101	109
9237446	103	123	136	97	104	106
9237447	101	100	98	107	107	103
Blank	94	96	98	94	103	107
LCS	94	90	88	96	99	90
LCSD	97	98	97	101	106	109
MS	99	113	130	96	105	105
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9237444	94	111	101	98	108	106
9237445	118	94	94	95	93	79
9237446	118	103	98	97	110	107
9237447	86	98	87	91	94	86
Blank	97	98	93	89	99	84
LCS	96	90	102	89	89	75
LCSD	86	101	94	91	89	79
MS	109	100	99	91	96	86
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9237444	77	97	88	91	93	58*
9237445	63	81	73	79	73	68*
9237446	73	93	82	91	83	67*
9237447	66	99	77	86	85	62*
Blank	79	94	93	101	96	44*
LCS	71	80	80	90	75	45*
LCSD	79	100	88	94	92	36*
MS	67	92	72	84	86	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFCs
Batch number: 17276003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237448	88	84	70	101	91	91
Blank	91	85	69	77	72	73

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1856847
Reported: 10/04/2017 13:31

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17276003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCS	100	101	83	100	92	98
LCSD	94	85	77	96	89	92
MS	81	80	64	81	75	78
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9237448	71	98	86	80	77	64
Blank	69	73	85	100	74	57
LCS	68	103	89	108	88	81
LCSD	72	93	94	89	88	75
MS	69	81	83	85	76	57
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9237448	101	88	98	86	82	9*
Blank	80	81	90	87	80	22*
LCS	109	100	115	106	94	57*
LCSD	95	107	125	111	96	53*
MS	106	92	87	81	79	17*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Rush — Results ASAP 37191 | 1856847 | 9237444-48

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 51385

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr,	Address: 50 Century Hill RD
Name: Michael Dupay	Name: Latham, NY
email: mdupay	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250ml plastic/Trizma	Soil — % Solids	Preservative Code	Field Filtered Y/N
1. SG3 - City Water Tank - 170928				09/28/2017	10:45	water	N	2	2			
2. SG3 - City Water Hose - 170928				09/28/2017	10:50	water	N	2	2			
3. SG3 - City Water Frac TK - 170928				09/28/2017	11:35	water	N	2	2			
4. Trip Blank				09/28/2017	AM	water	N	2	2			
5. SG3 - After POET - 170928				09/28/2017	14:40	water	N	2	2			
6.												
7.												
8.												
9.												
10.												

PFC's (19)

* Rush* Results ASAP

BARR USE ONLY							
Sampled by: Kam	Relinquished by: [illegible]	On Ice? Y N	Date 9/28/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: 3	Date 9.29.17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 4.0-5.6	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 195861

Group Number(s): 1856847

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/29/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved

Unpacked by Timothy Cubberley (6520) at 10:56 on 09/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.6	DT	Wet	Y	Bagged	N
2	DT131	4.0	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 15:26

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1856985
SDG: SGB59
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-S28-0-0.5' Soil	09/28/2017 09:00	9237980
SG3-S28-1-1.5' Soil	09/28/2017 09:20	9237981
SG3-S28-0.5-1' Soil	09/28/2017 09:10	9237982
SG3-S28-2.7-3.7' Soil	09/28/2017 09:55	9237983
SG3-LTB55-170928 Blank Water	09/28/2017	9237984
SG3-LTB56-170928 Blank Water	09/28/2017	9237985
SG3-S28-170928 Groundwater	09/28/2017 12:30	9237986
SG3-MW-BR1-88-89' Soil	09/27/2017 16:25	9237987
SG3-FDS09-170927 Soil	09/27/2017	9237988
SG3-MW-BR1-98-99' Soil	09/28/2017 08:20	9237989
SG3-MW-BR1-108-109' Soil	09/28/2017 10:50	9237990
SG3-MW-BR1-118-119' Soil	09/28/2017 13:00	9237991
SG3-FBS08-170928 Blank Water	09/28/2017	9237992

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1856985

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Trip blank vials were not received by the laboratory for this sample group.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5172791AA (Sample number(s): 9237986 UNSPK: P237128)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Carbon Tetrachloride

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Dichlorodifluoromethane, 1,1,1-Trichloroethane, Carbon Tetrachloride

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Toluene

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9237986

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17275WAI026 (Sample number(s): 9237986)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9237986, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9237985

The recovery for labeled compound used as extraction standard 13C8-PFOA is outside of QC acceptance limits. Since the result is high and native compound PFOA is not detected, the data is reported.

Sample #s: 9237983, 9237987, 9237988, 9237989, 9237990

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9237986

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native 6:2-FTS is not detected, the data is reported.

Batch #: 17274001 (Sample number(s): 9237985, 9237992)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9237985

Batch #: 17275007 (Sample number(s): 9237986 UNSPK: 9237986)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9237986

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9237986, Blank, LCS, LCSD, MS

Batch #: 17284003 (Sample number(s): 9237980-9237983, 9237987-9237991 UNSPK: 9237980)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9237983, 9237987, 9237988, 9237989, 9237990

SW-846 6010C, Metals

Batch #: 172751063501 (Sample number(s): 9237986 UNSPK: P238778 BKG: P238778)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Iron

Batch #: 172751063707 (Sample number(s): 9237987-9237991 UNSPK: 9237989 BKG: 9237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Magnesium, Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium

SW-846 6020A, Metals

Batch #: 172751063707A (Sample number(s): 9237987-9237991 UNSPK: 9237989 BKG: 9237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Beryllium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Chromium, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium, Vanadium

Batch #: 172751063707B (Sample number(s): 9237987-9237991 UNSPK: 9237989 BKG: 9237989)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172751063707D (Sample number(s): 9237987-9237991 UNSPK: 9237989 BKG: 9237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

Batch #: 172751063901A (Sample number(s): 9237986 UNSPK: P235551 BKG: P235551)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Vanadium

EPA 300.0, Wet Chemistry

Batch #: 17272987106A (Sample number(s): 9237986 UNSPK: P237253 BKG: P237253)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Nitrite Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 17290107104B (Sample number(s): 9237986 UNSPK: P234461 BKG: P234461)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

EPA 351.2, Wet Chemistry

Sample #s: 9237986

Reporting limits were raised due to interference from the sample matrix.

Batch #: 17278108101B (Sample number(s): 9237986 UNSPK: P245861 BKG: P245861)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Kjeldahl Nitrogen

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9237987, 9237988

This sample was originally analzyed within the 28 day holding time, however due to a miss injection on the instrument, the data could not be quantified. The sample was repeated outside of the hold time and per the client, the result reported.

Batch #: 17299245033A (Sample number(s): 9237987-9237991 UNSPK: P239692 BKG: P239692)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

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SW-846 9045D modified, Wet Chemistry

Sample #s: 9237980, 9237983, 9237988

The pH was measured in water at 20.2 C.

Sample #s: 9237982, 9237987, 9237989, 9237990, 9237991

The pH was measured in water at 20.3 C.

Sample #s: 9237981

The pH was measured in water at 20.4 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17277820004B (Sample number(s): 9237980-9237983, 9237987-9237991 BKG: 9237987)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Sample Description: **SG3-S28-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:00
SDG#: SGB59-01

C. T. Male Associates
ELLE Sample #: SW 9237980
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.35 J**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.32 J**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,100**	1,620	4,850	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.16**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**3.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 00:15	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:00
SDG#: SGB59-01

C. T. Male Associates
ELLE Sample #: SW 9237980
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 23:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:20
SDG#: SGB59-02

C. T. Male Associates
ELLE Sample #: SW 9237981
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22 J**	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.45 J**	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.21 J**	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,300**	557	1,670	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 01:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:20
SDG#: SGB59-02

C. T. Male Associates
ELLE Sample #: SW 9237981
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 03:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:10
SDG#: SGB59-03

C. T. Male Associates
ELLE Sample #: SW 9237982
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.14 U	0.14	0.42	1
14027	Perfluorobutanoic acid	375-22-4	0.14 U	0.14	0.42	1
14027	Perfluorodecanoic acid	335-76-2	0.14 U	0.14	0.42	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.14 J**	0.14	0.42	1
14027	Perfluoroheptanoic acid	375-85-9	0.14 U	0.14	0.42	1
14027	Perfluorohexanesulfonate	355-46-4	0.14 U	0.14	0.42	1
14027	Perfluorohexanoic acid	307-24-4	0.070 U	0.070	0.28	1
14027	**Perfluorononanoic acid**	375-95-1	**0.084 J**	0.070	0.28	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.37 J**	0.21	0.63	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.17 J**	0.14	0.42	1
14027	Perfluoropentanoic acid	2706-90-3	0.14 U	0.14	0.42	1
14027	Perfluorotetradecanoic acid	376-06-7	0.14 U	0.14	0.42	1
14027	Perfluorotridecanoic acid	72629-94-8	0.14 U	0.14	0.42	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.20 J**	0.14	0.42	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,600**	538	1,610	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 01:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:10
SDG#: SGB59-03

C. T. Male Associates
ELLE Sample #: SW 9237982
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 04:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-2.7-3.7' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:55
SDG#: SGB59-04

C. T. Male Associates
ELLE Sample #: SW 9237983
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**17,000**	352	1,060	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.80**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 01:58	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-2.7-3.7' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 09:55
SDG#: SGB59-04

C. T. Male Associates
ELLE Sample #: SW 9237983
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17297667631B	10/25/2017 04:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB55-170928 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017
SDG#: SGB59-05TB

C. T. Male Associates
ELLE Sample #: WW 9237984
ELLE Group #: 1856985
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17285005	10/13/2017 10:04	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285005	10/12/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB56-170928 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017
SDG#: SGB59-06TB

C. T. Male Associates
ELLE Sample #: WW 9237985
ELLE Group #: 1856985
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

The recovery for labeled compound used as extraction standard 13C8-PFOA is outside of QC acceptance limits. Since the result is high and native compound PFOA is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 08:14	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-170928 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 12:30
SDG#: SGB59-07

C. T. Male Associates
ELLE Sample #: GW 9237986
ELLE Group #: 1856985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-170928 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 12:30
SDG#: SGB59-07

C. T. Male Associates
ELLE Sample #: GW 9237986
ELLE Group #: 1856985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.055 U	0.055	0.22	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**2 J**	0.6	2	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**12**	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**12**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-170928 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 12:30
SDG#: SGB59-07

C. T. Male Associates
ELLE Sample #: GW 9237986
ELLE Group #: 1856985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native 6:2-FTS is not detected, the data is reported.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**5.41**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0479 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**25.5**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**46.4**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**5.96**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.425**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.66**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**202**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.102**	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.00066 J**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0094**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0435**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0011**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00033 J**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0193**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0338**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0288**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0590**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0237**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.00084 J**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.00032 J**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00017 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0199**	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00010 J**	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**187**	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**6.8**	1.5	5.0	5
		EPA 350.1	**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.11**	0.050	0.10	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-170928 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 12:30
SDG#: SGB59-07

C. T. Male Associates
ELLE Sample #: GW 9237986
ELLE Group #: 1856985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 351.2**		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	1.3 U	1.3	2.5	1
	Reporting limits were raised due to interference from the sample matrix.					
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	**Total Cyanide**	57-12-5	**0.0061 J**	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**313**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**313**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.044 J**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.
Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5172791AA	10/06/2017 18:16	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5172791AA	10/06/2017 18:16	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17275WAI026	10/03/2017 10:23	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17275WAI026	10/02/2017 19:01	Christine E Gleim	1
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17275007	10/16/2017 12:35	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17275007	10/02/2017 15:40	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
08014	Boron	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
01750	Calcium	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
01754	Iron	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
01757	Magnesium	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
07058	Manganese	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
01762	Potassium	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
01767	Sodium	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
07072	Zinc	SW-846 6010C	1	172751063501	10/03/2017 13:22	Patrick J Engle	1
06024	Antimony	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172751063901D	10/05/2017 11:39	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-S28-170928 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 12:30
SDG#: SGB59-07

C. T. Male Associates
ELLE Sample #: GW 9237986
ELLE Group #: 1856985
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06027	Beryllium	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172751063901B	10/03/2017 06:21	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172751063901A	10/03/2017 06:21	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172750571301	10/05/2017 17:32	Katlin N Cataldi	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172751063501	10/02/2017 16:45	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172751063901	10/02/2017 18:00	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172750571301	10/03/2017 07:15	James L Mertz	1
01505	Bromide	EPA 300.0	1	17272987106A	09/30/2017 07:44	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17272987106A	09/30/2017 08:01	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17272987106A	09/30/2017 07:44	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17272987106A	09/30/2017 07:44	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17272987106A	09/30/2017 07:44	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17290107104B	10/17/2017 23:09	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17278108101B	10/14/2017 12:57	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17283117101A	10/11/2017 19:38	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17278108101B	10/05/2017 17:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17283117101A	10/10/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17275008201A	10/02/2017 15:20	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17275008201A	10/02/2017 15:20	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17275008201A	10/02/2017 15:20	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17272022602A	09/29/2017 22:46	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017 16:25
SDG#: SGB59-08

C. T. Male Associates
ELLE Sample #: SW 9237987
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,850**	7.82	35.0	1
01650	**Calcium**	7440-70-2	**2,190**	2.91	35.0	1
01654	**Iron**	7439-89-6	**40,000**	35.2	175	5
01657	**Magnesium**	7439-95-4	**1,750**	2.13	17.5	1
06958	**Manganese**	7439-96-5	**847**	0.0726	0.875	1
01662	**Potassium**	7440-09-7	**988**	14.6	87.5	1
01667	**Sodium**	7440-23-5	**17.7 J**	14.6	175	1
06972	**Zinc**	7440-66-6	**63.5**	0.210	3.50	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.217 J**	0.0815	0.350	2
06125	**Arsenic**	7440-38-2	**18.8**	0.112	0.700	2
06126	**Barium**	7440-39-3	**109**	0.159	0.700	2
06127	**Beryllium**	7440-41-7	**0.930**	0.0092	0.175	2
06128	**Cadmium**	7440-43-9	**0.211**	0.0301	0.175	2
06131	**Chromium**	7440-47-3	**11.5**	0.152	0.700	2
06132	**Cobalt**	7440-48-4	**26.1**	0.0273	0.175	2
06133	**Copper**	7440-50-8	**34.5**	0.0938	0.700	2
06135	**Lead**	7439-92-1	**24.6**	0.0194	0.350	2
06139	**Nickel**	7440-02-0	**38.6**	0.174	0.700	2
06141	**Selenium**	7782-49-2	**0.279 J**	0.0875	0.700	2
06142	**Silver**	7440-22-4	**0.0734 J**	0.0255	0.175	2
06145	**Thallium**	7440-28-0	**0.553**	0.0219	0.175	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR1-88-89' Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017 16:25
SDG#: SGB59-08

C. T. Male Associates
ELLE Sample #: SW 9237987
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**17.7**	0.0373	0.175	2
Wet Chemistry		**SM 5310 B modified-2000**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**631**	210	630	1
	This sample was originally analzyed within the 28 day holding time, however due to a miss injection on the instrument, the data could not be quantified. The sample was repeated outside of the hold time and per the client, the result reported.					
		SW-846 9045D modified	**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 02:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:07	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:13	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:12	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017 16:25
SDG#: SGB59-08

C. T. Male Associates
ELLE Sample #: SW 9237987
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:12	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:12	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/26/2017 21:06	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS09-170927 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017
SDG#: SGB59-09FD

C. T. Male Associates
ELLE Sample #: SW 9237988
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.48	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.48	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	Perfluorohexanoic acid	307-24-4	0.080 U	0.080	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.080 U	0.080	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.72	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.48	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.48	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,130**	7.59	34.0	1
01650	**Calcium**	7440-70-2	**2,480**	2.83	34.0	1
01654	**Iron**	7439-89-6	**36,600**	34.2	170	5
01657	**Magnesium**	7439-95-4	**2,060**	2.06	17.0	1
06958	**Manganese**	7439-96-5	**512**	0.0705	0.849	1
01662	**Potassium**	7440-09-7	**969**	14.2	84.9	1
01667	**Sodium**	7440-23-5	**16.7 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**56.1**	0.204	3.40	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.260 J**	0.0792	0.340	2
06125	**Arsenic**	7440-38-2	**15.4**	0.109	0.679	2
06126	**Barium**	7440-39-3	**69.5**	0.154	0.679	2
06127	**Beryllium**	7440-41-7	**0.880**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**0.198**	0.0292	0.170	2
06131	**Chromium**	7440-47-3	**9.58**	0.148	0.679	2
06132	**Cobalt**	7440-48-4	**16.6**	0.0265	0.170	2
06133	**Copper**	7440-50-8	**12.7**	0.0455	0.340	1
06135	**Lead**	7439-92-1	**19.1**	0.0189	0.340	2
06139	**Nickel**	7440-02-0	**11.8**	0.0846	0.340	1
06141	**Selenium**	7782-49-2	**0.220 J**	0.0849	0.679	2
06142	**Silver**	7440-22-4	**0.0369 J**	0.0248	0.170	2
06145	**Thallium**	7440-28-0	**0.374**	0.0212	0.170	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS09-170927 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017
SDG#: SGB59-09FD

C. T. Male Associates
ELLE Sample #: SW 9237988
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.6**	0.0362	0.170	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,170**	223	669	1
	This sample was originally analzyed within the 28 day holding time, however due to a miss injection on the instrument, the data could not be quantified. The sample was repeated outside of the hold time and per the client, the result reported.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.47**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 02:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:10	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:16	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:15	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS09-170927 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/27/2017
SDG#: SGB59-09FD

C. T. Male Associates
ELLE Sample #: SW 9237988
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:10	Choon Y Tian	1
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:10	Choon Y Tian	1
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:15	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:15	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/26/2017 21:19	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17276039401A	10/03/2017 19:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 08:20
SDG#: SGB59-10

C. T. Male Associates
ELLE Sample #: SW 9237989
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,690**	7.89	35.3	1
01650	**Calcium**	7440-70-2	**4,820**	2.94	35.3	1
01654	**Iron**	7439-89-6	**28,400**	35.5	177	5
01657	**Magnesium**	7439-95-4	**2,590**	2.15	17.7	1
06958	**Manganese**	7439-96-5	**764**	0.0733	0.883	1
01662	**Potassium**	7440-09-7	**1,060**	14.7	88.3	1
01667	**Sodium**	7440-23-5	**18.6 J**	14.7	177	1
06972	**Zinc**	7440-66-6	**45.5**	0.212	3.53	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0977 J**	0.0823	0.353	2
06125	**Arsenic**	7440-38-2	**6.48**	0.113	0.706	2
06126	**Barium**	7440-39-3	**37.3**	0.160	0.706	2
06127	**Beryllium**	7440-41-7	**0.304**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.0619 J**	0.0304	0.177	2
06131	**Chromium**	7440-47-3	**4.66**	0.154	0.706	2
06132	**Cobalt**	7440-48-4	**7.14**	0.0275	0.177	2
06133	**Copper**	7440-50-8	**8.94**	0.0946	0.706	2
06135	**Lead**	7439-92-1	**8.06**	0.0196	0.353	2
06139	**Nickel**	7440-02-0	**10.4**	0.176	0.706	2
06141	**Selenium**	7782-49-2	**0.114 J**	0.0883	0.706	2
06142	Silver	7440-22-4	0.0258 U	0.0258	0.177	2
06145	**Thallium**	7440-28-0	**0.166 J**	0.0221	0.177	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 08:20
SDG#: SGB59-10

C. T. Male Associates
ELLE Sample #: SW 9237989
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.44**	0.0376	0.177	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,050**	226	677	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 02:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 17:42	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 11:49	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 19:54	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 11:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 08:20
SDG#: SGB59-10

C. T. Male Associates
ELLE Sample #: SW 9237989
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 11:57	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 19:54	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 19:54	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/26/2017 21:32	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 10:50
SDG#: SGB59-11

C. T. Male Associates
ELLE Sample #: SW 9237990
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,650**	7.13	31.9	1
01650	**Calcium**	7440-70-2	**2,690**	2.65	31.9	1
01654	**Iron**	7439-89-6	**28,800**	32.1	159	5
01657	**Magnesium**	7439-95-4	**2,100**	1.94	15.9	1
06958	**Manganese**	7439-96-5	**922**	0.0662	0.797	1
01662	**Potassium**	7440-09-7	**747**	13.3	79.7	1
01667	**Sodium**	7440-23-5	**14.5 J**	13.3	159	1
06972	**Zinc**	7440-66-6	**55.4**	0.191	3.19	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.184 J**	0.0743	0.319	2
06125	**Arsenic**	7440-38-2	**12.3**	0.102	0.638	2
06126	**Barium**	7440-39-3	**124**	0.145	0.638	2
06127	**Beryllium**	7440-41-7	**0.840**	0.0084	0.159	2
06128	**Cadmium**	7440-43-9	**0.226**	0.0274	0.159	2
06131	**Chromium**	7440-47-3	**9.01**	0.139	0.638	2
06132	**Cobalt**	7440-48-4	**18.2**	0.0249	0.159	2
06133	**Copper**	7440-50-8	**21.9**	0.0855	0.638	2
06135	**Lead**	7439-92-1	**18.9**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**20.5**	0.159	0.638	2
06141	**Selenium**	7782-49-2	**0.198 J**	0.0797	0.638	2
06142	**Silver**	7440-22-4	**0.0471 J**	0.0233	0.159	2
06145	**Thallium**	7440-28-0	**0.700**	0.0199	0.159	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 10:50
SDG#: SGB59-11

C. T. Male Associates
ELLE Sample #: SW 9237990
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.6**	0.0340	0.159	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**681 J**	246	739	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.37**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 03:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:13	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:28	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:24	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:15	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 10:50
SDG#: SGB59-11

C. T. Male Associates
ELLE Sample #: SW 9237990
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:15	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:24	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:24	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/26/2017 21:44	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 13:00
SDG#: SGB59-12

C. T. Male Associates
ELLE Sample #: SW 9237991
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084 U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,000**	9.46	42.3	1
01650	**Calcium**	7440-70-2	**820**	3.53	42.3	1
01654	**Iron**	7439-89-6	**21,400**	8.52	42.3	1
01657	**Magnesium**	7439-95-4	**2,950**	2.57	21.2	1
06958	**Manganese**	7439-96-5	**1,050**	0.0879	1.06	1
01662	**Potassium**	7440-09-7	**2,480**	17.7	106	1
01667	**Sodium**	7440-23-5	**50.6 J**	17.7	212	1
06972	**Zinc**	7440-66-6	**49.8**	0.254	4.23	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.228 J**	0.0987	0.423	2
06125	**Arsenic**	7440-38-2	**7.35**	0.136	0.847	2
06126	**Barium**	7440-39-3	**138**	0.192	0.847	2
06127	**Beryllium**	7440-41-7	**0.752**	0.0111	0.212	2
06128	**Cadmium**	7440-43-9	**0.161 J**	0.0364	0.212	2
06131	**Chromium**	7440-47-3	**20.3**	0.184	0.847	2
06132	**Cobalt**	7440-48-4	**13.2**	0.0330	0.212	2
06133	**Copper**	7440-50-8	**18.1**	0.113	0.847	2
06135	**Lead**	7439-92-1	**14.3**	0.0235	0.423	2
06139	**Nickel**	7440-02-0	**18.8**	0.211	0.847	2
06141	Selenium	7782-49-2	0.106 U	0.106	0.847	2
06142	Silver	7440-22-4	0.0309 U	0.0309	0.212	2
06145	**Thallium**	7440-28-0	**0.322**	0.0265	0.212	2
06148	**Vanadium**	7440-62-2	**20.3**	0.0451	0.212	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 13:00
SDG#: SGB59-12

C. T. Male Associates
ELLE Sample #: SW 9237991
ELLE Group #: 1856985
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**361 J**	212	635	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.26**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 03:41	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:32	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:27	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:27	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017 13:00
SDG#: SGB59-12

C. T. Male Associates
ELLE Sample #: SW 9237991
ELLE Group #: 1856985
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:27	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/26/2017 21:57	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17275039401A	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17277820004B	10/04/2017 11:43	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS08-170928 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/29/2017 09:35
Collection Date/Time: 09/28/2017
SDG#: SGB59-13FB

C. T. Male Associates
ELLE Sample #: WW 9237992
ELLE Group #: 1856985
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 08:34	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5172791AA	Sample number(s): 9237986		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17275WAI026	Sample number(s): 9237986		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/g	ng/g	ng/g
Batch number: 17284003	Sample number(s): 9237980-9237983,9237987-9237991		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17274001	Sample number(s): 9237985,9237992		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
Batch number: 17275007	Sample number(s): 9237986		
6:2 fluorotelomersulfonate	3 J	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	1 J	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
Batch number: 17285005	Sample number(s): 9237984		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172751063707	Sample number(s): 9237987-9237991		
Aluminum	8.94 U	8.94	40.0
Calcium	5.41 J	3.33	40.0

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.177 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.241 J	0.240	4.00
Batch number: 172751063707A	Sample number(s): 9237987-9237991		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172751063707B	Sample number(s): 9237987-9237991		
Selenium	0.100 U	0.100	0.800
Batch number: 172751063707D	Sample number(s): 9237987-9237991		
Barium	0.182 U	0.182	0.800
	mg/l	mg/l	mg/l
Batch number: 172750571301	Sample number(s): 9237986		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 172751063501	Sample number(s): 9237986		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0453 J	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172751063901A	Sample number(s): 9237986		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172751063901B	Sample number(s): 9237986		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172751063901D	Sample number(s): 9237986		
Barium	0.00072 U	0.00072	0.0040
	mg/kg	mg/kg	mg/kg
Batch number: 17297667631B	Sample number(s): 9237980-9237983		
TOC	100 U	100	300
Batch number: 17299245033A	Sample number(s): 9237987-9237991		
TOC	100 U	100	300
	mg/l	mg/l	mg/l
Batch number: 17272987106A	Sample number(s): 9237986		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17278108101B	Sample number(s): 9237986		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17283117101A	Sample number(s): 9237986		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17290107104B	Sample number(s): 9237986		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17272022602A	Sample number(s): 9237986		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17275008201A	Sample number(s): 9237986		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5172791AA	Sample number(s): 9237986								
Acetone	150	172.27			115		44-177		
Benzene	20	19.65			98		78-120		
Bromochloromethane	20	21.03			105		80-125		
Bromodichloromethane	20	21.81			109		71-120		
Bromoform	20	18.65			93		59-120		
Bromomethane	20	21.91			110		44-139		
2-Butanone	150	155.5			104		53-140		
Carbon Disulfide	20	17.64			88		65-128		
Carbon Tetrachloride	20	26.55			133*		68-128		
Chlorobenzene	20	19.2			96		80-120		
Chloroethane	20	20.17			101		52-127		
Chloroform	20	22			110		80-120		
Chloromethane	20	19.03			95		57-120		
Cyclohexane	20	18.5			93		67-121		
1,2-Dibromo-3-chloropropane	20	21.58			108		64-120		
Dibromochloromethane	20	21.13			106		71-120		
1,2-Dibromoethane	20	20.36			102		75-120		
1,2-Dichlorobenzene	20	19.84			99		80-120		
1,3-Dichlorobenzene	20	19.29			96		80-120		
1,4-Dichlorobenzene	20	19.07			95		80-120		
Dichlorodifluoromethane	20	22.17			111		47-124		
1,1-Dichloroethane	20	20.85			104		80-120		
1,2-Dichloroethane	20	24.03			120		73-124		
1,1-Dichloroethene	20	19.69			98		76-124		
cis-1,2-Dichloroethene	20	20.83			104		80-120		
trans-1,2-Dichloroethene	20	20.23			101		80-120		
1,2-Dichloropropane	20	19.94			100		80-120		
cis-1,3-Dichloropropene	20	20.96			105		75-120		
trans-1,3-Dichloropropene	20	20.64			103		76-120		
Ethylbenzene	20	19.77			99		78-120		
Freon 113	20	21.15			106		68-137		
2-Hexanone	100	104.39			104		60-134		
Isopropylbenzene	20	20.35			102		80-120		
Methyl Acetate	20	22.51			113		61-137		
Methyl Tertiary Butyl Ether	20	21.69			108		75-120		
4-Methyl-2-pentanone	100	112.75			113		67-128		
Methylcyclohexane	20	20.43			102		66-126		
Methylene Chloride	20	20.1			100		80-120		
Styrene	20	20.09			100		80-120		
1,1,2,2-Tetrachloroethane	20	19.67			98		72-120		
Tetrachloroethene	20	18.74			94		80-129		
Toluene	20	18.82			94		80-120		
1,2,3-Trichlorobenzene	20	19.82			99		66-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2,4-Trichlorobenzene	20	19.37			97		70-120		
1,1,1-Trichloroethane	20	22.2			111		67-120		
1,1,2-Trichloroethane	20	20.72			104		80-120		
Trichloroethene	20	20.11			101		80-120		
Trichlorofluoromethane	20	24.72			124		52-143		
Vinyl Chloride	20	19.68			98		63-121		
m+p-Xylene	40	38.93			97		80-120		
o-Xylene	20	19.27			96		80-120		
Xylene (Total)	60	58.2			97		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17275WAI026	Sample number(s): 9237986								
1,4-Dioxane	1.00	1.20	1.00	1.23	120	123	70-130	3	30
	ng/g	**ng/g**	**ng/g**	**ng/g**					
Batch number: 17284003	Sample number(s): 9237980-9237983,9237987-9237991								
Perfluorobutanesulfonate	1.20	1.16	1.20	0.992	96	82	70-130	16	30
Perfluorobutanoic acid	1.36	1.34	1.36	1.40	98	103	70-130	5	30
Perfluorodecanoic acid	1.36	1.29	1.36	1.53	95	113	70-130	17	30
Perfluorododecanoic acid	1.36	1.33	1.36	1.26	98	93	70-130	5	30
Perfluoroheptanoic acid	1.36	1.41	1.36	1.36	104	100	70-130	4	30
Perfluorohexanesulfonate	1.29	1.27	1.29	1.24	99	96	70-130	3	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.12	99	82	70-130	19	30
Perfluorononanoic acid	1.36	1.38	1.36	1.38	101	102	70-130	0	30
Perfluoro-octanesulfonate	1.30	1.15	1.30	1.29	88	99	70-130	11	30
Perfluorooctanoic acid	1.36	1.45	1.36	1.38	106	101	70-130	5	30
Perfluoropentanoic acid	1.36	1.25	1.36	1.39	92	102	70-130	11	30
Perfluorotetradecanoic acid	1.36	1.18	1.36	1.37	87	101	70-130	15	30
Perfluorotridecanoic acid	1.36	1.39	1.36	1.33	102	98	70-130	5	30
Perfluoroundecanoic acid	1.36	1.43	1.36	1.38	105	101	70-130	3	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17274001	Sample number(s): 9237985,9237992								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
Batch number: 17275007	Sample number(s): 9237986								
6:2 fluorotelomersulfonate	12.89	12.74	12.89	16	99	124	70-130	23	30
8:2 fluorotelomersulfonate	13.03	15.23	13.03	14.48	117	111	70-130	5	30
NEtFOSAA	13.6	14.08	13.6	12.55	104	92	70-130	11	30
NMeFOSAA	13.6	13.67	13.6	14.52	101	107	70-130	6	30
Perfluorobutanesulfonate	12.03	11.67	12.03	11.22	97	93	70-130	4	30
Perfluorobutanoic Acid	13.6	12.95	13.6	12.64	95	93	70-130	2	30
Perfluorodecanoic acid	13.6	12.7	13.6	13.49	93	99	70-130	6	30
Perfluorododecanoic acid	13.6	12.96	13.6	13.26	95	97	70-130	2	30
Perfluoroheptanoic acid	13.6	14.44	13.6	14.55	106	107	70-130	1	30
Perfluorohexanesulfonate	12.86	12.31	12.86	12.13	96	94	70-130	1	30
Perfluorohexanoic acid	13.6	12.54	13.6	12.41	92	91	70-130	1	30
Perfluorononanoic acid	13.6	12.81	13.6	13.16	94	97	70-130	3	30
Perfluoro-octanesulfonate	13	11.99	13	11.46	92	88	70-130	5	30
Perfluorooctanoic acid	13.6	13.26	13.6	13.48	98	99	70-130	2	30
Perfluoropentanoic Acid	13.6	12.3	13.6	12.81	90	94	70-130	4	30
Perfluorotetradecanoic acid	13.6	12.08	13.6	12.99	89	96	70-130	7	30
Perfluorotridecanoic acid	13.6	13.17	13.6	13.75	97	101	70-130	4	30
Perfluoroundecanoic acid	13.6	12.38	13.6	14.02	91	103	70-130	12	30
PFOSA	13.6	13.57	13.6	14.12	100	104	70-130	4	30
Batch number: 17285005	Sample number(s): 9237984								
Perfluorobutanesulfonate	12.03	12.56	12.03	12.82	104	107	70-130	2	30
Perfluorobutanoic Acid	13.6	14.87	13.6	14.79	109	109	70-130	1	30
Perfluorodecanoic acid	13.6	13.59	13.6	15.41	100	113	70-130	13	30
Perfluorododecanoic acid	13.6	14.39	13.6	14.35	106	105	70-130	0	30
Perfluoroheptanoic acid	13.6	13.76	13.6	12.8	101	94	70-130	7	30
Perfluorohexanesulfonate	12.86	13.38	12.86	13.1	104	102	70-130	2	30
Perfluorohexanoic acid	13.6	15.02	13.6	15.68	110	115	70-130	4	30
Perfluorononanoic acid	13.6	13.03	13.6	14.1	96	104	70-130	8	30
Perfluoro-octanesulfonate	13	12.93	13	13.19	99	101	70-130	2	30
Perfluorooctanoic acid	13.6	14.04	13.6	14.37	103	106	70-130	2	30
Perfluoropentanoic Acid	13.6	14.88	13.6	14.61	109	107	70-130	2	30
Perfluorotetradecanoic acid	13.6	15.01	13.6	15.26	110	112	70-130	2	30
Perfluorotridecanoic acid	13.6	16.08	13.6	16.09	118	118	70-130	0	30
Perfluoroundecanoic acid	13.6	14.29	13.6	14.55	105	107	70-130	2	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172751063707	Sample number(s): 9237987-9237991								
Aluminum	200	200.95			100		80-120		
Calcium	400	390.79			98		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Iron	100	95.91			96		80-120		
Magnesium	200	193.72			97		80-120		
Manganese	50	48.3			97		80-120		
Potassium	1000	991.96			99		80-120		
Sodium	1000	948.96			95		80-120		
Zinc	50	47.34			95		80-120		
Batch number: 172751063707A	Sample number(s): 9237987-9237991								
Antimony	0.600	0.669			112		80-120		
Arsenic	1.00	0.999			100		80-120		
Beryllium	0.400	0.421			105		80-120		
Cadmium	0.500	0.561			112		80-120		
Chromium	5.00	5.79			116		80-120		
Cobalt	25	25.56			102		80-120		
Copper	5.00	4.75			95		80-120		
Lead	1.50	1.57			105		80-120		
Nickel	5.00	4.91			98		80-120		
Silver	5.00	5.36			107		80-120		
Thallium	0.200	0.195			98		80-120		
Vanadium	5.00	5.59			112		80-120		
Batch number: 172751063707B	Sample number(s): 9237987-9237991								
Selenium	1.00	1.12			112		80-120		
Batch number: 172751063707D	Sample number(s): 9237987-9237991								
Barium	5.00	5.30			106		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172750571301	Sample number(s): 9237986								
Mercury	0.00100	0.00103			103		80-120		
Batch number: 172751063501	Sample number(s): 9237986								
Aluminum	2.00	1.99			99		80-120		
Boron	2.00	1.73			86		80-120		
Calcium	4.00	3.84			96		80-120		
Iron	1.00	0.968			97		80-120		
Magnesium	2.00	1.98			99		80-120		
Manganese	0.500	0.498			100		80-120		
Potassium	10	9.55			96		80-120		
Sodium	10	9.52			95		80-120		
Zinc	0.500	0.487			97		80-120		
Batch number: 172751063901A	Sample number(s): 9237986								
Antimony	0.00600	0.00590			98		80-120		
Arsenic	0.0100	0.0103			103		80-120		
Beryllium	0.00400	0.00412			103		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Cadmium	0.00500	0.00547			109		80-120		
Chromium	0.0500	0.0501			100		80-120		
Cobalt	0.250	0.263			105		80-120		
Copper	0.0500	0.0535			107		80-120		
Lead	0.0150	0.0156			104		80-120		
Nickel	0.0500	0.0538			108		80-120		
Silver	0.0500	0.0526			105		80-120		
Thallium	0.00200	0.00207			103		80-120		
Vanadium	0.0500	0.0500			100		80-120		
Batch number: 172751063901B	Sample number(s): 9237986								
Selenium	0.0100	0.0103			103		80-120		
Batch number: 172751063901D	Sample number(s): 9237986								
Barium	0.0500	0.0544			109		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17297667631B	Sample number(s): 9237980-9237983								
TOC	7150	6903.25			97		47-143		
Batch number: 17299245033A	Sample number(s): 9237987-9237991								
TOC	7150	6370.17			89		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17272987106A	Sample number(s): 9237986								
Bromide	7.50	7.28	7.50	7.31	97	97	90-110	0	20
Chloride	3.00	2.92	3.00	2.93	97	98	90-110	0	20
Nitrate Nitrogen	0.750	0.742	0.750	0.749	99	100	90-110	1	20
Nitrite Nitrogen	0.750	0.684	0.750	0.690	91	92	90-110	1	20
Sulfate	7.50	7.33	7.50	7.35	98	98	90-110	0	20
Batch number: 17278108101B	Sample number(s): 9237986								
Kjeldahl Nitrogen	5.00	5.15			103		90-110		
Batch number: 17283117101A	Sample number(s): 9237986								
Total Cyanide	0.200	0.198			99		90-110		
Batch number: 17290107104B	Sample number(s): 9237986								
Ammonia Nitrogen	1.50	1.64			109		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17272022602A	Sample number(s): 9237986								
Ortho-Phosphate as P	0.400	0.404	0.400	0.400	101	100	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l as CaCO3	LCS Conc mg/l as CaCO3	LCSD Spike Added mg/l as CaCO3	LCSD Conc mg/l as CaCO3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17275008201A	Sample number(s): 9237986								
Total Alkalinity to pH 4.5	188	178.73			95		77-114		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17275039401A	Sample number(s): 9237980-9237983,9237987,9237989-9237991								
pH	7.00	6.92			99		95-105		
Batch number: 17276039401A	Sample number(s): 9237988								
pH	7.00	6.92			99		95-105		
	%	%	%	%					
Batch number: 17277820004B	Sample number(s): 9237980-9237983,9237987-9237991								
Moisture	89.5	89.37			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5172791AA	Sample number(s): 9237986 UNSPK: P237128									
Acetone	6 U	150	170.46	150	149.79	114	100	44-177	13	30
Benzene	0.5 U	20	20.77	20	21.36	104	107	78-120	3	30
Bromochloromethane	1 U	20	19.49	20	19.19	97	96	80-125	2	30
Bromodichloromethane	0.5 U	20	22.35	20	22.86	112	114	71-120	2	30
Bromoform	0.5 U	20	17.24	20	18.18	86	91	59-120	5	30
Bromomethane	0.5 U	20	21.32	20	22.55	107	113	44-139	6	30
2-Butanone	3 U	150	114.46	150	122.59	76	82	53-140	7	30
Carbon Disulfide	1 U	20	21.38	20	22.9	107	115	65-128	7	30
Carbon Tetrachloride	0.5 U	20	27.28	20	28.12	136*	141*	68-128	3	30
Chlorobenzene	0.5 U	20	20.42	20	21.4	102	107	80-120	5	30
Chloroethane	0.5 U	20	21.56	20	22.61	108	113	52-127	5	30
Chloroform	0.5 U	20	21.7	20	21.65	108	108	80-120	0	30
Chloromethane	0.5 U	20	21.13	20	21.85	106	109	57-120	3	30
Cyclohexane	2 U	20	21.51	20	22.48	108	112	67-121	4	30
1,2-Dibromo-3-chloropropane	2 U	20	20.63	20	19.73	103	99	64-120	4	30
Dibromochloromethane	0.5 U	20	20.32	20	20.95	102	105	71-120	3	30
1,2-Dibromoethane	0.5 U	20	20.17	20	21.43	101	107	75-120	6	30
1,2-Dichlorobenzene	1 U	20	20.32	20	20.41	102	102	80-120	0	30
1,3-Dichlorobenzene	1 U	20	19.94	20	20.55	100	103	80-120	3	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,4-Dichlorobenzene	1 U	20	20.01	20	21.02	100	105	80-120	5	30
Dichlorodifluoromethane	0.5 U	20	24.28	20	25.02	121	125*	47-124	3	30
1,1-Dichloroethane	0.5 U	20	21.24	20	22.3	106	111	80-120	5	30
1,2-Dichloroethane	0.5 U	20	21.41	20	21.47	107	107	73-124	0	30
1,1-Dichloroethene	0.5 U	20	21.92	20	23.53	110	118	76-124	7	30
cis-1,2-Dichloroethene	0.5 U	20	20.82	20	21.77	104	109	80-120	4	30
trans-1,2-Dichloroethene	0.5 U	20	21.29	20	22.74	106	114	80-120	7	30
1,2-Dichloropropane	0.5 U	20	20.66	20	21.53	103	108	80-120	4	30
cis-1,3-Dichloropropene	0.5 U	20	20.99	20	21.39	105	107	75-120	2	30
trans-1,3-Dichloropropene	0.5 U	20	21.87	20	22.24	109	111	76-120	2	30
Ethylbenzene	0.5 U	20	21.25	20	22.16	106	111	78-120	4	30
Freon 113	2 U	20	25.07	20	24.97	125	125	68-137	0	30
2-Hexanone	3 U	100	92.34	100	93.32	92	93	60-134	1	30
Isopropylbenzene	1 U	20	21.11	20	22.03	106	110	80-120	4	30
Methyl Acetate	1 U	20	17.58	20	16.13	88	81	61-137	9	30
Methyl Tertiary Butyl Ether	0.5 U	20	19.87	20	20.37	99	102	75-120	2	30
4-Methyl-2-pentanone	3 U	100	79.06	100	88.85	79	89	67-128	12	30
Methylcyclohexane	1 U	20	21.59	20	22.64	108	113	66-126	5	30
Methylene Chloride	0.5 U	20	20.75	20	21.54	104	108	80-120	4	30
Styrene	1 U	20	20.79	20	21.79	104	109	80-120	5	30
1,1,2,2-Tetrachloroethane	0.5 U	20	19.08	20	19.6	95	98	72-120	3	30
Tetrachloroethene	0.5 U	20	21.71	20	22.7	109	113	80-129	4	30
Toluene	299.38	20	267.28	20	283.8	-159 (2)	-77 (2)	80-120	6	30
1,2,3-Trichlorobenzene	1 U	20	20.18	20	19.23	101	96	66-120	5	30
1,2,4-Trichlorobenzene	1 U	20	19.65	20	18.89	98	94	70-120	4	30
1,1,1-Trichloroethane	0.5 U	20	24.62	20	25.12	123*	126*	67-120	2	30
1,1,2-Trichloroethane	0.5 U	20	20.68	20	20.56	103	103	80-120	1	30
Trichloroethene	0.5 U	20	20.88	20	22.18	104	111	80-120	6	30
Trichlorofluoromethane	0.5 U	20	26.19	20	26.8	131	134	52-143	2	30
Vinyl Chloride	0.5 U	20	22.56	20	23.41	113	117	63-121	4	30
m+p-Xylene	0.5 U	40	40.77	40	43.39	102	108	80-120	6	30
o-Xylene	0.5 U	20	19.88	20	20.99	99	105	80-120	5	30
Xylene (Total)	0.5 U	60	60.65	60	64.38	101	107	80-120	6	30
	ng/g	**ng/g**	**ng/g**	**ng/g**	**ng/g**					
Batch number: 17284003	Sample number(s): 9237980-9237983,9237987-9237991 UNSPK: 9237980									
Perfluorobutanesulfonate	0.19 U	1.13	1.03			91		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.31			102		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.40			109		70-130		
Perfluorododecanoic acid	0.19 U	1.28	1.38			108		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.46			114		70-130		
Perfluorohexanesulfonate	0.19 U	1.21	1.08			89		70-130		
Perfluorohexanoic acid	0.097 U	1.28	1.24			97		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorononanoic acid	0.097 U	1.28	1.22			95		70-130		
Perfluoro-octanesulfonate	0.342	1.23	1.63			105		70-130		
Perfluorooctanoic acid	0.313	1.28	1.42			86		70-130		
Perfluoropentanoic acid	0.19 U	1.28	1.20			93		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.22			95		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.46			114		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.37			107		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17275007	Sample number(s): 9237986 UNSPK: 9237986									
6:2 fluorotelomersulfonate	3 U	12.87	12.17			95		70-130		
8:2 fluorotelomersulfonate	4 U	13.01	12.91			99		70-130		
NEtFOSAA	1 U	13.58	12.83			94		70-130		
NMeFOSAA	1 U	13.58	14.39			106		70-130		
Perfluorobutanesulfonate	0.8 U	12.01	12.01			100		70-130		
Perfluorobutanoic Acid	3 U	13.58	14.4			106		70-130		
Perfluorodecanoic acid	0.5 U	13.58	13.53			100		70-130		
Perfluorododecanoic acid	0.5 U	13.58	12.25			90		70-130		
Perfluoroheptanoic acid	1.17	13.58	14.05			95		70-130		
Perfluorohexanesulfonate	1 U	12.84	11.16			87		70-130		
Perfluorohexanoic acid	0.6 U	13.58	14.4			106		70-130		
Perfluorononanoic acid	1.97	13.58	13.39			84		70-130		
Perfluoro-octanesulfonate	12.34	12.98	23.24			84		70-130		
Perfluorooctanoic acid	12.12	13.58	27.22			111		70-130		
Perfluoropentanoic Acid	0.5 U	13.58	13.28			98		70-130		
Perfluorotetradecanoic acid	0.5 U	13.58	12.26			90		70-130		
Perfluorotridecanoic acid	0.5 U	13.58	11.22			83		70-130		
Perfluoroundecanoic acid	1 U	13.58	11.41			84		70-130		
PFOSA	3 U	13.58	14.07			104		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172751063707	Sample number(s): 9237987-9237991 UNSPK: 9237989									
Aluminum	7816.12	163.93	15125.63	156.25	14638.19	4459 (2)	4366 (2)	75-125	3	20
Calcium	4334.3	327.87	4938.45	312.5	7522.55	184 (2)	1020 (2)	75-125	41*	20
Iron	25551.04	81.97	24093.95	78.13	24483.47	-1778 (2)	-1366 (2)	75-125	2	20
Magnesium	2327.77	163.93	2888.35	156.25	4798.87	342 (2)	1582 (2)	75-125	50*	20
Manganese	686.98	40.98	675.38	39.06	513.9	-28 (2)	-443 (2)	75-125	27*	20
Potassium	949.1	819.67	2182.08	781.25	2214.87	150*	162*	75-125	1	20
Sodium	16.68	819.67	685.54	781.25	654.33	82	82	75-125	5	20
Zinc	40.9	40.98	78.15	39.06	72.99	91	82	75-125	7	20
Batch number: 172751063707A	Sample number(s): 9237987-9237991 UNSPK: 9237989									
Antimony	0.0878	0.984	0.946	0.938	1.10	87	108	75-125	15	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Arsenic	5.83	1.64	12.54	1.56	14.96	410*	584*	75-125	18	20
Beryllium	0.273	0.656	1.31	0.625	1.40	158*	180*	75-125	7	20
Cadmium	0.0557	0.820	0.978	0.781	1.00	112	121	75-125	3	20
Chromium	4.19	8.20	17.52	7.81	23.5	163*	247*	75-125	29*	20
Cobalt	6.42	40.98	52.52	39.06	57.47	112	131*	75-125	9	20
Copper	8.03	8.20	25.63	7.81	26.92	215*	242*	75-125	5	20
Lead	7.25	2.46	18.28	2.34	20.36	449*	560*	75-125	11	20
Nickel	9.37	8.20	23.62	7.81	26.29	174*	217*	75-125	11	20
Silver	0.0232 U	8.20	8.32	7.81	8.33	101	107	75-125	0	20
Thallium	0.149	0.328	0.591	0.313	0.702	135*	177*	75-125	17	20
Vanadium	4.89	8.20	20.62	7.81	25.41	192*	263*	75-125	21*	20
Batch number: 172751063707B	Sample number(s): 9237987-9237991 UNSPK: 9237989									
Selenium	0.102	1.64	1.88	1.56	1.77	108	107	75-125	6	20
Batch number: 172751063707D	Sample number(s): 9237987-9237991 UNSPK: 9237989									
Barium	33.51	8.20	64.43	7.81	92.2	377 (2)	751 (2)	75-125	35*	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172750571301	Sample number(s): 9237986 UNSPK: P228274									
Mercury	0.0000582	0.00100	0.00100	0.00100	0.00101	94	95	80-120	0	20
Batch number: 172751063501	Sample number(s): 9237986 UNSPK: P238778									
Aluminum	0.0894 U	2.00	1.96	2.00	1.93	98	97	75-125	2	20
Boron	0.0676	2.00	1.86	2.00	1.83	90	88	75-125	2	20
Calcium	25.18	4.00	28.33	4.00	28.13	79 (2)	74 (2)	75-125	1	20
Iron	0.102	1.00	1.06	1.00	1.05	96	95	75-125	1	20
Magnesium	7.00	2.00	8.73	2.00	8.71	86	85	75-125	0	20
Manganese	0.00658	0.500	0.508	0.500	0.499	100	98	75-125	2	20
Potassium	2.66	10	12.17	10	12.11	95	94	75-125	1	20
Sodium	90.34	10	97.03	10	97.01	67 (2)	67 (2)	75-125	0	20
Zinc	0.0633	0.500	0.564	0.500	0.554	100	98	75-125	2	20
Batch number: 172751063901A	Sample number(s): 9237986 UNSPK: P235551									
Antimony	0.00045 U	0.00600	0.00574	0.00600	0.00739	96	123	75-125	25*	20
Arsenic	0.202	0.0100	0.218	0.0100	0.221	152 (2)	183 (2)	75-125	1	20
Beryllium	0.000071 U	0.00400	0.00401	0.00400	0.00404	100	101	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00520	0.00500	0.00509	104	102	75-125	2	20
Chromium	0.00087 U	0.0500	0.0522	0.0500	0.0515	104	103	75-125	1	20
Cobalt	0.00462	0.250	0.255	0.250	0.264	100	104	75-125	3	20
Copper	0.000721	0.0500	0.0526	0.0500	0.0524	104	103	75-125	1	20
Lead	0.00011 U	0.0150	0.0156	0.0150	0.0157	104	104	75-125	0	20
Nickel	0.00557	0.0500	0.0586	0.0500	0.0595	106	108	75-125	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Silver	0.00015 U	0.0500	0.0500	0.0500	0.0515	100	103	75-125	3	20
Thallium	0.00012 U	0.00200	0.00214	0.00200	0.00212	107	106	75-125	1	20
Vanadium	0.000333	0.0500	0.0523	0.0500	0.0526	104	105	75-125	1	20
Batch number: 172751063901B	Sample number(s): 9237986 UNSPK: P235551									
Selenium	0.00050 U	0.0100	0.0104	0.0100	0.0107	104	107	75-125	3	20
Batch number: 172751063901D	Sample number(s): 9237986 UNSPK: P235551									
Barium	0.167	0.0500	0.216	0.0500	0.220	99	107	75-125	2	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17297667631B	Sample number(s): 9237980-9237983 UNSPK: P235195									
TOC	21523.89	96150	110512.82			93		47-143		
Batch number: 17299245033A	Sample number(s): 9237987-9237991 UNSPK: P239692									
TOC	355.87	24360	22516.23			91		47-143		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17272987106A	Sample number(s): 9237986 UNSPK: P237253									
Bromide	1.44	25	24.76			93		90-110		
Chloride	142.99	100	242.66			100		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.55			102		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.24			89*		90-110		
Sulfate	2.40	25	25.31			92		90-110		
Batch number: 17278108101B	Sample number(s): 9237986 UNSPK: P245861									
Kjeldahl Nitrogen	0.901	5.00	5.58			94		90-110		
Batch number: 17283117101A	Sample number(s): 9237986 UNSPK: P237887									
Total Cyanide	0.0050 U	0.200	0.201			101		72-114		
Batch number: 17290107104B	Sample number(s): 9237986 UNSPK: P234461									
Ammonia Nitrogen	0.0655	1.50	1.83			117*		90-110		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17275008201A	Sample number(s): 9237986 UNSPK: 9237986									
Total Alkalinity to pH 4.5	313.06	188	471.97			85		77-114		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172751063707	Sample number(s): 9237987-9237991 BKG: 9237989			
Aluminum	7816.12	8015.68	3	20
Calcium	4334.3	4714.96	8	20
Iron	25551.04	22285.47	14	20
Magnesium	2327.77	3012.96	26*	20
Manganese	686.98	593.66	15	20
Potassium	949.1	946.07	0	20
Sodium	16.68	16.68	0 (1)	20
Zinc	40.9	44.38	8	20
Batch number: 172751063707A	Sample number(s): 9237987-9237991 BKG: 9237989			
Antimony	0.0878	0.185	71* (1)	20
Arsenic	5.83	10.9	61*	20
Beryllium	0.273	0.685	86* (1)	20
Cadmium	0.0557	0.159	96* (1)	20
Chromium	4.19	10.97	89*	20
Cobalt	6.42	26.41	122*	20
Copper	8.03	18.36	78*	20
Lead	7.25	16.23	77*	20
Nickel	9.37	15.47	49*	20
Silver	0.0232 U	0.0264	200* (1)	20
Thallium	0.149	0.357	82* (1)	20
Vanadium	4.89	12.96	90*	20
Batch number: 172751063707B	Sample number(s): 9237987-9237991 BKG: 9237989			
Selenium	0.102	0.296	97* (1)	20
Batch number: 172751063707D	Sample number(s): 9237987-9237991 BKG: 9237989			
Barium	33.51	69.29	70*	20
	mg/l	mg/l		
Batch number: 172750571301	Sample number(s): 9237986 BKG: P228274			
Mercury	0.0000582	0.0000582	0 (1)	20
Batch number: 172751063501	Sample number(s): 9237986 BKG: P238778			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0676	0.0635	6 (1)	20
Calcium	25.18	24.61	2	20
Iron	0.102	0.132	26* (1)	20
Magnesium	7.00	6.82	3	20
Manganese	0.00658	0.00646	2 (1)	20
Potassium	2.66	2.55	4 (1)	20
Sodium	90.34	88.05	3	20
Zinc	0.0633	0.0613	3 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172751063901A	Sample number(s): 9237986 BKG: P235551			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.202	0.213	5	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00462	0.00473	2 (1)	20
Copper	0.000721	0.000681	6 (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.00557	0.00614	10 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000333	0.000553	50* (1)	20
Batch number: 172751063901B	Sample number(s): 9237986 BKG: P235551			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172751063901D	Sample number(s): 9237986 BKG: P235551			
Barium	0.167	0.163	2	20
	mg/kg	mg/kg		
Batch number: 17297667631B	Sample number(s): 9237980-9237983 BKG: P235195			
TOC	21523.89	22486.73	4	7
Batch number: 17299245033A	Sample number(s): 9237987-9237991 BKG: P239692			
TOC	355.87	423.34	17* (1)	7
	mg/l	mg/l		
Batch number: 17272987106A	Sample number(s): 9237986 BKG: P237253			
Bromide	1.44	1.43	1 (1)	15
Chloride	142.99	142.87	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	2.40	2.30	4 (1)	15
Batch number: 17278108101B	Sample number(s): 9237986 BKG: P245861			
Kjeldahl Nitrogen	0.901	1.11	21* (1)	20
Batch number: 17283117101A	Sample number(s): 9237986 BKG: P237887			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17290107104B	Sample number(s): 9237986 BKG: P234461			
Ammonia Nitrogen	0.0655	0.0599	9 (1)	20
	mg/l	mg/l		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17272022602A	Sample number(s): 9237986 BKG: 9237986			
Ortho-Phosphate as P	0.0436	0.0457	5 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17275008201A	Sample number(s): 9237986 BKG: 9237986			
Total Alkalinity to pH 4.5	313.06	309.58	1	5
	Std. Units	Std. Units		
Batch number: 17275039401A	Sample number(s): 9237980-9237983,9237987,9237989-9237991 BKG: 9237982			
pH	8.20	8.26	1	3
Batch number: 17276039401A	Sample number(s): 9237988 BKG: P239571			
pH	7.78	7.78	0	3
	%	%		
Batch number: 17277820004B	Sample number(s): 9237980-9237983,9237987-9237991 BKG: 9237987			
Moisture	11.38	10.75	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5172791AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9237986	112	110	97	103
Blank	105	106	99	102
LCS	108	104	99	104
MS	102	95	101	101
MSD	101	101	101	102
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17275WAI026

	1,4-Dioxane-d8
9237986	41*
Blank	39*

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 1,4-Dioxane
Batch number: 17275WAI026

	1,4-Dioxane-d8
LCS	41*
LCSD	40*
Limits:	70-130

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237985	109	109	81	116	104	109
9237992	100	96	71	109	88	111
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9237985	113*	86	109	112	118	114
9237992	100	96	115	101	111	101
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9237985	105
9237992	100
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 19 PFCs
Batch number: 17275007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237986	105	113	139	95	103	107
Blank	95	93	90	109	104	107

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17275007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCS	97	99	90	108	105	105
LCSD	91	87	88	96	94	94
MS	89	100	108	78	81	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9237986	144*	95	98	126	101	118
Blank	88	104	89	101	100	73
LCS	95	103	93	107	102	96
LCSD	81	96	88	93	98	77
MS	123	82	92	101	90	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9237986	96	105	105	87	65	48*
Blank	94	109	116	97	97	40*
LCS	100	108	103	106	107	40*
LCSD	96	88	100	86	92	23*
MS	75	94	86	74	54	19*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17284003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237980	78	77	85	86	87	97
9237981	87	82	83	86	82	86
9237982	74	75	77	74	75	78
9237983	70	67*	66	84	71	84
9237987	50	50*	62	58	68	58
9237988	64	64*	77	68	77	71
9237989	53	53*	71	60	71	62
9237990	49	47*	64	50	63	54
9237991	80	80	78	82	78	83
Blank	77	77	75	82	80	86
LCS	82	82	78	86	78	83
LCSD	88	84	95	95	83	102

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17284003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
MS	69	72	71	70	68	74
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9237980	89	91	92	89	97	80
9237981	83	79	86	86	83	77
9237982	79	79	82	77	79	65
9237983	76	74	70	76	79	74
9237987	50	67	53	55	55	50
9237988	69	87	67	73	70	63
9237989	59	77	56	60	60	57
9237990	53	70	51	52	52	51
9237991	82	84	86	85	87	93
Blank	78	78	82	78	81	81
LCS	79	77	85	81	81	77
LCSD	88	93	99	100	89	95
MS	69	72	74	69	72	61
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9237980	85
9237981	83
9237982	70
9237983	78
9237987	51
9237988	65
9237989	62
9237990	54
9237991	89
Blank	83
LCS	83
LCSD	96
MS	69
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17285005

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:26

Group Number: 1856985

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17285005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9237984	89	93	85	99	85	83
Blank	92	95	82	99	89	92
LCS	82	85	75	87	83	82
LCSD	87	90	79	94	89	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9237984	96	92	95	94	98	101
Blank	96	94	101	102	110	105
LCS	84	81	92	83	83	86
LCSD	92	88	98	85	94	95
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9237984	100
Blank	116
LCS	90
LCSD	97
Limits:	26-119

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37191 1856985 9237980-92

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47366

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr, Latham, NY 12110
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3 - St Cloud Benning	Barr Project No: 3242\001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL Plastic	Soil: 250 mL Plastic	Soil: 4 oz Glass	% Solids	Preservative Code	Field Filtered Y/N	
							N			A	A			N	
1. S28-0-0.5'	0	0.5	ft	9-28-17	0900	S	N	2		1	1				(19) PFC's, moisture content, TOC, pH
2. S28-1-1.5'	1	1.5	ft	9-28-17	0920	S	N	2		1	1				
3. S28-0.5-1'	0.5	1	Ft	9-28-17	0910	S	N	2		1	1				
4. S28-2.7-3.7'	2.7	3.7	ft	9-28-17	0955	S	N	2		1	1				
5. SG3-LTB55-170928	—	—	—	9.28.17	AM	W	N	2	2						Trip Blank by ELLE
6. SG3-LTB56-170928	—	—	—	9.28.17	AM	W	N	2	2						Trip Blank by ELLE
7.															
8.															
9.															
10.															

BARR USE ONLY

Sampled by: RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MOD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kurkowski — On Ice? (Y) N — Date: 9.29.17 — Time: 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: 3 — Date: 9.29.17 — Time: 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 4.0-5.4 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1856985 92379480-92

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52273

COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 250 mL w/ trizma	250 mL - HNO_3	40 mL glass - vampres.	250 mL	500 mL - H_2SO_4	250 mL	40 ml Glass - HCl	250 ml Plastic - NaOH/Asc.	250 ml Glass	% Solids	(19) PFCs, metals/cations, (including CN+Hg), anions, ammonia, TKN, orthophosphate, 1-4-Dioxane, SOM02.2 VOCs, Alkalinity (Carb, Bicarb), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, Sulfate.
									Water						Soil				
									C	C	A	A	D	B	B	F	A		
									N	N	N	N	N	Y	N	N	N		
1. SG3-S28-170928	—	—	—	09/28/2017	1230	GW	N	15	2	2	2	1	1	1	3	1	2		
2.																			
3.																			
4.																			
5.																			
6.																			
7.																			
8.																			
9.																			
10.																			

Preservative Code

Field Filtered Y/N

BARR USE ONLY

Sampled by: LC/PAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: Robert Korkosky — On Ice? (Y) N — Date 9.28.17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: 3 — Date 9.29.17 — Time 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C) 4.0-5.6 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 1856985 9237980-92

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47413

COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Field Blank	Soil: PFCs (14)	Soil: %2 - TOC, pH, moist., metals	Soil: % Solids
									Preservative Code:	A	A	
									Field Filtered Y/N:	N	N	
1. SG3 MW-BR1-88-89'	88	89	Ft.	09/27/2017	16:25	S	N	2		1	1	
2. SG3-FDS09-170927	/	/	/	09/27/2017	/	S	N	2		1	1	
3. SG3-MW-BR1-98-99'	98	99	Ft.	09/28/2017	08:20	S	N	2		1	1	
4. SG3-MW-BR1-108-109'	108	109	Ft.	09/28/2017	10:50	S	N	2		1	1	
5. SG3-MW-BR1-118-119'	118	119	Ft.	09/28/2017	13:00	S	N	2		1	1	
6. SG3-FBS08-170928	/	/	/	09/28/2017	PM	Water	N	2	2			
7.												
8.												
9.												
10.												

Metals = TAL cations excluding Hg

BARR USE ONLY						
Sampled by: RQM	Relinquished by: (RQM)	On Ice? (Y) N	Date 9/28/17	Time 17:00	Received by:	Date / Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: 3	Date 9.29.17 Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)
Lab Name: ELLE	Lab WO:				Temperature on Receipt (°C): 4.0-5.6 Custody Seal Intact? ☒ Y ☐ N ☐ None	
Lab Location: Lancaster, PA						

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Freight Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 195861

Group Number(s): 1856985

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/29/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved

Unpacked by Timothy Cubberley (6520) at 10:56 on 09/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.6	DT	Wet	Y	Bagged	N
2	DT131	4.0	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
S28-0-0.5'	SG3-S28-0-0.5'	
S28-1-1.5'	SG3-S28-1-1.5'	
S28-0.5-1'	SG3-S28-0.5-1'	
S28-2.7-3.7'	SG3-S28-2.7-3.7'	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 03, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857313
SDG: SGB60
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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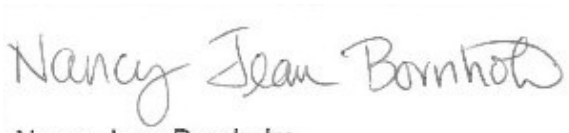
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-Filtered Water Frac TK-170929 Water	09/29/2017 11:45	9239690
Trip Blank Water	09/29/2017	9239691

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1857313

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9239690, 9239691

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17274004 (Sample number(s): 9239690-9239691 UNSPK: P237444)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 6:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) Blank, LCS, LCSD, MS

Sample Description: SG3-Filtered Water Frac TK-170929 Water
SGPP - North Bennington

ELLE Sample # PW 9239690
ELLE Group # 1857313
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/29/2017 11:45 by KAM

Submitted: 09/30/2017 09:55
Reported: 10/03/2017 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3FWF SDG#: SGB60-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 22:03	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9239691
ELLE Group # 1857313
Account # 37191

Project Name: SGPP - North Bennington

Collected: 09/29/2017

Submitted: 09/30/2017 09:55
Reported: 10/03/2017 11:54

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3T30 SDG#: SGB60-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 22:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274004	10/02/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1857313
Reported: 10/03/2017 11:54

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17274004	Sample number(s): 9239690-9239691			
6:2 fluorotelomersulfonate	4	J	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	2	J	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17274004	Sample number(s): 9239690-9239691								
6:2 fluorotelomersulfonate	12.89	19.15	12.89	13.06	149*	101	70-130	38*	30
8:2 fluorotelomersulfonate	13.03	14.39	13.03	14.9	110	114	70-130	3	30
NEtFOSAA	13.6	13.61	13.6	13.23	100	97	70-130	3	30
NMeFOSAA	13.6	13.8	13.6	14.78	101	109	70-130	7	30
Perfluorobutanesulfonate	12.03	11.85	12.03	10.83	99	90	70-130	9	30
Perfluorobutanoic Acid	13.6	13.27	13.6	13.09	98	96	70-130	1	30
Perfluorodecanoic acid	13.6	16.76	13.6	15.61	123	115	70-130	7	30
Perfluorododecanoic acid	13.6	12.8	13.6	12.69	94	93	70-130	1	30
Perfluoroheptanoic acid	13.6	14.21	13.6	14.43	105	106	70-130	2	30
Perfluorohexanesulfonate	12.86	11.68	12.86	12.6	91	98	70-130	8	30
Perfluorohexanoic acid	13.6	13.57	13.6	12.72	100	94	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/03/2017 11:54

Group Number: 1857313

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	13.11	13.6	12.51	96	92	70-130	5	30
Perfluoro-octanesulfonate	13	11.36	13	11.85	87	91	70-130	4	30
Perfluorooctanoic acid	13.6	12.9	13.6	14.05	95	103	70-130	9	30
Perfluoropentanoic Acid	13.6	13.7	13.6	13.32	101	98	70-130	3	30
Perfluorotetradecanoic acid	13.6	12.61	13.6	12.84	93	94	70-130	2	30
Perfluorotridecanoic acid	13.6	11.74	13.6	11.11	86	82	70-130	6	30
Perfluoroundecanoic acid	13.6	14.1	13.6	13.42	104	99	70-130	5	30
PFOSA	13.6	15.9	13.6	13.68	117	101	70-130	15	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17274004	Sample number(s): 9239690-9239691 UNSPK: P237444										
6:2 fluorotelomersulfonate	3	U	12.86	13.87			108		70-130		
8:2 fluorotelomersulfonate	4	U	13	15.29			118		70-130		
NEtFOSAA	1	U	13.57	14.1			104		70-130		
NMeFOSAA	1	U	13.57	13.66			101		70-130		
Perfluorobutanesulfonate	0.8	U	12	11.56			96		70-130		
Perfluorobutanoic Acid	3	U	13.57	13.83			102		70-130		
Perfluorodecanoic acid	0.5	U	13.57	13.54			100		70-130		
Perfluorododecanoic acid	0.5	U	13.57	13.1			97		70-130		
Perfluoroheptanoic acid	0.908		13.57	14.59			101		70-130		
Perfluorohexanesulfonate	1	U	12.83	13.38			104		70-130		
Perfluorohexanoic acid	0.813		13.57	13.52			94		70-130		
Perfluorononanoic acid	0.6	U	13.57	12.77			94		70-130		
Perfluoro-octanesulfonate	2	U	12.97	12.67			98		70-130		
Perfluorooctanoic acid	2.44		13.57	16.51			104		70-130		
Perfluoropentanoic Acid	1.01		13.57	13.79			94		70-130		
Perfluorotetradecanoic acid	0.5	U	13.57	12.03			89		70-130		
Perfluorotridecanoic acid	0.5	U	13.57	13.04			96		70-130		
Perfluoroundecanoic acid	1	U	13.57	12.72			94		70-130		
PFOSA	3	U	13.57	14.23			105		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1857313
Reported: 10/03/2017 11:54

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17274004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9239690	96	93	99	93	90	96
9239691	98	98	94	102	96	95
Blank	94	96	98	94	103	107
LCS	94	90	88	96	99	90
LCSD	97	98	97	101	106	109
MS	99	113	130	96	105	105
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9239690	82	90	92	97	90	81
9239691	92	92	94	82	103	124
Blank	97	98	93	89	99	84
LCS	96	90	102	89	89	75
LCSD	86	101	94	91	89	79
MS	109	100	99	91	96	86
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9239690	65	90	73	80	84	73
9239691	57	82	64	78	76	72
Blank	79	94	93	101	96	44*
LCS	71	80	80	90	75	45*
LCSD	79	100	88	94	92	36*
MS	67	92	72	84	86	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

-Rush - Results ASAP 37191 185713 9239690-91

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52307

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic / Tri Zma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3 - Filtered Water Fmc TR-170929				09/29/2017	11:45	water	N	2	2			PFCs (19)
2. Trip Blank				09/29/2017	Am	water	N	2	2			
3.												
4.												
5.												☆ Rush ☆ Results ASAP
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY

Sampled by: KMM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 9/29/17 Time 17:00 Received by:

Relinquished by: On Ice? Y N Date Time Received by: [signature] Date 9-30-17 Time 955

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.5-3.3 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196045

Group Number(s): 857313

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/30/2017 9:55
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 15:36 on 09/30/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.3	DT	Wet	Y	Bagged	N
2	DT131	2.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 01, 2017 11:16

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857314
SDG: SGB61
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR1-128-129' Soil	09/29/2017 10:00	9239692
SG3-MW-BR1-138-139' Soil	09/29/2017 11:50	9239693
SG3-LTB57-170929 Blank Water	09/29/2017	9239694
SG3-LTB58-170929 Blank Water	09/29/2017	9239695
SG3-MW-BR1-148-149' Soil	09/29/2017 15:00	9239696
SG3-FBS09-170929 Blank Water	09/29/2017 15:50	9239697

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1857314

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9239692, 9239693, 9239696

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17284003 (Sample number(s): 9239692-9239693 UNSPK: P237980)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9239692, 9239693

Batch #: 17291007 (Sample number(s): 9239696 UNSPK: P228648)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9239696, MS

SW-846 6010C, Metals

Batch #: 172751063707 (Sample number(s): 9239692-9239693, 9239696 UNSPK: P237989 BKG: P237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Magnesium, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Magnesium, Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium

SW-846 6020A, Metals

Batch #: 172751063707A (Sample number(s): 9239692-9239693, 9239696 UNSPK: P237989 BKG: P237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Beryllium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Chromium, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Silver, Thallium, Vanadium

Batch #: 172751063707B (Sample number(s): 9239692-9239693, 9239696 UNSPK: P237989 BKG: P237989)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172751063707D (Sample number(s): 9239692-9239693, 9239696 UNSPK: P237989 BKG: P237989)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17299245033A (Sample number(s): 9239692-9239693, 9239696 UNSPK: 9239692 BKG: 9239692)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9239692

The pH was measured in water at 20.2 C.

Sample #s: 9239693

The pH was measured in water at 20.3 C.

Sample #s: 9239696

The pH was measured in water at 20.4 C.

REVISED

Sample Description: **SG3-MW-BR1-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 10:00
SDG#: SGB61-01

C. T. Male Associates
ELLE Sample #: SW 9239692
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,200**	8.75	39.1	1
01650	**Calcium**	7440-70-2	**984**	3.26	39.1	1
01654	**Iron**	7439-89-6	**77,700**	39.4	196	5
01657	**Magnesium**	7439-95-4	**1,770**	2.38	19.6	1
06958	**Manganese**	7439-96-5	**848**	0.0812	0.979	1
01662	**Potassium**	7440-09-7	**1,060**	16.3	97.9	1
01667	**Sodium**	7440-23-5	**36.5 J**	16.3	196	1
06972	**Zinc**	7440-66-6	**83.6**	0.235	3.91	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.560**	0.0912	0.391	2
06125	**Arsenic**	7440-38-2	**19.9**	0.125	0.783	2
06126	**Barium**	7440-39-3	**148**	0.178	0.783	2
06127	**Beryllium**	7440-41-7	**1.59**	0.0103	0.196	2
06128	**Cadmium**	7440-43-9	**0.281**	0.0337	0.196	2
06131	**Chromium**	7440-47-3	**32.4**	0.170	0.783	2
06132	**Cobalt**	7440-48-4	**57.3**	0.0305	0.196	2
06133	**Copper**	7440-50-8	**27.5**	0.105	0.783	2
06135	**Lead**	7439-92-1	**30.3**	0.0217	0.391	2
06139	**Nickel**	7440-02-0	**44.8**	0.195	0.783	2
06141	**Selenium**	7782-49-2	**0.233 J**	0.0979	0.783	2
06142	**Silver**	7440-22-4	**0.0661 J**	0.0286	0.196	2
06145	**Thallium**	7440-28-0	**1.40**	0.0245	0.196	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 10:00
SDG#: SGB61-01

C. T. Male Associates
ELLE Sample #: SW 9239692
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**41.3**	0.0417	0.196	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**411**	121	364	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.06**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 04:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:16	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:36	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:30	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:19	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 10:00
SDG#: SGB61-01

C. T. Male Associates
ELLE Sample #: SW 9239692
ELLE Group #: 1857314
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:19	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:30	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:30	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/27/2017 18:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401B	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17278820010A	10/05/2017 22:23	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 11:50
SDG#: SGB61-02

C. T. Male Associates
ELLE Sample #: SW 9239693
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,000**	10.3	46.2	1
01650	**Calcium**	7440-70-2	**384**	3.85	46.2	1
01654	**Iron**	7439-89-6	**59,900**	46.5	231	5
01657	**Magnesium**	7439-95-4	**686**	2.81	23.1	1
06958	**Manganese**	7439-96-5	**327**	0.0959	1.16	1
01662	**Potassium**	7440-09-7	**1,330**	19.3	116	1
01667	Sodium	7440-23-5	19.3 U	19.3	231	1
06972	**Zinc**	7440-66-6	**46.3**	0.277	4.62	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.110 J**	0.108	0.462	2
06125	**Arsenic**	7440-38-2	**12.6**	0.148	0.924	2
06126	**Barium**	7440-39-3	**28.8**	0.210	0.924	2
06127	**Beryllium**	7440-41-7	**1.44**	0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.0680 J**	0.0397	0.231	2
06131	**Chromium**	7440-47-3	**4.40**	0.201	0.924	2
06132	**Cobalt**	7440-48-4	**15.2**	0.0360	0.231	2
06133	**Copper**	7440-50-8	**50.3**	0.124	0.924	2
06135	**Lead**	7439-92-1	**29.5**	0.0256	0.462	2
06139	**Nickel**	7440-02-0	**31.9**	0.230	0.924	2
06141	Selenium	7782-49-2	0.116 U	0.116	0.924	2
06142	Silver	7440-22-4	0.0337 U	0.0337	0.231	2
06145	**Thallium**	7440-28-0	**0.133 J**	0.0289	0.231	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 11:50
SDG#: SGB61-02

C. T. Male Associates
ELLE Sample #: SW 9239693
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**22.8**	0.0492	0.231	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**441**	137	411	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 04:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:19	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:40	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:33	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 11:50
SDG#: SGB61-02

C. T. Male Associates
ELLE Sample #: SW 9239693
ELLE Group #: 1857314
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:33	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:33	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/27/2017 18:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401B	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17278820010A	10/05/2017 22:23	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB57-170929 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017
SDG#: SGB61-03TB

C. T. Male Associates
ELLE Sample #: WW 9239694
ELLE Group #: 1857314
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 08:55	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB58-170929 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017
SDG#: SGB61-04TB

C. T. Male Associates
ELLE Sample #: WW 9239695
ELLE Group #: 1857314
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/05/2017 09:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 15:00
SDG#: SGB61-05

C. T. Male Associates
ELLE Sample #: SW 9239696
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**18,300**	9.89	44.3	1
01650	**Calcium**	7440-70-2	**486**	3.68	44.3	1
01654	**Iron**	7439-89-6	**75,500**	44.5	221	5
01657	**Magnesium**	7439-95-4	**924**	2.69	22.1	1
06958	**Manganese**	7439-96-5	**401**	0.0918	1.11	1
01662	**Potassium**	7440-09-7	**868**	18.5	111	1
01667	Sodium	7440-23-5	18.5 U	18.5	221	1
06972	**Zinc**	7440-66-6	**55.2**	0.266	4.43	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.322 J**	0.103	0.443	2
06125	**Arsenic**	7440-38-2	**19.1**	0.142	0.885	2
06126	**Barium**	7440-39-3	**21.2**	0.201	0.885	2
06127	**Beryllium**	7440-41-7	**1.41**	0.0116	0.221	2
06128	**Cadmium**	7440-43-9	**0.180 J**	0.0381	0.221	2
06131	**Chromium**	7440-47-3	**5.75**	0.192	0.885	2
06132	**Cobalt**	7440-48-4	**20.0**	0.0345	0.221	2
06133	**Copper**	7440-50-8	**39.8**	0.119	0.885	2
06135	**Lead**	7439-92-1	**30.4**	0.0246	0.443	2
06139	**Nickel**	7440-02-0	**29.3**	0.220	0.885	2
06141	Selenium	7782-49-2	0.111 U	0.111	0.885	2
06142	Silver	7440-22-4	0.0323 U	0.0323	0.221	2
06145	**Thallium**	7440-28-0	**0.149 J**	0.0277	0.221	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 15:00
SDG#: SGB61-05

C. T. Male Associates
ELLE Sample #: SW 9239696
ELLE Group #: 1857314
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**19.1**	0.0471	0.221	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**306 J**	134	401	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**21.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17291007	10/22/2017 00:16	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17291007	10/18/2017 16:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172751063707	10/11/2017 18:23	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172751063707	10/10/2017 12:43	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172751063707D	10/09/2017 20:36	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172751063707A	10/11/2017 12:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR1-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 15:00
SDG#: SGB61-05

C. T. Male Associates
ELLE Sample #: SW 9239696
ELLE Group #: 1857314
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172751063707A	10/11/2017 12:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172751063707B	10/09/2017 20:36	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172751063707A	10/09/2017 20:36	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172751063707	10/03/2017 15:25	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17299245033A	10/27/2017 18:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17275039401B	10/02/2017 19:40	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17278820010A	10/05/2017 22:23	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS09-170929 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 15:50
SDG#: SGB61-06FB

C. T. Male Associates
ELLE Sample #: WW 9239697
ELLE Group #: 1857314
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17274001	10/10/2017 20:42	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17274001	10/02/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17284003	Sample number(s): 9239692-9239693		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17291007	Sample number(s): 9239696		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17274001	Sample number(s): 9239694-9239695,9239697		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172751063707	Sample number(s): 9239692-9239693,9239696		
Aluminum	8.94 U	8.94	40.0
Calcium	5.41 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.177 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.241 J	0.240	4.00
Batch number: 172751063707A	Sample number(s): 9239692-9239693,9239696		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172751063707B	Sample number(s): 9239692-9239693,9239696		
Selenium	0.100 U	0.100	0.800
Batch number: 172751063707D	Sample number(s): 9239692-9239693,9239696		
Barium	0.182 U	0.182	0.800
Batch number: 17299245033A	Sample number(s): 9239692-9239693,9239696		
TOC	100 U	100	300

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17284003	Sample number(s): 9239692-9239693								
Perfluorobutanesulfonate	1.20	1.16	1.20	0.992	96	82	70-130	16	30
Perfluorobutanoic acid	1.36	1.34	1.36	1.40	98	103	70-130	5	30
Perfluorodecanoic acid	1.36	1.29	1.36	1.53	95	113	70-130	17	30
Perfluorododecanoic acid	1.36	1.33	1.36	1.26	98	93	70-130	5	30
Perfluoroheptanoic acid	1.36	1.41	1.36	1.36	104	100	70-130	4	30
Perfluorohexanesulfonate	1.29	1.27	1.29	1.24	99	96	70-130	3	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.12	99	82	70-130	19	30
Perfluorononanoic acid	1.36	1.38	1.36	1.38	101	102	70-130	0	30
Perfluoro-octanesulfonate	1.30	1.15	1.30	1.29	88	99	70-130	11	30
Perfluorooctanoic acid	1.36	1.45	1.36	1.38	106	101	70-130	5	30
Perfluoropentanoic acid	1.36	1.25	1.36	1.39	92	102	70-130	11	30
Perfluorotetradecanoic acid	1.36	1.18	1.36	1.37	87	101	70-130	15	30
Perfluorotridecanoic acid	1.36	1.39	1.36	1.33	102	98	70-130	5	30
Perfluoroundecanoic acid	1.36	1.43	1.36	1.38	105	101	70-130	3	30
Batch number: 17291007	Sample number(s): 9239696								
Perfluorobutanesulfonate	1.20	1.10	1.20	1.22	92	101	70-130	10	30
Perfluorobutanoic acid	1.36	1.41	1.36	1.46	103	107	70-130	4	30
Perfluorodecanoic acid	1.36	1.25	1.36	1.25	92	92	70-130	0	30
Perfluorododecanoic acid	1.36	1.28	1.36	1.30	94	96	70-130	2	30
Perfluoroheptanoic acid	1.36	1.31	1.36	1.42	96	105	70-130	8	30
Perfluorohexanesulfonate	1.29	1.14	1.29	1.14	89	88	70-130	1	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.45	99	106	70-130	7	30
Perfluorononanoic acid	1.36	1.37	1.36	1.58	100	116	70-130	15	30
Perfluoro-octanesulfonate	1.30	0.999	1.30	1.30	77	100	70-130	26	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.42	96	104	70-130	8	30
Perfluoropentanoic acid	1.36	1.34	1.36	1.45	98	107	70-130	8	30
Perfluorotetradecanoic acid	1.36	1.19	1.36	1.44	87	106	70-130	19	30
Perfluorotridecanoic acid	1.36	1.23	1.36	1.37	90	101	70-130	11	30
Perfluoroundecanoic acid	1.36	1.38	1.36	1.38	102	102	70-130	0	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17274001	Sample number(s): 9239694-9239695,9239697								
Perfluorobutanesulfonate	12.03	10.5	12.03	9.98	87	83	70-130	5	30
Perfluorobutanoic Acid	13.6	12.72	13.6	13.04	94	96	70-130	2	30
Perfluorodecanoic acid	13.6	13.65	13.6	13.69	100	101	70-130	0	30
Perfluorododecanoic acid	13.6	12.35	13.6	13.45	91	99	70-130	8	30
Perfluoroheptanoic acid	13.6	12.89	13.6	12.42	95	91	70-130	4	30
Perfluorohexanesulfonate	12.86	12.13	12.86	10.2	94	79	70-130	17	30
Perfluorohexanoic acid	13.6	12.96	13.6	12.87	95	95	70-130	1	30
Perfluorononanoic acid	13.6	12.98	13.6	12.16	95	89	70-130	7	30
Perfluoro-octanesulfonate	13	12.16	13	12.42	94	96	70-130	2	30
Perfluorooctanoic acid	13.6	13.71	13.6	13.07	101	96	70-130	5	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoropentanoic Acid	13.6	12.27	13.6	13.04	90	96	70-130	6	30
Perfluorotetradecanoic acid	13.6	12.26	13.6	13.15	90	97	70-130	7	30
Perfluorotridecanoic acid	13.6	11.02	13.6	11.69	81	86	70-130	6	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.55	103	100	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172751063707	Sample number(s): 9239692-9239693,9239696								
Aluminum	200	200.95			100		80-120		
Calcium	400	390.79			98		80-120		
Iron	100	95.91			96		80-120		
Magnesium	200	193.72			97		80-120		
Manganese	50	48.3			97		80-120		
Potassium	1000	991.96			99		80-120		
Sodium	1000	948.96			95		80-120		
Zinc	50	47.34			95		80-120		
Batch number: 172751063707A	Sample number(s): 9239692-9239693,9239696								
Antimony	0.600	0.669			112		80-120		
Arsenic	1.00	0.999			100		80-120		
Beryllium	0.400	0.421			105		80-120		
Cadmium	0.500	0.561			112		80-120		
Chromium	5.00	5.79			116		80-120		
Cobalt	25	25.56			102		80-120		
Copper	5.00	4.75			95		80-120		
Lead	1.50	1.57			105		80-120		
Nickel	5.00	4.91			98		80-120		
Silver	5.00	5.36			107		80-120		
Thallium	0.200	0.195			98		80-120		
Vanadium	5.00	5.59			112		80-120		
Batch number: 172751063707B	Sample number(s): 9239692-9239693,9239696								
Selenium	1.00	1.12			112		80-120		
Batch number: 172751063707D	Sample number(s): 9239692-9239693,9239696								
Barium	5.00	5.30			106		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17299245033A	Sample number(s): 9239692-9239693,9239696								
TOC	7150	6370.17			89		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17275039401B	Sample number(s): 9239692-9239693,9239696								
pH	7.00	6.92			99		95-105		
	%	**%**	**%**	**%**					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17278820010A	Sample number(s): 9239692-9239693,9239696								
Moisture	89.5	89.34			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17284003	Sample number(s): 9239692-9239693 UNSPK: P237980									
Perfluorobutanesulfonate	0.19 U	1.13	1.03			91		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.31			102		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.40			109		70-130		
Perfluorododecanoic acid	0.19 U	1.28	1.38			108		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.46			114		70-130		
Perfluorohexanesulfonate	0.19 U	1.21	1.08			89		70-130		
Perfluorohexanoic acid	0.097 U	1.28	1.24			97		70-130		
Perfluorononanoic acid	0.097 U	1.28	1.22			95		70-130		
Perfluoro-octanesulfonate	0.342	1.23	1.63			105		70-130		
Perfluorooctanoic acid	0.313	1.28	1.42			86		70-130		
Perfluoropentanoic acid	0.19 U	1.28	1.20			93		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.22			95		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.46			114		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.37			107		70-130		
Batch number: 17291007	Sample number(s): 9239696 UNSPK: P228648									
Perfluorobutanesulfonate	0.14 U	1.06	1.02			97		70-130		
Perfluorobutanoic acid	0.14 U	1.19	1.32			110		70-130		
Perfluorodecanoic acid	0.14 U	1.19	1.28			107		70-130		
Perfluorododecanoic acid	0.14 U	1.19	1.34			113		70-130		
Perfluoroheptanoic acid	0.14 U	1.19	1.22			102		70-130		
Perfluorohexanesulfonate	0.14 U	1.13	1.16			103		70-130		
Perfluorohexanoic acid	0.072 U	1.19	1.12			94		70-130		
Perfluorononanoic acid	0.072 U	1.19	1.24			104		70-130		
Perfluoro-octanesulfonate	0.22 U	1.14	1.02			89		70-130		
Perfluorooctanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluoropentanoic acid	0.14 U	1.19	1.13			94		70-130		
Perfluorotetradecanoic acid	0.14 U	1.19	1.21			101		70-130		
Perfluorotridecanoic acid	0.14 U	1.19	1.18			99		70-130		
Perfluoroundecanoic acid	0.14 U	1.19	1.20			101		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172751063707	Sample number(s): 9239692-9239693,9239696 UNSPK: P237989									
Aluminum	7816.12	163.93	15125.63	156.25	14638.19	4459 (2)	4366 (2)	75-125	3	20
Calcium	4334.3	327.87	4938.45	312.5	7522.55	184 (2)	1020 (2)	75-125	41*	20
Iron	25551.04	81.97	24093.95	78.13	24483.47	-1778 (2)	-1366 (2)	75-125	2	20
Magnesium	2327.77	163.93	2888.35	156.25	4798.87	342 (2)	1582 (2)	75-125	50*	20
Manganese	686.98	40.98	675.38	39.06	513.9	-28 (2)	-443 (2)	75-125	27*	20
Potassium	949.1	819.67	2182.08	781.25	2214.87	150*	162*	75-125	1	20
Sodium	16.68	819.67	685.54	781.25	654.33	82	82	75-125	5	20
Zinc	40.9	40.98	78.15	39.06	72.99	91	82	75-125	7	20
Batch number: 172751063707A	Sample number(s): 9239692-9239693,9239696 UNSPK: P237989									
Antimony	0.0878	0.984	0.946	0.938	1.10	87	108	75-125	15	20
Arsenic	5.83	1.64	12.54	1.56	14.96	410*	584*	75-125	18	20
Beryllium	0.273	0.656	1.31	0.625	1.40	158*	180*	75-125	7	20
Cadmium	0.0557	0.820	0.978	0.781	1.00	112	121	75-125	3	20
Chromium	4.19	8.20	17.52	7.81	23.5	163*	247*	75-125	29*	20
Cobalt	6.42	40.98	52.52	39.06	57.47	112	131*	75-125	9	20
Copper	8.03	8.20	25.63	7.81	26.92	215*	242*	75-125	5	20
Lead	7.25	2.46	18.28	2.34	20.36	449*	560*	75-125	11	20
Nickel	9.37	8.20	23.62	7.81	26.29	174*	217*	75-125	11	20
Silver	0.0232 U	8.20	8.32	7.81	8.33	101	107	75-125	0	20
Thallium	0.149	0.328	0.591	0.313	0.702	135*	177*	75-125	17	20
Vanadium	4.89	8.20	20.62	7.81	25.41	192*	263*	75-125	21*	20
Batch number: 172751063707B	Sample number(s): 9239692-9239693,9239696 UNSPK: P237989									
Selenium	0.102	1.64	1.88	1.56	1.77	108	107	75-125	6	20
Batch number: 172751063707D	Sample number(s): 9239692-9239693,9239696 UNSPK: P237989									
Barium	33.51	8.20	64.43	7.81	92.2	377 (2)	751 (2)	75-125	35*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17299245033A	Sample number(s): 9239692-9239693,9239696 UNSPK: 9239692									
TOC	355.87	24360	22516.23			91		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172751063707	Sample number(s): 9239692-9239693,9239696 BKG: P237989			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Aluminum	7816.12	8015.68	3	20
Calcium	4334.3	4714.96	8	20
Iron	25551.04	22285.47	14	20
Magnesium	2327.77	3012.96	26*	20
Manganese	686.98	593.66	15	20
Potassium	949.1	946.07	0	20
Sodium	16.68	16.68	0 (1)	20
Zinc	40.9	44.38	8	20
Batch number: 172751063707A	Sample number(s): 9239692-9239693,9239696 BKG: P237989			
Antimony	0.0878	0.185	71* (1)	20
Arsenic	5.83	10.9	61*	20
Beryllium	0.273	0.685	86* (1)	20
Cadmium	0.0557	0.159	96* (1)	20
Chromium	4.19	10.97	89*	20
Cobalt	6.42	26.41	122*	20
Copper	8.03	18.36	78*	20
Lead	7.25	16.23	77*	20
Nickel	9.37	15.47	49*	20
Silver	0.0232 U	0.0264	200* (1)	20
Thallium	0.149	0.357	82* (1)	20
Vanadium	4.89	12.96	90*	20
Batch number: 172751063707B	Sample number(s): 9239692-9239693,9239696 BKG: P237989			
Selenium	0.102	0.296	97* (1)	20
Batch number: 172751063707D	Sample number(s): 9239692-9239693,9239696 BKG: P237989			
Barium	33.51	69.29	70*	20
	mg/kg	mg/kg		
Batch number: 17299245033A	Sample number(s): 9239692-9239693,9239696 BKG: 9239692			
TOC	355.87	423.34	17* (1)	7
	Std. Units	Std. Units		
Batch number: 17275039401B	Sample number(s): 9239692-9239693,9239696 BKG: 9239696			
pH	8.09	8.06	0	3
	%	%		
Batch number: 17278820010A	Sample number(s): 9239692-9239693,9239696 BKG: P241061			
Moisture	76.57	78.32	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17274001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9239694	89	87	69	97	76	87
9239695	97	89	66	103	88	106
9239697	99	104	100	114	107	111
Blank	94	90	66	95	94	94
LCS	97	94	70	95	89	100
LCSD	95	94	71	109	107	107
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9239694	97	87	107	87	97	93
9239695	101	83	97	98	124	108
9239697	111	97	95	103	109	106
Blank	92	80	99	103	117	114
LCS	98	102	94	88	100	102
LCSD	99	91	100	100	110	109
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9239694	92
9239695	99
9239697	101
Blank	106
LCS	90
LCSD	103
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17284003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9239692	64	63*	87	72	89	75
9239693	49	49*	68	56	73	57
Blank	77	77	75	82	80	86
LCS	82	82	78	86	78	83
LCSD	88	84	95	95	83	102
MS	69	72	71	70	68	74

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17284003

Limits:	37-107	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9239692	67	89	70	78	77	81
9239693	51	71	51	53	56	55
Blank	78	78	82	78	81	81
LCS	79	77	85	81	81	77
LCSD	88	93	99	100	89	95
MS	69	72	74	69	72	61

Limits:	44-115	42-118	37-124	36-121	25-134	15-135
	13C2-PFTeDA					
9239692	89					
9239693	51					
Blank	83					
LCS	83					
LCSD	96					
MS	69					

Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17291007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9239696	41	43*	58	50	65	52
Blank	86	83	75	96	73	87
LCS	85	84	79	92	89	89
LCSD	81	80	78	75	78	76
MS	44	47*	57	47	62	50

Limits:	37-107	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9239696	50	67	43	50	52	45
Blank	100	90	93	94	92	95
LCS	96	94	91	94	85	87
LCSD	90	82	88	84	77	71
MS	54	66	54	55	54	49

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 11:16

Group Number: 1857314

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17291007

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9239696	45
Blank	80
LCS	82
LCSD	63
MS	46
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1857314 9239692-97

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47415

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021001

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Water: 250ml Field Blank	Soil: PFCs (14)	Soil: 4oz. - TOC, pH, moist., metals	Soil: % Solids
								Preservative Code	A	A	A	A	
								Field Filtered Y/N	N	N	1	1	
1. SG3-MW-BR1-128-129'	128	129	ft.	09/29/2017	10:00	S	N	2			1	1	
2. SG3-MW-BR1-138-139'	138	139	ft.	09/29/2017	11:50	S	N	2			1	1	
3. SG3-LTB57-170929				09/29/2017	PM	Water	N	2	2				
4. SG3-LTB58-170929				09/29/2017	PM	Water	N	2	2				
5. SG3-MW-BR1-148-149'	148	149	ft.	09/29/2017	15:00	S	N	2	X		1	1	
6. SG3-FB509-170929				09/29/2017	15:50	Water	N	2		2			
7.													
8.													
9.													
10.													

Metals - TAL cations excluding Hg

BARR USE ONLY							
Sampled by: RQM/RAK	Relinquished by: (RQM)	On Ice? (Y) N	Date 09/29/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: Eandel	Date 9-30-17	Time 955
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C) 2.5-3.3	Custody Seal Intact? ☒ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196045

Group Number(s): 1857314

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/30/2017 9:55
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250mL plastic bottles (Unpre)

Unpacked by Melvin Sanchez (8943) at 15:07 on 09/30/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.3	DT	Wet	Y	Bagged	N
2	DT131	2.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 25, 2017 13:37

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857315
SDG: SGB62
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D20-20-24' Soil	09/18/2017 14:55	9239698
SG3-D20-24-40' Soil	09/18/2017 15:00	9239699
SG3-D20-48-50' Soil	09/18/2017 15:25	9239701
SG3-D20-50-60' Soil	09/19/2017 09:00	9239702
SG3-D20-60-61' Soil	09/19/2017 09:05	9239703
SG3-D20-63-68' Soil	09/19/2017 09:15	9239705
SG3-D20-68.5-70' Soil	09/19/2017 09:20	9239706
SG3-D20-70-74' Soil	09/19/2017 09:25	9239707
SG3-D20-75-77' Soil	09/19/2017 10:40	9239708
SG3-D02-0-0.5' Soil	09/20/2017 10:00	9239710
SG3-D02-0.5-2' Soil	09/20/2017 10:05	9239711
SG3-D02-2-5' Soil	09/20/2017 10:10	9239712
SG3-D16-1.1-8' Soil	09/20/2017	9239714
SG3-D16-8-10' Soil	09/20/2017	9239715
SG3-D16-10-23' Soil	09/20/2017	9239716
SG3-D16-23-27' Soil	09/20/2017	9239717

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1857315

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D20-20-24' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/18/2017 14:55
SDG#: SGB62-01

C. T. Male Associates
ELLE Sample #: SW 9239698
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**91.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**82.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**79.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**78.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**76.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**74.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**71.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**63.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**50.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-24-40' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/18/2017 15:00
SDG#: SGB62-02

C. T. Male Associates
ELLE Sample #: SW 9239699
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**82.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**69.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**64.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**59.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**56.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**52.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**47.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-48-50' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/18/2017 15:25
SDG#: SGB62-04

C. T. Male Associates
ELLE Sample #: SW 9239701
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**96.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**88.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**85.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**81.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**73.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**65.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**57.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**47.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-50-60' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 09:00
SDG#: SGB62-05

C. T. Male Associates
ELLE Sample #: SW 9239702
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**97.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**95.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**94.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**92.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**86.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**77.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**66.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**63.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**36.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**15.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-60-61' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 09:05
SDG#: SGB62-06

C. T. Male Associates
ELLE Sample #: SW 9239703
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**82.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**73.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**63.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**59.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**35.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**30.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**19.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-63-68' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 09:15
SDG#: SGB62-08

C. T. Male Associates
ELLE Sample #: SW 9239705
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**76.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**61.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**54.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**44.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**33.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**24.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-68.5-70' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 09:20
SDG#: SGB62-09

C. T. Male Associates
ELLE Sample #: SW 9239706
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**98.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**97.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**96.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**92.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**83.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**81.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**73.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**53.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-70-74' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 09:25
SDG#: SGB62-10

C. T. Male Associates
ELLE Sample #: SW 9239707
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**86.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**55.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**47.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**41.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**37.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**34.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**31.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**15.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D20-75-77' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/19/2017 10:40
SDG#: SGB62-11

C. T. Male Associates
ELLE Sample #: SW 9239708
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**80.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**72.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**62.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**57.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**39.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D02-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017 10:00
SDG#: SGB62-13

C. T. Male Associates
ELLE Sample #: SW 9239710
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**80.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**70.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**57.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**49.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**42.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**36.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**29.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**21.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**0.50**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D02-0.5-2' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017 10:05
SDG#: SGB62-14

C. T. Male Associates
ELLE Sample #: SW 9239711
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**51.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**44.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**38.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**32.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**27.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**22.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**18.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**14.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**13.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**6.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**0.50**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D02-2-5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017 10:10
SDG#: SGB62-15

C. T. Male Associates
ELLE Sample #: SW 9239712
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**91.1**	0.50	0.50	1
07103	**19 mm**	n.a.	**60.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**29.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**26.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**23.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**21.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**18.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**14.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**12.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**9.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**3.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**0.50**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-1.1-8' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB62-17

C. T. Male Associates
ELLE Sample #: SW 9239714
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**75.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**58.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**55.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**51.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**47.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**39.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**35.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**24.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-8-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB62-18

C. T. Male Associates
ELLE Sample #: SW 9239715
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**98.8**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**94.8**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**94.2**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**92.8**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**89.5**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**85.8**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**78.3**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**67.3**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**54.7**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**52.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**45.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**13.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-10-23' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB62-19

C. T. Male Associates
ELLE Sample #: SW 9239716
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**98.5**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**96.3**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**95.2**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**92.4**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**89.8**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**86.2**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**80.6**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**73.9**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**63.7**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**61.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**54.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**36.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**21.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**13.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**7.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-23-27' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB62-20

C. T. Male Associates
ELLE Sample #: SW 9239717
ELLE Group #: 1857315
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**91.7**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**81.4**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**71.5**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**60.6**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**60.2**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**59.7**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**58.6**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**57.0**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**53.7**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**52.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**49.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**38.5**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**23.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**16.5**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**10.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710301A	10/06/2017 18:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1857315
Reported: 10/25/2017 13:37

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1857315 9239698-717

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☒ MN ☐ MI ☐ ND ☐ SD Other: VT

COC Number: 52298

COC 1 of 4

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: Grain Size Analysis/PSD	Soil: % Solids
										A	
										1	
1. SG3-D20-20-24'	20	24	ft.	09/18/2017	14:55	S	N	1		1	
2. SG3-D20-24-40'	24	40	ft.	09/18/2017	15:00	S	N	1		1	
3. SG3-D20-42.5-48'	42.5	48	ft.	09/18/2017	15:20	S	N	1		1	
4. SG3-D20-48-50'	48	50	ft.	09/18/2017	15:25	S	N	1		1	
5. SG3-D20-50-60'	50	60	Ft.	09/19/2017	9:00	S	N	1		1	
6. SG3-D20-60-61'	60	61	Ft.	09/19/2017	9:05	S	N	1		1	
7. SG3-D20-61-63'	61	63	Ft.	09/19/2017	9:10	S	N	1		1	
8. SG3-D20-63-68'	63	68	Ft.	09/19/2017	9:15	S	N	1		1	
9. SG3-D20-68.5-70'	68.5	70	Ft.	09/19/2017	9:20	S	N	1		1	
10. SG3-D20-70-74'	70	74	Ft.	09/19/2017	9:25	S	N	1		1	

Preservative Code

Field Filtered Y/N

Samples split into two buckets

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? ☒ Y ☐ N Date 09/29/17 Time 17:00

Received by:

Relinquished by: On Ice? ☐ Y ☐ N Date Time

Received by: Date 9/30/17 Time 955

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): NA Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1857315 9239698-717

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52302 COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Grain Size Analysis/PSD	Soil: % Solids
										A	
										1	
1. SG3-D20-75-77'	75	77	ft.	09/19/2017	10:40	S	N	1		1	
2. SG3-D20-79-90'	79	90	ft.	09/19/2017	13:00	S	N	1		1	
3. SG3-D02-0-0.5'	0	0.5	ft.	09/20/2017	10:00	S	N	1		1	
4. SG3-D02-0.5-2'	0.5	2	ft.	09/20/2017	10:05	S	N	1		1	
5. SG3-D02-2-5'	2	5	ft.	09/20/2017	10:10	S	N	1		1	
6. SG3-D02-5-20'	5	20	ft.	09/20/2017	10:15	S	N	1		1	
7. SG3-D16-1.1-8'	1.1	8	ft	9-20-17	PM	S					
8. SG3-D16-8-10'	8	10	ft	9-20-17	PM	S					
9. SG3-D16-10-23'	10	23	ft	9-20-17	PM	S					
10. SG3-D16-23-27	23	27	ft	9-20-17	PM	S					

Preservative Code

Field Filtered Y/N

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? ~~Y~~ N Date 09/29/17 Time 17:00

Received by: Date Time

Relinquished by: On Ice? Y N Date Time

Received by: Date 9/30/17 Time 955

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 196013

Group Number(s): 1857315

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/30/2017 9:55
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	No
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 11:12 on 09/30/2017

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-D16-30-37'	9/21/2017 08:45	Time on COC is AM and time on label is 0845
SG3-D16-37-41'	9/21/2017 08:50	Time on COC is AM and time on label is 0850

2425 New Holland Pike
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 25, 2017 13:41

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857316
SDG: SGB63
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D16-27-28.5' Soil	09/20/2017	9239718
SG3-D16-28.5-30' Soil	09/20/2017	9239719
SG3-D16-30-37' Soil	09/21/2017 08:45	9239720
SG3-D06-0.1-2.5' Soil	09/22/2017 11:45	9239722
SG3-D06-2.5-10' Soil	09/22/2017 11:50	9239723
SG3-D25-1.1-5' Soil	09/22/2017 17:00	9239725
SG3-D25-5-9.5' Soil	09/22/2017 17:05	9239726
SG3-D25-9.5-13' Soil	09/22/2017 17:10	9239727
SG3-D25-15-20' Soil	09/22/2017 17:15	9239728
SG3-MW-BR1-21-30.5' Soil	09/27/2017 14:55	9239729
SG3-MW-BR1-30.5-33' Soil	09/27/2017 15:00	9239730
SG3-MW-BR1-33-130' Soil	09/27/2017 15:05	9239731
SG3-MW-BR1-130-137' Soil	09/29/2017 13:00	9239732

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1857316

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D16-27-28.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB63-01

C. T. Male Associates
ELLE Sample #: SW 9239718
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**56.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**45.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**36.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**34.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**32.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**27.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**24.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**20.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**19.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-28.5-30' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/20/2017
SDG#: SGB63-02

C. T. Male Associates
ELLE Sample #: SW 9239719
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**82.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**79.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**74.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**72.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**69.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**56.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**45.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D16-30-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/21/2017 08:45
SDG#: SGB63-03

C. T. Male Associates
ELLE Sample #: SW 9239720
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**64.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**60.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**55.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**52.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**48.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**44.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**40.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**35.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**34.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**30.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**8.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D06-0.1-2.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 11:45
SDG#: SGB63-05

C. T. Male Associates
ELLE Sample #: SW 9239722
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**85.6**	0.50	0.50	1
07103	**19 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**71.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**57.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**54.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**50.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**47.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**40.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**33.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**26.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**21.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**3.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D06-2.5-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 11:50
SDG#: SGB63-06

C. T. Male Associates
ELLE Sample #: SW 9239723
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**58.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**41.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**29.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**23.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**18.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**14.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**13.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**0.50**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D25-1.1-5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 17:00
SDG#: SGB63-08

C. T. Male Associates
ELLE Sample #: SW 9239725
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**85.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**78.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**76.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**67.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**51.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**31.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**2.0**	0.50	0.50	1
07103	0.005 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D25-5-9.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 17:05
SDG#: SGB63-09

C. T. Male Associates
ELLE Sample #: SW 9239726
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**92.4**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**73.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**65.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**61.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**55.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**39.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**19.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D25-9.5-13' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 17:10
SDG#: SGB63-10

C. T. Male Associates
ELLE Sample #: SW 9239727
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**96.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**81.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**77.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**69.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**62.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**56.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**45.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**18.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D25-15-20' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/22/2017 17:15
SDG#: SGB63-11

C. T. Male Associates
ELLE Sample #: SW 9239728
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**81.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**77.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**72.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**57.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**40.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**14.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-21-30.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017 14:55
SDG#: SGB63-12

C. T. Male Associates
ELLE Sample #: SW 9239729
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**98.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**91.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**88.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**83.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**78.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**72.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**63.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**55.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**46.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-30.5-33' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017 15:00
SDG#: SGB63-13

C. T. Male Associates
ELLE Sample #: SW 9239730
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**97.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**95.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**93.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**88.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**79.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**60.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**38.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**22.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-33-130' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017 15:05
SDG#: SGB63-14

C. T. Male Associates
ELLE Sample #: SW 9239731
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**88.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**84.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**80.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**72.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**65.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**59.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**52.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**31.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-130-137' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/29/2017 13:00
SDG#: SGB63-15

C. T. Male Associates
ELLE Sample #: SW 9239732
ELLE Group #: 1857316
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**73.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**66.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**59.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**53.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**47.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**40.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**36.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**30.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**29.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**26.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**19.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**9.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17279710302A	10/06/2017 19:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1857316
Reported: 10/25/2017 13:41

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

9239718-32 37191 18573 16 GWM 9/30/17 ~~9239716~~

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: COC 3 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Analysis Requested: Soil: Grain Size Analysis /PSD	Analysis Requested: Soil: % Solids	Preservative Code	Field Filtered Y/N
										A			
										1			
1. SG3-D16-27-28.5'	27	28.5	ft	09/20/2017	PM	S	N	1		1			
2. SG3-D16-28.5-30'	28.5	30	ft	09/20/2017	PM	S	N	1		1			
3. SG3-D16-30-37'	30	37	ft.	09/21/2017	AM	S	N	1		1			
4. SG3-D16-37-41'	37	41	ft.	09/21/2017	AM	S	N	1		1			
5. SG3-D06-0.1-2.5'	0.1	2.5	ft.	09/22/2017	11:45	S	N	1		1			
6. SG3-D06-2.5-10'	2.5	10	ft.	09/22/2017	11:50	S	N	1		1			
7. SG3-D06-10-10.2'	10	10.2	ft.	09/22/2017	12:40	S	N	1		1			
8. SG3-D25-1.1-5'	1.1	5	ft.	09/22/2017	17:00	S	N	1		1			
9. SG3-D25-5-9.5'	5	9.5	ft.	09/22/2017	17:05	S	N	1		1			
10. SG3-D25-9.5-13'	9.5	13	ft.	09/22/2017	17:10	S	N	1		1			

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	RQM	(RQM)	~~Y~~ N	09/29/17	17:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						9/30/17	955
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:				Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1857316 9239718-32

32 (3) WW 9/30/17

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47412

COC 4 of 4

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 32421001

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Grain Size Analysis/PSD	Soil: % Solids
1. SG3-D25-15-20'	15	20	ft.	09/22/2017	17:15	S	N	1		1	
2. SG3-MW-BR1-21-30.5'	21	30.5	ft.	09/27/2017	14:55	S	N	1		1	
3. SG3-MW-BR1-30.5-33'	30.5	33	ft.	09/27/2017	15:00	S	N	1		1	
4. SG3-MW-BR1-33-130'	33	130	ft.	09/27/2017	15:05	S	N	1		1	
5. SG3-MW-BR1-130-137'	130	137	ft.	09/29/2017	13:00	S	N	1		1	
6.											
7.											
8.											
9.											
10.											
Preservative Code										A	
Field Filtered Y/N										1	

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) — On Ice? Y (N) — Date: 09/29/17 — Time: 17:00

Received by: — Date: — Time:

Relinquished by: — On Ice? Y N — Date: — Time:

Received by: — Date: 9/30/17 — Time: 955

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): MK Custody Seal Intact? ☐ Y ☐ N ☐ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 196013

Group Number(s): 1657316

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/30/2017 9:55
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	No
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 11:12 on 09/30/2017

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-D16-30-37'	9/21/2017 08:45	Time on COC is AM and time on label is 0845
SG3-D16-37-41'	9/21/2017 08:50	Time on COC is AM and time on label is 0850

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 26, 2017 16:23

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857317
SDG: SGB64
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D24-0-8 Soil	09/23/2017	9239733
SG3-D24-9-45 Soil	09/23/2017	9239734
SG3-D24-45-48 Soil	09/24/2017	9239735
SG3-D24-48-51 Soil	09/24/2017	9239736
SG3-D24-51-70 Soil	09/24/2017	9239737
SG3-D11-1-20 Soil	09/26/2017	9239738
SG3-D11-23-50 Soil	09/26/2017	9239739
SG3-D11-50-80 Soil	09/26/2017	9239740
SG3-D11-80-89 Soil	09/26/2017	9239741
SG3-D11-89-96 Soil	09/26/2017	9239742
SG3-D11-102-104 Soil	09/26/2017	9239743
SG3-D11-104-121 Soil	09/26/2017	9239744
SG3-D11-121-123 Soil	09/27/2017	9239745
SG3-D11-123-144 Soil	09/27/2017	9239746
SG3-D11-144-145 Soil	09/27/2017	9239747

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1857317

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D24-0-8 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/23/2017
SDG#: SGB64-01

C. T. Male Associates
ELLE Sample #: SW 9239733
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**94.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**91.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**85.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**80.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**74.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**70.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**66.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**65.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**61.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**27.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D24-9-45 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/23/2017
SDG#: SGB64-02

C. T. Male Associates
ELLE Sample #: SW 9239734
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**98.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**87.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**83.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**78.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**70.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**64.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**60.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**24.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D24-45-48 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/24/2017
SDG#: SGB64-03

C. T. Male Associates
ELLE Sample #: SW 9239735
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**98.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**90.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**81.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**79.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**77.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**75.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**73.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**67.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**64.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**56.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**33.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**15.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**8.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D24-48-51 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/24/2017
SDG#: SGB64-04

C. T. Male Associates
ELLE Sample #: SW 9239736
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**96.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**93.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**89.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**87.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**86.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**85.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**84.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**78.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**73.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D24-51-70 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/24/2017
SDG#: SGB64-05

C. T. Male Associates
ELLE Sample #: SW 9239737
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**96.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**94.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**89.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**88.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**87.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**86.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**83.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**79.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**71.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**27.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**17.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-1-20 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-06

C. T. Male Associates
ELLE Sample #: SW 9239738
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**84.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**70.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**66.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**59.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**55.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**51.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**47.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**39.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-23-50 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-07

C. T. Male Associates
ELLE Sample #: SW 9239739
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**80.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**74.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**71.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**68.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**56.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**50.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-50-80 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-08

C. T. Male Associates
ELLE Sample #: SW 9239740
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**83.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**78.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**76.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**73.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**68.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**64.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**57.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**56.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**51.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**36.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-80-89 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-09

C. T. Male Associates
ELLE Sample #: SW 9239741
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**96.3**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**83.2**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**79.6**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**74.8**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**73.6**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**71.4**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**68.4**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**65.2**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**57.8**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**56.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**50.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**36.5**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**23.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**18.5**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**16.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-89-96 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-10

C. T. Male Associates
ELLE Sample #: SW 9239742
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**88.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**80.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**75.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**66.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**64.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**63.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**59.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**54.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**42.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**26.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**13.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-102-104 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-11

C. T. Male Associates
ELLE Sample #: SW 9239743
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**80.3**	0.50	0.50	1
07103	**19 mm**		n.a.	**64.0**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**41.6**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**38.0**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**35.7**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**34.0**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**32.4**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**31.5**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**31.1**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**30.5**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**29.5**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**26.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**17.5**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**8.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-104-121 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/26/2017
SDG#: SGB64-12

C. T. Male Associates
ELLE Sample #: SW 9239744
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**80.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**73.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**69.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**66.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**60.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**57.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**49.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-121-123 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017
SDG#: SGB64-13

C. T. Male Associates
ELLE Sample #: SW 9239745
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**95.3**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**92.3**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**84.0**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**82.7**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**81.1**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**79.8**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**78.3**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**74.9**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**73.5**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**70.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**61.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**40.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**31.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**24.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-123-144 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017
SDG#: SGB64-14

C. T. Male Associates
ELLE Sample #: SW 9239746
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**96.7**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**87.3**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**82.0**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**73.4**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**70.4**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**67.0**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**64.0**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**61.2**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**56.9**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**55.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**50.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**38.5**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**20.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**12.5**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**9.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D11-144-145 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 09/30/2017 09:55
Collection Date/Time: 09/27/2017
SDG#: SGB64-15

C. T. Male Associates
ELLE Sample #: SW 9239747
ELLE Group #: 1857317
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**90.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**73.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**70.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**68.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**63.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**52.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**36.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**27.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**20.8**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**19.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17282710301A	10/09/2017 11:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1857317
Reported: 10/26/2017 16:23

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1657317 9239733-47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47367

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 ~~Latha~~ Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGP Bennington	Barr Project No: 45021004.00

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: grain size analysis	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-D24-0-8	0	8	ft	09/23/2017	—	Soil	N	1					grain size analysis
2. SG3-D24-9-45	9	45	ft	9-23-17	—	S	N	1					
3. SG3-D24-45-48	45	48	ft	9-24-17	—	S	N	1					
4. SG3-D24-48-51	48	51	ft	9-24-17	—	S	N	1					
5. SG3-D24-51-70	51	70	ft	9-24-17	—	S	N	1					
6.													
7.													
8.													
9.													
10.													

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

BARR USE ONLY		Relinquished by:	On Ice? Y (N)	Date	Time	Received by:	Date	Time
Sampled by:	DJZ	Derek Zander		9/29/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						9/30/17	955
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): N/A			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1857317 9239733 47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47368

COC 2 of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: grain size analysis	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D11-1-20	1	20	ft	09/26/2017	—	Soil	N	1		1				grain size analysis
2. SG3-D11-23-50	23	50	ft	9-26-17	—	S	N	1		1				
3. SG3-D11-50-80	50	80	ft	9-26-17	—	S	N	1		1				
4. SG3-D11-80-89	80	89	ft	9-26-17	—	S	N	1		1				
5. SG3-D11-89-96	89	96	ft	9-26-17	—	S	N	1		1				
6. SG3-D11-102-104	102	104	ft	9-26-17	—	S	N	1		1				
7. SG3-D11-104-121	104	121	ft	9-26-17	—	S	N	1		1				
8. SG3-D11-121-123	121	123	ft	9-27-17	—	S	N	1		1				
9. SG3-D11-123-144	123	144	ft	9-27-17	—	S	N	1		1				
10. SG3-D11-144-145	144	145	ft	9-27-17	—	S	N	1		1				

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ	Derek Zander	Y N	9/29/17	17:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						9/30/17	955
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): NA Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 196013

Group Number(s): 185737

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	09/30/2017 9:55
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 11:12 on 09/30/2017

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 04, 2017

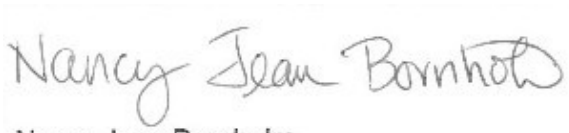
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1857780
SDG: SGB65
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-CityWaterTruck-171002 Grab Water	10/02/2017 11:10	9241701
SG3-CityWaterHose-171002 Grab Water	10/02/2017 11:15	9241702
SG3-CityWaterFracTk-171002 Grab Water	10/02/2017 11:55	9241703
SG3-AfterPOET-171002 Grab Water	10/02/2017 12:15	9241704
Trip Blank Blank Water	10/02/2017	9241705

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1857780

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9241702, 9241703, 9241704, 9241705

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9241701

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Batch #: 17276012 (Sample number(s): 9241701-9241705 UNSPK: 9241701)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9241701, 9241702, 9241703, 9241704, 9241705, Blank, LCS, LCSD, MS

Sample Description: SG3-CityWaterTruck-171002 Grab Water
SGPP - North Bennington

ELLE Sample # GW 9241701
ELLE Group # 1857780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/02/2017 11:10 by RQM

Submitted: 10/03/2017 09:40
Reported: 10/04/2017 13:33

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

TRUCK SDG#: SGB65-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276012	10/04/2017 04:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17276012	10/03/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterHose-171002 Grab Water
SGPP - North Bennington

ELLE Sample # GW 9241702
ELLE Group # 1857780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/02/2017 11:15 by RQM

Submitted: 10/03/2017 09:40
Reported: 10/04/2017 13:33

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

HOSE- SDG#: SGB65-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**2**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276012	10/04/2017 05:29	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17276012	10/03/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterFracTk-171002 Grab Water
SGPP - North Bennington

ELLE Sample # GW 9241703
ELLE Group # 1857780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/02/2017 11:55 by RQM

Submitted: 10/03/2017 09:40
Reported: 10/04/2017 13:33

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FRAC- SDG#: SGB65-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276012	10/04/2017 05:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17276012	10/03/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-AfterPOET-171002 Grab Water
SGPP - North Bennington

ELLE Sample # GW 9241704
ELLE Group # 1857780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/02/2017 12:15 by RQM

Submitted: 10/03/2017 09:40
Reported: 10/04/2017 13:33

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

APOET SDG#: SGB65-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276012	10/04/2017 06:11	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17276012	10/03/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Blank Water
SGPP - North Bennington

ELLE Sample # WW 9241705
ELLE Group # 1857780
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/02/2017

Submitted: 10/03/2017 09:40
Reported: 10/04/2017 13:33

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

POETT SDG#: SGB65-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17276012	10/04/2017 06:31	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17276012	10/03/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1857780
Reported: 10/04/2017 13:33

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17276012	Sample number(s): 9241701-9241705			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17276012	Sample number(s): 9241701-9241705								
6:2 fluorotelomersulfonate	4.55	7.98	4.55	7.20	175*	158*	70-130	10	30
8:2 fluorotelomersulfonate	4.60	4.45	4.60	4.90	97	107	70-130	10	30
NEtFOSAA	4.80	4.77	4.80	4.27	99	89	70-130	11	30
NMeFOSAA	4.80	5.00	4.80	4.62	104	96	70-130	8	30
Perfluorobutanesulfonate	12.03	11.28	12.03	11.04	94	92	70-130	2	30
Perfluorobutanoic Acid	13.6	13.35	13.6	13.57	98	100	70-130	2	30
Perfluorodecanoic acid	13.6	12.82	13.6	14.15	94	104	70-130	10	30
Perfluorododecanoic acid	13.6	12.67	13.6	13.55	93	100	70-130	7	30
Perfluoroheptanoic acid	13.6	13.65	13.6	12.37	100	91	70-130	10	30
Perfluorohexanesulfonate	12.86	9.55	12.86	12.01	74	93	70-130	23	30
Perfluorohexanoic acid	13.6	14.12	13.6	13.77	104	101	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1857780
Reported: 10/04/2017 13:33

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	11.73	13.6	12.27	86	90	70-130	4	30
Perfluoro-octanesulfonate	13	11.56	13	13.26	89	102	70-130	14	30
Perfluorooctanoic acid	13.6	14.36	13.6	12.33	106	91	70-130	15	30
Perfluoropentanoic Acid	13.6	12.46	13.6	14.25	92	105	70-130	13	30
Perfluorotetradecanoic acid	13.6	12.4	13.6	12.88	91	95	70-130	4	30
Perfluorotridecanoic acid	13.6	12.1	13.6	11.94	89	88	70-130	1	30
Perfluoroundecanoic acid	13.6	14.18	13.6	13.17	104	97	70-130	7	30
PFOSA	13.6	13.52	13.6	14.09	99	104	70-130	4	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17276012	Sample number(s): 9241701-9241705 UNSPK: 9241701										
6:2 fluorotelomersulfonate	3	U	4.54	5.70			125		70-130		
8:2 fluorotelomersulfonate	4	U	4.59	5.27			115		70-130		
NEtFOSAA	1	U	4.79	5.83			122		70-130		
NMeFOSAA	1	U	4.79	4.65			97		70-130		
Perfluorobutanesulfonate	0.8	U	12.01	11.89			99		70-130		
Perfluorobutanoic Acid	3	U	13.58	15.38			113		70-130		
Perfluorodecanoic acid	0.5	U	13.58	14.5			107		70-130		
Perfluorododecanoic acid	0.5	U	13.58	14.55			107		70-130		
Perfluoroheptanoic acid	1.30		13.58	14.22			95		70-130		
Perfluorohexanesulfonate	1	U	12.84	14.75			115		70-130		
Perfluorohexanoic acid	1.22		13.58	15.78			107		70-130		
Perfluorononanoic acid	0.6	U	13.58	13.42			99		70-130		
Perfluoro-octanesulfonate	2	U	12.98	14.78			114		70-130		
Perfluorooctanoic acid	3.05		13.58	15.24			90		70-130		
Perfluoropentanoic Acid	1.18		13.58	14.76			100		70-130		
Perfluorotetradecanoic acid	0.5	U	13.58	14.03			103		70-130		
Perfluorotridecanoic acid	0.5	U	13.58	11.77			87		70-130		
Perfluoroundecanoic acid	1	U	13.58	14.73			108		70-130		
PFOSA	3	U	13.58	15.12			111		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1857780
Reported: 10/04/2017 13:33

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17276012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9241701	93	101	95	101	102	94
9241702	89	99	83	93	101	92
9241703	88	99	84	98	83	94
9241704	79	79	61	76	75	79
9241705	99	90	77	102	101	105
Blank	88	81	69	83	78	81
LCS	88	88	70	96	109	93
LCSD	94	89	76	99	111	101
MS	89	102	93	90	85	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9241701	97	90	102	99	93	89
9241702	97	97	73	88	98	72
9241703	82	88	76	95	88	73
9241704	64	82	86	88	75	68
9241705	71	100	83	91	89	61
Blank	65	84	78	85	98	74
LCS	64	89	90	102	90	64
LCSD	76	103	98	107	102	87
MS	82	94	78	86	84	68
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9241701	104	105	112	101	100	13*
9241702	108	99	114	101	96	38*
9241703	113	94	108	93	96	34*
9241704	86	94	99	86	81	33*
9241705	99	93	108	94	89	43*
Blank	102	86	97	105	86	30*
LCS	102	89	105	88	86	39*
LCSD	118	115	122	124	115	25*
MS	102	92	110	98	92	31*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1857780 / 9241701-05

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47416

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Road, NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic / Tr-zma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CityWaterTruck-171002				10/02/2017	11:10	Water	N	2	2			
2. SG3-CityWaterHose-171002				10/02/2017	11:15	Water	N	2	2			
3. SG3-CityWaterFracTk-171002				10/02/2017	1155	Water	N	2	2			
4. SG3-AfterPOET-171002				10/02/2017	1215	Water	N	2	2			
5. Trip Blank				10/02/2017	PM	Water	N	2	2			
6.												
7.												
8.												
9.												
10.												

PFCs (19)

Rush TAT Need ASAP

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM — On Ice? ☒ Y ☐ N — Date 10/02/17 — Time 16:30

Relinquished by: — On Ice? ☐ Y ☐ N — Date — Time

Received by: — Date — Time

Received by: — Date 10/3/17 — Time 0940

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 3.0°C Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196122

Group Number(s): 1857780

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/03/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:15 on 10/03/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 06, 2017

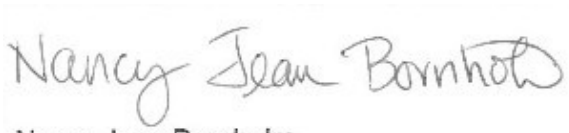
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1858439
SDG: SGB66
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-CityWaterTruck-171003 Water	10/03/2017 10:05	9244180
SG3-CityWaterHose-171003 Water	10/03/2017 10:10	9244181
SG3-CityWaterFracTK-171003 Water	10/03/2017 11:00	9244182
Trip Blank Water	10/03/2017	9244183
SG3-FilteredWaterFracTK-171003 Water	10/03/2017 10:30	9244184

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1858439

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9244180, 9244181, 9244182, 9244183, 9244184

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17277011 (Sample number(s): 9244180-9244184 UNSPK: 9244180)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9244180, 9244181, 9244182, 9244183, 9244184, LCSD

Sample Description: SG3-CityWaterTruck-171003 Water
SGPP - North Bennington

ELLE Sample # GW 9244180
ELLE Group # 1858439
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/03/2017 10:05 by RQM

Submitted: 10/04/2017 09:40
Reported: 10/06/2017 08:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

03CWT SDG#: SGB66-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**1**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17277011	10/05/2017 04:39	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17277011	10/04/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterHose-171003 Water
SGPP - North Bennington

ELLE Sample # GW 9244181
ELLE Group # 1858439
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/03/2017 10:10 by RQM

Submitted: 10/04/2017 09:40
Reported: 10/06/2017 08:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

03CWH SDG#: SGB66-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.8**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**0.9**	**J**	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**2**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17277011	10/05/2017 07:03	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17277011	10/04/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-CityWaterFracTK-171003 Water
SGPP - North Bennington

ELLE Sample # GW 9244182
ELLE Group # 1858439
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/03/2017 11:00 by RQM

Submitted: 10/04/2017 09:40
Reported: 10/06/2017 08:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

03CWF SDG#: SGB66-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.8**	**J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluorohexanoic acid**	307-24-4	**1**	**J**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.7**	**J**	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**3**		0.6	2	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**1**	**J**	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17277011	10/05/2017 07:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17277011	10/04/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9244183
ELLE Group # 1858439
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/03/2017 by RQM

Submitted: 10/04/2017 09:40
Reported: 10/06/2017 08:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

03TBB SDG#: SGB66-04TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17277011	10/05/2017 07:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17277011	10/04/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FilteredWaterFracTK-171003 Water
SGPP - North Bennington

ELLE Sample # GW 9244184
ELLE Group # 1858439
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/03/2017 10:30 by RQM

Submitted: 10/04/2017 09:40
Reported: 10/06/2017 08:57

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

03FWF SDG#: SGB66-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**1**	**J**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17277011	10/05/2017 08:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17277011	10/04/2017 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1858439
Reported: 10/06/2017 08:57

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17277011	Sample number(s): 9244180-9244184			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17277011	Sample number(s): 9244180-9244184								
6:2 fluorotelomersulfonate	40.01	39.22	40.01	42.05	98	105	70-130	7	30
8:2 fluorotelomersulfonate	40.43	44.42	40.43	34.34	110	85	70-130	26	30
NEtFOSAA	4.80	4.18	4.80	4.74	87	99	70-130	13	30
NMeFOSAA	4.80	4.92	4.80	5.49	102	114	70-130	11	30
Perfluorobutanesulfonate	12.03	10.64	12.03	11.07	88	92	70-130	4	30
Perfluorobutanoic Acid	13.6	11.69	13.6	12.68	86	93	70-130	8	30
Perfluorodecanoic acid	13.6	13.19	13.6	13.45	97	99	70-130	2	30
Perfluorododecanoic acid	13.6	10.95	13.6	11.86	80	87	70-130	8	30
Perfluoroheptanoic acid	13.6	12.75	13.6	12.33	94	91	70-130	3	30
Perfluorohexanesulfonate	12.86	11.13	12.86	12.94	87	101	70-130	15	30
Perfluorohexanoic acid	13.6	12.78	13.6	14.22	94	105	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1858439
Reported: 10/06/2017 08:57

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.15	13.6	16.36	104	120	70-130	14	30
Perfluoro-octanesulfonate	13	10.18	13	12.45	78	96	70-130	20	30
Perfluorooctanoic acid	13.6	13.14	13.6	13.36	97	98	70-130	2	30
Perfluoropentanoic Acid	13.6	12.93	13.6	12.11	95	89	70-130	6	30
Perfluorotetradecanoic acid	13.6	13.21	13.6	14.03	97	103	70-130	6	30
Perfluorotridecanoic acid	13.6	10.21	13.6	11.39	75	84	70-130	11	30
Perfluoroundecanoic acid	13.6	12.29	13.6	13.59	90	100	70-130	10	30
PFOSA	13.6	12.72	13.6	14.14	94	104	70-130	11	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17277011	Sample number(s): 9244180-9244184 UNSPK: 9244180										
6:2 fluorotelomersulfonate	3	U	40.13	41.78			104		70-130		
8:2 fluorotelomersulfonate	4	U	40.55	34.86			86		70-130		
NEtFOSAA	1	U	4.81	4.68			97		70-130		
NMeFOSAA	1	U	4.81	4.66			97		70-130		
Perfluorobutanesulfonate	0.8	U	12.07	10.87			90		70-130		
Perfluorobutanoic Acid	3	U	13.64	14.28			105		70-130		
Perfluorodecanoic acid	0.5	U	13.64	14.45			106		70-130		
Perfluorododecanoic acid	0.5	U	13.64	12.08			89		70-130		
Perfluoroheptanoic acid	1.02		13.64	12.85			87		70-130		
Perfluorohexanesulfonate	1	U	12.9	12.25			95		70-130		
Perfluorohexanoic acid	0.940		13.64	13.71			94		70-130		
Perfluorononanoic acid	0.6	U	13.64	15.56			114		70-130		
Perfluoro-octanesulfonate	2	U	13.04	12.28			94		70-130		
Perfluorooctanoic acid	2.72		13.64	14.86			89		70-130		
Perfluoropentanoic Acid	1.11		13.64	14.21			96		70-130		
Perfluorotetradecanoic acid	0.5	U	13.64	13.16			97		70-130		
Perfluorotridecanoic acid	0.5	U	13.64	11.81			87		70-130		
Perfluoroundecanoic acid	1	U	13.64	13.76			101		70-130		
PFOSA	3	U	13.64	12.61			92		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1858439
Reported: 10/06/2017 08:57

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17277011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9244180	93	104	104	105	107	104
9244181	103	115	111	101	103	103
9244182	89	101	95	98	102	94
9244183	95	89	84	109	98	105
9244184	95	94	83	95	97	97
Blank	92	84	74	101	101	106
LCS	97	91	76	101	102	102
LCSD	98	97	81	88	88	96
MS	102	114	116	102	105	105
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9244180	70	101	84	94	93	83
9244181	81	98	97	102	98	91
9244182	75	92	90	88	92	74
9244183	83	101	85	82	98	68
9244184	71	90	84	91	98	79
Blank	73	88	89	84	101	77
LCS	82	100	92	85	90	79
LCSD	67	92	91	88	99	77
MS	81	98	91	89	99	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9244180	83	86	96	83	83	63*
9244181	101	100	102	95	86	68*
9244182	82	90	95	90	81	56*
9244183	79	88	93	92	79	64*
9244184	86	94	100	97	83	61*
Blank	99	91	105	100	94	74
LCS	96	95	118	103	93	78
LCSD	100	94	108	99	90	69*
MS	97	99	106	96	94	75
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1858439 / 9244180-84 RUSH RESULTS - ASAP

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47417

COC 1 of 3

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml plastic/Trizma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CityWaterTruck-171003				10/03/2017	10:05	Water	N	2	2			PFCs (19)
2. SG3-CityWaterHose-171003				10/03/2017	10:10	Water	N	2	2			
3. SG3-CityWaterFracTK-171003				10/03/2017	11:00	Water	N	2	2			
4. Trip Blank				10/03/2017	AM	Water	N	2	2			
5. SG3-FilteredWaterFracTK-171003				10/03/2017	10:30	Water	N	2	2			
6.												
7.												
8.												
9.												
10.												

Rush Results ASAP

BARR USE ONLY							
Sampled by: RQM	Relinquished by: (RQM)	On Ice? (Y) N	Date 10/03/2017	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.4.17	Time 09:40
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 1.1/1.3			Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Final Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196252

Group Number(s): 1858439

Client: BARR ENGINEERING CO.

SGPP BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/04/2017 9:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 10:15 on 10/04/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.3	DT	Wet	Y	Bagged	N
2	DT42-02	1.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 30, 2017 12:41

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1858710
SDG: SGB67
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR1-158-159' Soil	10/03/2017 15:45	9245647
SG3-LTB59-171003 Blank Water	10/03/2017	9245648
SG3-LTB60-171003 Blank Water	10/03/2017	9245649
SG3-D12-0-0.5' Soil	10/03/2017 10:15	9245650
SG3-D12-0.5-1' Soil	10/03/2017 10:25	9245651
SG3-D12-1-1.5' Soil	10/03/2017 10:35	9245652
SG3-D12-3-4' Soil	10/03/2017 10:45	9245653
SG3-D12-8-9' Soil	10/03/2017 11:05	9245654
SG3-SP1-171003 Water	10/03/2017 13:10	9245655
SG3-D12-18-19' Soil	10/03/2017 14:30	9245656
SG3-D12-28-29' Soil	10/03/2017 15:05	9245657

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1858710

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9245654, 9245657

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9245655

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside the QC acceptance limits. The recovery for the extraction standard is also outside the QC acceptance limits in the associated matrix spike, indicating a matrix effect.

Batch #: 17278012 (Sample number(s): 9245655 UNSPK: 9245655)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9245655, MS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9245655, MS

Batch #: 17284003 (Sample number(s): 9245647, 9245650-9245654, 9245656-9245657 UNSPK: P237980)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9245647, 9245654, 9245657

SW-846 6010C, Metals

Batch #: 172791063703 (Sample number(s): 9245647 UNSPK: P247923 BKG: P247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Aluminum, Magnesium, Manganese, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Manganese

SW-846 6020A, Metals

Batch #: 172791063703A (Sample number(s): 9245647 UNSPK: P247923 BKG: P247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead, Nickel, Thallium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Lead, Nickel, Silver, Thallium

Batch #: 172791063703D (Sample number(s): 9245647 UNSPK: P247923 BKG: P247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17299245032A (Sample number(s): 9245654, 9245656-9245657 UNSPK: 9245656 BKG: 9245656)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17299245033B (Sample number(s): 9245647, 9245650-9245653 UNSPK: 9245651 BKG: 9245651)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9245651

The pH was measured in water at 20 C.

Sample #s: 9245647, 9245650, 9245652, 9245653, 9245656

The pH was measured in water at 20.1 C.

Sample #s: 9245654

The pH was measured in water at 20.2 C.

Sample #s: 9245657

The pH was measured in water at 20.4 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17285820004A (Sample number(s): 9245650 BKG: 9245650)

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The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **SG3-MW-BR1-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 15:45
SDG#: SGB67-01

C. T. Male Associates
ELLE Sample #: SW 9245647
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,400**	9.04	40.5	1
01650	**Calcium**	7440-70-2	**331**	3.37	40.5	1
01654	**Iron**	7439-89-6	**45,500**	40.7	202	5
01657	**Magnesium**	7439-95-4	**595**	2.46	20.2	1
06958	**Manganese**	7439-96-5	**214**	0.0839	1.01	1
01662	**Potassium**	7440-09-7	**625**	16.9	101	1
01667	Sodium	7440-23-5	16.9 U	16.9	202	1
06972	**Zinc**	7440-66-6	**63.3**	0.243	4.05	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.261 J**	0.0943	0.405	2
06125	**Arsenic**	7440-38-2	**10.7**	0.129	0.809	2
06126	**Barium**	7440-39-3	**16.5**	0.184	0.809	2
06127	**Beryllium**	7440-41-7	**0.815**	0.0106	0.202	2
06128	**Cadmium**	7440-43-9	**0.0918 J**	0.0348	0.202	2
06131	**Chromium**	7440-47-3	**5.38**	0.176	0.809	2
06132	**Cobalt**	7440-48-4	**18.1**	0.0316	0.202	2
06133	**Copper**	7440-50-8	**50.3**	0.108	0.809	2
06135	**Lead**	7439-92-1	**6.69**	0.0225	0.405	2
06139	**Nickel**	7440-02-0	**20.5**	0.201	0.809	2
06141	**Selenium**	7782-49-2	**0.150 J**	0.101	0.809	2
06142	Silver	7440-22-4	0.0295 U	0.0295	0.202	2
06145	**Thallium**	7440-28-0	**0.142 J**	0.0253	0.202	2
06148	**Vanadium**	7440-62-2	**10.1**	0.0431	0.202	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 15:45
SDG#: SGB67-01

C. T. Male Associates
ELLE Sample #: SW 9245647
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**244 J**	131	394	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**20.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 05:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:06	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:52	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:03	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:39	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:39	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 15:45
SDG#: SGB67-01

C. T. Male Associates
ELLE Sample #: SW 9245647
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:39	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245033B	10/27/2017 23:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039401A	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB59-171003 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017
SDG#: SGB67-02TB

C. T. Male Associates
ELLE Sample #: WW 9245648
ELLE Group #: 1858710
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17280003	10/17/2017 13:34	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280003	10/08/2017 10:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB60-171003 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017
SDG#: SGB67-03TB

C. T. Male Associates
ELLE Sample #: WW 9245649
ELLE Group #: 1858710
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17280003	10/17/2017 21:38	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280003	10/08/2017 10:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:15
SDG#: SGB67-04

C. T. Male Associates
ELLE Sample #: SW 9245650
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.55 J**	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.50 J**	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,600**	702	2,110	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.90**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 06:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:15
SDG#: SGB67-04

C. T. Male Associates
ELLE Sample #: SW 9245650
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17299245033B	10/27/2017 02:16	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401A	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17285820004A	10/12/2017 21:39	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:25
SDG#: SGB67-05

C. T. Male Associates
ELLE Sample #: SW 9245651
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.087 U	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087 U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,100**	664	1,990	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 06:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D12-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:25
SDG#: SGB67-05

C. T. Male Associates
ELLE Sample #: SW 9245651
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17299245033B	10/27/2017 02:29	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:35
SDG#: SGB67-06

C. T. Male Associates
ELLE Sample #: SW 9245652
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,230**	453	1,360	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 06:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:35
SDG#: SGB67-06

C. T. Male Associates
ELLE Sample #: SW 9245652
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17299245033B	10/27/2017 03:08	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:45
SDG#: SGB67-07

C. T. Male Associates
ELLE Sample #: SW 9245653
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36 J**	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,060**	670	2,010	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.95**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 07:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 10:45
SDG#: SGB67-07

C. T. Male Associates
ELLE Sample #: SW 9245653
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17299245033B	10/27/2017 03:21	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 11:05
SDG#: SGB67-08

C. T. Male Associates
ELLE Sample #: SW 9245654
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,500**	533	1,600	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 07:26	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 11:05
SDG#: SGB67-08

C. T. Male Associates
ELLE Sample #: SW 9245654
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17299245032A	10/27/2017 04:51	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-SP1-171003 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 13:10
SDG#: SGB67-09

C. T. Male Associates
ELLE Sample #: GW 9245655
ELLE Group #: 1858710
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**Perfluorobutanesulfonate**	375-73-5	**0.9 J**	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside the QC acceptance limits. The recovery for the extraction standard is also outside the QC acceptance limits in the associated matrix spike, indicating a matrix effect.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17278012	10/06/2017 00:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17278012	10/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 14:30
SDG#: SGB67-10

C. T. Male Associates
ELLE Sample #: SW 9245656
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,300**	752	2,260	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.48**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 07:47	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 14:30
SDG#: SGB67-10

C. T. Male Associates
ELLE Sample #: SW 9245656
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17299245032A	10/27/2017 05:04	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17285820011A	10/14/2017 00:04	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 15:05
SDG#: SGB67-11

C. T. Male Associates
ELLE Sample #: SW 9245657
ELLE Group #: 1858710
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,910**	527	1,580	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17284003	10/16/2017 08:08	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/04/2017 09:40
Collection Date/Time: 10/03/2017 15:05
SDG#: SGB67-11

C. T. Male Associates
ELLE Sample #: SW 9245657
ELLE Group #: 1858710
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17284003	10/11/2017 11:00	Pamela Rothharpt	1
02079	TOC	SM 5310 B modified-2000	1	17299245032A	10/27/2017 05:39	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039401B	10/06/2017 18:30	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17284003	Sample number(s): 9245647,9245650-9245654,9245656-9245657		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17278012	Sample number(s): 9245655		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9
Batch number: 17280003	Sample number(s): 9245648-9245649		
Perfluorobutanesulfonate	0.8 U	0.8	3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172791063703	Sample number(s): 9245647		
Aluminum	8.94 U	8.94	40.0
Calcium	3.53 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.158 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.309 J	0.240	4.00
Batch number: 172791063703A	Sample number(s): 9245647		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172791063703B	Sample number(s): 9245647		
Selenium	0.100 U	0.100	0.800
Batch number: 172791063703D	Sample number(s): 9245647		
Barium	0.182 U	0.182	0.800
Batch number: 17299245032A	Sample number(s): 9245654,9245656-9245657		
TOC	100 U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/kg		mg/kg	mg/kg
Batch number: 17299245033B	Sample number(s): 9245647,9245650-9245653			
TOC	100	U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 17284003	Sample number(s): 9245647,9245650-9245654,9245656-9245657								
Perfluorobutanesulfonate	1.20	1.16	1.20	0.992	96	82	70-130	16	30
Perfluorobutanoic acid	1.36	1.34	1.36	1.40	98	103	70-130	5	30
Perfluorodecanoic acid	1.36	1.29	1.36	1.53	95	113	70-130	17	30
Perfluorododecanoic acid	1.36	1.33	1.36	1.26	98	93	70-130	5	30
Perfluoroheptanoic acid	1.36	1.41	1.36	1.36	104	100	70-130	4	30
Perfluorohexanesulfonate	1.29	1.27	1.29	1.24	99	96	70-130	3	30
Perfluorohexanoic acid	1.36	1.35	1.36	1.12	99	82	70-130	19	30
Perfluorononanoic acid	1.36	1.38	1.36	1.38	101	102	70-130	0	30
Perfluoro-octanesulfonate	1.30	1.15	1.30	1.29	88	99	70-130	11	30
Perfluorooctanoic acid	1.36	1.45	1.36	1.38	106	101	70-130	5	30
Perfluoropentanoic acid	1.36	1.25	1.36	1.39	92	102	70-130	11	30
Perfluorotetradecanoic acid	1.36	1.18	1.36	1.37	87	101	70-130	15	30
Perfluorotridecanoic acid	1.36	1.39	1.36	1.33	102	98	70-130	5	30
Perfluoroundecanoic acid	1.36	1.43	1.36	1.38	105	101	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17278012	Sample number(s): 9245655								
6:2 fluorotelomersulfonate	40.01	44.61	40.01	39.63	111	99	70-130	12	30
8:2 fluorotelomersulfonate	40.43	38.22	40.43	43.25	95	107	70-130	12	30
NEtFOSAA	4.80	5.78	4.80	5.33	120	111	70-130	8	30
NMeFOSAA	4.80	4.91	4.80	5.86	102	122	70-130	18	30
Perfluorobutanesulfonate	12.03	12.12	12.03	11.49	101	96	70-130	5	30
Perfluorobutanoic Acid	13.6	13.78	13.6	13.41	101	99	70-130	3	30
Perfluorodecanoic acid	13.6	13.26	13.6	14.27	98	105	70-130	7	30
Perfluorododecanoic acid	13.6	14.54	13.6	14.07	107	103	70-130	3	30
Perfluoroheptanoic acid	13.6	13.52	13.6	13.41	99	99	70-130	1	30
Perfluorohexanesulfonate	12.86	14	12.86	11.97	109	93	70-130	16	30
Perfluorohexanoic acid	13.6	14.37	13.6	13.56	106	100	70-130	6	30
Perfluorononanoic acid	13.6	15.58	13.6	12.36	115	91	70-130	23	30
Perfluoro-octanesulfonate	13	13.25	13	12.3	102	95	70-130	7	30
Perfluorooctanoic acid	13.6	14.73	13.6	12.99	108	96	70-130	13	30
Perfluoropentanoic Acid	13.6	13.65	13.6	13.86	100	102	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.06	13.6	13.99	103	103	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	13.6	14.22	13.6	12.52	105	92	70-130	13	30
Perfluoroundecanoic acid	13.6	13.72	13.6	12.52	101	92	70-130	9	30
PFOSA	13.6	13.77	13.6	12.78	101	94	70-130	7	30
Batch number: 17280003	Sample number(s): 9245648-9245649								
Perfluorobutanesulfonate	12.03	12.16	12.03	12.61	101	105	70-130	4	30
Perfluorobutanoic Acid	13.6	14.49	13.6	14.56	107	107	70-130	0	30
Perfluorodecanoic acid	13.6	13.27	13.6	13.57	98	100	70-130	2	30
Perfluorododecanoic acid	13.6	13.4	13.6	13.98	99	103	70-130	4	30
Perfluoroheptanoic acid	13.6	12.81	13.6	16.05	94	118	70-130	22	30
Perfluorohexanesulfonate	12.86	10.69	12.86	12.86	83	100	70-130	18	30
Perfluorohexanoic acid	13.6	13.44	13.6	14.93	99	110	70-130	10	30
Perfluorononanoic acid	13.6	14.07	13.6	15.6	103	115	70-130	10	30
Perfluoro-octanesulfonate	13	13.52	13	11.38	104	88	70-130	17	30
Perfluorooctanoic acid	13.6	12.24	13.6	12.6	90	93	70-130	3	30
Perfluoropentanoic Acid	13.6	14.35	13.6	13.97	106	103	70-130	3	30
Perfluorotetradecanoic acid	13.6	13.81	13.6	14.19	102	104	70-130	3	30
Perfluorotridecanoic acid	13.6	11.85	13.6	13.34	87	98	70-130	12	30
Perfluoroundecanoic acid	13.6	14.25	13.6	15.04	105	111	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172791063703	Sample number(s): 9245647								
Aluminum	200	208.14			104		80-120		
Calcium	400	370.72			93		80-120		
Iron	100	93.91			94		80-120		
Magnesium	200	185.41			93		80-120		
Manganese	50	47.97			96		80-120		
Potassium	1000	951.05			95		80-120		
Sodium	1000	929.35			93		80-120		
Zinc	50	47.47			95		80-120		
Batch number: 172791063703A	Sample number(s): 9245647								
Antimony	0.600	0.571			95		80-120		
Arsenic	1.00	1.10			110		80-120		
Beryllium	0.400	0.415			104		80-120		
Cadmium	0.500	0.509			102		80-120		
Chromium	5.00	5.44			109		80-120		
Cobalt	25	25.72			103		80-120		
Copper	5.00	5.49			110		80-120		
Lead	1.50	1.59			106		80-120		
Nickel	5.00	5.38			108		80-120		
Silver	5.00	5.28			106		80-120		
Thallium	0.200	0.180			90		80-120		
Vanadium	5.00	5.26			105		80-120		

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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 172791063703B	Sample number(s): 9245647								
Selenium	1.00	1.07			107		80-120		
Batch number: 172791063703D	Sample number(s): 9245647								
Barium	5.00	5.36			107		80-120		
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17299245032A	Sample number(s): 9245654,9245656-9245657								
TOC	7150	4930.61			69		47-143		
Batch number: 17299245033B	Sample number(s): 9245647,9245650-9245653								
TOC	7150	6370.17			89		47-143		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 17279039401A	Sample number(s): 9245647,9245650								
pH	7.00	6.92			99		95-105		
Batch number: 17279039401B	Sample number(s): 9245651-9245654,9245656-9245657								
pH	7.00	6.92			99		95-105		
	%	%	%	%					
Batch number: 17284820004B	Sample number(s): 9245647,9245651-9245654,9245657								
Moisture	89.5	89.38			100		99-101		
Batch number: 17285820004A	Sample number(s): 9245650								
Moisture	89.5	89.38			100		99-101		
Batch number: 17285820011A	Sample number(s): 9245656								
Moisture	89.5	89.35			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17284003	Sample number(s): 9245647,9245650-9245654,9245656-9245657 UNSPK: P237980									
Perfluorobutanesulfonate	0.19 U	1.13	1.03			91		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.31			102		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.40			109		70-130		
Perfluorododecanoic acid	0.19 U	1.28	1.38			108		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.46			114		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1858710
Reported: 10/30/2017 12:41

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	0.19 U	1.21	1.08			89		70-130		
Perfluorohexanoic acid	0.097 U	1.28	1.24			97		70-130		
Perfluorononanoic acid	0.097 U	1.28	1.22			95		70-130		
Perfluoro-octanesulfonate	0.342	1.23	1.63			105		70-130		
Perfluorooctanoic acid	0.313	1.28	1.42			86		70-130		
Perfluoropentanoic acid	0.19 U	1.28	1.20			93		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.22			95		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.46			114		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.37			107		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17278012	Sample number(s): 9245655 UNSPK: 9245655									
6:2 fluorotelomersulfonate	3 U	39.86	38.46			96		70-130		
8:2 fluorotelomersulfonate	4 U	40.28	38.56			96		70-130		
NEtFOSAA	1 U	4.78	5.37			112		70-130		
NMeFOSAA	1 U	4.78	4.93			103		70-130		
Perfluorobutanesulfonate	0.871	11.98	11.44			88		70-130		
Perfluorobutanoic Acid	3 U	13.55	12.78			94		70-130		
Perfluorodecanoic acid	0.5 U	13.55	12.55			93		70-130		
Perfluorododecanoic acid	0.5 U	13.55	13.88			102		70-130		
Perfluoroheptanoic acid	0.5 U	13.55	11.95			88		70-130		
Perfluorohexanesulfonate	1 U	12.81	11.6			91		70-130		
Perfluorohexanoic acid	0.6 U	13.55	14.4			106		70-130		
Perfluorononanoic acid	0.6 U	13.55	12.94			95		70-130		
Perfluoro-octanesulfonate	2 U	12.95	11.61			90		70-130		
Perfluorooctanoic acid	0.6 U	13.55	13.43			99		70-130		
Perfluoropentanoic Acid	0.5 U	13.55	12.54			93		70-130		
Perfluorotetradecanoic acid	0.5 U	13.55	12.87			95		70-130		
Perfluorotridecanoic acid	0.5 U	13.55	13.86			102		70-130		
Perfluoroundecanoic acid	1 U	13.55	13.03			96		70-130		
PFOSA	3 U	13.55	13.54			100		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172791063703	Sample number(s): 9245647 UNSPK: P247923									
Aluminum	8763.78	136.99	21087.15	151.52	15745.46	8996 (2)	4608 (2)	75-125	29*	20
Calcium	227.96	273.97	444.95	303.03	424.18	79	65*	75-125	5	20
Iron	24768.06	68.49	25845.74	75.76	23278.36	1573 (2)	-1966 (2)	75-125	10	20
Magnesium	356.79	136.99	565.22	151.52	595.59	152*	158*	75-125	5	20
Manganese	233.93	34.25	366.2	37.88	349.84	386 (2)	306 (2)	75-125	5	20
Potassium	778.5	684.93	1355.53	757.58	1626.6	84	112	75-125	18	20
Sodium	15.8 U	684.93	570.25	757.58	641.93	83	85	75-125	12	20
Zinc	20.55	34.25	50.5	37.88	53.36	87	87	75-125	6	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172791063703A	Sample number(s): 9245647 UNSPK: P247923									
Antimony	0.0879 U	0.822	0.353	0.909	0.365	43*	40*	75-125	3	20
Arsenic	4.24	1.37	4.83	1.52	5.10	43*	57*	75-125	5	20
Beryllium	0.674	0.548	1.22	0.606	1.32	100	107	75-125	8	20
Cadmium	0.0566	0.685	0.762	0.758	0.830	103	102	75-125	9	20
Chromium	1.90	6.85	8.71	7.58	9.59	99	102	75-125	10	20
Cobalt	8.99	34.25	44.18	37.88	49.78	103	108	75-125	12	20
Copper	28.98	6.85	35.53	7.58	37.52	96 (2)	113	75-125	5	20
Lead	11.79	2.05	20.89	2.27	23.84	443 (2)	530 (2)	75-125	13	20
Nickel	20.27	6.85	29.12	7.58	34.47	129*	187*	75-125	17	20
Silver	0.0275 U	6.85	6.80	7.58	7.82	99	103	75-125	14	20
Thallium	0.144	0.274	0.494	0.303	0.510	128*	121	75-125	3	20
Vanadium	5.23	6.85	11.92	7.58	13.21	98	105	75-125	10	20
Batch number: 172791063703B	Sample number(s): 9245647 UNSPK: P247923									
Selenium	0.148	1.37	1.36	1.52	1.58	88	95	75-125	16	20
Batch number: 172791063703D	Sample number(s): 9245647 UNSPK: P247923									
Barium	50.68	6.85	104.67	7.58	113.84	788 (2)	834 (2)	75-125	8	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17299245032A	Sample number(s): 9245654,9245656-9245657 UNSPK: 9245656									
TOC	9100.6	117180	140351.56			112		47-143		
Batch number: 17299245033B	Sample number(s): 9245647,9245650-9245653 UNSPK: 9245651									
TOC	16676.89	58950	80825.15			109		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172791063703	Sample number(s): 9245647 BKG: P247923			
Aluminum	8763.78	10718.76	20	20
Calcium	227.96	255.13	11	20
Iron	24768.06	26560.63	7	20
Magnesium	356.79	368.76	3	20
Manganese	233.93	434.49	60*	20
Potassium	778.5	671.73	15	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Sodium	15.8 U	12.1 U	0 (1)	20
Zinc	20.55	23.72	14	20
Batch number: 172791063703A	Sample number(s): 9245647 BKG: P247923			
Antimony	0.0879 U	0.0675 U	0 (1)	20
Arsenic	4.24	3.76	12	20
Beryllium	0.674	0.744	10 (1)	20
Cadmium	0.0566	0.0548	3 (1)	20
Chromium	1.90	1.97	4 (1)	20
Cobalt	8.99	16.65	60*	20
Copper	28.98	34.43	17	20
Lead	11.79	15.9	30*	20
Nickel	20.27	31.41	43*	20
Silver	0.0275 U	0.0229	200* (1)	20
Thallium	0.144	0.273	62* (1)	20
Vanadium	5.23	5.27	1	20
Batch number: 172791063703B	Sample number(s): 9245647 BKG: P247923			
Selenium	0.148	0.133	11 (1)	20
Batch number: 172791063703D	Sample number(s): 9245647 BKG: P247923			
Barium	50.68	74.78	38*	20
	mg/kg	mg/kg		
Batch number: 17299245032A	Sample number(s): 9245654,9245656-9245657 BKG: 9245656			
TOC	9100.6	3887.64	80* (1)	7
Batch number: 17299245033B	Sample number(s): 9245647,9245650-9245653 BKG: 9245651			
TOC	16676.89	13452.3	21*	7
	Std. Units	Std. Units		
Batch number: 17279039401A	Sample number(s): 9245647,9245650 BKG: P245730			
pH	7.72	7.74	0	3
Batch number: 17279039401B	Sample number(s): 9245651-9245654,9245656-9245657 BKG: P241612			
pH	12.48	12.45	0	3
	%	%		
Batch number: 17284820004B	Sample number(s): 9245647,9245651-9245654,9245657 BKG: P247923			
Moisture	21.99	21.64	2	5
Batch number: 17285820004A	Sample number(s): 9245650 BKG: 9245650			
Moisture	10.5	11.74	11*	5
Batch number: 17285820011A	Sample number(s): 9245656 BKG: 9245656			

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture	11.42	11.83	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17278012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9245655	89	97	96	91	90	86
Blank	91	96	96	97	101	93
LCS	97	98	96	98	95	99
LCSD	92	95	91	92	96	93
MS	92	100	94	94	98	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9245655	99	91	90	76	93	214*
Blank	86	88	81	82	101	91
LCS	95	102	87	89	88	94
LCSD	87	91	91	94	101	97
MS	101	101	103	88	90	177*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9245655	77	87	93	81	76	62*
Blank	102	104	114	102	95	91
LCS	88	90	83	86	82	90
LCSD	95	110	109	107	96	95
MS	81	98	117	95	89	60*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17280003

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17280003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9245648	88	91	85	94	84	89
9245649	82	85	79	72	67	81
Blank	89	92	82	81	71	82
LCS	81	82	74	76	80	84
LCSD	85	85	80	78	80	80
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9245648	93	90	83	96	98	91
9245649	82	81	111	87	90	74
Blank	90	81	91	101	98	89
LCS	86	84	98	83	90	92
LCSD	90	95	85	92	90	91
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9245648	90
9245649	69
Blank	85
LCS	81
LCSD	86
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17284003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9245647	41	40*	56	46	63	46
9245650	74	77	75	77	77	79
9245651	73	72	75	73	74	82
9245652	78	77	80	79	79	79
9245653	77	73	79	85	88	83
9245654	67	65*	70	75	87	82
9245656	74	75	82	76	77	79
9245657	71	68*	75	78	76	85
Blank	77	77	75	82	80	86
LCS	82	82	78	86	78	83

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 12:41

Group Number: 1858710

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17284003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCSD	88	84	95	95	83	102
MS	69	72	71	70	68	74
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9245647	45	61	39	45	48	43
9245650	69	85	83	72	76	69
9245651	84	74	75	81	84	74
9245652	80	90	73	82	74	76
9245653	85	75	84	83	87	93
9245654	75	76	70	66	70	69
9245656	76	80	79	81	73	71
9245657	72	86	70	72	73	74
Blank	78	78	82	78	81	81
LCS	79	77	85	81	81	77
LCSD	88	93	99	100	89	95
MS	69	72	74	69	72	61
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9245647	44
9245650	71
9245651	79
9245652	74
9245653	86
9245654	70
9245656	75
9245657	73
Blank	83
LCS	83
LCSD	96
MS	69
Limits:	20-127

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37191 1858710 9245647-57

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52325

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 Marketpointe Dr.	Address: 50 century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: PFCs (4)	Soil: 4oz. - TOC, metals, pH, Moist.	Soil: % Solids
									A	A	A	
									N	1	1	
1. SG3-MW-BR1-158-159	158	159	ft.	10/03/2017	15:45	S	N	2		1	1	
2. SG3-LTB59-171003				10/03/2017	PM	Water	N	2	2			
3. SG3-LTB60-171003				10/03/2017	PM	Water	N	2	2			
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Preservative Code

Field Filtered Y/N

Metals = TAL cations excluding Hg

Samples split into two coolers

BARR USE ONLY						
Sampled by: RQM	Relinquished by: RQM	On Ice? Y N	Date 10/03/2017	Time 17:00	Received by:	Date / Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.4.17 Time 0940
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)
Lab Name: ELLE						
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.1 1.3			Custody Seal Intact? ☑ Y ☐ N ☐ None	

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1858710 9245647-57

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47406

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 2D 250 mL plastic / PFC (19)	Soil 2D 250 mL plastic / PFC (14)	Soil 2E 4 oz glass / TOC, % Moist, pH	% Solids	Preservative Code / Field Filtered Y/N
1. SG3-D12-0-0.5'	0	0.5	ft	10/03/2017	1015	Soil	N	2		1	1		PFC (14), TOC, Moisture, pH
2. SG3-D12-0.5-1'	0.5	1	ft	10-03-17	1025	S	N	2		1	1		
3. SG3-D12-1-1.5'	1	1.5	ft	10-03-17	1035	S	N	2		1	1		
4. SG3-D12-3-4'	3	4	ft	10-03-17	1045	S	N	2		1	1		
5. SG3-D12-8-9'	8	9	ft	10-03-17	1105	S	N	2		1	1		
6. SG3-SP1-171003	—	—	—	10-03-17	1310	W	N	2	2				→ PFC (19)
7. SG3-D12-18-19'	18	19	ft	10-03-17	1430	S	N	2		1	1		
8. SG3-D12-28-29'	28	29	ft	10-03-17	1505	S	N	2		1	1		
9.													Samples in 2 coolers
10.													

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ RAK							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.4.17	Time 0940
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): 1.1 1.3 Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 196252

Group Number(s): 1858710

Client: BARR ENGINEERING CO.

SGPP BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/04/2017 9:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 10:15 on 10/04/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.3	DT	Wet	Y	Bagged	N
2	DT42-02	1.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 25, 2017 10:59

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859268
SDG: SGB68
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AFTERPOET-171004 Water	10/04/2017 15:30	9247778
Trip Blank Water	10/04/2017	9247779

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1859268

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9247779

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17278012 (Sample number(s): 9247778 UNSPK: P245655)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) MS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MS

Batch #: 17284002 (Sample number(s): 9247779)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9247779, Blank, LCS

Sample Description: **SG3-AFTERPOET-171004 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 15:30
SDG#: SGB68-01

C. T. Male Associates
ELLE Sample #: WW 9247778
ELLE Group #: 1859268
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**5 J**	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**2 J**	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17278012	10/06/2017 01:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17278012	10/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB68-02TB

C. T. Male Associates
ELLE Sample #: WW 9247779
ELLE Group #: 1859268
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17284002	10/17/2017 08:26	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17284002	10/11/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:59

Group Number: 1859268

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17278012	Sample number(s): 9247778			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9
Batch number: 17284002	Sample number(s): 9247779			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:59

Group Number: 1859268

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17278012	Sample number(s): 9247778								
6:2 fluorotelomersulfonate	40.01	44.61	40.01	39.63	111	99	70-130	12	30
8:2 fluorotelomersulfonate	40.43	38.22	40.43	43.25	95	107	70-130	12	30
NEtFOSAA	4.80	5.78	4.80	5.33	120	111	70-130	8	30
NMeFOSAA	4.80	4.91	4.80	5.86	102	122	70-130	18	30
Perfluorobutanesulfonate	12.03	12.12	12.03	11.49	101	96	70-130	5	30
Perfluorobutanoic Acid	13.6	13.78	13.6	13.41	101	99	70-130	3	30
Perfluorodecanoic acid	13.6	13.26	13.6	14.27	98	105	70-130	7	30
Perfluorododecanoic acid	13.6	14.54	13.6	14.07	107	103	70-130	3	30
Perfluoroheptanoic acid	13.6	13.52	13.6	13.41	99	99	70-130	1	30
Perfluorohexanesulfonate	12.86	14	12.86	11.97	109	93	70-130	16	30
Perfluorohexanoic acid	13.6	14.37	13.6	13.56	106	100	70-130	6	30
Perfluorononanoic acid	13.6	15.58	13.6	12.36	115	91	70-130	23	30
Perfluoro-octanesulfonate	13	13.25	13	12.3	102	95	70-130	7	30
Perfluorooctanoic acid	13.6	14.73	13.6	12.99	108	96	70-130	13	30
Perfluoropentanoic Acid	13.6	13.65	13.6	13.86	100	102	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.06	13.6	13.99	103	103	70-130	1	30
Perfluorotridecanoic acid	13.6	14.22	13.6	12.52	105	92	70-130	13	30
Perfluoroundecanoic acid	13.6	13.72	13.6	12.52	101	92	70-130	9	30
PFOSA	13.6	13.77	13.6	12.78	101	94	70-130	7	30
Batch number: 17284002	Sample number(s): 9247779								
6:2 fluorotelomersulfonate	40	42.45	40	38.85	106	97	70-130	9	30
8:2 fluorotelomersulfonate	40.43	37.87	40.43	39.08	94	97	70-130	3	30
NEtFOSAA	4.80	5.52	4.80	5.10	115	106	70-130	8	30
NMeFOSAA	4.80	6.21	4.80	5.51	129	115	70-130	12	30
Perfluorobutanesulfonate	12.03	12.37	12.03	11.91	103	99	70-130	4	30
Perfluorobutanoic Acid	13.6	13.59	13.6	14.57	100	107	70-130	7	30
Perfluorodecanoic acid	13.6	14.33	13.6	13.32	105	98	70-130	7	30
Perfluorododecanoic acid	13.6	13.8	13.6	13.33	101	98	70-130	3	30
Perfluoroheptanoic acid	13.6	14.4	13.6	15.12	106	111	70-130	5	30
Perfluorohexanesulfonate	12.86	13.52	12.86	12.44	105	97	70-130	8	30
Perfluorohexanoic acid	13.6	13.2	13.6	12.88	97	95	70-130	2	30
Perfluorononanoic acid	13.6	14.95	13.6	12.86	110	95	70-130	15	30
Perfluoro-octanesulfonate	13	14.67	13	15.55	113	120	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:59

Group Number: 1859268

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	13.6	15.46	13.6	14.24	114	105	70-130	8	30
Perfluoropentanoic Acid	13.6	14.07	13.6	14.12	103	104	70-130	0	30
Perfluorotetradecanoic acid	13.6	13.17	13.6	13.05	97	96	70-130	1	30
Perfluorotridecanoic acid	13.6	13.66	13.6	13.21	100	97	70-130	3	30
Perfluoroundecanoic acid	13.6	13.35	13.6	12.76	98	94	70-130	5	30
PFOSA	13.6	14.69	13.6	13.42	108	99	70-130	9	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17278012	Sample number(s): 9247778 UNSPK: P245655									
6:2 fluorotelomersulfonate	3 U	39.86	38.46			96		70-130		
8:2 fluorotelomersulfonate	4 U	40.28	38.56			96		70-130		
NEtFOSAA	1 U	4.78	5.37			112		70-130		
NMeFOSAA	1 U	4.78	4.93			103		70-130		
Perfluorobutanesulfonate	0.871	11.98	11.44			88		70-130		
Perfluorobutanoic Acid	3 U	13.55	12.78			94		70-130		
Perfluorodecanoic acid	0.5 U	13.55	12.55			93		70-130		
Perfluorododecanoic acid	0.5 U	13.55	13.88			102		70-130		
Perfluoroheptanoic acid	0.5 U	13.55	11.95			88		70-130		
Perfluorohexanesulfonate	1 U	12.81	11.6			91		70-130		
Perfluorohexanoic acid	0.6 U	13.55	14.4			106		70-130		
Perfluorononanoic acid	0.6 U	13.55	12.94			95		70-130		
Perfluoro-octanesulfonate	2 U	12.95	11.61			90		70-130		
Perfluorooctanoic acid	0.6 U	13.55	13.43			99		70-130		
Perfluoropentanoic Acid	0.5 U	13.55	12.54			93		70-130		
Perfluorotetradecanoic acid	0.5 U	13.55	12.87			95		70-130		
Perfluorotridecanoic acid	0.5 U	13.55	13.86			102		70-130		
Perfluoroundecanoic acid	1 U	13.55	13.03			96		70-130		
PFOSA	3 U	13.55	13.54			100		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:59

Group Number: 1859268

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17278012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9247778	100	106	106	106	109	98
Blank	91	96	96	97	101	93
LCS	97	98	96	98	95	99
LCSD	92	95	91	92	96	93
MS	92	100	94	94	98	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9247778	94	106	97	101	95	90
Blank	86	88	81	82	101	91
LCS	95	102	87	89	88	94
LCSD	87	91	91	94	101	97
MS	101	101	103	88	90	177*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9247778	90	90	108	88	96	90
Blank	102	104	114	102	95	91
LCS	88	90	83	86	82	90
LCSD	95	110	109	107	96	95
MS	81	98	117	95	89	60*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFCs
Batch number: 17284002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9247779	98	101	100	111	111	107
Blank	83	80	78	78	84	92
LCS	88	84	82	95	83	91
LCSD	97	95	96	111	98	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:59

Group Number: 1859268

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17284002

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9247779	80	98	87	87	108	81
Blank	109	83	88	91	99	116
LCS	81	85	89	81	90	76
LCSD	96	99	97	114	102	86
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9247779	85	97	101	107	102	36*
Blank	94	90	99	93	83	17*
LCS	79	85	80	84	83	58*
LCSD	91	106	100	102	106	75
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

RUSH - ASAP 37191 1659268 9247778-79

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47409

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Lathram NY
email: MDupay@Barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPF Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 24 PFCs (19) - 250 mL plastic	250 mL amber glass	Water	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-AFTERPOET-171004	—	—	—	10/04/2017	1530	Water	N	2	2						PFCs (19)
2. Trip Blank	—	—	—	—	PM	W	N	2		2					Prepared by ELLE
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY							
Sampled by: DJZ	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/5/17	Time 0940
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 3.0, 3.1	Custody Seal Intact? ☑ Y ☐ N ☐ None				
Lab Location: Lancaster							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196435

Group Number(s): 1659268

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/05/2017 9:40
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 14:42 on 10/05/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.1	DT	Wet	Y	Bagged	N
2	DT42-02	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 31, 2017 12:51

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859303
SDG: SGB69
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR1-168-169' Soil	10/04/2017 08:50	9247916
SG3-MW-BR1-178-179' Soil	10/04/2017 10:45	9247917
SG3-MW-BR1-188-189' Soil	10/04/2017 11:00	9247918
SG3-LTB61-171004 Blank Water	10/04/2017	9247919
SG3-LTB62-171004 Blank Water	10/04/2017	9247920
SG3-FDS10-171004 Soil	10/04/2017	9247921
SG3-FBS10-171004 Blank Water	10/04/2017 11:30	9247922
SG3-MW-BR1-198-199' Soil	10/04/2017 11:50	9247923
SG3-MW-BR1-198-199' MS Soil	10/04/2017 11:50	9247924
SG3-MW-BR1-198-199' MSD Soil	10/04/2017 11:50	9247925
SG3-MW-BR1-198-199' Dupl Soil	10/04/2017 11:50	9247926
SG3-D12-36-37' Soil	10/04/2017 08:35	9247927
SG3-MW-BR1-208-209' Soil	10/04/2017 13:10	9247928
SG3-MW-BR1-218-219' Soil	10/04/2017 15:20	9247929
SG3-MW-BR1-228-229' Soil	10/04/2017 16:30	9247930

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1859303

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9247916, 9247918, 9247924, 9247925, 9247928

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9247917

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C8-PFOA is outside of QC acceptance limits as noted on the QC Summary. This sample was re-extracted and several labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. The data reported is from the initial trial and comparable results were observed.

Sample #s: 9247921, 9247929

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. This sample was re-extracted and the recovery for labeled compound used as extraction standard 13C4-PFHpA is again outside of QC acceptance limits, indicating a matrix effect. The data reported is from the initial trial and comparable results were observed.

Batch #: 17289002 (Sample number(s): 9247917-9247918, 9247921, 9247923-9247925, 9247927-9247930 UNSPK: 9247923)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9247917, 9247918, 9247921, 9247923, 9247924, 9247925, 9247928, 9247929, 9247930, MS, MSD

Batch #: 17297009 (Sample number(s): 9247916 UNSPK: 9247916)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9247916, MS

SW-846 6010C, Metals

Sample #s: 9247929

Reporting limits were raised due to interference from the sample matrix.

Batch #: 172791063703 (Sample number(s): 9247916-9247918, 9247921, 9247923-9247930 UNSPK: 9247923 BKG: 9247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Manganese

SW-846 6020A, Metals

Batch #: 172791063703A (Sample number(s): 9247916-9247918, 9247921, 9247923-9247930 UNSPK: 9247923 BKG: 9247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Lead, Nickel, Thallium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Lead, Nickel, Silver, Thallium

Batch #: 172791063703D (Sample number(s): 9247916-9247918, 9247921, 9247923-9247930 UNSPK: 9247923 BKG: 9247923)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9247916, 9247921, 9247923, 9247930

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17299245032B (Sample number(s): 9247916-9247918, 9247921, 9247923-9247924, 9247926-9247929 UNSPK: 9247923 BKG: 9247923)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17300667632A (Sample number(s): 9247930 UNSPK: P248930 BKG: P248930)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9247916, 9247930

The pH was measured in water at 20.1 C.

Sample #s: 9247921, 9247929

The pH was measured in water at 20.2 C.

Sample #s: 9247918, 9247923, 9247926, 9247927, 9247928

The pH was measured in water at 20.3 C.

Sample #s: 9247917

The pH was measured in water at 20.4 C.

Batch #: 17282039401A (Sample number(s): 9247928 BKG: P251283)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: pH

Sample Description: **SG3-MW-BR1-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:50
SDG#: SGB69-01

C. T. Male Associates
ELLE Sample #: SW 9247916
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,170**	9.76	43.7	1
01650	**Calcium**	7440-70-2	**202**	3.64	43.7	1
01654	**Iron**	7439-89-6	**31,600**	44.0	218	5
01657	**Magnesium**	7439-95-4	**364**	2.65	21.8	1
06958	**Manganese**	7439-96-5	**124**	0.0907	1.09	1
01662	**Potassium**	7440-09-7	**477**	18.2	109	1
01667	Sodium	7440-23-5	18.2 U	18.2	218	1
06972	**Zinc**	7440-66-6	**75.8**	0.262	4.37	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.244 J**	0.102	0.437	2
06125	**Arsenic**	7440-38-2	**6.86**	0.140	0.874	2
06126	**Barium**	7440-39-3	**6.34**	0.198	0.874	2
06127	**Beryllium**	7440-41-7	**0.787**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.330**	0.0376	0.218	2
06131	**Chromium**	7440-47-3	**2.36**	0.190	0.874	2
06132	**Cobalt**	7440-48-4	**10.4**	0.0341	0.218	2
06133	**Copper**	7440-50-8	**30.5**	0.117	0.874	2
06135	**Lead**	7439-92-1	**6.52**	0.0242	0.437	2
06139	**Nickel**	7440-02-0	**19.3**	0.218	0.874	2
06141	Selenium	7782-49-2	0.109 U	0.109	0.874	2
06142	Silver	7440-22-4	0.0319 U	0.0319	0.218	2
06145	**Thallium**	7440-28-0	**0.115 J**	0.0273	0.218	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:50
SDG#: SGB69-01

C. T. Male Associates
ELLE Sample #: SW 9247916
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**11.8**		0.0465	0.218	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**357**	**J**	145	436	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17297009	10/25/2017 15:23	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17297009	10/24/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:10	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:55	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:21	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:57	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:50
SDG#: SGB69-01

C. T. Male Associates
ELLE Sample #: SW 9247916
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:57	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:57	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/27/2017 23:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 10:45
SDG#: SGB69-02

C. T. Male Associates
ELLE Sample #: SW 9247917
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C8-PFOA is outside of QC acceptance limits as noted on the QC Summary. This sample was re-extracted and several labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. The data reported is from the initial trial and comparable results were observed.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**15,100**	9.27	41.5	1
01650	**Calcium**	7440-70-2	**411**	3.45	41.5	1
01654	**Iron**	7439-89-6	**57,500**	41.7	207	5
01657	**Magnesium**	7439-95-4	**680**	2.52	20.7	1
06958	**Manganese**	7439-96-5	**337**	0.0860	1.04	1
01662	**Potassium**	7440-09-7	**363**	17.3	104	1
01667	Sodium	7440-23-5	17.3 U	17.3	207	1
06972	**Zinc**	7440-66-6	**131**	0.249	4.15	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.458**	0.0966	0.415	2
06125	**Arsenic**	7440-38-2	**17.6**	0.133	0.829	2
06126	**Barium**	7440-39-3	**114**	0.188	0.829	2
06127	**Beryllium**	7440-41-7	**1.23**	0.0109	0.207	2
06128	**Cadmium**	7440-43-9	**0.258**	0.0357	0.207	2
06131	**Chromium**	7440-47-3	**3.87**	0.180	0.829	2
06132	**Cobalt**	7440-48-4	**15.8**	0.0323	0.207	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 10:45
SDG#: SGB69-02

C. T. Male Associates
ELLE Sample #: SW 9247917
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**45.0**	0.111	0.829	2
06135	**Lead**	7439-92-1	**14.8**	0.0230	0.415	2
06139	**Nickel**	7440-02-0	**31.4**	0.206	0.829	2
06141	**Selenium**	7782-49-2	**0.255 J**	0.104	0.829	2
06142	Silver	7440-22-4	0.0303 U	0.0303	0.207	2
06145	**Thallium**	7440-28-0	**0.180 J**	0.0259	0.207	2
06148	**Vanadium**	7440-62-2	**14.4**	0.0442	0.207	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**409**	131	393	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 10:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:28	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:59	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:24	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 10:45
SDG#: SGB69-02

C. T. Male Associates
ELLE Sample #: SW 9247917
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:00	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:00	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:00	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/27/2017 23:37	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:00
SDG#: SGB69-03

C. T. Male Associates
ELLE Sample #: SW 9247918
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,630**	9.83	44.0	1
01650	**Calcium**	7440-70-2	**273**	3.66	44.0	1
01654	**Iron**	7439-89-6	**36,000**	44.2	220	5
01657	**Magnesium**	7439-95-4	**368**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**784**	0.0912	1.10	1
01662	**Potassium**	7440-09-7	**1,090**	18.4	110	1
01667	Sodium	7440-23-5	18.4 U	18.4	220	1
06972	**Zinc**	7440-66-6	**24.0**	0.264	4.40	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.102 U	0.102	0.440	2
06125	**Arsenic**	7440-38-2	**4.67**	0.141	0.879	2
06126	**Barium**	7440-39-3	**210**	0.200	0.879	2
06127	**Beryllium**	7440-41-7	**0.958**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.0580 J**	0.0378	0.220	2
06131	**Chromium**	7440-47-3	**5.04**	0.191	0.879	2
06132	**Cobalt**	7440-48-4	**17.9**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**28.8**	0.118	0.879	2
06135	**Lead**	7439-92-1	**10.5**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**18.6**	0.219	0.879	2
06141	**Selenium**	7782-49-2	**0.176 J**	0.110	0.879	2
06142	**Silver**	7440-22-4	**0.0418 J**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**0.649**	0.0275	0.220	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:00
SDG#: SGB69-03

C. T. Male Associates
ELLE Sample #: SW 9247918
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**7.27**	0.0468	0.220	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**459**	137	411	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**24.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 11:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:35	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 23:03	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:31	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:03	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:00
SDG#: SGB69-03

C. T. Male Associates
ELLE Sample #: SW 9247918
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:03	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:03	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/27/2017 23:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB61-171004 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB69-04TB

C. T. Male Associates
ELLE Sample #: WW 9247919
ELLE Group #: 1859303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17280003	10/17/2017 14:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280003	10/08/2017 10:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB62-171004 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB69-05TB

C. T. Male Associates
ELLE Sample #: WW 9247920
ELLE Group #: 1859303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17280003	10/17/2017 14:35	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280003	10/08/2017 10:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS10-171004 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB69-06FD

C. T. Male Associates
ELLE Sample #: SW 9247921
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. This sample was re-extracted and the recovery for labeled compound used as extraction standard 13C4-PFHpA is again outside of QC acceptance limits, indicating a matrix effect. The data reported is from the initial trial and comparable results were observed.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**14,900**	9.59	42.9	1
01650	**Calcium**	7440-70-2	**409**	3.57	42.9	1
01654	**Iron**	7439-89-6	**55,200**	43.2	215	5
01657	**Magnesium**	7439-95-4	**699**	2.61	21.5	1
06958	**Manganese**	7439-96-5	**349**	0.0890	1.07	1
01662	**Potassium**	7440-09-7	**326**	17.9	107	1
01667	Sodium	7440-23-5	17.9 U	17.9	215	1
06972	**Zinc**	7440-66-6	**117**	0.257	4.29	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.293 J**	0.100	0.429	2
06125	**Arsenic**	7440-38-2	**16.0**	0.137	0.858	2
06126	**Barium**	7440-39-3	**154**	0.195	0.858	2
06127	**Beryllium**	7440-41-7	**1.17**	0.0112	0.215	2
06128	**Cadmium**	7440-43-9	**0.260**	0.0369	0.215	2
06131	**Chromium**	7440-47-3	**3.03**	0.187	0.858	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS10-171004 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB69-06FD

C. T. Male Associates
ELLE Sample #: SW 9247921
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06132	**Cobalt**	7440-48-4	**16.0**	0.0335	0.215	2
06133	**Copper**	7440-50-8	**42.5**	0.115	0.858	2
06135	**Lead**	7439-92-1	**15.1**	0.0238	0.429	2
06139	**Nickel**	7440-02-0	**30.6**	0.214	0.858	2
06141	**Selenium**	7782-49-2	**0.245 J**	0.107	0.858	2
06142	Silver	7440-22-4	0.0313 U	0.0313	0.215	2
06145	**Thallium**	7440-28-0	**0.176 J**	0.0268	0.215	2
06148	**Vanadium**	7440-62-2	**14.0**	0.0457	0.215	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**401 J**	136	409	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.08**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**22.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 11:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:42	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 23:07	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS10-171004 Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017
SDG#: SGB69-06FD

C. T. Male Associates
ELLE Sample #: SW 9247921
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:39	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:42	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:42	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:42	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/28/2017 00:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FBS10-171004 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:30
SDG#: SGB69-07FB

C. T. Male Associates
ELLE Sample #: WW 9247922
ELLE Group #: 1859303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6 U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	14 PFCs	EPA 537 Version 1.1 Modified	1	17280003	10/17/2017 14:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280003	10/08/2017 10:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08BKG

C. T. Male Associates
ELLE Sample #: SW 9247923
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098 U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098 U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,200**	10.8	48.4	1
01650	**Calcium**	7440-70-2	**292**	4.03	48.4	1
01654	**Iron**	7439-89-6	**31,800**	48.7	242	5
01657	**Magnesium**	7439-95-4	**457**	2.94	24.2	1
06958	**Manganese**	7439-96-5	**300**	0.100	1.21	1
01662	**Potassium**	7440-09-7	**998**	20.2	121	1
01667	Sodium	7440-23-5	20.2 U	20.2	242	1
06972	**Zinc**	7440-66-6	**26.3**	0.290	4.84	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.113 U	0.113	0.484	2
06125	**Arsenic**	7440-38-2	**5.43**	0.155	0.968	2
06126	**Barium**	7440-39-3	**65.0**	0.220	0.968	2
06127	**Beryllium**	7440-41-7	**0.864**	0.0127	0.242	2
06128	**Cadmium**	7440-43-9	**0.0726 J**	0.0416	0.242	2
06131	**Chromium**	7440-47-3	**2.43**	0.210	0.968	2
06132	**Cobalt**	7440-48-4	**11.5**	0.0377	0.242	2
06133	**Copper**	7440-50-8	**37.2**	0.130	0.968	2
06135	**Lead**	7439-92-1	**15.1**	0.0269	0.484	2
06139	**Nickel**	7440-02-0	**26.0**	0.241	0.968	2
06141	**Selenium**	7782-49-2	**0.190 J**	0.121	0.968	2
06142	Silver	7440-22-4	0.0353 U	0.0353	0.242	2
06145	**Thallium**	7440-28-0	**0.185 J**	0.0302	0.242	2
06148	**Vanadium**	7440-62-2	**6.71**	0.0515	0.242	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08BKG

C. T. Male Associates
ELLE Sample #: SW 9247923
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**324**	**J**	131	392	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.12**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**22.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 12:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
01654	Iron	SW-846 6010C	2	172791063703	10/14/2017 09:23	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:13	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 09:01	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08BKG

C. T. Male Associates
ELLE Sample #: SW 9247923
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:08	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/28/2017 00:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08MS

C. T. Male Associates
ELLE Sample #: SW 9247924
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.22	0.66	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.22	0.66	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.22	0.66	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.22	0.66	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.22	0.66	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.22	0.66	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.11	0.44	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.11	0.44	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.33	0.99	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**	0.22	0.66	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.6**	0.22	0.66	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.22	0.66	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.22	0.66	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.5**	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**27,000**	7.85	35.1	1
01650	**Calcium**	7440-70-2	**570**	2.92	35.1	1
01654	**Iron**	7439-89-6	**33,100**	35.3	176	5
01657	**Magnesium**	7439-95-4	**725**	2.13	17.6	1
06958	**Manganese**	7439-96-5	**469**	0.0729	0.878	1
01662	**Potassium**	7440-09-7	**1,740**	14.7	87.8	1
01667	**Sodium**	7440-23-5	**731**	14.7	176	1
06972	**Zinc**	7440-66-6	**64.7**	0.211	3.51	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.453**	0.0818	0.351	2
06125	**Arsenic**	7440-38-2	**6.19**	0.112	0.702	2
06126	**Barium**	7440-39-3	**134**	0.159	0.702	2
06127	**Beryllium**	7440-41-7	**1.57**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**0.977**	0.0302	0.176	2
06131	**Chromium**	7440-47-3	**11.2**	0.153	0.702	2
06132	**Cobalt**	7440-48-4	**56.6**	0.0274	0.176	2
06133	**Copper**	7440-50-8	**45.6**	0.0941	0.702	2
06135	**Lead**	7439-92-1	**26.8**	0.0195	0.351	2
06139	**Nickel**	7440-02-0	**37.3**	0.175	0.702	2
06141	**Selenium**	7782-49-2	**1.74**	0.0878	0.702	2
06142	**Silver**	7440-22-4	**8.72**	0.0256	0.176	2
06145	**Thallium**	7440-28-0	**0.633**	0.0220	0.176	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08MS

C. T. Male Associates
ELLE Sample #: SW 9247924
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.3**	0.0374	0.176	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**34,800**	1,170	3,510	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**22.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 08:35	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
01654	Iron	SW-846 6010C	2	172791063703	10/14/2017 09:41	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:25	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 09:12	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/27/2017 10:10	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08MS

C. T. Male Associates
ELLE Sample #: SW 9247924
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR1-198-199' MSD Soil
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08MSD

C. T. Male Associates
ELLE Sample #: SW 9247925
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.3**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.3**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.5**	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**20,200**	8.68	38.9	1
01650	**Calcium**	7440-70-2	**544**	3.23	38.9	1
01654	**Iron**	7439-89-6	**29,800**	39.1	194	5
01657	**Magnesium**	7439-95-4	**764**	2.36	19.4	1
06958	**Manganese**	7439-96-5	**449**	0.0806	0.971	1
01662	**Potassium**	7440-09-7	**2,090**	16.2	97.1	1
01667	**Sodium**	7440-23-5	**823**	16.2	194	1
06972	**Zinc**	7440-66-6	**68.4**	0.233	3.89	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.468**	0.0905	0.389	2
06125	**Arsenic**	7440-38-2	**6.54**	0.124	0.777	2
06126	**Barium**	7440-39-3	**146**	0.176	0.777	2
06127	**Beryllium**	7440-41-7	**1.70**	0.0102	0.194	2
06128	**Cadmium**	7440-43-9	**1.06**	0.0334	0.194	2
06131	**Chromium**	7440-47-3	**12.3**	0.169	0.777	2
06132	**Cobalt**	7440-48-4	**63.8**	0.0303	0.194	2
06133	**Copper**	7440-50-8	**48.1**	0.104	0.777	2
06135	**Lead**	7439-92-1	**30.6**	0.0216	0.389	2
06139	**Nickel**	7440-02-0	**44.2**	0.193	0.777	2
06141	**Selenium**	7782-49-2	**2.03**	0.0971	0.777	2
06142	**Silver**	7440-22-4	**10.0**	0.0284	0.194	2
06145	**Thallium**	7440-28-0	**0.653**	0.0243	0.194	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08MSD

C. T. Male Associates
ELLE Sample #: SW 9247925
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.9**	0.0414	0.194	2
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**22.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 08:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
01654	Iron	SW-846 6010C	2	172791063703	10/14/2017 09:45	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:29	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 09:16	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:20	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:20	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:20	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08DUP

C. T. Male Associates
ELLE Sample #: SW 9247926
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,700**	8.31	37.2	1
01650	**Calcium**	7440-70-2	**327**	3.09	37.2	1
01654	**Iron**	7439-89-6	**34,100**	37.4	186	5
01657	**Magnesium**	7439-95-4	**473**	2.26	18.6	1
06958	**Manganese**	7439-96-5	**557**	0.0771	0.929	1
01662	**Potassium**	7440-09-7	**861**	15.5	92.9	1
01667	Sodium	7440-23-5	15.5 U	15.5	186	1
06972	**Zinc**	7440-66-6	**30.4**	0.223	3.72	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0866 U	0.0866	0.372	2
06125	**Arsenic**	7440-38-2	**4.82**	0.119	0.743	2
06126	**Barium**	7440-39-3	**95.9**	0.169	0.743	2
06127	**Beryllium**	7440-41-7	**0.954**	0.0097	0.186	2
06128	**Cadmium**	7440-43-9	**0.0702 J**	0.0320	0.186	2
06131	**Chromium**	7440-47-3	**2.53**	0.162	0.743	2
06132	**Cobalt**	7440-48-4	**21.3**	0.0290	0.186	2
06133	**Copper**	7440-50-8	**44.1**	0.0996	0.743	2
06135	**Lead**	7439-92-1	**20.4**	0.0206	0.372	2
06139	**Nickel**	7440-02-0	**40.3**	0.185	0.743	2
06141	**Selenium**	7782-49-2	**0.170 J**	0.0929	0.743	2
06142	**Silver**	7440-22-4	**0.0294 J**	0.0271	0.186	2
06145	**Thallium**	7440-28-0	**0.350**	0.0232	0.186	2
06148	**Vanadium**	7440-62-2	**6.76**	0.0396	0.186	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**389**	128	385	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.12**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**22.0**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**21.6**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-198-199' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 11:50
SDG#: SGB69-08DUP

C. T. Male Associates
ELLE Sample #: SW 9247926
ELLE Group #: 1859303
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
01654	Iron	SW-846 6010C	2	172791063703	10/14/2017 09:37	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 22:21	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 09:08	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 08:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 08:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 08:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/28/2017 00:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-36-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:35
SDG#: SGB69-09

C. T. Male Associates
ELLE Sample #: SW 9247927
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,100**	8.29	37.1	1
01650	**Calcium**	7440-70-2	**28,000**	3.09	37.1	1
01654	**Iron**	7439-89-6	**21,700**	7.46	37.1	1
01657	**Magnesium**	7439-95-4	**13,300**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**560**	0.0769	0.927	1
01662	**Potassium**	7440-09-7	**1,310**	15.5	92.7	1
01667	**Sodium**	7440-23-5	**199**	15.5	185	1
06972	**Zinc**	7440-66-6	**61.3**	0.222	3.71	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.153 J**	0.0864	0.371	2
06125	**Arsenic**	7440-38-2	**8.73**	0.119	0.742	2
06126	**Barium**	7440-39-3	**87.7**	0.168	0.742	2
06127	**Beryllium**	7440-41-7	**0.453**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.264**	0.0319	0.185	2
06131	**Chromium**	7440-47-3	**14.3**	0.161	0.742	2
06132	**Cobalt**	7440-48-4	**14.5**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**27.2**	0.0994	0.742	2
06135	**Lead**	7439-92-1	**10.0**	0.0206	0.371	2
06139	**Nickel**	7440-02-0	**29.0**	0.185	0.742	2
06141	**Selenium**	7782-49-2	**0.361 J**	0.0927	0.742	2
06142	**Silver**	7440-22-4	**0.0577 J**	0.0271	0.185	2
06145	**Thallium**	7440-28-0	**0.164 J**	0.0232	0.185	2
06148	**Vanadium**	7440-62-2	**12.1**	0.0395	0.185	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-36-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:35
SDG#: SGB69-09

C. T. Male Associates
ELLE Sample #: SW 9247927
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,150**	506	1,520	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 12:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 23:10	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:46	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:16	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:16	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-36-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 08:35
SDG#: SGB69-09

C. T. Male Associates
ELLE Sample #: SW 9247927
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:16	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/27/2017 10:36	Leroy C Poole	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-208-209' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 13:10
SDG#: SGB69-10

C. T. Male Associates
ELLE Sample #: SW 9247928
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.082 U	0.082	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.082 U	0.082	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,500**	8.94	40.0	1
01650	**Calcium**	7440-70-2	**221**	3.33	40.0	1
01654	**Iron**	7439-89-6	**28,000**	40.3	200	5
01657	**Magnesium**	7439-95-4	**567**	2.43	20.0	1
06958	**Manganese**	7439-96-5	**556**	0.0830	1.00	1
01662	**Potassium**	7440-09-7	**914**	16.7	100	1
01667	Sodium	7440-23-5	16.7 U	16.7	200	1
06972	**Zinc**	7440-66-6	**18.8**	0.240	4.00	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.461**	0.0932	0.400	2
06125	**Arsenic**	7440-38-2	**10.2**	0.128	0.800	2
06126	**Barium**	7440-39-3	**135**	0.182	0.800	2
06127	**Beryllium**	7440-41-7	**0.692**	0.0105	0.200	2
06128	**Cadmium**	7440-43-9	**0.104 J**	0.0344	0.200	2
06131	**Chromium**	7440-47-3	**5.95**	0.174	0.800	2
06132	**Cobalt**	7440-48-4	**28.6**	0.0312	0.200	2
06133	**Copper**	7440-50-8	**42.3**	0.107	0.800	2
06135	**Lead**	7439-92-1	**10.2**	0.0222	0.400	2
06139	**Nickel**	7440-02-0	**27.2**	0.199	0.800	2
06141	**Selenium**	7782-49-2	**0.186 J**	0.100	0.800	2
06142	**Silver**	7440-22-4	**0.0402 J**	0.0292	0.200	2
06145	**Thallium**	7440-28-0	**1.16**	0.0250	0.200	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-208-209' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 13:10
SDG#: SGB69-10

C. T. Male Associates
ELLE Sample #: SW 9247928
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.45**	0.0426	0.200	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**485**	121	364	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 12:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:50	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/17/2017 21:56	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172791063703	10/17/2017 22:00	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:50	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 23:15	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:50	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:50	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:50	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:19	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-208-209' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 13:10
SDG#: SGB69-10

C. T. Male Associates
ELLE Sample #: SW 9247928
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:19	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:19	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/28/2017 00:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401A	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-218-219' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 15:20
SDG#: SGB69-11

C. T. Male Associates
ELLE Sample #: SW 9247929
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.083 U	0.083	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.083 U	0.083	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. This sample was re-extracted and the recovery for labeled compound used as extraction standard 13C4-PFHpA is again outside of QC acceptance limits, indicating a matrix effect. The data reported is from the initial trial and comparable results were observed.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,600**	41.4	185	5
01650	**Calcium**	7440-70-2	**403**	15.4	185	5
01654	**Iron**	7439-89-6	**34,700**	37.3	185	5
01657	**Magnesium**	7439-95-4	**373**	11.3	92.6	5
06958	**Manganese**	7439-96-5	**40,500**	3.84	46.3	50
01662	**Potassium**	7440-09-7	**821**	77.3	463	5
01667	Sodium	7440-23-5	77.3 U	77.3	926	5
	Reporting limits were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**398**	1.11	18.5	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.308 J**	0.0863	0.370	2
06125	**Arsenic**	7440-38-2	**8.20**	0.119	0.741	2
06126	**Barium**	7440-39-3	**5,190**	1.68	7.41	20
06127	**Beryllium**	7440-41-7	**1.62**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.665**	0.0319	0.185	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-218-219' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 15:20
SDG#: SGB69-11

C. T. Male Associates
ELLE Sample #: SW 9247929
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06131	**Chromium**	7440-47-3	**3.37**	0.161	0.741	2
06132	**Cobalt**	7440-48-4	**671**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**136**	0.0993	0.741	2
06135	**Lead**	7439-92-1	**20.7**	0.103	1.85	10
06139	**Nickel**	7440-02-0	**75.4**	0.184	0.741	2
06141	**Selenium**	7782-49-2	**0.296 J**	0.0926	0.741	2
06142	**Silver**	7440-22-4	**2.09**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**67.3**	0.116	0.926	10
06148	**Vanadium**	7440-62-2	**10.5**	0.0395	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**432**	141	424	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.68**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 13:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	172791063703	10/17/2017 22:15	Cindy M Gehman	50
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 10:53	Eric L Eby	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-218-219' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 15:20
SDG#: SGB69-11

C. T. Male Associates
ELLE Sample #: SW 9247929
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:59	Choon Y Tian	20
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:56	Choon Y Tian	10
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:22	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:56	Choon Y Tian	10
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:22	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17299245032B	10/28/2017 00:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-228-229' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 16:30
SDG#: SGB69-12

C. T. Male Associates
ELLE Sample #: SW 9247930
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,050**	9.36	41.9	1
01650	**Calcium**	7440-70-2	**327**	3.49	41.9	1
01654	**Iron**	7439-89-6	**53,100**	42.2	209	5
01657	**Magnesium**	7439-95-4	**601**	2.55	20.9	1
06958	**Manganese**	7439-96-5	**180**	0.0869	1.05	1
01662	**Potassium**	7440-09-7	**585**	17.5	105	1
01667	Sodium	7440-23-5	17.5 U	17.5	209	1
06972	**Zinc**	7440-66-6	**128**	0.251	4.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.322 J**	0.0976	0.419	2
06125	**Arsenic**	7440-38-2	**12.1**	0.134	0.838	2
06126	**Barium**	7440-39-3	**16.8**	0.190	0.838	2
06127	**Beryllium**	7440-41-7	**2.09**	0.0110	0.209	2
06128	**Cadmium**	7440-43-9	**0.547**	0.0360	0.209	2
06131	**Chromium**	7440-47-3	**3.53**	0.182	0.838	2
06132	**Cobalt**	7440-48-4	**8.86**	0.0327	0.209	2
06133	**Copper**	7440-50-8	**49.3**	0.112	0.838	2
06135	**Lead**	7439-92-1	**14.4**	0.0233	0.419	2
06139	**Nickel**	7440-02-0	**46.8**	0.209	0.838	2
06141	**Selenium**	7782-49-2	**0.200 J**	0.105	0.838	2
06142	Silver	7440-22-4	0.0306 U	0.0306	0.209	2
06145	**Thallium**	7440-28-0	**0.608**	0.0262	0.209	2
06148	**Vanadium**	7440-62-2	**13.0**	0.0446	0.209	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-228-229' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 16:30
SDG#: SGB69-12

C. T. Male Associates
ELLE Sample #: SW 9247930
ELLE Group #: 1859303
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**306**	**J**	127	382	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.01**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17289002	10/18/2017 13:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17289002	10/17/2017 09:35	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172791063703	10/14/2017 11:11	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172791063703	10/11/2017 23:22	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172791063703	10/14/2017 11:08	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172791063703D	10/11/2017 09:25	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-228-229' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/04/2017 16:30
SDG#: SGB69-12

C. T. Male Associates
ELLE Sample #: SW 9247930
ELLE Group #: 1859303
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172791063703B	10/11/2017 09:25	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172791063703A	10/11/2017 09:25	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172791063703	10/09/2017 00:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17300667632A	10/30/2017 08:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17279039402B	10/06/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17284820004B	10/11/2017 15:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17289002	Sample number(s): 9247917-9247918,9247921,9247923-9247925,9247927-9247930		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17297009	Sample number(s): 9247916		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17280003	Sample number(s): 9247919-9247920,9247922		
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
	mg/kg	mg/kg	mg/kg
Batch number: 172791063703	Sample number(s): 9247916-9247918,9247921,9247923-9247930		
Aluminum	8.94 U	8.94	40.0
Calcium	3.53 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.158 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.309 J	0.240	4.00
Batch number: 172791063703A	Sample number(s): 9247916-9247918,9247921,9247923-9247930		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172791063703B	Sample number(s): 9247916-9247918,9247921,9247923-9247930		
Selenium	0.100 U	0.100	0.800
Batch number: 172791063703D	Sample number(s): 9247916-9247918,9247921,9247923-9247930		
Barium	0.182 U	0.182	0.800
Batch number: 17299245032B	Sample number(s): 9247916-9247918,9247921,9247923-9247924,9247926-9247929		
TOC	100 U	100	300
Batch number: 17300667632A	Sample number(s): 9247930		
TOC	100 U	100	300

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17289002	Sample number(s): 9247917-9247918,9247921,9247923-9247925,9247927-9247930								
Perfluorobutanesulfonate	1.20	1.13			94		70-130		
Perfluorobutanoic acid	1.36	1.41			103		70-130		
Perfluorodecanoic acid	1.36	1.30			96		70-130		
Perfluorododecanoic acid	1.36	1.37			101		70-130		
Perfluoroheptanoic acid	1.36	1.34			99		70-130		
Perfluorohexanesulfonate	1.29	1.19			93		70-130		
Perfluorohexanoic acid	1.36	1.40			103		70-130		
Perfluorononanoic acid	1.36	1.50			111		70-130		
Perfluoro-octanesulfonate	1.30	1.17			90		70-130		
Perfluorooctanoic acid	1.36	1.41			104		70-130		
Perfluoropentanoic acid	1.36	1.46			107		70-130		
Perfluorotetradecanoic acid	1.36	1.35			99		70-130		
Perfluorotridecanoic acid	1.36	1.56			115		70-130		
Perfluoroundecanoic acid	1.36	1.35			99		70-130		
Batch number: 17297009	Sample number(s): 9247916								
Perfluorobutanesulfonate	1.20	1.28	1.20	1.20	106	99	70-130	7	30
Perfluorobutanoic acid	1.36	1.56	1.36	1.49	115	110	70-130	4	30
Perfluorodecanoic acid	1.36	1.40	1.36	1.41	103	104	70-130	0	30
Perfluorododecanoic acid	1.36	1.53	1.36	1.49	112	109	70-130	3	30
Perfluoroheptanoic acid	1.36	1.62	1.36	1.44	119	106	70-130	12	30
Perfluorohexanesulfonate	1.29	1.32	1.29	1.19	102	92	70-130	10	30
Perfluorohexanoic acid	1.36	1.54	1.36	1.47	114	108	70-130	5	30
Perfluorononanoic acid	1.36	1.67	1.36	1.73	123	127	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.51	1.30	1.48	116	114	70-130	2	30
Perfluorooctanoic acid	1.36	1.33	1.36	1.28	98	94	70-130	4	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.52	107	112	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.47	1.36	1.42	108	105	70-130	3	30
Perfluorotridecanoic acid	1.36	1.59	1.36	1.51	117	111	70-130	5	30
Perfluoroundecanoic acid	1.36	1.51	1.36	1.49	111	110	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17280003	Sample number(s): 9247919-9247920,9247922								
Perfluorobutanesulfonate	12.03	12.16	12.03	12.61	101	105	70-130	4	30
Perfluorobutanoic Acid	13.6	14.49	13.6	14.56	107	107	70-130	0	30
Perfluorodecanoic acid	13.6	13.27	13.6	13.57	98	100	70-130	2	30
Perfluorododecanoic acid	13.6	13.4	13.6	13.98	99	103	70-130	4	30
Perfluoroheptanoic acid	13.6	12.81	13.6	16.05	94	118	70-130	22	30
Perfluorohexanesulfonate	12.86	10.69	12.86	12.86	83	100	70-130	18	30
Perfluorohexanoic acid	13.6	13.44	13.6	14.93	99	110	70-130	10	30
Perfluorononanoic acid	13.6	14.07	13.6	15.6	103	115	70-130	10	30
Perfluoro-octanesulfonate	13	13.52	13	11.38	104	88	70-130	17	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	13.6	12.24	13.6	12.6	90	93	70-130	3	30
Perfluoropentanoic Acid	13.6	14.35	13.6	13.97	106	103	70-130	3	30
Perfluorotetradecanoic acid	13.6	13.81	13.6	14.19	102	104	70-130	3	30
Perfluorotridecanoic acid	13.6	11.85	13.6	13.34	87	98	70-130	12	30
Perfluoroundecanoic acid	13.6	14.25	13.6	15.04	105	111	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172791063703	Sample number(s): 9247916-9247918,9247921,9247923-9247930								
Aluminum	200	208.14			104		80-120		
Calcium	400	370.72			93		80-120		
Iron	100	93.91			94		80-120		
Magnesium	200	185.41			93		80-120		
Manganese	50	47.97			96		80-120		
Potassium	1000	951.05			95		80-120		
Sodium	1000	929.35			93		80-120		
Zinc	50	47.47			95		80-120		
Batch number: 172791063703A	Sample number(s): 9247916-9247918,9247921,9247923-9247930								
Antimony	0.600	0.571			95		80-120		
Arsenic	1.00	1.10			110		80-120		
Beryllium	0.400	0.415			104		80-120		
Cadmium	0.500	0.509			102		80-120		
Chromium	5.00	5.44			109		80-120		
Cobalt	25	25.72			103		80-120		
Copper	5.00	5.49			110		80-120		
Lead	1.50	1.59			106		80-120		
Nickel	5.00	5.38			108		80-120		
Silver	5.00	5.28			106		80-120		
Thallium	0.200	0.180			90		80-120		
Vanadium	5.00	5.26			105		80-120		
Batch number: 172791063703B	Sample number(s): 9247916-9247918,9247921,9247923-9247930								
Selenium	1.00	1.07			107		80-120		
Batch number: 172791063703D	Sample number(s): 9247916-9247918,9247921,9247923-9247930								
Barium	5.00	5.36			107		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17299245032B	Sample number(s): 9247916-9247918,9247921,9247923-9247924,9247926-9247929								
TOC	7150	4930.61			69		47-143		
Batch number: 17300667632A	Sample number(s): 9247930								
TOC	7150	8191.62			115		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17279039402B	Sample number(s): 9247916-9247918,9247921,9247923,9247926-9247927,9247929-9247930								
pH	7.00	6.99			100		95-105		
Batch number: 17282039401A	Sample number(s): 9247928								
pH	7.00	6.96			99		95-105		
	%	%	%	%					
Batch number: 17284820004B	Sample number(s): 9247916-9247918,9247921,9247923-9247930								
Moisture	89.5	89.38			100		99-101		
Moisture	89.5	89.38			100		99-101		
Moisture Duplicate	89.5	89.38			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17289002	Sample number(s): 9247917-9247918,9247921,9247923-9247925,9247927-9247930 UNSPK: 9247923									
Perfluorobutanesulfonate	0.15 U	1.04	1.01	0.962	0.955	97	99	70-130	5	30
Perfluorobutanoic acid	0.15 U	1.17	1.19	1.09	1.14	102	104	70-130	5	30
Perfluorodecanoic acid	0.15 U	1.17	1.40	1.09	1.03	120	95	70-130	30	30
Perfluorododecanoic acid	0.15 U	1.17	1.17	1.09	1.17	100	107	70-130	1	30
Perfluoroheptanoic acid	0.15 U	1.17	1.34	1.09	1.13	115	104	70-130	17	30
Perfluorohexanesulfonate	0.15 U	1.11	1.08	1.03	1.07	97	104	70-130	1	30
Perfluorohexanoic acid	0.076 U	1.17	1.21	1.09	1.04	103	95	70-130	15	30
Perfluorononanoic acid	0.076 U	1.17	1.36	1.09	1.17	116	107	70-130	15	30
Perfluoro-octanesulfonate	0.23 U	1.12	1.14	1.04	1.13	102	109	70-130	1	30
Perfluorooctanoic acid	0.15 U	1.17	1.25	1.09	1.07	106	99	70-130	15	30
Perfluoropentanoic acid	0.15 U	1.17	1.24	1.09	1.07	106	99	70-130	14	30
Perfluorotetradecanoic acid	0.15 U	1.17	1.21	1.09	1.19	103	109	70-130	2	30
Perfluorotridecanoic acid	0.15 U	1.17	1.35	1.09	1.35	115	124	70-130	0	30
Perfluoroundecanoic acid	0.15 U	1.17	1.20	1.09	1.17	102	107	70-130	3	30
Batch number: 17297009	Sample number(s): 9247916 UNSPK: 9247916									
Perfluorobutanesulfonate	0.16 U	1.05	1.12			107		70-130		
Perfluorobutanoic acid	0.16 U	1.18	1.40			118		70-130		
Perfluorodecanoic acid	0.16 U	1.18	1.17			99		70-130		
Perfluorododecanoic acid	0.16 U	1.18	1.41			119		70-130		
Perfluoroheptanoic acid	0.16 U	1.18	1.26			107		70-130		
Perfluorohexanesulfonate	0.16 U	1.12	1.16			104		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanoic acid	0.079 U	1.18	1.24			105		70-130		
Perfluorononanoic acid	0.079 U	1.18	1.30			110		70-130		
Perfluoro-octanesulfonate	0.24 U	1.13	1.34			119		70-130		
Perfluorooctanoic acid	0.16 U	1.18	1.24			105		70-130		
Perfluoropentanoic acid	0.16 U	1.18	1.20			101		70-130		
Perfluorotetradecanoic acid	0.16 U	1.18	1.26			107		70-130		
Perfluorotridecanoic acid	0.16 U	1.18	1.39			118		70-130		
Perfluoroundecanoic acid	0.16 U	1.18	1.17			99		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172791063703	Sample number(s): 9247916-9247918,9247921,9247923-9247930 UNSPK: 9247923									
Aluminum	8763.78	136.99	21087.15	151.52	15745.46	8996 (2)	4608 (2)	75-125	29*	20
Calcium	227.96	273.97	444.95	303.03	424.18	79	65*	75-125	5	20
Iron	24768.06	68.49	25845.74	75.76	23278.36	1573 (2)	-1966 (2)	75-125	10	20
Magnesium	356.79	136.99	565.22	151.52	595.59	152*	158*	75-125	5	20
Manganese	233.93	34.25	366.2	37.88	349.84	386 (2)	306 (2)	75-125	5	20
Potassium	778.5	684.93	1355.53	757.58	1626.6	84	112	75-125	18	20
Sodium	15.8 U	684.93	570.25	757.58	641.93	83	85	75-125	12	20
Zinc	20.55	34.25	50.5	37.88	53.36	87	87	75-125	6	20
Batch number: 172791063703A	Sample number(s): 9247916-9247918,9247921,9247923-9247930 UNSPK: 9247923									
Antimony	0.0879 U	0.822	0.353	0.909	0.365	43*	40*	75-125	3	20
Arsenic	4.24	1.37	4.83	1.52	5.10	43*	57*	75-125	5	20
Beryllium	0.674	0.548	1.22	0.606	1.32	100	107	75-125	8	20
Cadmium	0.0566	0.685	0.762	0.758	0.830	103	102	75-125	9	20
Chromium	1.90	6.85	8.71	7.58	9.59	99	102	75-125	10	20
Cobalt	8.99	34.25	44.18	37.88	49.78	103	108	75-125	12	20
Copper	28.98	6.85	35.53	7.58	37.52	96 (2)	113	75-125	5	20
Lead	11.79	2.05	20.89	2.27	23.84	443 (2)	530 (2)	75-125	13	20
Nickel	20.27	6.85	29.12	7.58	34.47	129*	187*	75-125	17	20
Silver	0.0275 U	6.85	6.80	7.58	7.82	99	103	75-125	14	20
Thallium	0.144	0.274	0.494	0.303	0.510	128*	121	75-125	3	20
Vanadium	5.23	6.85	11.92	7.58	13.21	98	105	75-125	10	20
Batch number: 172791063703B	Sample number(s): 9247916-9247918,9247921,9247923-9247930 UNSPK: 9247923									
Selenium	0.148	1.37	1.36	1.52	1.58	88	95	75-125	16	20
Batch number: 172791063703D	Sample number(s): 9247916-9247918,9247921,9247923-9247930 UNSPK: 9247923									
Barium	50.68	6.85	104.67	7.58	113.84	788 (2)	834 (2)	75-125	8	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17299245032B	Sample number(s): 9247916-9247918,9247921,9247923-9247924,9247926-9247929 UNSPK: 9247923									
TOC	252.7	27137	27137.65			99		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17300667632A	Sample number(s): 9247930 UNSPK: P248930									
TOC	13884.56	44640	66711.31			118		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172791063703	Sample number(s): 9247916-9247918,9247921,9247923-9247930 BKG: 9247923			
Aluminum	8763.78	10718.76	20	20
Calcium	227.96	255.13	11	20
Iron	24768.06	26560.63	7	20
Magnesium	356.79	368.76	3	20
Manganese	233.93	434.49	60*	20
Potassium	778.5	671.73	15	20
Sodium	15.8 U	12.1 U	0 (1)	20
Zinc	20.55	23.72	14	20
Batch number: 172791063703A	Sample number(s): 9247916-9247918,9247921,9247923-9247930 BKG: 9247923			
Antimony	0.0879 U	0.0675 U	0 (1)	20
Arsenic	4.24	3.76	12	20
Beryllium	0.674	0.744	10 (1)	20
Cadmium	0.0566	0.0548	3 (1)	20
Chromium	1.90	1.97	4 (1)	20
Cobalt	8.99	16.65	60*	20
Copper	28.98	34.43	17	20
Lead	11.79	15.9	30*	20
Nickel	20.27	31.41	43*	20
Silver	0.0275 U	0.0229	200* (1)	20
Thallium	0.144	0.273	62* (1)	20
Vanadium	5.23	5.27	1	20
Batch number: 172791063703B	Sample number(s): 9247916-9247918,9247921,9247923-9247930 BKG: 9247923			
Selenium	0.148	0.133	11 (1)	20
Batch number: 172791063703D	Sample number(s): 9247916-9247918,9247921,9247923-9247930 BKG: 9247923			
Barium	50.68	74.78	38*	20
	mg/kg	mg/kg		
Batch number: 17299245032B	Sample number(s): 9247916-9247918,9247921,9247923-9247924,9247926-9247929 BKG: 9247923			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	252.7	303.64	18* (1)	7
Batch number: 17300667632A	Sample number(s): 9247930 BKG: P248930			
TOC	13884.56	29117.97	71*	7
	Std. Units	Std. Units		
Batch number: 17279039402B	Sample number(s): 9247916-9247918,9247921,9247923,9247926-9247927,9247929-9247930 BKG: 9247923			
pH	8.12	8.12	0	3
Batch number: 17282039401A	Sample number(s): 9247928 BKG: P251283			
pH	6.02	5.78	4*	3
	%	%		
Batch number: 17284820004B	Sample number(s): 9247916-9247918,9247921,9247923-9247930 BKG: 9247923, P247923			
Moisture	21.99	21.64	2	5
Moisture	21.99	21.64	2	5
Moisture Duplicate	21.99	21.64	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17280003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9247919	87	92	78	94	84	95
9247920	85	82	78	81	81	83
9247922	84	86	80	86	69	88
Blank	89	92	82	81	71	82
LCS	81	82	74	76	80	84
LCSD	85	85	80	78	80	80
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9247919	100	92	89	90	99	83
9247920	87	86	90	96	88	91
9247922	94	87	86	98	93	91

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17280003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Blank	90	81	91	101	98	89
LCS	86	84	98	83	90	92
LCSD	90	95	85	92	90	91
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9247919	73
9247920	80
9247922	82
Blank	85
LCS	81
LCSD	86
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17289002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9247917	39	41*	59	46	68	48
9247918	55	57*	67	58	70	53
9247921	34*	35*	56	36*	61	35*
9247923	52	55*	76	59	82	59
9247924	49	52*	67	54	70	49
9247925	46	49*	71	51	78	53
9247927	83	85	88	90	95	90
9247928	64	65*	77	67	82	70
9247929	32*	34*	62	36*	61	40*
9247930	52	56*	74	56	72	56
Blank	103	103	104	105	100	105
LCS	101	105	103	107	101	106
MS	49	52*	67	54	70	49
MSD	46	49*	71	51	78	53
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9247917	43*	61	43	49	48	48
9247918	59	80	61	68	62	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 12:51

Group Number: 1859303

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17289002

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9247921	39*	62	36*	41	42	42
9247923	62	84	58	59	60	65
9247924	52	69	54	51	58	56
9247925	54	83	52	54	60	53
9247927	96	92	86	84	86	84
9247928	68	78	58	73	75	69
9247929	39*	61	38	42	43	40
9247930	56	79	61	60	68	62
Blank	111	96	116	121	100	99
LCS	108	112	92	115	117	108
MS	52	69	54	51	58	56
MSD	54	83	52	54	60	53
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9247917	48
9247918	56
9247921	37
9247923	60
9247924	56
9247925	57
9247927	76
9247928	63
9247929	36
9247930	60
Blank	96
LCS	112
MS	56
MSD	57
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17297009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9247916	50	50*	61	57	66	52
Blank	88	88	81	96	88	86
LCS	84	88	79	101	94	95

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859303
Reported: 10/31/2017 12:51

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17297009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCSD	82	84	79	97	87	92
MS	45	48*	58	47	58	48
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9247916	57	67	66	65	57	54
Blank	99	86	85	100	91	95
LCS	94	80	89	95	90	89
LCSD	102	80	84	96	89	87
MS	53	66	48	55	54	48
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9247916	54
Blank	91
LCS	81
LCSD	88
MS	52
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1859303 924916-30 SAMPLES IN TWO COOLERS

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47418

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Trip Blank	Water: 250 ml Field Blank	Water: 250 ml pay - PFC_s (1)	Soil: 4 oz. glass TOC, PH, metals, moist	% Solids
									A	A	A	A	
									N	N	1	1	
1. SG3-MW-BR1-168-169'	168	169	ft.	10/04/2017	0850	S	N	2			1	1	
2. SG3-MW-BR1-178-179'	178	179	ft.	10/04/2017	1045	S	N	2			1	1	
3. SG3 MW-BR1-188-189'	188	189	ft.	10/04/2017	1100	S	N	2			1	1	
4. SG3-LTB61-171004				10/04/2017	AM	Water	N	2	2				
5. SG3-LTB62-171004				10/04/2017	AM	Water	N	2	2				
6. SG3-FD510-171004				10/04/2017		S	N	2			1	1	
7. SG3-FBS10-171004				10/04/2017	1130	Water	N	2		2			
8. SG3-MW-BR1-198-199	189	199	ft.	10/04/2017	1150	S	Y	6			3	3	
9. SG3-D12-36-37'	36	37	ft.	10/04/2017	0835	S	N	2			1	1	
10. SG3-MW-BR1-208-209	208	209	ft.	10/04/2017	1310	S	N	2			1	1	

Preservative Code

Field Filtered Y/N

Soil metals = TAL cations excluding Hg

Samples split into two coolers

BARR USE ONLY

Sampled by: RGM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RGM) On Ice? (Y) N Date 10/04/2017 Time 17:00

Received by:

Relinquished by: On Ice? Y N Date Time

Received by: Date 10/5/17 Time 0941

Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 3.0, 3.1 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1859303 9247916-30

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52323

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250ml Poly - PFCs (4)	Soil: 4oz glass - TOC, pH, metals, moist.	Soil: % Solids	Preservative Code	Field Filtered Y/N
										A	A			
										1	1			
1. SG3-MW-BR1-218-219	218	219	ft.	10/04/2017	15:20	S	N	2		1	1			
2. SG3-MW-BR1-228-229	228	229	ft.	10/04/2017	16:30	S	N	2		1	1			
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Soil metals = TAL cations excluding Hg

Samples split into two coolers

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM	(RQM)	(Y) N	10/04/17	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/5/17	Time 0940
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 3.0, 3.1	Custody Seal Intact? ☑ Y ☐ N ☐ None				

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 196435

Group Number(s): 1859303

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/05/2017 9:40
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpres.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 12:30 on 10/05/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.1	DT	Wet	Y	Bagged	N
2	DT42-02	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 08, 2017

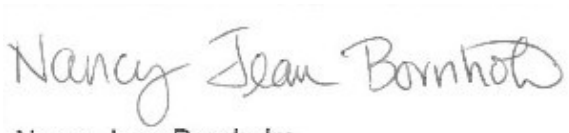
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859735
SDG: SGB70
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FILTEREDWATERFRACTK-171005 Filtered Water	10/05/2017 14:20	9250006

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1859735

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9250006

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

This sample was re-extracted in duplicate and comparable results were observed.

Batch #: 17279009 (Sample number(s): 9250006 UNSPK: 9250006)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9250006, Blank, LCS, LCSD, MS

Sample Description: SG3-FILTEREDWATERFRACTK-171005 Filtered Water
SGPP - North Bennington

ELLE Sample # GW 9250006
ELLE Group # 1859735
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 14:20 by DJZ

Submitted: 10/06/2017 09:35
Reported: 10/08/2017 18:21

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BFRAC SDG#: SGB70-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**4**	**J**	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	**Perfluorodecanoic acid**	335-76-2	**0.7**	**J**	0.5	2	1
10954	**Perfluorododecanoic acid**	307-55-1	**1**	**J**	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**4**		0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**2**	**J**	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

This sample was re-extracted in duplicate and comparable results were observed.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17279009	10/06/2017 21:00	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17279009	10/06/2017 11:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859735
Reported: 10/08/2017 18:21

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17279009	Sample number(s): 9250006			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17279009	Sample number(s): 9250006								
6:2 fluorotelomersulfonate	40.01	40.04	40.01	37.17	100	93	70-130	7	30
8:2 fluorotelomersulfonate	40.43	33.55	40.43	33.26	83	82	70-130	1	30
NEtFOSAA	4.80	5.17	4.80	5.44	108	113	70-130	5	30
NMeFOSAA	4.80	5.13	4.80	5.48	107	114	70-130	7	30
Perfluorobutanesulfonate	12.03	12.19	12.03	11.46	101	95	70-130	6	30
Perfluorobutanoic Acid	13.6	14.02	13.6	13.74	103	101	70-130	2	30
Perfluorodecanoic acid	13.6	14.09	13.6	14.25	104	105	70-130	1	30
Perfluorododecanoic acid	13.6	13.86	13.6	15.2	102	112	70-130	9	30
Perfluoroheptanoic acid	13.6	13.79	13.6	14.2	101	104	70-130	3	30
Perfluorohexanesulfonate	12.86	12.37	12.86	13.04	96	101	70-130	5	30
Perfluorohexanoic acid	13.6	14	13.6	12.9	103	95	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859735
Reported: 10/08/2017 18:21

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	14.39	13.6	13.35	106	98	70-130	8	30
Perfluoro-octanesulfonate	13	12.87	13	11.61	99	89	70-130	10	30
Perfluorooctanoic acid	13.6	14.03	13.6	13.73	103	101	70-130	2	30
Perfluoropentanoic Acid	13.6	13.95	13.6	13.8	103	101	70-130	1	30
Perfluorotetradecanoic acid	13.6	13.38	13.6	15	98	110	70-130	11	30
Perfluorotridecanoic acid	13.6	12.64	13.6	14.74	93	108	70-130	15	30
Perfluoroundecanoic acid	13.6	13.96	13.6	13.44	103	99	70-130	4	30
PFOSA	13.6	12.87	13.6	12.99	95	95	70-130	1	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l		MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17279009	Sample number(s): 9250006 UNSPK: 9250006										
6:2 fluorotelomersulfonate	3.58		39.82	50.81			119		70-130		
8:2 fluorotelomersulfonate	4	U	40.23	37.1			92		70-130		
NEtFOSAA	1	U	4.78	5.51			115		70-130		
NMeFOSAA	1	U	4.78	5.19			109		70-130		
Perfluorobutanesulfonate	0.8	U	11.97	11.88			99		70-130		
Perfluorobutanoic Acid	3	U	13.53	14.77			109		70-130		
Perfluorodecanoic acid	0.718		13.53	15.53			109		70-130		
Perfluorododecanoic acid	1.36		13.53	15.28			103		70-130		
Perfluoroheptanoic acid	0.5	U	13.53	12.48			92		70-130		
Perfluorohexanesulfonate	1	U	12.8	11.98			94		70-130		
Perfluorohexanoic acid	0.6	U	13.53	15.29			113		70-130		
Perfluorononanoic acid	0.6	U	13.53	14.72			109		70-130		
Perfluoro-octanesulfonate	2	U	12.94	13.22			102		70-130		
Perfluorooctanoic acid	3.57		13.53	17.37			102		70-130		
Perfluoropentanoic Acid	0.5	U	13.53	13.6			101		70-130		
Perfluorotetradecanoic acid	0.5	U	13.53	14.59			108		70-130		
Perfluorotridecanoic acid	1.90		13.53	18.02			119		70-130		
Perfluoroundecanoic acid	1	U	13.53	14.03			104		70-130		
PFOSA	3	U	13.53	13.28			98		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859735
Reported: 10/08/2017 18:21

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17279009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9250006	90	94	95	90	96	86
Blank	87	91	86	94	94	93
LCS	85	84	81	88	87	87
LCSD	89	87	90	98	84	85
MS	83	90	91	71	80	80
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9250006	93	93	96	92	98	86
Blank	79	97	96	96	92	77
LCS	84	85	85	83	89	93
LCSD	100	89	84	83	87	86
MS	82	78	88	94	91	89
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9250006	83	110	101	105	96	17*
Blank	86	87	86	87	83	21*
LCS	77	78	79	86	80	17*
LCSD	88	84	85	79	80	22*
MS	87	93	99	89	88	12*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1859735 / 9250006

RUSH - ASAP

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47374

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL Plastic HNO3 PFCs (19)	Water Z	Water A	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CITY WATER TRUCK -171005	—	—	—	10/05/2017	1220	Water	N	2	2				PFCs (19)	
2. SG3-CITY WATER HOSE -171005	—	—	—	10-5-17	1230	W	N	2	2					
3. TRIP BLANK	—	—	—	—	AM	W	N	2	2					
4. SG3-CITY WATER FRACTK -171005	—	—	—	10-5-17	1410	W	N	2	2					
5. SG3-FILTERED WATER FRACTK-171005	—	—	—	10-5-17	1420	W	N	2	2					
6.														
7.														
8.														
9.														
10.														

RUSH SAMPLE ANALYSIS ASAP

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: DJZ RAK	Dave Zander	Y N	10-5-17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.6.17	Time 0935
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 1.9			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196599

Group Number(s): 1859735

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/06/2017 9:35
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Carolyn Cyms (964) at 11:19 on 10/06/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 11, 2017

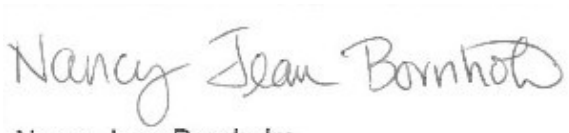
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859798
SDG: SGB71
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-RB01-171005 Grab Rinse Water	10/05/2017 13:15	9250171
SG3-RB02-171005 Grab Rinse Water	10/05/2017 13:20	9250172
SG3-RB03-171005 Grab Rinse Water	10/05/2017 13:28	9250173
SG3-RB04-171005 Grab Rinse Water	10/05/2017 13:30	9250174
SG3-RB05-171005 Grab Rinse Water	10/05/2017 13:40	9250175
SG3-RB06-171005 Grab Rinse Water	10/05/2017 13:42	9250176
SG3-RB07-171005 Grab Rinse Water	10/05/2017 13:50	9250177
SG3-RB08-171005 Grab Rinse Water	10/05/2017 14:00	9250178
SG3-LTB01-171005 Water	10/05/2017	9250179
SG3-FTB01-171005 Grab Water	10/05/2017 13:45	9250180

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1859798

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9250171, 9250172, 9250173, 9250174, 9250175, 9250176, 9250177, 9250178, 9250179, 9250180

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17280005 (Sample number(s): 9250171-9250180)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 6:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9250171, 9250172, 9250173, 9250174, 9250175, 9250176, 9250177, 9250178, 9250179, 9250180, Blank, LCS, LCSD

Sample Description: SG3-RB01-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250171
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:15 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--1 SDG#: SGB71-01

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 20:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB02-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250172
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:20 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--2 SDG#: SGB71-02

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 20:49	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB03-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250173
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:28 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--3 SDG#: SGB71-03

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 21:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB04-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250174
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:30 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--4 SDG#: SGB71-04

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l		ng/l	ng/l	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 21:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB05-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250175
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:40 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--5 SDG#: SGB71-05

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 21:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB06-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250176
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:42 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--6 SDG#: SGB71-06

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 22:52	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB07-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250177
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:50 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--7 SDG#: SGB71-07

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 23:12	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB08-171005 Grab Rinse Water
SGPP - North Bennington

ELLE Sample # WW 9250178
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 14:00 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

RB--8 SDG#: SGB71-08

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 23:33	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-171005 Water
SGPP - North Bennington

ELLE Sample # WW 9250179
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3-1 SDG#: SGB71-09TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/09/2017 23:54	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FTB01-171005 Grab Water
SGPP - North Bennington

ELLE Sample # WW 9250180
ELLE Group # 1859798
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 13:45 by LC

Submitted: 10/06/2017 09:35
Reported: 10/11/2017 16:56

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FTB-1 SDG#: SGB71-10

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17280005	10/10/2017 00:14	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17280005	10/07/2017 09:50	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859798
Reported: 10/11/2017 16:56

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17280005	Sample number(s): 9250171-9250180			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17280005	Sample number(s): 9250171-9250180								
6:2 fluorotelomersulfonate	4.55	5.27	4.55	9.81	116	216*	70-130	60*	30
8:2 fluorotelomersulfonate	4.60	5.83	4.60	5.86	127	127	70-130	1	30
NEtFOSAA	4.80	4.92	4.80	5.36	103	112	70-130	8	30
NMeFOSAA	4.80	5.05	4.80	6.23	105	130	70-130	21	30
Perfluorobutanesulfonate	12.03	10.89	12.03	12.12	91	101	70-130	11	30
Perfluorobutanoic Acid	13.6	13.32	13.6	15.31	98	113	70-130	14	30
Perfluorodecanoic acid	13.6	12.73	13.6	16.7	94	123	70-130	27	30
Perfluorododecanoic acid	13.6	14.18	13.6	15.57	104	115	70-130	9	30
Perfluoroheptanoic acid	13.6	13.08	13.6	13.12	96	96	70-130	0	30
Perfluorohexanesulfonate	12.86	12.59	12.86	11.99	98	93	70-130	5	30
Perfluorohexanoic acid	13.6	11.97	13.6	14.05	88	103	70-130	16	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/11/2017 16:56

Group Number: 1859798

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	12.08	13.6	14.95	89	110	70-130	21	30
Perfluoro-octanesulfonate	13	11.64	13	14.19	90	109	70-130	20	30
Perfluorooctanoic acid	13.6	13.42	13.6	17.41	99	128	70-130	26	30
Perfluoropentanoic Acid	13.6	12.66	13.6	15.79	93	116	70-130	22	30
Perfluorotetradecanoic acid	13.6	13.77	13.6	14.94	101	110	70-130	8	30
Perfluorotridecanoic acid	13.6	14.75	13.6	16.23	108	119	70-130	10	30
Perfluoroundecanoic acid	13.6	13.56	13.6	14.08	100	104	70-130	4	30
PFOSA	13.6	13.63	13.6	13.49	100	99	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17280005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9250171	93	97	88	96	89	88
9250172	100	106	98	102	101	97
9250173	100	104	98	102	103	97
9250174	93	89	88	87	83	84
9250175	94	95	92	102	106	96
9250176	102	106	101	103	110	109
9250177	93	93	87	99	92	95
9250178	97	98	94	103	93	97
9250179	94	95	96	98	96	89
9250180	100	108	101	105	99	94
Blank	94	94	92	105	99	99
LCS	96	93	91	103	93	88
LCSD	87	85	83	88	78	79
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9250171	69	93	88	95	93	73
9250172	84	101	104	99	102	93
9250173	78	100	100	97	100	89
9250174	66	89	94	91	91	75
9250175	82	94	98	98	99	98
9250176	84	108	91	105	101	87
9250177	78	94	98	99	99	85
9250178	78	98	95	90	96	83

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859798
Reported: 10/11/2017 16:56

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17280005

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9250179	79	91	86	95	84	70
9250180	74	103	95	95	97	84
Blank	94	104	93	91	96	84
LCS	92	99	94	98	93	85
LCSD	78	85	85	85	89	71
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9250171	78	100	88	102	98	47*
9250172	83	112	93	111	109	58*
9250173	84	102	94	106	105	54*
9250174	76	95	90	96	99	53*
9250175	90	110	98	104	111	48*
9250176	83	100	97	107	105	19*
9250177	75	97	91	105	101	48*
9250178	71	99	89	102	100	51*
9250179	73	88	84	99	89	36*
9250180	76	101	84	102	102	50*
Blank	88	100	99	101	102	36*
LCS	78	90	99	93	95	24*
LCSD	78	90	88	93	90	45*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1859798 Sample # 925071-180

COC # 564228

Client Information

Client: CT Male Associates	Acct. #:
Project Name/#: SGPP-North Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Larene Cameron	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Trizma preserved Sample Bottles

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐ / Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ / Other: Rinse water	Total # of Containers	Analysis Requested: Preservation and Filtration Codes: 0	19 PFCs
SG3-RB01-171005	10/5/17	1315	X		X	2	X	X
SG3-RB02-171005		1320	X		X	2	X	X
SG3-RB03-171005		1328	X		X	2	X	X
SG3-RB04-171005		1330	X		X	2	X	X
SG3-RB05-171005		1340	X		X	2	X	X
SG3-RB06-171005		1342	X		X	2	X	X
SG3-RB07-171005		1350	X		X	2	X	X
SG3-RB08-171005		1400	X		X	2	X	X
SG3-LTB01-171005		—			X	2	X	X
SG3-FTB01-171005		1345	X		X	2	X	X

Well Riser

Well screen

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: * 3 DAY TAT

E-mail address: lc.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Larene Cameron	10/5/17	1530			
				10/6/17	0935

EDD Required? Yes No

If yes, format: EQUIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.7 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 196582

Group Number(s): 1859798

Client: CT MALE

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/06/2017 9:35
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:00 on 10/06/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.7	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 28, 2017 10:28

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859964
SDG: SGB72
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK-171005 Water	10/05/2017 12:20	9250895
SG3-CITYWATERHOSE-171005 Water	10/05/2017 12:30	9250896
TRIP BLANK Water	10/05/2017	9250897
SG3-CITYWATERFRACTK-171005 Water	10/05/2017 14:10	9250898

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1859964

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9250895, 9250896, 9250897, 9250898

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA
are advisory only until sufficient data points can be obtained to calculate
statistical limits.

Batch #: 17285003 (Sample number(s): 9250895-9250898)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9250895, 9250896, 9250897, 9250898, Blank, LCS, LCSD

Sample Description: **SG3-CITYWATERTRUCK-171005 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 12:20
SDG#: SGB72-01

C. T. Male Associates
ELLE Sample #: WW 9250895
ELLE Group #: 1859964
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 10:33	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171005 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 12:30
SDG#: SGB72-02

C. T. Male Associates
ELLE Sample #: WW 9250896
ELLE Group #: 1859964
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 10:53	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **TRIP BLANK Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017
SDG#: SGB72-03TB

C. T. Male Associates
ELLE Sample #: WW 9250897
ELLE Group #: 1859964
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 11:14	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERFRACTK-171005 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 14:10
SDG#: SGB72-04

C. T. Male Associates
ELLE Sample #: WW 9250898
ELLE Group #: 1859964
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 11:34	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/28/2017 10:28

Group Number: 1859964

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17285003	Sample number(s): 9250895-9250898		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17285003	Sample number(s): 9250895-9250898								
6:2 fluorotelomersulfonate	15.17	15.02	15.17	14.68	99	97	70-130	2	30
8:2 fluorotelomersulfonate	15.33	18.6	15.33	16.21	121	106	70-130	14	30
NEtFOSAA	5.44	5.63	5.44	6.10	104	112	70-130	8	30
NMeFOSAA	5.44	6.52	5.44	5.91	120	109	70-130	10	30
Perfluorobutanesulfonate	4.81	5.65	4.81	5.66	117	118	70-130	0	30
Perfluorobutanoic acid	5.44	6.36	5.44	6.45	117	119	70-130	1	30
Perfluorodecanoic acid	5.44	7.28	5.44	6.01	134*	110	70-130	19	30
Perfluorododecanoic acid	5.44	6.44	5.44	6.36	118	117	70-130	1	30
Perfluoroheptanoic acid	5.44	6.78	5.44	6.52	125	120	70-130	4	30
Perfluorohexanesulfonate	5.14	6.08	5.14	5.51	118	107	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/28/2017 10:28

Group Number: 1859964

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.52	5.44	6.54	120	120	70-130	0	30
Perfluorononanoic acid	5.44	6.19	5.44	6.31	114	116	70-130	2	30
Perfluorooctanesulfonamide	5.44	6.63	5.44	6.55	122	120	70-130	1	30
Perfluoro-octanesulfonate	5.20	6.11	5.20	6.16	118	119	70-130	1	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.77	111	124	70-130	11	30
Perfluoropentanoic acid	5.44	6.36	5.44	6.27	117	115	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.82	5.44	5.81	107	107	70-130	0	30
Perfluorotridecanoic acid	5.44	5.60	5.44	5.34	103	98	70-130	5	30
Perfluoroundecanoic acid	5.44	6.76	5.44	6.66	124	122	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17285003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9250895	64	87	111	66	67	70
9250896	68	94	112	71	68	74
9250897	75	79	90	85	81	75
9250898	65	88	101	72	70	72
Blank	72	78	88	85	82	79
LCS	72	78	82	80	73	79
LCSD	77	81	90	91	93	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9250895	57	65	65	64	65	47
9250896	54	70	70	73	65	49
9250897	56	77	68	70	80	56
9250898	64	69	69	72	68	54
Blank	62	80	71	73	78	53
LCS	60	75	63	73	68	54
LCSD	69	82	74	68	81	64
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859964
Reported: 10/28/2017 10:28

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17285003

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9250895	31	51	31	40	36	16*
9250896	31	51	40	44	39	39*
9250897	41	72	58	59	59	60*
9250898	47	59	51	52	46	20*
Blank	31	58	35	55	44	10*
LCS	32	59	38	53	47	5*
LCSD	37	62	42	55	47	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / BW 10/6/17 T&A 1859964 9250845-98

RUSH - ASAP

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47374

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 mL Plastic HNO3 PFCs (19)	Water ZP	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CITYWATERTRUCK -171005	—	—	—	10/05/2017	1220	Water	N	2	2			PFCs (19)	
2. SG3-CITYWATERHOSE -171005	—	—	—	10-5-17	1230	W	N	2	2				
3. TRIP BLANK	—	—	—	—	AM	W	N	2	2				
4. SG3-CITYWATERFRACTK -171005	—	—	—	10-5-17	1410	W	N	2	2				
5. SG3-FILTEREDWATER FRACTK-171005	—	—	—	10-5-17	1420	W	N	2	2				
6.													
7.													
8.													
9.													
10.													

RUSH SAMPLE ANALYSIS ASAP

BARR USE ONLY							
Sampled by: DJZ RAK	Relinquished by: Derek Zander	On Ice? Y N	Date 10-5-17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10-6-17	Time 0935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 1.9			Custody Seal Intact? ☐ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 196599

Group Number(s): 1859964

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/06/2017 9:35
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Carolyn Cyms (964) at 11:19 on 10/06/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.9	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 31, 2017 11:02

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1859965
SDG: SGB73
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB63-171005 Blank Water	10/05/2017	9250899
SG3-LTB64-171005 Blank Water	10/05/2017	9250900
SG3-MW-BR1-238-239' Soil	10/05/2017 09:40	9250901
SG3-MW-BR1-248-249' Soil	10/05/2017 11:10	9250902
SG3-MW-BR1-258-259' Soil	10/05/2017 13:50	9250903
SG3-MW-BR1-268-269' Soil	10/05/2017 15:20	9250904
SG3-MW-BR1-278-279' Soil	10/05/2017 16:00	9250905
SG3-MW-BR1-288-289' Soil	10/05/2017 16:55	9250906
SG3-D21-0-0.5' Soil	10/05/2017 09:15	9250907
SG3-D21-0.5-1' Soil	10/05/2017 09:25	9250908
SG3-D21-1-1.5' Soil	10/05/2017 09:30	9250909
SG3-D21-3-4' Soil	10/05/2017 09:35	9250910
SG3-D21-8-9' Soil	10/05/2017 09:45	9250911
SG3-D21-14-15' Soil	10/05/2017 13:05	9250912

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1859965

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9250900

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample #s: 9250899

The recovery for the extraction standard 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample #s: 9250901, 9250902, 9250903, 9250904, 9250905, 9250906, 9250907, 9250908, 9250909, 9250910, 9250911, 9250912

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Batch #: 17289008 (Sample number(s): 9250899-9250900)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9250899

Batch #: 17290007 (Sample number(s): 9250901-9250912 UNSPK: 9250901)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9250901, 9250902, 9250903, 9250904, 9250905, 9250906, MS

SW-846 6010C, Metals

Sample #s: 9250905

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172821063702 (Sample number(s): 9250901-9250912 UNSPK: P250098 BKG: P250098)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium, Manganese, Calcium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium

SW-846 6020A, Metals

Sample #s: 9250901, 9250902, 9250906

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172821063702A (Sample number(s): 9250901-9250912 UNSPK: P250098 BKG: P250098)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Copper, Lead, Nickel, Beryllium, Chromium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Arsenic, Silver

Batch #: 172821063702B (Sample number(s): 9250901-9250912 UNSPK: P250098 BKG: P250098)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Selenium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 172821063702D (Sample number(s): 9250901-9250912 UNSPK: P250098 BKG: P250098)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9250901, 9250902, 9250903, 9250906

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17300667633A (Sample number(s): 9250910-9250912 UNSPK: P251839 BKG: P251839)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9250912

The pH was measured in water at 20 C.

Sample #s: 9250901, 9250904, 9250905, 9250908, 9250910

The pH was measured in water at 20.1 C.

Sample #s: 9250903

The pH was measured in water at 20.2 C.

Sample #s: 9250902, 9250907, 9250909

The pH was measured in water at 20.3 C.

Sample #s: 9250906

The pH was measured in water at 20.4 C.

Sample #s: 9250911

The pH was measured in water at 20.5 C.

Batch #: 17282039401A (Sample number(s): 9250901-9250904 BKG: P251283)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: pH

Sample Description: **SG3-LTB63-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017
SDG#: SGB73-01TB

C. T. Male Associates
ELLE Sample #: WW 9250899
ELLE Group #: 1859965
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for the extraction standard 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm. Both sets of data are included in the data package.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm. Both sets of data are included in the data package.

Sample Comments

This sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 03:24	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB64-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017
SDG#: SGB73-02TB

C. T. Male Associates
ELLE Sample #: WW 9250900
ELLE Group #: 1859965
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 03:44	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-238-239' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:40
SDG#: SGB73-03

C. T. Male Associates
ELLE Sample #: SW 9250901
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,300**	48.3	216	5
01650	**Calcium**	7440-70-2	**346**	18.0	216	5
01654	**Iron**	7439-89-6	**35,500**	43.5	216	5
01657	**Magnesium**	7439-95-4	**559**	13.1	108	5
06958	**Manganese**	7439-96-5	**103**	0.449	5.41	5
01662	**Potassium**	7440-09-7	**696**	90.3	541	5
01667	Sodium	7440-23-5	90.3 U	90.3	1,080	5
06972	**Zinc**	7440-66-6	**141**	1.30	21.6	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.252 U	0.252	1.08	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06125	**Arsenic**	7440-38-2	**9.91**	0.138	0.865	2
06126	**Barium**	7440-39-3	**7.48**	0.491	2.16	5
06127	**Beryllium**	7440-41-7	**1.50**	0.0113	0.216	2
06128	**Cadmium**	7440-43-9	**0.463 J**	0.0930	0.541	5
06131	**Chromium**	7440-47-3	**1.45**	0.188	0.865	2
06132	**Cobalt**	7440-48-4	**4.16**	0.0337	0.216	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-238-239' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:40
SDG#: SGB73-03

C. T. Male Associates
ELLE Sample #: SW 9250901
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**11.1**	0.116	0.865	2
06135	**Lead**	7439-92-1	**6.23**	0.0240	0.433	2
06139	**Nickel**	7440-02-0	**41.9**	0.215	0.865	2
06141	**Selenium**	7782-49-2	**0.295 J**	0.108	0.865	2
06142	Silver	7440-22-4	0.0790 U	0.0790	0.541	5
06145	**Thallium**	7440-28-0	**0.297**	0.0270	0.216	2
06148	**Vanadium**	7440-62-2	**9.25**	0.0461	0.216	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**164 J**	124	373	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.96**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**19.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/19/2017 00:37	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-238-239' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:40
SDG#: SGB73-03

C. T. Male Associates
ELLE Sample #: SW 9250901
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01662	Potassium	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 00:55	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172821063702A	10/18/2017 08:13	Choon Y Tian	5
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/18/2017 08:13	Choon Y Tian	5
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/18/2017 08:13	Choon Y Tian	5
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/18/2017 08:13	Choon Y Tian	5
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/28/2017 18:38	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401A	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-248-249' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 11:10
SDG#: SGB73-04

C. T. Male Associates
ELLE Sample #: SW 9250902
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,080**	48.5	217	5
01650	**Calcium**	7440-70-2	**366**	18.1	217	5
01654	**Iron**	7439-89-6	**48,300**	43.7	217	5
01657	**Magnesium**	7439-95-4	**626**	13.2	108	5
06958	**Manganese**	7439-96-5	**228**	0.450	5.42	5
01662	**Potassium**	7440-09-7	**563**	90.6	542	5
01667	Sodium	7440-23-5	90.6 U	90.6	1,080	5
06972	**Zinc**	7440-66-6	**130**	1.30	21.7	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.253 U	0.253	1.08	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06125	**Arsenic**	7440-38-2	**9.24**	0.139	0.868	2
06126	**Barium**	7440-39-3	**11.1**	0.493	2.17	5
06127	**Beryllium**	7440-41-7	**2.42**	0.0114	0.217	2
06128	**Cadmium**	7440-43-9	**0.504 J**	0.0933	0.542	5
06131	**Chromium**	7440-47-3	**1.93**	0.189	0.868	2
06132	**Cobalt**	7440-48-4	**6.80**	0.0338	0.217	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-248-249' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 11:10
SDG#: SGB73-04

C. T. Male Associates
ELLE Sample #: SW 9250902
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**27.0**	0.116	0.868	2
06135	**Lead**	7439-92-1	**18.2**	0.0241	0.434	2
06139	**Nickel**	7440-02-0	**37.4**	0.216	0.868	2
06141	**Selenium**	7782-49-2	**0.492 J**	0.108	0.868	2
06142	Silver	7440-22-4	0.0792 U	0.0792	0.542	5
06145	**Thallium**	7440-28-0	**1.10**	0.0271	0.217	2
06148	**Vanadium**	7440-62-2	**9.49**	0.0462	0.217	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**141 J**	132	397	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.06**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 09:33	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-248-249' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 11:10
SDG#: SGB73-04

C. T. Male Associates
ELLE Sample #: SW 9250902
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01662	Potassium	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 00:59	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172821063702A	10/18/2017 08:15	Choon Y Tian	5
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/18/2017 08:15	Choon Y Tian	5
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/18/2017 08:15	Choon Y Tian	5
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:28	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/18/2017 08:15	Choon Y Tian	5
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:28	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/28/2017 18:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401A	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-258-259' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:50
SDG#: SGB73-05

C. T. Male Associates
ELLE Sample #: SW 9250903
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.48	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.48	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	Perfluorohexanoic acid	307-24-4	0.080 U	0.080	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.080 U	0.080	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.72	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.48	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.48	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,320**	8.81	39.4	1
01650	**Calcium**	7440-70-2	**363**	3.28	39.4	1
01654	**Iron**	7439-89-6	**16,700**	7.93	39.4	1
01657	**Magnesium**	7439-95-4	**719**	2.39	19.7	1
06958	**Manganese**	7439-96-5	**172**	0.0818	0.985	1
01662	**Potassium**	7440-09-7	**915**	16.5	98.5	1
01667	Sodium	7440-23-5	16.5 U	16.5	197	1
06972	**Zinc**	7440-66-6	**25.3**	1.18	19.7	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0918 U	0.0918	0.394	2
06125	**Arsenic**	7440-38-2	**9.56**	0.126	0.788	2
06126	**Barium**	7440-39-3	**7.78**	0.179	0.788	2
06127	**Beryllium**	7440-41-7	**0.759**	0.0103	0.197	2
06128	**Cadmium**	7440-43-9	**0.0733 J**	0.0339	0.197	2
06131	**Chromium**	7440-47-3	**1.59**	0.171	0.788	2
06132	**Cobalt**	7440-48-4	**18.3**	0.0307	0.197	2
06133	**Copper**	7440-50-8	**9.61**	0.106	0.788	2
06135	**Lead**	7439-92-1	**14.9**	0.0219	0.394	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-258-259' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:50
SDG#: SGB73-05

C. T. Male Associates
ELLE Sample #: SW 9250903
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**22.2**	0.196	0.788	2
06141	**Selenium**	7782-49-2	**0.199 J**	0.0985	0.788	2
06142	Silver	7440-22-4	0.0288 U	0.0288	0.197	2
06145	**Thallium**	7440-28-0	**0.245**	0.0246	0.197	2
06148	**Vanadium**	7440-62-2	**3.82**	0.0420	0.197	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**141 J**	120	361	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 11:15	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:21	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 01:10	Jonathan J Allen	5

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-258-259' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:50
SDG#: SGB73-05

C. T. Male Associates
ELLE Sample #: SW 9250903
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:31	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:31	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:31	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/28/2017 19:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401A	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-268-269' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 15:20
SDG#: SGB73-06

C. T. Male Associates
ELLE Sample #: SW 9250904
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,150**	9.78	43.7	1
01650	**Calcium**	7440-70-2	**1,210**	3.64	43.7	1
01654	**Iron**	7439-89-6	**318,000**	220	1,090	25
01657	**Magnesium**	7439-95-4	**1,340**	2.66	21.9	1
06958	**Manganese**	7439-96-5	**18,000**	2.27	27.3	25
01662	**Potassium**	7440-09-7	**198**	18.3	109	1
01667	Sodium	7440-23-5	18.3 U	18.3	219	1
06972	**Zinc**	7440-66-6	**253**	1.31	21.9	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.102 U	0.102	0.437	2
06125	**Arsenic**	7440-38-2	**8.28**	0.140	0.875	2
06126	**Barium**	7440-39-3	**581**	0.199	0.875	2
06127	**Beryllium**	7440-41-7	**5.92**	0.0115	0.219	2
06128	**Cadmium**	7440-43-9	**1.08**	0.0376	0.219	2
06131	**Chromium**	7440-47-3	**3.21**	0.190	0.875	2
06132	**Cobalt**	7440-48-4	**159**	0.0341	0.219	2
06133	**Copper**	7440-50-8	**12.7**	0.117	0.875	2
06135	**Lead**	7439-92-1	**22.3**	0.0243	0.437	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-268-269' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 15:20
SDG#: SGB73-06

C. T. Male Associates
ELLE Sample #: SW 9250904
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**91.2**	0.218	0.875	2
06141	**Selenium**	7782-49-2	**0.245 J**	0.109	0.875	2
06142	Silver	7440-22-4	0.0319 U	0.0319	0.219	2
06145	**Thallium**	7440-28-0	**2.13**	0.0273	0.219	2
06148	**Vanadium**	7440-62-2	**15.3**	0.0466	0.219	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**653**	176	529	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.73**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**30.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 11:36	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:24	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:24	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/20/2017 01:44	Jonathan J Allen	25
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:24	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 01:44	Jonathan J Allen	25
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:24	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:24	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 01:13	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:34	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-268-269' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 15:20
SDG#: SGB73-06

C. T. Male Associates
ELLE Sample #: SW 9250904
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:34	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:34	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/30/2017 10:53	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401A	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-278-279' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:00
SDG#: SGB73-07

C. T. Male Associates
ELLE Sample #: SW 9250905
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.50	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.50	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25 U	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,360**	51.7	231	5
01650	**Calcium**	7440-70-2	**1,440**	19.3	231	5
01654	**Iron**	7439-89-6	**346,000**	233	1,160	25
01657	**Magnesium**	7439-95-4	**1,980**	14.1	116	5
06958	**Manganese**	7439-96-5	**16,600**	2.40	28.9	25
01662	**Potassium**	7440-09-7	**288 J**	96.7	579	5
01667	Sodium	7440-23-5	96.7 U	96.7	1,160	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**279**	1.39	23.1	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.251 J**	0.108	0.463	2
06125	**Arsenic**	7440-38-2	**33.9**	0.148	0.926	2
06126	**Barium**	7440-39-3	**575**	0.210	0.926	2
06127	**Beryllium**	7440-41-7	**8.46**	0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**1.41**	0.0398	0.231	2
06131	**Chromium**	7440-47-3	**10.9**	0.201	0.926	2
06132	**Cobalt**	7440-48-4	**137**	0.0361	0.231	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-278-279' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:00
SDG#: SGB73-07

C. T. Male Associates
ELLE Sample #: SW 9250905
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**		7440-50-8	**16.4**	0.124	0.926	2
06135	**Lead**		7439-92-1	**58.4**	0.0257	0.463	2
06139	**Nickel**		7440-02-0	**224**	0.231	0.926	2
06141	**Selenium**		7782-49-2	**0.542 J**	0.116	0.926	2
06142	**Silver**		7440-22-4	**0.0440 J**	0.0338	0.231	2
06145	**Thallium**		7440-28-0	**1.51**	0.0289	0.231	2
06148	**Vanadium**		7440-62-2	**32.4**	0.0493	0.231	2
Wet Chemistry		**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**		n.a.	**801**	187	562	1
		SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**		n.a.	**7.72**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**		n.a.	**27.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 12:58	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172821063702	10/20/2017 01:55	Jonathan J Allen	25
01657	Magnesium	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 01:55	Jonathan J Allen	25
01662	Potassium	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 01:17	Jonathan J Allen	5

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-278-279' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:00
SDG#: SGB73-07

C. T. Male Associates
ELLE Sample #: SW 9250905
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:37	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:37	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:37	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/30/2017 11:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-288-289' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:55
SDG#: SGB73-08

C. T. Male Associates
ELLE Sample #: SW 9250906
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,520**	116	519	10
01650	**Calcium**	7440-70-2	**1,020**	43.2	519	10
01654	**Iron**	7439-89-6	**98,000**	104	519	10
01657	**Magnesium**	7439-95-4	**1,170**	31.5	260	10
06958	**Manganese**	7439-96-5	**5,500**	1.08	13.0	10
01662	**Potassium**	7440-09-7	**554 J**	217	1,300	10
01667	Sodium	7440-23-5	217 U	217	2,600	10
06972	**Zinc**	7440-66-6	**393**	3.12	51.9	10
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.617 J**	0.302	1.30	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06125	**Arsenic**	7440-38-2	**24.0**	0.166	1.04	2
06126	**Barium**	7440-39-3	**188**	0.589	2.60	5
06127	**Beryllium**	7440-41-7	**10.8**	0.0136	0.260	2
06128	**Cadmium**	7440-43-9	**1.85**	0.112	0.649	5
06131	**Chromium**	7440-47-3	**7.56**	0.226	1.04	2
06132	**Cobalt**	7440-48-4	**46.7**	0.0405	0.260	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-288-289' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:55
SDG#: SGB73-08

C. T. Male Associates
ELLE Sample #: SW 9250906
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06133	**Copper**	7440-50-8	**40.5**	0.139	1.04	2
06135	**Lead**	7439-92-1	**45.5**	0.0288	0.519	2
06139	**Nickel**	7440-02-0	**210**	0.259	1.04	2
06141	**Selenium**	7782-49-2	**0.948 J**	0.130	1.04	2
06142	**Silver**	7440-22-4	**0.130 J**	0.0948	0.649	5
06145	**Thallium**	7440-28-0	**2.02**	0.0324	0.260	2
06148	**Vanadium**	7440-62-2	**38.3**	0.0553	0.260	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**387 J**	142	425	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.81**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**25.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 13:19	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
01654	Iron	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
01657	Magnesium	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR1-288-289' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 16:55
SDG#: SGB73-08

C. T. Male Associates
ELLE Sample #: SW 9250906
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01662	Potassium	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
01667	Sodium	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
06972	Zinc	SW-846 6010C	1	172821063702	10/20/2017 12:49	Patrick J Engle	10
06124	Antimony	SW-846 6020A	1	172821063702A	10/18/2017 08:16	Choon Y Tian	5
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/18/2017 08:16	Choon Y Tian	5
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/18/2017 08:16	Choon Y Tian	5
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:41	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/18/2017 08:16	Choon Y Tian	5
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:41	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/30/2017 11:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:15
SDG#: SGB73-09

C. T. Male Associates
ELLE Sample #: SW 9250907
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.73 J**	0.32	0.97	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,190**	7.43	33.3	1
01650	**Calcium**	7440-70-2	**39,400**	2.77	33.3	1
01654	**Iron**	7439-89-6	**15,600**	6.69	33.3	1
01657	**Magnesium**	7439-95-4	**13,600**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**408**	0.0690	0.832	1
01662	**Potassium**	7440-09-7	**845**	13.9	83.2	1
01667	**Sodium**	7440-23-5	**59.4 J**	13.9	166	1
06972	**Zinc**	7440-66-6	**65.0**	0.200	3.33	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.171 J**	0.0775	0.333	2
06125	**Arsenic**	7440-38-2	**5.41**	0.106	0.665	2
06126	**Barium**	7440-39-3	**37.3**	0.151	0.665	2
06127	**Beryllium**	7440-41-7	**0.290**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.273**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**15.0**	0.145	0.665	2
06132	**Cobalt**	7440-48-4	**7.19**	0.0259	0.166	2
06133	**Copper**	7440-50-8	**18.1**	0.0891	0.665	2
06135	**Lead**	7439-92-1	**57.8**	0.0185	0.333	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:15
SDG#: SGB73-09

C. T. Male Associates
ELLE Sample #: SW 9250907
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**12.6**	0.166	0.665	2
06141	**Selenium**	7782-49-2	**0.201 J**	0.0832	0.665	2
06142	**Silver**	7440-22-4	**0.0556 J**	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.117 J**	0.0208	0.166	2
06148	**Vanadium**	7440-62-2	**11.9**	0.0354	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**48,500**	1,050	3,150	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.75**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 13:39	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:34	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:44	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D21-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:15
SDG#: SGB73-09

C. T. Male Associates
ELLE Sample #: SW 9250907
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:44	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:44	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/30/2017 11:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:25
SDG#: SGB73-10

C. T. Male Associates
ELLE Sample #: SW 9250908
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.55 J**	0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.90**	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,200**	6.64	29.7	1
01650	**Calcium**	7440-70-2	**35,100**	2.47	29.7	1
01654	**Iron**	7439-89-6	**19,200**	5.98	29.7	1
01657	**Magnesium**	7439-95-4	**12,500**	1.80	14.9	1
06958	**Manganese**	7439-96-5	**2,090**	0.308	3.71	5
01662	**Potassium**	7440-09-7	**754**	12.4	74.3	1
01667	**Sodium**	7440-23-5	**82.7 J**	12.4	149	1
06972	**Zinc**	7440-66-6	**91.9**	0.178	2.97	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.126 J**	0.0692	0.297	2
06125	**Arsenic**	7440-38-2	**7.91**	0.0951	0.594	2
06126	**Barium**	7440-39-3	**186**	0.135	0.594	2
06127	**Beryllium**	7440-41-7	**0.449**	0.0078	0.149	2
06128	**Cadmium**	7440-43-9	**0.427**	0.0255	0.149	2
06131	**Chromium**	7440-47-3	**9.15**	0.129	0.594	2
06132	**Cobalt**	7440-48-4	**36.5**	0.0232	0.149	2
06133	**Copper**	7440-50-8	**21.8**	0.0796	0.594	2
06135	**Lead**	7439-92-1	**55.9**	0.0165	0.297	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:25
SDG#: SGB73-10

C. T. Male Associates
ELLE Sample #: SW 9250908
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**21.9**	0.148	0.594	2
06141	**Selenium**	7782-49-2	**0.220 J**	0.0743	0.594	2
06142	**Silver**	7440-22-4	**0.188**	0.0217	0.149	2
06145	**Thallium**	7440-28-0	**0.894**	0.0186	0.149	2
06148	**Vanadium**	7440-62-2	**10.7**	0.0316	0.149	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**41,100**	1,870	5,620	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 14:00	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/20/2017 01:25	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:37	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:47	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D21-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:25
SDG#: SGB73-10

C. T. Male Associates
ELLE Sample #: SW 9250908
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:47	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:47	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/30/2017 11:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:30
SDG#: SGB73-11

C. T. Male Associates
ELLE Sample #: SW 9250909
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.48	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.48	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.15 J**	0.079	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.079 U	0.079	0.32	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.28 J**	0.24	0.72	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.9**	0.16	0.48	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.48	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,440**	8.32	37.2	1
01650	**Calcium**	7440-70-2	**17,500**	3.10	37.2	1
01654	**Iron**	7439-89-6	**19,800**	7.49	37.2	1
01657	**Magnesium**	7439-95-4	**10,300**	2.26	18.6	1
06958	**Manganese**	7439-96-5	**612**	0.0772	0.930	1
01662	**Potassium**	7440-09-7	**1,070**	15.5	93.0	1
01667	**Sodium**	7440-23-5	**208**	15.5	186	1
06972	**Zinc**	7440-66-6	**73.0**	0.223	3.72	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.269 J**	0.0867	0.372	2
06125	**Arsenic**	7440-38-2	**7.37**	0.119	0.744	2
06126	**Barium**	7440-39-3	**64.8**	0.169	0.744	2
06127	**Beryllium**	7440-41-7	**0.420**	0.0097	0.186	2
06128	**Cadmium**	7440-43-9	**0.307**	0.0320	0.186	2
06131	**Chromium**	7440-47-3	**10.1**	0.162	0.744	2
06132	**Cobalt**	7440-48-4	**9.96**	0.0290	0.186	2
06133	**Copper**	7440-50-8	**18.8**	0.0997	0.744	2
06135	**Lead**	7439-92-1	**81.1**	0.0207	0.372	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:30
SDG#: SGB73-11

C. T. Male Associates
ELLE Sample #: SW 9250909
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**17.7**	0.185	0.744	2
06141	**Selenium**	7782-49-2	**0.366 J**	0.0930	0.744	2
06142	**Silver**	7440-22-4	**0.0943 J**	0.0272	0.186	2
06145	**Thallium**	7440-28-0	**0.149 J**	0.0233	0.186	2
06148	**Vanadium**	7440-62-2	**14.0**	0.0396	0.186	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,100**	586	1,760	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 14:20	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:41	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:50	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D21-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:30
SDG#: SGB73-11

C. T. Male Associates
ELLE Sample #: SW 9250909
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:50	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:50	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667632B	10/28/2017 21:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039402A	10/09/2017 19:15	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:35
SDG#: SGB73-12

C. T. Male Associates
ELLE Sample #: SW 9250910
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.087 U	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087 U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.79	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.73**	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,700**	9.05	40.5	1
01650	**Calcium**	7440-70-2	**1,120**	3.37	40.5	1
01654	**Iron**	7439-89-6	**27,100**	8.14	40.5	1
01657	**Magnesium**	7439-95-4	**3,070**	2.46	20.2	1
06958	**Manganese**	7439-96-5	**636**	0.0840	1.01	1
01662	**Potassium**	7440-09-7	**1,260**	16.9	101	1
01667	**Sodium**	7440-23-5	**198 J**	16.9	202	1
06972	**Zinc**	7440-66-6	**56.3**	0.243	4.05	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0943 U	0.0943	0.405	2
06125	**Arsenic**	7440-38-2	**10.1**	0.130	0.809	2
06126	**Barium**	7440-39-3	**61.5**	0.184	0.809	2
06127	**Beryllium**	7440-41-7	**0.762**	0.0106	0.202	2
06128	**Cadmium**	7440-43-9	**0.235**	0.0348	0.202	2
06131	**Chromium**	7440-47-3	**12.5**	0.176	0.809	2
06132	**Cobalt**	7440-48-4	**22.8**	0.0316	0.202	2
06133	**Copper**	7440-50-8	**19.2**	0.108	0.809	2
06135	**Lead**	7439-92-1	**16.2**	0.0225	0.405	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:35
SDG#: SGB73-12

C. T. Male Associates
ELLE Sample #: SW 9250910
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**24.3**	0.202	0.809	2
06141	**Selenium**	7782-49-2	**0.283 J**	0.101	0.809	2
06142	**Silver**	7440-22-4	**0.0358 J**	0.0295	0.202	2
06145	**Thallium**	7440-28-0	**0.265**	0.0253	0.202	2
06148	**Vanadium**	7440-62-2	**16.6**	0.0431	0.202	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,280**	345	1,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.39**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 14:41	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:44	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:53	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D21-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:35
SDG#: SGB73-12

C. T. Male Associates
ELLE Sample #: SW 9250910
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:53	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:53	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667633A	10/28/2017 21:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:45
SDG#: SGB73-13

C. T. Male Associates
ELLE Sample #: SW 9250911
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.27 J**	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,400**	6.93	31.0	1
01650	**Calcium**	7440-70-2	**49,800**	12.9	155	5
01654	**Iron**	7439-89-6	**15,600**	6.24	31.0	1
01657	**Magnesium**	7439-95-4	**22,800**	1.88	15.5	1
06958	**Manganese**	7439-96-5	**445**	0.0644	0.776	1
01662	**Potassium**	7440-09-7	**778**	13.0	77.6	1
01667	**Sodium**	7440-23-5	**127 J**	13.0	155	1
06972	**Zinc**	7440-66-6	**31.6**	0.186	3.10	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.106 J**	0.0723	0.310	2
06125	**Arsenic**	7440-38-2	**6.70**	0.0993	0.621	2
06126	**Barium**	7440-39-3	**35.9**	0.141	0.621	2
06127	**Beryllium**	7440-41-7	**0.360**	0.0081	0.155	2
06128	**Cadmium**	7440-43-9	**0.150 J**	0.0267	0.155	2
06131	**Chromium**	7440-47-3	**14.5**	0.135	0.621	2
06132	**Cobalt**	7440-48-4	**9.56**	0.0242	0.155	2
06133	**Copper**	7440-50-8	**16.2**	0.0832	0.621	2
06135	**Lead**	7439-92-1	**7.73**	0.0172	0.310	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:45
SDG#: SGB73-13

C. T. Male Associates
ELLE Sample #: SW 9250911
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**16.3**	0.155	0.621	2
06141	**Selenium**	7782-49-2	**0.147 J**	0.0776	0.621	2
06142	Silver	7440-22-4	0.0226 U	0.0226	0.155	2
06145	**Thallium**	7440-28-0	**0.115 J**	0.0194	0.155	2
06148	**Vanadium**	7440-62-2	**6.52**	0.0330	0.155	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,830**	773	2,320	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.85**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 15:01	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 01:29	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:47	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 13:56	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D21-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 09:45
SDG#: SGB73-13

C. T. Male Associates
ELLE Sample #: SW 9250911
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 13:56	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 13:56	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667633A	10/30/2017 12:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:05
SDG#: SGB73-14

C. T. Male Associates
ELLE Sample #: SW 9250912
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the result is high and no native compounds were detected, the data is reported.

Metals		**SW-846 6010C**	mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**4,690**	10.2	45.7	1
01650	**Calcium**	7440-70-2	**60,800**	19.0	228	5
01654	**Iron**	7439-89-6	**14,200**	9.19	45.7	1
01657	**Magnesium**	7439-95-4	**26,700**	2.78	22.8	1
06958	**Manganese**	7439-96-5	**625**	0.0948	1.14	1
01662	**Potassium**	7440-09-7	**1,040**	19.1	114	1
01667	**Sodium**	7440-23-5	**20.7 J**	19.1	228	1
06972	**Zinc**	7440-66-6	**33.7**	0.274	4.57	1
		SW-846 6020A	mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.132 J**	0.106	0.457	2
06125	**Arsenic**	7440-38-2	**5.66**	0.146	0.914	2
06126	**Barium**	7440-39-3	**68.7**	0.207	0.914	2
06127	**Beryllium**	7440-41-7	**0.361**	0.0120	0.228	2
06128	**Cadmium**	7440-43-9	**0.154 J**	0.0393	0.228	2
06131	**Chromium**	7440-47-3	**5.00**	0.199	0.914	2
06132	**Cobalt**	7440-48-4	**8.92**	0.0356	0.228	2
06133	**Copper**	7440-50-8	**11.1**	0.122	0.914	2
06135	**Lead**	7439-92-1	**7.77**	0.0254	0.457	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:05
SDG#: SGB73-14

C. T. Male Associates
ELLE Sample #: SW 9250912
ELLE Group #: 1859965
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**13.8**	0.228	0.914	2
06141	**Selenium**	7782-49-2	**0.118 J**	0.114	0.914	2
06142	**Silver**	7440-22-4	**0.0375 J**	0.0334	0.228	2
06145	**Thallium**	7440-28-0	**0.181 J**	0.0286	0.228	2
06148	**Vanadium**	7440-62-2	**6.72**	0.0487	0.228	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,480**	778	2,330	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

The 4 oz for this sample was received on 10/9/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17290007	10/18/2017 15:22	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17290007	10/17/2017 17:00	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172821063702	10/20/2017 01:33	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172821063702	10/15/2017 20:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172821063702D	10/17/2017 14:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/06/2017 09:35
Collection Date/Time: 10/05/2017 13:05
SDG#: SGB73-14

C. T. Male Associates
ELLE Sample #: SW 9250912
ELLE Group #: 1859965
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06127	Beryllium	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172821063702B	10/17/2017 14:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172821063702A	10/17/2017 14:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172821063702	10/12/2017 05:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17300667633A	10/30/2017 12:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17282039401B	10/09/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820004A	10/17/2017 14:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17290007	Sample number(s): 9250901-9250912		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17289008	Sample number(s): 9250899-9250900		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.6 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 172821063702	Sample number(s): 9250901-9250912		
Aluminum	8.94 U	8.94	40.0
Calcium	4.02 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.330 J	0.240	4.00
Batch number: 172821063702A	Sample number(s): 9250901-9250912		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172821063702B	Sample number(s): 9250901-9250912		
Selenium	0.100 U	0.100	0.800
Batch number: 172821063702D	Sample number(s): 9250901-9250912		
Barium	0.182 U	0.182	0.800
Batch number: 17300667632B	Sample number(s): 9250901-9250909		
TOC	100 U	100	300
Batch number: 17300667633A	Sample number(s): 9250910-9250912		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17290007	Sample number(s): 9250901-9250912								
Perfluorobutanesulfonate	1.20	1.23	1.20	1.24	103	104	70-130	1	30
Perfluorobutanoic acid	1.36	1.43	1.36	1.36	105	100	70-130	5	30
Perfluorodecanoic acid	1.36	1.42	1.36	1.48	104	109	70-130	5	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.42	104	105	70-130	1	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.44	111	106	70-130	5	30
Perfluorohexanesulfonate	1.29	1.33	1.29	1.30	104	101	70-130	2	30
Perfluorohexanoic acid	1.36	1.44	1.36	1.38	106	101	70-130	4	30
Perfluorononanoic acid	1.36	1.58	1.36	1.44	116	106	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.43	1.30	1.45	110	111	70-130	1	30
Perfluorooctanoic acid	1.36	1.60	1.36	1.48	118	109	70-130	8	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.35	106	99	70-130	7	30
Perfluorotetradecanoic acid	1.36	1.38	1.36	1.40	101	103	70-130	2	30
Perfluorotridecanoic acid	1.36	1.46	1.36	1.51	107	111	70-130	4	30
Perfluoroundecanoic acid	1.36	1.33	1.36	1.39	98	102	70-130	4	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17289008	Sample number(s): 9250899-9250900								
Perfluorobutanesulfonate	4.81	4.76	4.81	4.69	99	97	70-130	2	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.94	105	109	70-130	4	30
Perfluorodecanoic acid	5.44	5.55	5.44	6.60	102	121	70-130	17	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.73	105	105	70-130	0	30
Perfluoroheptanoic acid	5.44	5.11	5.44	4.67	94	86	70-130	9	30
Perfluorohexanesulfonate	5.14	4.77	5.14	4.67	93	91	70-130	2	30
Perfluorohexanoic acid	5.44	5.83	5.44	5.91	107	109	70-130	1	30
Perfluorononanoic acid	5.44	6.10	5.44	5.38	112	99	70-130	13	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.08	105	98	70-130	8	30
Perfluorooctanoic acid	5.44	6.00	5.44	6.64	110	122	70-130	10	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.74	104	106	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.63	98	104	70-130	6	30
Perfluorotridecanoic acid	5.44	4.55	5.44	5.45	84	100	70-130	18	30
Perfluoroundecanoic acid	5.44	5.78	5.44	6.16	106	113	70-130	6	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172821063702	Sample number(s): 9250901-9250912								
Aluminum	200	196.57			98		80-120		
Calcium	400	398.88			100		80-120		
Iron	100	96.85			97		80-120		
Magnesium	200	200.77			100		80-120		
Manganese	50	50.77			102		80-120		
Potassium	1000	1018.39			102		80-120		
Sodium	1000	968.98			97		80-120		
Zinc	50	49.82			100		80-120		
Batch number: 172821063702A	Sample number(s): 9250901-9250912								
Antimony	0.600	0.551			92		80-120		
Arsenic	1.00	1.17			117		80-120		
Beryllium	0.400	0.374			93		80-120		
Cadmium	0.500	0.545			109		80-120		
Chromium	5.00	5.39			108		80-120		
Cobalt	25	26.4			106		80-120		
Copper	5.00	5.50			110		80-120		
Lead	1.50	1.50			100		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	5.30			106		80-120		
Silver	5.00	5.42			108		80-120		
Thallium	0.200	0.210			105		80-120		
Vanadium	5.00	5.27			105		80-120		
Batch number: 172821063702B	Sample number(s): 9250901-9250912								
Selenium	1.00	1.05			105		80-120		
Batch number: 172821063702D	Sample number(s): 9250901-9250912								
Barium	5.00	4.82			96		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17300667632B	Sample number(s): 9250901-9250909								
TOC	7150	8191.62			115		47-143		
Batch number: 17300667633A	Sample number(s): 9250910-9250912								
TOC	7150	7687.24			108		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17282039401A	Sample number(s): 9250901-9250904								
pH	7.00	6.96			99		95-105		
Batch number: 17282039401B	Sample number(s): 9250905-9250908,9250910-9250912								
pH	7.00	6.96			99		95-105		
Batch number: 17282039402A	Sample number(s): 9250909								
pH	7.00	7.00			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17290820004A	Sample number(s): 9250901-9250912								
Moisture	89.5	89.37			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17290007	Sample number(s): 9250901-9250912 UNSPK: 9250901									
Perfluorobutanesulfonate	0.19 U	1.13	1.28			113		70-130		
Perfluorobutanoic acid	0.19 U	1.28	1.33			104		70-130		
Perfluorodecanoic acid	0.19 U	1.28	1.35			105		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorododecanoic acid	0.19 U	1.28	1.26			98		70-130		
Perfluoroheptanoic acid	0.19 U	1.28	1.45			113		70-130		
Perfluorohexanesulfonate	0.19 U	1.21	1.34			111		70-130		
Perfluorohexanoic acid	0.095 U	1.28	1.30			101		70-130		
Perfluorononanoic acid	0.095 U	1.28	1.33			104		70-130		
Perfluoro-octanesulfonate	0.29 U	1.23	1.43			116		70-130		
Perfluorooctanoic acid	0.19 U	1.28	1.44			113		70-130		
Perfluoropentanoic acid	0.19 U	1.28	1.36			106		70-130		
Perfluorotetradecanoic acid	0.19 U	1.28	1.28			99		70-130		
Perfluorotridecanoic acid	0.19 U	1.28	1.29			100		70-130		
Perfluoroundecanoic acid	0.19 U	1.28	1.39			109		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172821063702	Sample number(s): 9250901-9250912 UNSPK: P250098									
Aluminum	18600.99	150.38	21307.25	149.25	23714.32	1800 (2)	3426 (2)	75-125	11	20
Calcium	11539.78	300.75	15022.63	298.51	10246.76	1158 (2)	-433 (2)	75-125	38*	20
Iron	33164.86	75.19	31887.78	74.63	33610.05	-1699 (2)	597 (2)	75-125	5	20
Magnesium	10931.78	150.38	12256.98	149.25	11077.46	881 (2)	98 (2)	75-125	10	20
Manganese	435.99	37.59	571.15	37.31	487.68	360 (2)	139 (2)	75-125	16	20
Potassium	3009.62	751.88	4520.48	746.27	5423.47	201 (2)	323 (2)	75-125	18	20
Sodium	112.93	751.88	920.77	746.27	959.34	107	113	75-125	4	20
Zinc	79.81	37.59	111.19	37.31	114.66	83	93	75-125	3	20
Batch number: 172821063702A	Sample number(s): 9250901-9250912 UNSPK: P250098									
Antimony	0.0867	0.902	0.422	0.896	0.434	37*	39*	75-125	3	20
Arsenic	9.49	1.50	9.42	1.49	5.42	-5 (2)	-273 (2)	75-125	54*	20
Beryllium	0.766	0.602	1.15	0.597	1.34	64*	95	75-125	15	20
Cadmium	0.141	0.752	0.788	0.746	0.829	86	92	75-125	5	20
Chromium	18.67	7.52	23.81	7.46	25.04	68*	85	75-125	5	20
Cobalt	15.71	37.59	50.7	37.31	51.39	93	96	75-125	1	20
Copper	33.51	7.52	29.65	7.46	33.3	-51 (2)	-3 (2)	75-125	12	20
Lead	15.07	2.26	14.14	2.24	15.38	-41 (2)	14 (2)	75-125	8	20
Nickel	33.4	7.52	33.77	7.46	34.62	5 (2)	16 (2)	75-125	2	20
Silver	0.0607	7.52	6.83	7.46	7.07	90	94	75-125	3	20
Thallium	0.169	0.301	0.436	0.299	0.462	89	98	75-125	6	20
Vanadium	19.99	7.52	25.2	7.46	27.72	69*	104	75-125	10	20
Batch number: 172821063702B	Sample number(s): 9250901-9250912 UNSPK: P250098									
Selenium	0.488	1.50	1.54	1.49	1.55	70*	71*	75-125	1	20
Batch number: 172821063702D	Sample number(s): 9250901-9250912 UNSPK: P250098									
Barium	104.55	7.52	116.48	7.46	126.47	159 (2)	294 (2)	75-125	8	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17300667632B	Sample number(s): 9250901-9250909 UNSPK: P250098									
TOC	5778.46	20550	24537.35			91		47-143		
Batch number: 17300667633A	Sample number(s): 9250910-9250912 UNSPK: P251839									
TOC	35438.6	84990	136742.21	81960	134234.97	119	121	47-143	2	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172821063702	Sample number(s): 9250901-9250912 BKG: P250098			
Aluminum	18600.99	18829.97	1	20
Calcium	11539.78	12054.44	4	20
Iron	33164.86	30340.44	9	20
Magnesium	10931.78	11181.45	2	20
Manganese	435.99	432.59	1	20
Potassium	3009.62	3469.99	14	20
Sodium	112.93	119.54	6 (1)	20
Zinc	79.81	77.1	3	20
Batch number: 172821063702A	Sample number(s): 9250901-9250912 BKG: P250098			
Antimony	0.0867	0.154	56* (1)	20
Arsenic	9.49	5.52	53*	20
Beryllium	0.766	0.794	4 (1)	20
Cadmium	0.141	0.124	13 (1)	20
Chromium	18.67	19.44	4	20
Cobalt	15.71	14.78	6	20
Copper	33.51	30.96	8	20
Lead	15.07	15.24	1	20
Nickel	33.4	30.68	8	20
Silver	0.0607	0.0473	25* (1)	20
Thallium	0.169	0.188	10 (1)	20
Vanadium	19.99	21.59	8	20
Batch number: 172821063702B	Sample number(s): 9250901-9250912 BKG: P250098			
Selenium	0.488	0.778	46* (1)	20
Batch number: 172821063702D	Sample number(s): 9250901-9250912 BKG: P250098			

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Barium	104.55	115.81	10	20
	mg/kg	mg/kg		
Batch number: 17300667632B	Sample number(s): 9250901-9250909 BKG: P250098			
TOC	5778.46	5414.15	7	7
Batch number: 17300667633A	Sample number(s): 9250910-9250912 BKG: P251839			
TOC	35438.6	41636.05	16*	7
	Std. Units	Std. Units		
Batch number: 17282039401A	Sample number(s): 9250901-9250904 BKG: P251283			
pH	6.02	5.78	4*	3
Batch number: 17282039401B	Sample number(s): 9250905-9250908,9250910-9250912 BKG: P250098			
pH	8.30	8.22	1	3
Batch number: 17282039402A	Sample number(s): 9250909 BKG: 9250909			
pH	8.36	8.38	0	3
	%	%		
Batch number: 17290820004A	Sample number(s): 9250901-9250912 BKG: 9250905			
Moisture	27.43	26.19	5	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9250899	100	103	96	102	84	98
9250900	87	90	79	75	79	88
Blank	86	87	76	78	81	79
LCS	96	95	85	84	82	89
LCSD	91	91	84	90	86	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9250899	99	105	116	116*	117	121
9250900	95	85	93	89	84	77
Blank	85	101	114	93	90	80
LCS	97	96	104	101	87	88
LCSD	86	94	106	105	108	100
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9250899	112
9250900	73
Blank	74
LCS	74
LCSD	89
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17290007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9250901	38	40*	69	44	65	48
9250902	52	55*	66	63	84	64
9250903	61	59*	77	65	75	58
9250904	72	67*	70	86	87	84
9250905	54	53*	64	58	56	52
9250906	59	59*	64	68	77	63
9250907	88	84	85	86	75	87
9250908	88	95	89	87	92	95
9250909	85	88	79	96	79	86
9250910	82	84	81	79	76	88
9250911	76	79	74	90	89	99
9250912	73	81	76	90	83	93
Blank	101	102	110	124*	110	130*
LCS	87	92	94	96	88	93
LCSD	94	99	98	107	108	112
MS	42	45*	71	49	65	49
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 11:02

Group Number: 1859965

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17290007

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9250901	45	61	37	46	36	33
9250902	55	71	54	66	59	57
9250903	56	78	54	67	62	68
9250904	79	74	65	78	75	76
9250905	57	61	60	61	62	62
9250906	60	70	62	66	63	68
9250907	92	82	93	91	93	74
9250908	98	84	95	94	105	88
9250909	77	89	86	86	86	75
9250910	80	80	80	84	87	82
9250911	84	78	81	89	86	81
9250912	81	80	84	83	80	89
Blank	108	95	100	116	106	99
LCS	85	83	83	97	85	79
LCSD	95	86	93	97	96	85
MS	47	65	48	50	43	43
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9250901	31
9250902	63
9250903	70
9250904	75
9250905	61
9250906	69
9250907	89
9250908	97
9250909	80
9250910	87
9250911	84
9250912	80
Blank	110
LCS	83
LCSD	89
MS	42
Limits:	20-127

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1859965
Reported: 10/31/2017 11:02

*- Outside of specification
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37191 1659965 9250899-912

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52324

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupuy	Name:
email: MDP@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250ml Trip Blanks	Soil — 250ml poly - PFCs (4)	Soil — 4oz. gls - TOC, pH, metals, moist.	% Solids
								A		A	A	
								N		1	1	
1. SG3-LTBG3-171005				10/05/2017	AM	Water	N	2	2			
2. SG3-LTBG4-171005				10/05/2017	AM	Water	N	2	2			
3. SG3-MW-BR1-238-239'	238	239	ft.	10/05/2017	09:40	S	N	2		1	1	
4. SG3-MW-BR1-248-249	248	249	ft.	10/05/2017	11:10	S	N	2		1	1	
5. SG3-MW-BR1-258-259'	258	259	ft.	10/05/2017	13:50	S	N	2		1	1	
6. SG3-MW-BR1-268-269'	268	269	ft.	10/05/2017	15:20	S	N	2		1	1	
7. SG3-MW-BR1-278-279'	278	279	ft.	10/05/2017	16:00	S	N	2		1	1	
8. SG3-MW-BR1-288-289'	288	289	ft.	10/05/2017	16:55	S	N	2		1	1	
9.												
10.												

Preservative Code

Field Filtered Y/N

Metals = TAL cations excluding Hg

Samples split into two coolers

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTL

Barr DQ Manager: MDP

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: RQM (RQM) — On Ice? (Y) N — Date 10/05/2017 — Time 17:00

Received by: — Date — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date 10.6.17 — Time 0935

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.9 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1859965 9250899-912

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ MN ☐ SD Other: VT

COC Number: № 47407

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd Latham NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water / Soil (250 mL plastic / PFCs (14); 4oz glass / TOC, pH, Moist; % Solids)	Preservative Code	Field Filtered Y/N
1. SG3-D21-0-0.5'	0	0.5	ft	10/05/2017	0915	Soil	N	2			PFCs (14), TOC, pH
2. SG3-D21-0.5-1'	0.5	1	ft	10-5-17	0925	S	N	2			moisture
3. SG3-D21-1-1.5'	1	1.5	ft	10-5-17	0930	S	N	2			Metal = TAL cations excluding Hg
4. SG3-D21-3-4'	3	4	ft	10-5-17	0935	S	N	2			
5. SG3-D21-8-9'	8	9	ft	10-5-17	0945	S	N	2			
6. SG3-D21-14-15'	14	15	ft	10-5-17	1305	S	N	2			
7.											Samples in 2 coolers
8.											
9.											
10.											

BARR USE ONLY

Sampled by: DTZ RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: Derek Zanders — On Ice? Y N — Date 10-5-17 — Time 1700

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: — Date 10/6/17 — Time 935

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.9 Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Project Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 196599

Group Number(s): 1859965

Client: BARR ENGINEERING CO.

SGPP BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/06/2017 9:35
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4 UNPRESERVED

Unpacked by Nicole Reiff (25684) at 10:46 on 10/06/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.9	DT	Wet	Y	Bagged	N

General Comments: MISSING COOLER - all the glass 4 oz jars were missing as well as both bottles for SG3-LTB63-171005.

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F 717-656-2681
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Sample Administration Receipt Documentation Log

Doc Log ID: 196819

Group Number(s): 18599165

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/09/2017 9:15
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 09:50 on 10/09/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?	Samples Collected Same Day as Receipt?
1	DT131	15.7	DT	Wet	N	Bagged	Y	N

Elevated Temperature Details

All Temperatures in °C

Cooler #	Thermometer ID	Top Left Temp	Top Right Temp	Bottom Left Temp	Bottom Right Temp	Center Temp	Factors Contributing to Elevated Temp	Comments
1	32170023	16.2	15.1	16.9	15.8	16.4	Ice was melted and rec'd cooler late.	

Samples In Elevated-Temperature Coolers

Cooler #	Sample ID
1	All samples

General Comments: Rec'd missing cooler.

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 13:16

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1860246
SDG: SGB74
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB01-171005 Grab Rinse Water	10/05/2017 09:07	9252340
SG3-RB02-171005 Grab Rinse Water	10/05/2017 09:14	9252341
SG3-RB03-171005 Grab Rinse Water	10/05/2017 09:16	9252342
SG3-RB04-171005 Grab Rinse Water	10/05/2017 09:18	9252343
SG3-FTB01-171005 Grab Blank Water	10/05/2017 09:37	9252344
SG3-LTB01-171005 Blank Water	10/05/2017	9252345
SG3-RB05-171006 Grab Rinse Water	10/06/2017 14:40	9252346
SG3-RB06-171006 Grab Rinse Water	10/06/2017 14:43	9252347
SG3-RB07-171006 Grab Rinse Water	10/06/2017 14:47	9252348
SG3-RB08-171006 Grab Rinse Water	10/06/2017 14:50	9252349
SG3-RB09-171006 Grab Rinse Water	10/06/2017 14:55	9252350
SG3-RB10-171006 Grab Rinse Water	10/06/2017 14:57	9252351
SG3-RB11-171006 Grab Rinse Water	10/06/2017 13:50	9252352
SG3-RB12-171006 Grab Rinse Water	10/06/2017 14:00	9252353
SG3-RB13-171006 Grab Rinse Water	10/06/2017 14:05	9252354
SG3-RB14-171006 Grab Rinse Water	10/06/2017 14:10	9252355
SG3-RB15-171006 Grab Rinse Water	10/06/2017 14:15	9252356
SG3-RB16-171006 Grab Rinse Water	10/06/2017 14:20	9252357

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1860246

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9252340, 9252342, 9252343, 9252345, 9252346, 9252347, 9252348

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample #s: 9252350, 9252351, 9252357

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the

associated samples, the data is reported

Sample #s: 9252352, 9252353, 9252354, 9252355, 9252356

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were observed between the two extractions.

Batch #: 17281010 (Sample number(s): 9252341, 9252344, 9252349)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9252341, 9252344, 9252349, Blank, LCS, LCSD

Batch #: 17285014 (Sample number(s): 9252340, 9252342-9252343, 9252345-9252348, 9252350-9252357)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9252352, 9252353, 9252354, 9252355, 9252356

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9252340, 9252342, 9252345, 9252347, 9252348, 9252350, 9252351, 9252352, 9252353, 9252354, 9252355, 9252356, 9252357, Blank, LCS, LCSD

REVISED

Sample Description: **SG3-RB01-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:07
SDG#: SGB74-01RB

C. T. Male Associates
ELLE Sample #: WW 9252340
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB01-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:07
SDG#: SGB74-01RB

C. T. Male Associates
ELLE Sample #: WW 9252340
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/13/2017 23:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB02-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:14
SDG#: SGB74-02RB

C. T. Male Associates
ELLE Sample #: WW 9252341
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2 U	2	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17281010	10/11/2017 19:43	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281010	10/09/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB03-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:16
SDG#: SGB74-03RB

C. T. Male Associates
ELLE Sample #: WW 9252342
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB03-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:16
SDG#: SGB74-03RB

C. T. Male Associates
ELLE Sample #: WW 9252342
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/13/2017 23:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB04-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:18
SDG#: SGB74-04RB

C. T. Male Associates
ELLE Sample #: WW 9252343
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB04-171005 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:18
SDG#: SGB74-04RB

C. T. Male Associates
ELLE Sample #: WW 9252343
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 00:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171005 Grab Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017 09:37
SDG#: SGB74-05TB

C. T. Male Associates
ELLE Sample #: WW 9252344
ELLE Group #: 1860246
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2 U	2	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17281010	10/11/2017 21:26	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281010	10/09/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017
SDG#: SGB74-06TB

C. T. Male Associates
ELLE Sample #: WW 9252345
ELLE Group #: 1860246
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017
SDG#: SGB74-06TB

C. T. Male Associates
ELLE Sample #: WW 9252345
ELLE Group #: 1860246
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 00:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB05-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:40
SDG#: SGB74-07RB

C. T. Male Associates
ELLE Sample #: WW 9252346
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB05-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:40
SDG#: SGB74-07RB

C. T. Male Associates
ELLE Sample #: WW 9252346
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 00:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB06-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:43
SDG#: SGB74-08RB

C. T. Male Associates
ELLE Sample #: WW 9252347
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB06-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:43
SDG#: SGB74-08RB

C. T. Male Associates
ELLE Sample #: WW 9252347
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 01:11	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB07-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:47
SDG#: SGB74-09RB

C. T. Male Associates
ELLE Sample #: WW 9252348
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB07-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:47
SDG#: SGB74-09RB

C. T. Male Associates
ELLE Sample #: WW 9252348
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 01:31	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB08-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:50
SDG#: SGB74-10RB

C. T. Male Associates
ELLE Sample #: WW 9252349
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2 U	2	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17281010	10/11/2017 23:08	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281010	10/09/2017 11:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB09-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:55
SDG#: SGB74-11RB

C. T. Male Associates
ELLE Sample #: WW 9252350
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB09-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:55
SDG#: SGB74-11RB

C. T. Male Associates
ELLE Sample #: WW 9252350
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 02:33	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB10-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:57
SDG#: SGB74-12RB

C. T. Male Associates
ELLE Sample #: WW 9252351
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB10-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:57
SDG#: SGB74-12RB

C. T. Male Associates
ELLE Sample #: WW 9252351
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 02:53	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB11-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 13:50
SDG#: SGB74-13RB

C. T. Male Associates
ELLE Sample #: WW 9252352
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.6 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB11-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 13:50
SDG#: SGB74-13RB

C. T. Male Associates
ELLE Sample #: WW 9252352
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor

observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 03:14	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB12-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:00
SDG#: SGB74-14RB

C. T. Male Associates
ELLE Sample #: WW 9252353
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.4 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB12-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:00
SDG#: SGB74-14RB

C. T. Male Associates
ELLE Sample #: WW 9252353
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor

observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 03:34	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB13-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:05
SDG#: SGB74-15RB

C. T. Male Associates
ELLE Sample #: WW 9252354
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.3 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB13-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:05
SDG#: SGB74-15RB

C. T. Male Associates
ELLE Sample #: WW 9252354
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor

observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 03:55	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB14-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:10
SDG#: SGB74-16RB

C. T. Male Associates
ELLE Sample #: WW 9252355
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**4**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**3**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**8**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB14-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:10
SDG#: SGB74-16RB

C. T. Male Associates
ELLE Sample #: WW 9252355
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor

observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 04:15	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB15-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:15
SDG#: SGB74-17RB

C. T. Male Associates
ELLE Sample #: WW 9252356
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.5 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and labeled compounds used as extraction standards are again outside of QC acceptance limits, indicating a matrix effect. Comparable results were

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB15-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:15
SDG#: SGB74-17RB

C. T. Male Associates
ELLE Sample #: WW 9252356
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor

observed between the two extractions.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 04:36	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB16-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:20
SDG#: SGB74-18RB

C. T. Male Associates
ELLE Sample #: WW 9252357
ELLE Group #: 1860246
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB16-171006 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:20
SDG#: SGB74-18RB

C. T. Male Associates
ELLE Sample #: WW 9252357
ELLE Group #: 1860246
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285014	10/14/2017 04:57	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17285014	10/12/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:16

Group Number: 1860246

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17281010	Sample number(s): 9252341,9252344,9252349			
6:2 fluorotelomersulfonate	5	U	5	20
8:2 fluorotelomersulfonate	5	U	5	20
NEtFOSAA	1	U	1	5
NMeFOSAA	1	U	1	5
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic acid	5	U	5	10
Perfluorodecanoic acid	2	J	1	5
Perfluorododecanoic acid	0.8	U	0.8	3
Perfluoroheptanoic acid	0.8	U	0.8	3
Perfluorohexanesulfonate	1	U	1	5
Perfluorohexanoic acid	0.8	U	0.8	3
Perfluorononanoic acid	0.8	U	0.8	3
Perfluorooctanesulfonamide	0.8	U	0.8	3
Perfluoro-octanesulfonate	2	U	2	8
Perfluorooctanoic acid	2	J	0.8	3
Perfluoropentanoic acid	0.8	U	0.8	3
Perfluorotetradecanoic acid	0.8	U	0.8	3
Perfluorotridecanoic acid	0.8	U	0.8	3
Perfluoroundecanoic acid	1	U	1	5
Batch number: 17285014	Sample number(s): 9252340,9252342-9252343,9252345-9252348,9252350-9252357			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:16

Group Number: 1860246

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17281010	Sample number(s): 9252341,9252344,9252349								
6:2 fluorotelomersulfonate	37.92	47.88	37.92	43.71	126	115	70-130	9	30
8:2 fluorotelomersulfonate	38.32	44.26	38.32	46.08	116	120	70-130	4	30
NEtFOSAA	13.6	16.09	13.6	15.35	118	113	70-130	5	30
NMeFOSAA	13.6	13.4	13.6	15.44	99	114	70-130	14	30
Perfluorobutanesulfonate	12.03	12.25	12.03	12.1	102	101	70-130	1	30
Perfluorobutanoic acid	13.6	15.25	13.6	14.57	112	107	70-130	5	30
Perfluorodecanoic acid	13.6	17.39	13.6	16.94	128	125	70-130	3	30
Perfluorododecanoic acid	13.6	15.82	13.6	13.47	116	99	70-130	16	30
Perfluoroheptanoic acid	13.6	13.28	13.6	13.52	98	99	70-130	2	30
Perfluorohexanesulfonate	12.86	13.5	12.86	13.03	105	101	70-130	4	30
Perfluorohexanoic acid	13.6	15.55	13.6	14.47	114	106	70-130	7	30
Perfluorononanoic acid	13.6	13.9	13.6	12.6	102	93	70-130	10	30
Perfluorooctanesulfonamide	13.6	13.2	13.6	13.17	97	97	70-130	0	30
Perfluoro-octanesulfonate	13	12.42	13	13.45	96	103	70-130	8	30
Perfluorooctanoic acid	13.6	16.61	13.6	16.94	122	125	70-130	2	30
Perfluoropentanoic acid	13.6	14.23	13.6	13.81	105	102	70-130	3	30
Perfluorotetradecanoic acid	13.6	15.41	13.6	14.42	113	106	70-130	7	30
Perfluorotridecanoic acid	13.6	16.35	13.6	14.79	120	109	70-130	10	30
Perfluoroundecanoic acid	13.6	13.57	13.6	14.81	100	109	70-130	9	30
Batch number: 17285014	Sample number(s): 9252340,9252342-9252343,9252345-9252348,9252350-9252357								
6:2 fluorotelomersulfonate	15.17	16.29	15.17	18.89	107	125	70-130	15	30
8:2 fluorotelomersulfonate	15.33	18.38	15.33	16.84	120	110	70-130	9	30
NEtFOSAA	5.44	7.06	5.44	6.81	130	125	70-130	4	30
NMeFOSAA	5.44	5.62	5.44	5.86	103	108	70-130	4	30
Perfluorobutanesulfonate	4.81	5.33	4.81	5.51	111	115	70-130	3	30
Perfluorobutanoic acid	5.44	6.49	5.44	6.39	119	117	70-130	2	30
Perfluorodecanoic acid	5.44	5.54	5.44	6.66	102	122	70-130	18	30
Perfluorododecanoic acid	5.44	6.23	5.44	5.90	114	109	70-130	5	30
Perfluoroheptanoic acid	5.44	5.78	5.44	5.81	106	107	70-130	0	30
Perfluorohexanesulfonate	5.14	5.08	5.14	5.40	99	105	70-130	6	30
Perfluorohexanoic acid	5.44	6.18	5.44	6.72	114	123	70-130	8	30
Perfluorononanoic acid	5.44	6.15	5.44	6.26	113	115	70-130	2	30
Perfluorooctanesulfonamide	5.44	6.27	5.44	5.88	115	108	70-130	6	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:16

Group Number: 1860246

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	6.00	5.20	4.95	115	95	70-130	19	30
Perfluorooctanoic acid	5.44	6.27	5.44	6.71	115	123	70-130	7	30
Perfluoropentanoic acid	5.44	6.34	5.44	6.03	117	111	70-130	5	30
Perfluorotetradecanoic acid	5.44	6.50	5.44	6.37	119	117	70-130	2	30
Perfluorotridecanoic acid	5.44	5.01	5.44	6.22	92	114	70-130	22	30
Perfluoroundecanoic acid	5.44	6.30	5.44	6.82	116	125	70-130	8	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17281010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252341	81	84	78	74	74	80
9252344	65	71	64	74	60	63
9252349	78	83	90	84	75	76
Blank	83	85	76	81	77	76
LCS	80	84	73	81	75	80
LCSD	82	81	77	82	79	79
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9252341	74	72	81	85	87	84
9252344	59	72	64	65	67	71
9252349	60	80	77	76	83	69
Blank	57	81	75	84	86	70
LCS	76	85	77	84	78	66
LCSD	72	78	82	87	79	69
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9252341	83	97	88	90	95	64*
9252344	57	65	63	72	78	24*
9252349	52	91	63	88	100	53*
Blank	66	91	76	84	91	60*

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:16

Group Number: 1860246

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17281010

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	64	89	74	81	83	55*
LCSD	59	83	66	85	83	51*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17285014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252340	92	100	87	109	87	93
9252342	79	83	81	87	76	85
9252343	87	88	83	86	80	81
9252345	74	82	70	91	76	93
9252346	87	96	82	97	90	97
9252347	83	88	80	83	75	81
9252348	69	72	67	70	64	66
9252350	76	78	77	86	77	84
9252351	83	85	83	90	83	83
9252352	88	105	113	87	89	97
9252353	94	92	114	86	86	85
9252354	83	97	105	78	75	81
9252355	77	76	146	86	134*	95
9252356	82	85	94	65	69	77
9252357	81	89	83	90	76	77
Blank	78	82	82	85	80	83
LCS	80	79	78	89	88	96
LCSD	78	85	78	86	77	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9252340	101	96	98	109	102	80
9252342	85	83	82	82	89	74
9252343	88	89	83	88	98	74
9252345	88	84	74	74	81	67
9252346	103	95	99	91	96	91
9252347	80	84	85	89	97	71
9252348	73	71	63	65	70	44
9252350	95	77	72	90	91	58
9252351	89	86	86	84	89	81

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1860246
Reported: 11/15/2017 13:16

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17285014

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9252352	212*	88	88	105	77	130
9252353	282*	83	96	122	96	181*
9252354	166*	77	80	98	82	155*
9252355	458*	73	84	69	75	185*
9252356	265*	78	86	100	80	201*
9252357	104	82	83	100	84	90
Blank	85	83	83	78	75	58
LCS	136	83	79	83	84	94
LCSD	88	88	85	83	81	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9252340	110	87	104	85	79	63*
9252342	104	93	128	89	81	32*
9252343	101	109	126	90	81	77
9252345	87	81	109	86	76	19*
9252346	115	93	118	94	76	73
9252347	88	94	115	92	90	56*
9252348	59	70	89	68	61	38*
9252350	79	85	92	83	76	58*
9252351	76	95	104	93	83	58*
9252352	55	52	54	49	23*	51*
9252353	76	49	51	36	31	46*
9252354	64	60	70	49	10*	42*
9252355	26	35	26	19*	55	39*
9252356	63	48	52	36	31	39*
9252357	79	60	56	53	48	58*
Blank	73	72	82	75	66	42*
LCS	61	74	70	83	64	40*
LCSD	86	80	84	80	74	28*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Amended COC

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1862246 Sample # 9252340-57

COC # 555188

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: SLPP - Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: CB, NC

Quote #:

State where samples were collected: NY

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Rush

Sample Identification (C30 11/14/17)	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐	Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐	Other: Rinse water	Total # of Containers	12-PFAS (537 mod)	Remarks
SG3 ~~Sbt~~ RB01-171005	10/5/17	0907	X				X	2	X	Transducer
SG3 ~~Sbt~~ RB02-171005	10/5/17	0914	X				X	2	X	Transducer
SG3 ~~Sbt~~ RB03-171005	10/5/17	0916	X				X	2	X	Transducer
SG3 ~~Sbt~~ RB04-171005	10/5/17	0918	X				X	2	X	Transducer
SG3 ~~Sbt~~ FTB01-171005	10/5/17	0977	X				X	2	X	
SG3 ~~Sbt~~ LTB01-171005	10/5/17	—	X				X	2	X	
SG3 ~~Sbt~~ RB05-171006	10/6/17	1440	X				X	2	X	
SG3 ~~Sbt~~ RB06-171006	10/6/17	1443	X				X	2	X	Transducer
SG3 ~~Sbt~~ RB07-171006	10/6/17	1447	X				X	2	X	Transducer
SG3 ~~Sbt~~ RB08-171006	10/6/17	1450	X				X	2	X	Transducer

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Days

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

(NYSDEC Category A or B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Brandt	10/6/17	1600			
			Mick	10.7.17	10:15

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.3 °C

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0717

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1860246 Sample # 925240-57

COC # 555190

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP- Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, NC	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Rinse water

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Rush

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	12 PFAS (537 mod)	Remarks
SG3 ~~SG~~ - RB09 - 171006	10/6/17	1455	X		2	X	Transducer
SG3 ~~SG~~ - RB10 - 171006	10/6/17	1457	X		2	X	Transducer
SG3 ~~SG~~ - RB11 - 171006	10/6/17	1350	X		2	X	500' Gal wire
SG3 ~~SG~~ - RB12 - 171006	10/6/17	1400	X		2	X	200' SS wire
SG3 ~~SG~~ - RB13 - 171006	10/6/17	1405	X		2	X	500' Gal wire
SG3 ~~SG~~ - RB14 - 171006	10/6/17	1410	X		2	X	200' SS wire
SG3 ~~SG~~ - RB15 - 171006	10/6/17	1415	X		2	X	200' SS wire
SG3 ~~SG~~ - RB16 - 171006	10/6/17	1420	X		2	X	SS Clamps

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Days

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

(NYSDEC) Category A or (B)

Type VI (Raw Data Only)

NJ DKQP

MA MCP

TX TRRP-13

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Rondi	10/6/17	1600			
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time
				10.7.17	1015

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.3 °C

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Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 186246 Sample # 9252340-57

COC # 555188

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: CB, NC	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐ / Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Rinse water	Total # of Containers	Analysis Requested: 1Z PFAS (537 mod)	Remarks
SG1-RB01-171005	10/5/17	0907	X		X	2	X	*RUSH* / Transducer
SG1-RB02-171005	10/5/17	0914	X		X	2	X	Transducer
SG1-RB03-171005	10/5/17	0916	X		X	2	X	Transducer
SG1-RB04-171005	10/5/17	0918	X		X	2	X	Transducer
SG1-FTB01-171005	10/5/17	0937	X		X	2	X	
SG1-LTB01-171005	10/5/17	—	X		X	2	X	
SG1-RB05-171006	10/6/17	1440	X		X	2	X	Transducer
SG1-RB06-171006	10/6/17	1443	X		X	2	X	Transducer
SG1-RB07-171006	10/6/17	1447	X		X	2	X	Transducer
SG1-RB08-171006	10/6/17	1450	X		X	2	X	Transducer

Analysis Requested — Preservation and Filtration Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)
Standard (Rush)
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Days

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
(NYSDEC Category A or B)
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bennett	10/6/17	1600			
			Mick	10.7.17	10:15

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx ✓ Other

Temperature upon receipt 2.3 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 186046 Sample # 925240-57

COC # 555190

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP- Bennington	PWSID #:
Project Manager: Kick Moline	P.O. #: 16.6131
Sampler: CB, NC	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	12 PFAS (537 mod)	Remarks
SG1-RB09-171006	10/6/17	1455	X		2	X	*Rush* Transducer
SG1-RB10-171006	10/6/17	1457	X		2	X	Transducer
SG1-RB11-171006	10/6/17	1350	X		2	X	500' Gal wire
SG1-RB12-171006	10/6/17	1406	X		2	X	200' SS wire
SG1-RB13-171006	10/6/17	1405	X		2	X	500' Gal wire
SG1-RB14-171006	10/6/17	1410	X		2	X	200' SS wire
SG1-RB15-171006	10/6/17	1415	X		2	X	200' SS wire
SG1-RB16-171006	10/6/17	1420	X		2	X	✓ SS Clamps
						1	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 3 Days

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

(NYSDEC) Category A or (B) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bandi	10/6/17	1600			
				10.7.17	0915

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.3 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 196757

Group Number(s): 1860246

Client: C.T. MALE ASSOCIATES

SGPP-BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/07/2017 10:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 10:44 on 10/07/2017

Samples Chilled Details: SGPP-BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 10, 2017

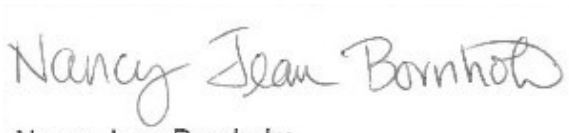
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1860265
SDG: SGB75
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FBsonic2pump1-171006 Blank Water	10/06/2017 09:00	9252429
SG3-FBsonic2pump2-171006 Blank Water	10/06/2017 10:20	9252430
SG3-AfterPOETA-171005 Blank Water	10/05/2017 20:20	9252431
Trip Blank Water	10/05/2017	9252432
SG3-FilteredWaterTKA-171006 Water	10/06/2017 15:10	9252433

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1860265

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9252430, 9252431, 9252432, 9252433

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample #s: 9252429

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Batch #: 17281002 (Sample number(s): 9252429-9252433)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NMeFOSAA

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: 8:2 fluorotelomersulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9252429, 9252432, Blank, LCS, LCSD

Sample Description: SG3-FBsonic2pump1-171006 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9252429
ELLE Group # 1860265
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/06/2017 09:00 by RQM

Submitted: 10/07/2017 10:15
Reported: 10/10/2017 12:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FS1P1 SDG#: SGB75-01FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17281002	10/09/2017 18:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281002	10/08/2017 10:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FBsonic2pump2-171006 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9252430
ELLE Group # 1860265
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/06/2017 10:20 by RQM

Submitted: 10/07/2017 10:15
Reported: 10/10/2017 12:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FS2P2 SDG#: SGB75-02FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17281002	10/09/2017 11:12	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281002	10/08/2017 10:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-AfterPOETA-171005 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9252431
ELLE Group # 1860265
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017 20:20 by RQM

Submitted: 10/07/2017 10:15
Reported: 10/10/2017 12:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3PA SDG#: SGB75-03

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17281002	10/09/2017 11:32	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281002	10/08/2017 10:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9252432
ELLE Group # 1860265
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/05/2017

Submitted: 10/07/2017 10:15
Reported: 10/10/2017 12:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

FS-TB SDG#: SGB75-04TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17281002	10/09/2017 11:53	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281002	10/08/2017 10:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FilteredWaterTKA-171006 Water
SGPP - North Bennington

ELLE Sample # WW 9252433
ELLE Group # 1860265
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/06/2017 15:10 by RQM

Submitted: 10/07/2017 10:15
Reported: 10/10/2017 12:46

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

S3TKA SDG#: SGB75-05

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for injection standard 13C2-PFDA is outside of QC acceptance limits in the blank associated with this sample. Since the labeled compounds used as extraction standards are within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17281002	10/09/2017 12:13	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17281002	10/08/2017 10:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1860265
Reported: 10/10/2017 12:46

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17281002	Sample number(s): 9252429-9252433			
6:2 fluorotelomersulfonate	3	U	3	10
8:2 fluorotelomersulfonate	4	U	4	10
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorobutanoic Acid	3	U	3	10
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorohexanesulfonate	1	U	1	3
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluoro-octanesulfonate	2	U	2	6
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluoropentanoic Acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
PFOSA	3	U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17281002	Sample number(s): 9252429-9252433								
6:2 fluorotelomersulfonate	40.01	47.1	40.01	44.12	118	110	70-130	7	30
8:2 fluorotelomersulfonate	40.43	46.03	40.43	30.69	114	76	70-130	40*	30
NEtFOSAA	4.80	4.84	4.80	5.43	101	113	70-130	11	30
NMeFOSAA	4.80	6.29	4.80	5.75	131*	120	70-130	9	30
Perfluorobutanesulfonate	12.03	12.6	12.03	12	105	100	70-130	5	30
Perfluorobutanoic Acid	13.6	15.25	13.6	13.72	112	101	70-130	11	30
Perfluorodecanoic acid	13.6	15.78	13.6	13.98	116	103	70-130	12	30
Perfluorododecanoic acid	13.6	15.41	13.6	14.5	113	107	70-130	6	30
Perfluoroheptanoic acid	13.6	13.4	13.6	13.65	99	100	70-130	2	30
Perfluorohexanesulfonate	12.86	13.43	12.86	12.42	104	97	70-130	8	30
Perfluorohexanoic acid	13.6	15.46	13.6	13.22	114	97	70-130	16	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/10/2017 12:46

Group Number: 1860265

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	13.6	15.28	13.6	12.37	112	91	70-130	21	30
Perfluoro-octanesulfonate	13	12.6	13	13.28	97	102	70-130	5	30
Perfluorooctanoic acid	13.6	17.15	13.6	13.95	126	103	70-130	21	30
Perfluoropentanoic Acid	13.6	15.24	13.6	13.97	112	103	70-130	9	30
Perfluorotetradecanoic acid	13.6	15.12	13.6	14.14	111	104	70-130	7	30
Perfluorotridecanoic acid	13.6	15.28	13.6	15.62	112	115	70-130	2	30
Perfluoroundecanoic acid	13.6	15.41	13.6	13.13	113	97	70-130	16	30
PFOSA	13.6	14.06	13.6	12.43	103	91	70-130	12	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17281002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252429	94	94	85	107	87	91
9252430	100	110	100	100	103	92
9252431	90	94	86	94	84	91
9252432	89	92	89	96	91	92
9252433	99	100	99	104	100	97
Blank	86	85	77	83	83	90
LCS	92	92	90	88	89	86
LCSD	95	99	91	97	96	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9252429	90	95	87	95	87	88
9252430	96	99	105	115	111	126
9252431	85	95	86	94	91	74
9252432	67	92	84	86	90	76
9252433	84	104	94	105	104	90
Blank	81	87	88	93	87	84
LCS	85	91	95	104	84	70
LCSD	79	94	91	105	103	99
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1860265
Reported: 10/10/2017 12:46

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17281002

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9252429	81	98	85	97	92	51*
9252430	93	115	105	110	112	84
9252431	86	93	86	97	94	74
9252432	74	106	93	93	97	66*
9252433	94	110	91	113	110	78
Blank	72	76	89	90	93	60*
LCS	74	88	83	80	87	43*
LCSD	85	91	94	92	102	38*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Need results ASAP!! 37191 1860265 9252429-33

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: № 47398

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Road, NY
Name: MDD@barr.com	Name:
email: Michael Dupay	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	250ml Trip Blank PFCs (Q)	Field Blank	Soil: % Solids
									A	O		
									N	N		
1. SG3-FBsonic2pump1-171006				10/06/2017	09:00	Water	N	2	2			
2. SG3-FBsonic2pump2-171006				10/06/2017	10:20	Water	N	2	2			
3. SG3-AfterPOETA-171005				10/05/2017	20:20	Water	N	2		2		
4. Trip Blank				10/05/2017	PM	Water	N	2		2		
5. SG3-FilteredWaterTKA-171006				10/06/2017	15.10	Water	N	2		2		
6.												
7.												
8.												
9.												
10.												

Preservative Code

Field Filtered Y/N

Need * results * ASAP

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM	(RQM)	(Y) N	10/06/17	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.7.17	Time 1015
Barr DQ Manager: MDD							
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.4/1.1			Custody Seal Intact? ☐Y ☐N ☐None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196766

Group Number(s): 1860265

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/07/2017 10:15
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4 Unpres., 2 Trizma

Unpacked by Nicole Reiff (25684) at 11:08 on 10/07/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.4	DT	Wet	Y	Bagged	N
2	DT42-02	1.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 02, 2017 15:43

Project: SGPP - Bennington

Account #: 37191
Group Number: 1860269
SDG: SGB76
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D22-0-0.5' Soil	10/06/2017 09:05	9252446
SG3-D22-0.5-1' Soil	10/06/2017 09:10	9252447
SG3-D22-1-1.5' Soil	10/06/2017 09:15	9252448
SG3-D22-3-4' Soil	10/06/2017 09:30	9252449
SG3-D22-8-9' Soil	10/06/2017 09:45	9252450
SG3-D22-14-15' Soil	10/06/2017 10:30	9252451
SG3-D17-0-0.5' Soil	10/06/2017 14:20	9252452
SG3-D17-0.5-1' Soil	10/06/2017 14:25	9252453
SG3-D17-1-1.5' Soil	10/06/2017 14:30	9252454
SG3-D17-3-4' Soil	10/06/2017 14:40	9252455
SG3-LTB65-171005 Blank Water	10/05/2017	9252456
SG3-LTB66-171005 Blank Water	10/05/2017	9252457
SG3-MW-BR1-298-299' Soil	10/06/2017 10:00	9252458
SG3-D17-8-9' Soil	10/06/2017 14:55	9252459
SG3-D17-9-10' Soil	10/06/2017 15:00	9252460

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1860269

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9252456, 9252457

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample #s: 9252458

The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17292002 (Sample number(s): 9252446-9252455, 9252458-9252460 UNSPK: P256054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorohexanesulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9252458

SW-846 6010C, Metals

Sample #s: 9252458

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172841063702 (Sample number(s): 9252446-9252455, 9252458-9252460 UNSPK: 9252446 BKG: 9252446)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Magnesium, Potassium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium, Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172841063702A (Sample number(s): 9252446-9252455, 9252458-9252460 UNSPK: 9252446 BKG: 9252446)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Silver, Thallium, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Cobalt, Copper, Lead, Nickel

Batch #: 172841063702D (Sample number(s): 9252446-9252455, 9252458-9252460 UNSPK: 9252446 BKG: 9252446)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9252458

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17304667632A (Sample number(s): 9252446-9252449, 9252453 UNSPK: P251865 BKG: P251865)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: TOC Solids/Sludges Combustion

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17304667632B (Sample number(s): 9252454-9252455, 9252458-9252460 UNSPK: P253257 BKG: P253257)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: TOC Solids/Sludges Combustion

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9252449, 9252450, 9252452

The pH was measured in water at 20.1 C.

Sample #s: 9252448, 9252451, 9252455, 9252458, 9252460

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The pH was measured in water at 20.2 C.

Sample #s: 9252446, 9252447, 9252453, 9252454, 9252459

The pH was measured in water at 20.3 C.

Batch #: 17284039402A (Sample number(s): 9252448-9252455, 9252458-9252459 BKG: 9252452)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: pH

Sample Description: **SG3-D22-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:05
SDG#: SGB76-01

C. T. Male Associates
ELLE Sample #: SW 9252446
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.20 J**	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.088 U	0.088	0.35	1
14027	**Perfluorononanoic acid**	375-95-1	**0.15 J**	0.088	0.35	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.38 J**	0.26	0.79	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.18 J**	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,200**	7.90	35.3	1
01650	**Calcium**	7440-70-2	**6,890**	2.94	35.3	1
01654	**Iron**	7439-89-6	**24,600**	35.5	177	5
01657	**Magnesium**	7439-95-4	**6,130**	2.15	17.7	1
06958	**Manganese**	7439-96-5	**783**	0.0733	0.883	1
01662	**Potassium**	7440-09-7	**1,190**	14.7	88.3	1
01667	**Sodium**	7440-23-5	**283**	14.7	177	1
06972	**Zinc**	7440-66-6	**66.6**	0.212	3.53	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.167 J**	0.0823	0.353	2
06125	**Arsenic**	7440-38-2	**12.5**	0.113	0.707	2
06126	**Barium**	7440-39-3	**79.5**	0.160	0.707	2
06127	**Beryllium**	7440-41-7	**0.471**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.369**	0.0304	0.177	2
06131	**Chromium**	7440-47-3	**13.9**	0.154	0.707	2
06132	**Cobalt**	7440-48-4	**12.7**	0.0276	0.177	2
06133	**Copper**	7440-50-8	**24.2**	0.0947	0.707	2
06135	**Lead**	7439-92-1	**35.9**	0.0196	0.353	2
06139	**Nickel**	7440-02-0	**24.4**	0.176	0.707	2
06141	**Selenium**	7782-49-2	**0.234 J**	0.0883	0.707	2
06142	**Silver**	7440-22-4	**0.101 J**	0.0258	0.177	2
06145	**Thallium**	7440-28-0	**0.197**	0.0221	0.177	2
06148	**Vanadium**	7440-62-2	**18.5**	0.0376	0.177	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:05
SDG#: SGB76-01

C. T. Male Associates
ELLE Sample #: SW 9252446
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,300**	553	1,660	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.67**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**15.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 00:57	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 06:52	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 21:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 02:38	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 12:46	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:05
SDG#: SGB76-01

C. T. Male Associates
ELLE Sample #: SW 9252446
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632A	11/01/2017 00:16	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039401B	10/11/2017 16:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:10
SDG#: SGB76-02

C. T. Male Associates
ELLE Sample #: SW 9252447
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,600**	8.14	36.4	1
01650	**Calcium**	7440-70-2	**7,670**	3.03	36.4	1
01654	**Iron**	7439-89-6	**29,400**	36.6	182	5
01657	**Magnesium**	7439-95-4	**4,850**	2.21	18.2	1
06958	**Manganese**	7439-96-5	**916**	0.0756	0.910	1
01662	**Potassium**	7440-09-7	**1,350**	15.2	91.0	1
01667	**Sodium**	7440-23-5	**450**	15.2	182	1
06972	**Zinc**	7440-66-6	**64.3**	0.218	3.64	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.175 J**	0.0848	0.364	2
06125	**Arsenic**	7440-38-2	**13.3**	0.117	0.728	2
06126	**Barium**	7440-39-3	**93.5**	0.165	0.728	2
06127	**Beryllium**	7440-41-7	**0.535**	0.0095	0.182	2
06128	**Cadmium**	7440-43-9	**0.368**	0.0313	0.182	2
06131	**Chromium**	7440-47-3	**12.3**	0.158	0.728	2
06132	**Cobalt**	7440-48-4	**12.2**	0.0284	0.182	2
06133	**Copper**	7440-50-8	**19.2**	0.0976	0.728	2
06135	**Lead**	7439-92-1	**25.5**	0.0202	0.364	2
06139	**Nickel**	7440-02-0	**23.6**	0.181	0.728	2
06141	**Selenium**	7782-49-2	**0.208 J**	0.0910	0.728	2
06142	**Silver**	7440-22-4	**0.0964 J**	0.0266	0.182	2
06145	**Thallium**	7440-28-0	**0.188**	0.0228	0.182	2
06148	**Vanadium**	7440-62-2	**16.4**	0.0388	0.182	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:10
SDG#: SGB76-02

C. T. Male Associates
ELLE Sample #: SW 9252447
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,010**	366	1,100	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.73**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 02:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:08	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 21:51	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 02:56	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:41	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:41	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:10
SDG#: SGB76-02

C. T. Male Associates
ELLE Sample #: SW 9252447
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:41	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632A	11/01/2017 00:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039401B	10/11/2017 16:10	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:15
SDG#: SGB76-03

C. T. Male Associates
ELLE Sample #: SW 9252448
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,900**	7.61	34.1	1
01650	**Calcium**	7440-70-2	**2,300**	2.84	34.1	1
01654	**Iron**	7439-89-6	**30,400**	34.3	170	5
01657	**Magnesium**	7439-95-4	**4,650**	2.07	17.0	1
06958	**Manganese**	7439-96-5	**1,060**	0.0707	0.851	1
01662	**Potassium**	7440-09-7	**1,690**	14.2	85.1	1
01667	**Sodium**	7440-23-5	**567**	14.2	170	1
06972	**Zinc**	7440-66-6	**65.7**	0.204	3.41	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.116 J**	0.0793	0.341	2
06125	**Arsenic**	7440-38-2	**16.9**	0.109	0.681	2
06126	**Barium**	7440-39-3	**139**	0.155	0.681	2
06127	**Beryllium**	7440-41-7	**0.798**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**0.437**	0.0293	0.170	2
06131	**Chromium**	7440-47-3	**14.7**	0.148	0.681	2
06132	**Cobalt**	7440-48-4	**13.4**	0.0266	0.170	2
06133	**Copper**	7440-50-8	**23.4**	0.0913	0.681	2
06135	**Lead**	7439-92-1	**22.1**	0.0189	0.341	2
06139	**Nickel**	7440-02-0	**30.4**	0.170	0.681	2
06141	**Selenium**	7782-49-2	**0.212 J**	0.0851	0.681	2
06142	**Silver**	7440-22-4	**0.140 J**	0.0249	0.170	2
06145	**Thallium**	7440-28-0	**0.255**	0.0213	0.170	2
06148	**Vanadium**	7440-62-2	**19.9**	0.0363	0.170	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:15
SDG#: SGB76-03

C. T. Male Associates
ELLE Sample #: SW 9252448
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,820**	400	1,200	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.55**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 03:00	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:11	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 21:54	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 02:59	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:44	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:44	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:15
SDG#: SGB76-03

C. T. Male Associates
ELLE Sample #: SW 9252448
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:44	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632A	11/01/2017 00:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:30
SDG#: SGB76-04

C. T. Male Associates
ELLE Sample #: SW 9252449
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,600**	7.86	35.2	1
01650	**Calcium**	7440-70-2	**13,200**	2.93	35.2	1
01654	**Iron**	7439-89-6	**28,200**	35.4	176	5
01657	**Magnesium**	7439-95-4	**11,100**	2.14	17.6	1
06958	**Manganese**	7439-96-5	**882**	0.0730	0.879	1
01662	**Potassium**	7440-09-7	**1,750**	14.7	87.9	1
01667	**Sodium**	7440-23-5	**432**	14.7	176	1
06972	**Zinc**	7440-66-6	**70.6**	0.211	3.52	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.162 J**	0.0820	0.352	2
06125	**Arsenic**	7440-38-2	**14.3**	0.113	0.704	2
06126	**Barium**	7440-39-3	**91.0**	0.160	0.704	2
06127	**Beryllium**	7440-41-7	**0.601**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**0.301**	0.0303	0.176	2
06131	**Chromium**	7440-47-3	**14.0**	0.153	0.704	2
06132	**Cobalt**	7440-48-4	**13.8**	0.0274	0.176	2
06133	**Copper**	7440-50-8	**26.3**	0.0943	0.704	2
06135	**Lead**	7439-92-1	**16.2**	0.0195	0.352	2
06139	**Nickel**	7440-02-0	**29.2**	0.175	0.704	2
06141	**Selenium**	7782-49-2	**0.111 J**	0.0879	0.704	2
06142	**Silver**	7440-22-4	**0.0563 J**	0.0257	0.176	2
06145	**Thallium**	7440-28-0	**0.208**	0.0220	0.176	2
06148	**Vanadium**	7440-62-2	**17.4**	0.0375	0.176	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:30
SDG#: SGB76-04

C. T. Male Associates
ELLE Sample #: SW 9252449
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,370**	293	878	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 03:21	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:21	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 21:58	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:07	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:47	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:13	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:47	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:30
SDG#: SGB76-04

C. T. Male Associates
ELLE Sample #: SW 9252449
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:47	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632A	11/01/2017 00:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:45
SDG#: SGB76-05

C. T. Male Associates
ELLE Sample #: SW 9252450
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.082 U	0.082	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.082 U	0.082	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,000**	8.40	37.6	1
01650	**Calcium**	7440-70-2	**47,500**	3.13	37.6	1
01654	**Iron**	7439-89-6	**24,700**	37.8	188	5
01657	**Magnesium**	7439-95-4	**16,900**	2.28	18.8	1
06958	**Manganese**	7439-96-5	**787**	0.0780	0.939	1
01662	**Potassium**	7440-09-7	**2,350**	15.7	93.9	1
01667	**Sodium**	7440-23-5	**288**	15.7	188	1
06972	**Zinc**	7440-66-6	**56.2**	0.225	3.76	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.104 J**	0.0875	0.376	2
06125	**Arsenic**	7440-38-2	**9.19**	0.120	0.751	2
06126	**Barium**	7440-39-3	**93.6**	0.171	0.751	2
06127	**Beryllium**	7440-41-7	**0.466**	0.0098	0.188	2
06128	**Cadmium**	7440-43-9	**0.219**	0.0323	0.188	2
06131	**Chromium**	7440-47-3	**14.5**	0.163	0.751	2
06132	**Cobalt**	7440-48-4	**11.3**	0.0293	0.188	2
06133	**Copper**	7440-50-8	**21.9**	0.101	0.751	2
06135	**Lead**	7439-92-1	**13.8**	0.0209	0.376	2
06139	**Nickel**	7440-02-0	**24.0**	0.187	0.751	2
06141	Selenium	7782-49-2	0.0939 U	0.0939	0.751	2
06142	**Silver**	7440-22-4	**0.0380 J**	0.0274	0.188	2
06145	**Thallium**	7440-28-0	**0.197**	0.0235	0.188	2
06148	**Vanadium**	7440-62-2	**17.3**	0.0400	0.188	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:45
SDG#: SGB76-05

C. T. Male Associates
ELLE Sample #: SW 9252450
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,770**	751	2,250	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.93**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 04:22	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/18/2017 18:22	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 22:01	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:10	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:50	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:16	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:50	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 09:45
SDG#: SGB76-05

C. T. Male Associates
ELLE Sample #: SW 9252450
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:50	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 19:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:30
SDG#: SGB76-06

C. T. Male Associates
ELLE Sample #: SW 9252451
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077 U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077 U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.69	1
14027	Perfluorooctanoic acid	335-67-1	0.15 U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,470**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**232,000**	27.7	333	10
01654	**Iron**	7439-89-6	**8,980**	6.70	33.3	1
01657	**Magnesium**	7439-95-4	**16,300**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**224**	0.0691	0.832	1
01662	**Potassium**	7440-09-7	**1,710**	13.9	83.2	1
01667	**Sodium**	7440-23-5	**103 J**	13.9	166	1
06972	**Zinc**	7440-66-6	**19.9**	0.998	16.6	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0782 J**	0.0775	0.333	2
06125	**Arsenic**	7440-38-2	**4.71**	0.106	0.666	2
06126	**Barium**	7440-39-3	**25.4**	0.151	0.666	2
06127	**Beryllium**	7440-41-7	**0.190**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.0882 J**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**6.40**	0.145	0.666	2
06132	**Cobalt**	7440-48-4	**4.00**	0.0260	0.166	2
06133	**Copper**	7440-50-8	**6.67**	0.0892	0.666	2
06135	**Lead**	7439-92-1	**4.77**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**10.2**	0.166	0.666	2
06141	Selenium	7782-49-2	0.0832 U	0.0832	0.666	2
06142	Silver	7440-22-4	0.0243 U	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.114 J**	0.0208	0.166	2
06148	**Vanadium**	7440-62-2	**6.51**	0.0354	0.166	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:30
SDG#: SGB76-06

C. T. Male Associates
ELLE Sample #: SW 9252451
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**38,700**	1,940	5,810	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.98**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**12.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 04:43	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/18/2017 18:35	Cindy M Gehman	10
01654	Iron	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:04	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/18/2017 18:26	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:13	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:53	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:19	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:53	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-14-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:30
SDG#: SGB76-06

C. T. Male Associates
ELLE Sample #: SW 9252451
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:53	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 20:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:20
SDG#: SGB76-07

C. T. Male Associates
ELLE Sample #: SW 9252452
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.35 J**	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.31 J**	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.23 J**	0.22	0.65	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,600**	8.28	37.0	1
01650	**Calcium**	7440-70-2	**2,870**	3.08	37.0	1
01654	**Iron**	7439-89-6	**33,800**	37.3	185	5
01657	**Magnesium**	7439-95-4	**11,100**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**1,070**	0.0769	0.926	1
01662	**Potassium**	7440-09-7	**1,530**	15.5	92.6	1
01667	**Sodium**	7440-23-5	**184 J**	15.5	185	1
06972	**Zinc**	7440-66-6	**109**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.258 J**	0.0863	0.370	2
06125	**Arsenic**	7440-38-2	**12.5**	0.119	0.741	2
06126	**Barium**	7440-39-3	**72.0**	0.168	0.741	2
06127	**Beryllium**	7440-41-7	**0.428**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.450**	0.0319	0.185	2
06131	**Chromium**	7440-47-3	**25.8**	0.161	0.741	2
06132	**Cobalt**	7440-48-4	**17.7**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**50.5**	0.0993	0.741	2
06135	**Lead**	7439-92-1	**30.3**	0.0206	0.370	2
06139	**Nickel**	7440-02-0	**42.8**	0.184	0.741	2
06141	**Selenium**	7782-49-2	**0.342 J**	0.0926	0.741	2
06142	**Silver**	7440-22-4	**0.194**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.149 J**	0.0232	0.185	2
06148	**Vanadium**	7440-62-2	**27.6**	0.0395	0.185	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:20
SDG#: SGB76-07

C. T. Male Associates
ELLE Sample #: SW 9252452
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,900**	1,690	5,080	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**16.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 05:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:31	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 22:07	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:16	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:56	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:56	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:20
SDG#: SGB76-07

C. T. Male Associates
ELLE Sample #: SW 9252452
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:56	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 20:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:25
SDG#: SGB76-08

C. T. Male Associates
ELLE Sample #: SW 9252453
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.20 J**	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.96	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**22,200**	9.76	43.7	1
01650	**Calcium**	7440-70-2	**1,520**	3.63	43.7	1
01654	**Iron**	7439-89-6	**36,900**	43.9	218	5
01657	**Magnesium**	7439-95-4	**13,800**	2.65	21.8	1
06958	**Manganese**	7439-96-5	**965**	0.0906	1.09	1
01662	**Potassium**	7440-09-7	**1,730**	18.2	109	1
01667	**Sodium**	7440-23-5	**124 J**	18.2	218	1
06972	**Zinc**	7440-66-6	**108**	0.262	4.37	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.102	0.437	2
06125	**Arsenic**	7440-38-2	**10.9**	0.140	0.873	2
06126	**Barium**	7440-39-3	**57.5**	0.198	0.873	2
06127	**Beryllium**	7440-41-7	**0.432**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.326**	0.0375	0.218	2
06131	**Chromium**	7440-47-3	**26.5**	0.190	0.873	2
06132	**Cobalt**	7440-48-4	**16.6**	0.0341	0.218	2
06133	**Copper**	7440-50-8	**56.2**	0.117	0.873	2
06135	**Lead**	7439-92-1	**23.9**	0.0242	0.437	2
06139	**Nickel**	7440-02-0	**45.2**	0.217	0.873	2
06141	**Selenium**	7782-49-2	**0.216 J**	0.109	0.873	2
06142	**Silver**	7440-22-4	**0.116 J**	0.0319	0.218	2
06145	**Thallium**	7440-28-0	**0.101 J**	0.0273	0.218	2
06148	**Vanadium**	7440-62-2	**26.2**	0.0465	0.218	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:25
SDG#: SGB76-08

C. T. Male Associates
ELLE Sample #: SW 9252453
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,500**	403	1,210	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**11.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 05:24	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:34	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 22:11	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:19	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 13:59	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:25	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 13:59	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:25
SDG#: SGB76-08

C. T. Male Associates
ELLE Sample #: SW 9252453
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 13:59	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632A	11/01/2017 02:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:30
SDG#: SGB76-09

C. T. Male Associates
ELLE Sample #: SW 9252454
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.45	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.45	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.45	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.45	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.45	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.45	1
14027	Perfluorohexanoic acid	307-24-4	0.075 U	0.075	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.075 U	0.075	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.68	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.90**	0.15	0.45	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.45	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.45	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.45	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.45	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,000**	9.61	43.0	1
01650	**Calcium**	7440-70-2	**953**	3.58	43.0	1
01654	**Iron**	7439-89-6	**36,200**	43.3	215	5
01657	**Magnesium**	7439-95-4	**11,100**	2.61	21.5	1
06958	**Manganese**	7439-96-5	**1,400**	0.0892	1.07	1
01662	**Potassium**	7440-09-7	**1,680**	18.0	107	1
01667	**Sodium**	7440-23-5	**124 J**	18.0	215	1
06972	**Zinc**	7440-66-6	**89.2**	0.258	4.30	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.226 J**	0.100	0.430	2
06125	**Arsenic**	7440-38-2	**10.8**	0.138	0.860	2
06126	**Barium**	7440-39-3	**62.0**	0.195	0.860	2
06127	**Beryllium**	7440-41-7	**0.450**	0.0113	0.215	2
06128	**Cadmium**	7440-43-9	**0.402**	0.0370	0.215	2
06131	**Chromium**	7440-47-3	**23.0**	0.187	0.860	2
06132	**Cobalt**	7440-48-4	**17.1**	0.0335	0.215	2
06133	**Copper**	7440-50-8	**48.3**	0.115	0.860	2
06135	**Lead**	7439-92-1	**22.1**	0.0239	0.430	2
06139	**Nickel**	7440-02-0	**40.8**	0.214	0.860	2
06141	**Selenium**	7782-49-2	**0.273 J**	0.107	0.860	2
06142	**Silver**	7440-22-4	**0.137 J**	0.0314	0.215	2
06145	**Thallium**	7440-28-0	**0.121 J**	0.0269	0.215	2
06148	**Vanadium**	7440-62-2	**23.3**	0.0458	0.215	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:30
SDG#: SGB76-09

C. T. Male Associates
ELLE Sample #: SW 9252454
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,040**	223	670	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 05:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:37	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 22:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:22	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 14:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 14:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:30
SDG#: SGB76-09

C. T. Male Associates
ELLE Sample #: SW 9252454
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 14:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632B	11/01/2017 02:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:40
SDG#: SGB76-10

C. T. Male Associates
ELLE Sample #: SW 9252455
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.088 U	0.088	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.088 U	0.088	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.79	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.72**	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**21,300**	9.10	40.7	1
01650	**Calcium**	7440-70-2	**879**	3.39	40.7	1
01654	**Iron**	7439-89-6	**38,800**	41.0	204	5
01657	**Magnesium**	7439-95-4	**14,200**	2.47	20.4	1
06958	**Manganese**	7439-96-5	**1,240**	0.0845	1.02	1
01662	**Potassium**	7440-09-7	**1,560**	17.0	102	1
01667	**Sodium**	7440-23-5	**94.9 J**	17.0	204	1
06972	**Zinc**	7440-66-6	**87.0**	0.244	4.07	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.180 J**	0.0949	0.407	2
06125	**Arsenic**	7440-38-2	**11.1**	0.130	0.814	2
06126	**Barium**	7440-39-3	**54.4**	0.185	0.814	2
06127	**Beryllium**	7440-41-7	**0.393**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.427**	0.0350	0.204	2
06131	**Chromium**	7440-47-3	**27.1**	0.177	0.814	2
06132	**Cobalt**	7440-48-4	**23.1**	0.0318	0.204	2
06133	**Copper**	7440-50-8	**64.5**	0.109	0.814	2
06135	**Lead**	7439-92-1	**23.7**	0.0226	0.407	2
06139	**Nickel**	7440-02-0	**52.0**	0.203	0.814	2
06141	**Selenium**	7782-49-2	**0.185 J**	0.102	0.814	2
06142	**Silver**	7440-22-4	**0.0845 J**	0.0297	0.204	2
06145	**Thallium**	7440-28-0	**0.103 J**	0.0255	0.204	2
06148	**Vanadium**	7440-62-2	**25.9**	0.0434	0.204	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:40
SDG#: SGB76-10

C. T. Male Associates
ELLE Sample #: SW 9252455
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,150**	289	867	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.80**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 06:05	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:40	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/12/2017 22:22	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:25	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 14:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:30	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 14:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:40
SDG#: SGB76-10

C. T. Male Associates
ELLE Sample #: SW 9252455
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 14:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632B	11/01/2017 02:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB65-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017
SDG#: SGB76-11TB

C. T. Male Associates
ELLE Sample #: WW 9252456
ELLE Group #: 1860269
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.5 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 04:05	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB66-171005 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/05/2017
SDG#: SGB76-12TB

C. T. Male Associates
ELLE Sample #: WW 9252457
ELLE Group #: 1860269
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 04:25	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-298-299' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:00
SDG#: SGB76-13

C. T. Male Associates
ELLE Sample #: SW 9252458
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.91	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.61	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,640**	72.5	324	10
01650	**Calcium**	7440-70-2	**471**	27.0	324	10
01654	**Iron**	7439-89-6	**25,800**	65.3	324	10
01657	**Magnesium**	7439-95-4	**539**	19.7	162	10
06958	**Manganese**	7439-96-5	**247**	0.673	8.11	10
01662	**Potassium**	7440-09-7	**689 J**	135	811	10
01667	Sodium	7440-23-5	135 U	135	1,620	10
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**50.6**	1.95	32.4	10
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.335**	0.0755	0.324	2
06125	**Arsenic**	7440-38-2	**21.2**	0.104	0.648	2
06126	**Barium**	7440-39-3	**429**	0.147	0.648	2
06127	**Beryllium**	7440-41-7	**1.67**	0.0085	0.162	2
06128	**Cadmium**	7440-43-9	**0.248**	0.0279	0.162	2
06131	**Chromium**	7440-47-3	**7.66**	0.141	0.648	2
06132	**Cobalt**	7440-48-4	**12.7**	0.0253	0.162	2
06133	**Copper**	7440-50-8	**49.7**	0.0869	0.648	2
06135	**Lead**	7439-92-1	**139**	0.0180	0.324	2
06139	**Nickel**	7440-02-0	**41.6**	0.161	0.648	2
06141	**Selenium**	7782-49-2	**0.268 J**	0.0811	0.648	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-298-299' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:00
SDG#: SGB76-13

C. T. Male Associates
ELLE Sample #: SW 9252458
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0404 J**	0.0237	0.162	2
06145	**Thallium**	7440-28-0	**0.276**	0.0203	0.162	2
06148	**Vanadium**	7440-62-2	**10.6**	0.0345	0.162	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**278 J**	121	362	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.07**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 06:26	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
01650	Calcium	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
01657	Magnesium	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
06958	Manganese	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
01662	Potassium	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
01667	Sodium	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
06972	Zinc	SW-846 6010C	1	172841063702	10/14/2017 07:47	Scott R Yanos	10
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:28	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 14:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:33	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-298-299' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 10:00
SDG#: SGB76-13

C. T. Male Associates
ELLE Sample #: SW 9252458
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/18/2017 03:28	Sarah L Burt	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 14:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/18/2017 03:28	Sarah L Burt	2
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 14:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632B	11/01/2017 03:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:55
SDG#: SGB76-14

C. T. Male Associates
ELLE Sample #: SW 9252459
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.33 J**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**21,600**	7.32	32.8	1
01650	**Calcium**	7440-70-2	**1,180**	2.73	32.8	1
01654	**Iron**	7439-89-6	**38,300**	33.0	164	5
01657	**Magnesium**	7439-95-4	**16,800**	1.99	16.4	1
06958	**Manganese**	7439-96-5	**1,270**	0.0680	0.819	1
01662	**Potassium**	7440-09-7	**1,720**	13.7	81.9	1
01667	**Sodium**	7440-23-5	**88.6 J**	13.7	164	1
06972	**Zinc**	7440-66-6	**102**	0.983	16.4	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.214 J**	0.0763	0.328	2
06125	**Arsenic**	7440-38-2	**9.12**	0.105	0.655	2
06126	**Barium**	7440-39-3	**35.2**	0.149	0.655	2
06127	**Beryllium**	7440-41-7	**0.387**	0.0086	0.164	2
06128	**Cadmium**	7440-43-9	**0.671**	0.0282	0.164	2
06131	**Chromium**	7440-47-3	**30.9**	0.143	0.655	2
06132	**Cobalt**	7440-48-4	**18.6**	0.0256	0.164	2
06133	**Copper**	7440-50-8	**73.6**	0.0878	0.655	2
06135	**Lead**	7439-92-1	**21.4**	0.0182	0.328	2
06139	**Nickel**	7440-02-0	**60.3**	0.163	0.655	2
06141	**Selenium**	7782-49-2	**0.276 J**	0.0819	0.655	2
06142	**Silver**	7440-22-4	**0.140 J**	0.0239	0.164	2
06145	**Thallium**	7440-28-0	**0.108 J**	0.0205	0.164	2
06148	**Vanadium**	7440-62-2	**31.1**	0.0349	0.164	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:55
SDG#: SGB76-14

C. T. Male Associates
ELLE Sample #: SW 9252459
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,470**	350	1,050	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.21**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 06:46	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 07:50	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:29	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/14/2017 07:50	Scott R Yanos	5
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:31	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 14:20	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:36	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 14:20	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 14:55
SDG#: SGB76-14

C. T. Male Associates
ELLE Sample #: SW 9252459
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 14:20	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632B	11/01/2017 03:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402A	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 15:00
SDG#: SGB76-15

C. T. Male Associates
ELLE Sample #: SW 9252460
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.077 U	0.077	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.077 U	0.077	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.69	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.20 J**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**23,600**	6.94	31.1	1
01650	**Calcium**	7440-70-2	**1,000**	2.59	31.1	1
01654	**Iron**	7439-89-6	**35,100**	31.3	155	5
01657	**Magnesium**	7439-95-4	**17,600**	1.89	15.5	1
06958	**Manganese**	7439-96-5	**911**	0.0645	0.777	1
01662	**Potassium**	7440-09-7	**1,580**	13.0	77.7	1
01667	**Sodium**	7440-23-5	**107 J**	13.0	155	1
06972	**Zinc**	7440-66-6	**97.0**	0.932	15.5	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.184 J**	0.0724	0.311	2
06125	**Arsenic**	7440-38-2	**10.5**	0.0994	0.621	2
06126	**Barium**	7440-39-3	**40.1**	0.141	0.621	2
06127	**Beryllium**	7440-41-7	**0.401**	0.0081	0.155	2
06128	**Cadmium**	7440-43-9	**0.451**	0.0267	0.155	2
06131	**Chromium**	7440-47-3	**32.1**	0.135	0.621	2
06132	**Cobalt**	7440-48-4	**18.3**	0.0242	0.155	2
06133	**Copper**	7440-50-8	**73.6**	0.0833	0.621	2
06135	**Lead**	7439-92-1	**28.5**	0.0172	0.311	2
06139	**Nickel**	7440-02-0	**57.8**	0.155	0.621	2
06141	**Selenium**	7782-49-2	**0.153 J**	0.0777	0.621	2
06142	**Silver**	7440-22-4	**0.0778 J**	0.0227	0.155	2
06145	**Thallium**	7440-28-0	**0.0999 J**	0.0194	0.155	2
06148	**Vanadium**	7440-62-2	**31.4**	0.0331	0.155	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 15:00
SDG#: SGB76-15

C. T. Male Associates
ELLE Sample #: SW 9252460
ELLE Group #: 1860269
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,630**	193	580	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 07:07	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063702	10/14/2017 08:00	Scott R Yanos	5
01657	Magnesium	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063702	10/12/2017 22:32	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063702	10/14/2017 08:00	Scott R Yanos	5
06124	Antimony	SW-846 6020A	1	172841063702A	10/18/2017 03:42	Sarah L Burt	2
06125	Arsenic	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063702D	10/12/2017 14:23	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063702A	10/19/2017 13:38	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063702B	10/12/2017 14:23	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/07/2017 10:15
Collection Date/Time: 10/06/2017 15:00
SDG#: SGB76-15

C. T. Male Associates
ELLE Sample #: SW 9252460
ELLE Group #: 1860269
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063702A	10/12/2017 14:23	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063702	10/12/2017 00:25	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17304667632B	11/01/2017 03:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17284039402B	10/11/2017 17:00	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17290820007A	10/18/2017 00:03	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17292002	Sample number(s): 9252446-9252455,9252458-9252460		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17289008	Sample number(s): 9252456-9252457		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.6 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172841063702	Sample number(s): 9252446-9252455,9252458-9252460		
Aluminum	8.94 U	8.94	40.0
Calcium	4.34 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.563 J	0.0830	1.00

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.715 J	0.240	4.00
Batch number: 172841063702A	Sample number(s): 9252446-9252455,9252458-9252460		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172841063702B	Sample number(s): 9252446-9252455,9252458-9252460		
Selenium	0.158 J	0.100	0.800
Batch number: 172841063702D	Sample number(s): 9252446-9252455,9252458-9252460		
Barium	0.182 U	0.182	0.800
Batch number: 17304667632A	Sample number(s): 9252446-9252449,9252453		
TOC	100 U	100	300
Batch number: 17304667632B	Sample number(s): 9252454-9252455,9252458-9252460		
TOC	100 U	100	300
Batch number: 17305667631A	Sample number(s): 9252450-9252452		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17292002	Sample number(s): 9252446-9252455,9252458-9252460								
Perfluorobutanesulfonate	1.20	1.20			100		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.37			100		70-130		
Perfluorododecanoic acid	1.36	1.43			105		70-130		
Perfluoroheptanoic acid	1.36	1.46			108		70-130		
Perfluorohexanesulfonate	1.29	1.06			82		70-130		

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	1.36	1.46			108		70-130		
Perfluorononanoic acid	1.36	1.31			96		70-130		
Perfluoro-octanesulfonate	1.30	1.16			89		70-130		
Perfluorooctanoic acid	1.36	1.35			99		70-130		
Perfluoropentanoic acid	1.36	1.40			103		70-130		
Perfluorotetradecanoic acid	1.36	1.26			93		70-130		
Perfluorotridecanoic acid	1.36	1.50			111		70-130		
Perfluoroundecanoic acid	1.36	1.55			114		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17289008	Sample number(s): 9252456-9252457								
Perfluorobutanesulfonate	4.81	4.76	4.81	4.69	99	97	70-130	2	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.94	105	109	70-130	4	30
Perfluorodecanoic acid	5.44	5.55	5.44	6.60	102	121	70-130	17	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.73	105	105	70-130	0	30
Perfluoroheptanoic acid	5.44	5.11	5.44	4.67	94	86	70-130	9	30
Perfluorohexanesulfonate	5.14	4.77	5.14	4.67	93	91	70-130	2	30
Perfluorohexanoic acid	5.44	5.83	5.44	5.91	107	109	70-130	1	30
Perfluorononanoic acid	5.44	6.10	5.44	5.38	112	99	70-130	13	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.08	105	98	70-130	8	30
Perfluorooctanoic acid	5.44	6.00	5.44	6.64	110	122	70-130	10	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.74	104	106	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.63	98	104	70-130	6	30
Perfluorotridecanoic acid	5.44	4.55	5.44	5.45	84	100	70-130	18	30
Perfluoroundecanoic acid	5.44	5.78	5.44	6.16	106	113	70-130	6	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172841063702	Sample number(s): 9252446-9252455,9252458-9252460								
Aluminum	200	199			99		80-120		
Calcium	400	392.47			98		80-120		
Iron	100	96.83			97		80-120		
Magnesium	200	199.19			100		80-120		
Manganese	50	51.3			103		80-120		
Potassium	1000	1001.33			100		80-120		
Sodium	1000	988.83			99		80-120		
Zinc	50	49.98			100		80-120		
Batch number: 172841063702A	Sample number(s): 9252446-9252455,9252458-9252460								
Antimony	0.600	0.604			101		80-120		
Arsenic	1.00	1.04			104		80-120		
Beryllium	0.400	0.346			87		80-120		
Cadmium	0.500	0.524			105		80-120		
Chromium	5.00	4.90			98		80-120		
Cobalt	25	22.06			88		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Copper	5.00	5.29			106		80-120		
Lead	1.50	1.59			106		80-120		
Nickel	5.00	5.33			107		80-120		
Silver	5.00	5.40			108		80-120		
Thallium	0.200	0.197			99		80-120		
Vanadium	5.00	4.88			98		80-120		
Batch number: 172841063702B	Sample number(s): 9252446-9252455,9252458-9252460								
Selenium	1.00	1.03			103		80-120		
Batch number: 172841063702D	Sample number(s): 9252446-9252455,9252458-9252460								
Barium	5.00	5.22			104		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17304667632A	Sample number(s): 9252446-9252449,9252453								
TOC	7150	8800			123		47-143		
Batch number: 17304667632B	Sample number(s): 9252454-9252455,9252458-9252460								
TOC	7150	8800			123		47-143		
Batch number: 17305667631A	Sample number(s): 9252450-9252452								
TOC	7150	8834.36			124		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17284039401B	Sample number(s): 9252446-9252447								
pH	7.00	6.97			100		95-105		
Batch number: 17284039402A	Sample number(s): 9252448-9252455,9252458-9252459								
pH	7.00	7.01			100		95-105		
Batch number: 17284039402B	Sample number(s): 9252460								
pH	7.00	7.01			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17290820007A	Sample number(s): 9252446-9252455,9252458-9252460								
Moisture	89.5	89.39			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17292002	Sample number(s): 9252446-9252455,9252458-9252460 UNSPK: P256054									
Perfluorobutanesulfonate	0.13 U	0.911	0.790	1.11	1.01	87	92	70-130	25	30
Perfluorobutanoic acid	0.13 U	1.03	1.06	1.25	1.36	103	109	70-130	25	30
Perfluorodecanoic acid	15.13	1.03	10.94	1.25	10.31	-406 (2)	-386 (2)	70-130	6	30
Perfluorododecanoic acid	4.66	1.03	5.34	1.25	4.84	66 (2)	14*	70-130	10	30
Perfluoroheptanoic acid	0.151	1.03	1.11	1.25	1.50	93	108	70-130	30	30
Perfluorohexanesulfonate	0.13 U	0.974	0.909	1.18	1.36	93	115	70-130	40*	30
Perfluorohexanoic acid	0.122	1.03	1.13	1.25	1.25	98	90	70-130	10	30
Perfluorononanoic acid	2.08	1.03	2.51	1.25	2.65	42*	45*	70-130	5	30
Perfluoro-octanesulfonate	13.82	0.985	10.29	1.19	8.86	-357 (2)	-415 (2)	70-130	15	30
Perfluorooctanoic acid	1.23	1.03	1.84	1.25	2.06	60*	66*	70-130	11	30
Perfluoropentanoic acid	0.13 U	1.03	1.03	1.25	1.28	100	103	70-130	22	30
Perfluorotetradecanoic acid	1.13	1.03	2.27	1.25	2.28	111	93	70-130	0	30
Perfluorotridecanoic acid	0.344	1.03	1.37	1.25	1.63	99	103	70-130	18	30
Perfluoroundecanoic acid	1.42	1.03	2.03	1.25	2.20	59*	62*	70-130	8	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172841063702	Sample number(s): 9252446-9252455,9252458-9252460 UNSPK: 9252446									
Aluminum	8581.59	180.18	11459.43	190.48	11432.67	1597 (2)	1497 (2)	75-125	0	20
Calcium	5824.04	360.36	9425.44	380.95	16620.26	999 (2)	2834 (2)	75-125	55*	20
Iron	20803.35	90.09	20615.89	95.24	19958.92	-208 (2)	-887 (2)	75-125	3	20
Magnesium	5182.2	180.18	7012.45	190.48	7333.44	1016 (2)	1129 (2)	75-125	4	20
Manganese	661.87	45.05	1340.97	47.62	1957.91	1508 (2)	2722 (2)	75-125	37*	20
Potassium	1007.41	900.9	2940.86	952.38	3015.82	215*	211*	75-125	3	20
Sodium	239.47	900.9	1170.68	952.38	1240.04	103	105	75-125	6	20
Zinc	56.3	45.05	95.35	47.62	98.25	87	88	75-125	3	20
Batch number: 172841063702A	Sample number(s): 9252446-9252455,9252458-9252460 UNSPK: 9252446									
Antimony	0.141	1.08	0.731	1.14	0.854	55*	62*	75-125	16	20
Arsenic	10.56	1.80	15.16	1.90	14.53	255 (2)	208 (2)	75-125	4	20
Beryllium	0.398	0.721	1.02	0.762	0.992	86	78	75-125	2	20
Cadmium	0.311	0.901	1.55	0.952	1.70	138*	146*	75-125	9	20
Chromium	11.75	9.01	25.35	9.52	27.33	151*	164*	75-125	8	20
Cobalt	10.71	45.05	59.33	47.62	63.3	108	110	75-125	6	20
Copper	20.43	9.01	34.77	9.52	35.09	159*	154*	75-125	1	20
Lead	30.37	2.70	36.94	2.86	35.89	243 (2)	193 (2)	75-125	3	20
Nickel	20.64	9.01	35.89	9.52	36.72	169*	169*	75-125	2	20
Silver	0.0855	9.01	11.85	9.52	12.98	131*	135*	75-125	9	20
Thallium	0.167	0.360	0.675	0.381	0.734	141*	149*	75-125	8	20
Vanadium	15.66	9.01	32.09	9.52	34.17	182*	194*	75-125	6	20
Batch number: 172841063702B	Sample number(s): 9252446-9252455,9252458-9252460 UNSPK: 9252446									
Selenium	0.198	1.80	2.21	1.90	2.35	111	113	75-125	6	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172841063702D	Sample number(s): 9252446-9252455,9252458-9252460 UNSPK: 9252446									
Barium	67.16	9.01	114.45	9.52	129.09	525 (2)	650 (2)	75-125	12	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17304667632A	Sample number(s): 9252446-9252449,9252453 UNSPK: P251865									
TOC	43906.45	158730	311957.67	152280	302436.55	169*	170*	47-143	3	20
Batch number: 17304667632B	Sample number(s): 9252454-9252455,9252458-9252460 UNSPK: P253257									
TOC	2135.31	11460	19385.5			151*		47-143		
Batch number: 17305667631A	Sample number(s): 9252450-9252452 UNSPK: P253261									
TOC	748.85	18780	24599.5			127		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172841063702	Sample number(s): 9252446-9252455,9252458-9252460 BKG: 9252446			
Aluminum	8581.59	8025.12	7	20
Calcium	5824.04	13334.54	78*	20
Iron	20803.35	19905.35	4	20
Magnesium	5182.2	8716.54	51*	20
Manganese	661.87	680.37	3	20
Potassium	1007.41	1025.24	2	20
Sodium	239.47	276.36	14 (1)	20
Zinc	56.3	53.17	6	20
Batch number: 172841063702A	Sample number(s): 9252446-9252455,9252458-9252460 BKG: 9252446			
Antimony	0.141	0.162	13 (1)	20
Arsenic	10.56	9.48	11	20
Beryllium	0.398	0.383	4 (1)	20
Cadmium	0.311	0.277	12 (1)	20
Chromium	11.75	9.50	21*	20
Cobalt	10.71	8.10	28*	20
Copper	20.43	15.94	25*	20
Lead	30.37	24.47	22*	20
Nickel	20.64	16.29	24*	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Silver	0.0855	0.0774	10 (1)	20
Thallium	0.167	0.153	9 (1)	20
Vanadium	15.66	13.94	12	20
Batch number: 172841063702B	Sample number(s): 9252446-9252455,9252458-9252460 BKG: 9252446			
Selenium	0.198	0.196	1 (1)	20
Batch number: 172841063702D	Sample number(s): 9252446-9252455,9252458-9252460 BKG: 9252446			
Barium	67.16	55.4	19	20
	mg/kg	mg/kg		
Batch number: 17304667632A	Sample number(s): 9252446-9252449,9252453 BKG: P251865			
TOC	43906.45	69922.98	46*	7
Batch number: 17304667632B	Sample number(s): 9252454-9252455,9252458-9252460 BKG: P253257			
TOC	2135.31	2740.66	25*	7
Batch number: 17305667631A	Sample number(s): 9252450-9252452 BKG: P253261			
TOC	748.85	716.72	4 (1)	7
	Std. Units	Std. Units		
Batch number: 17284039401B	Sample number(s): 9252446-9252447 BKG: P251870			
pH	7.62	7.63	0	3
Batch number: 17284039402A	Sample number(s): 9252448-9252455,9252458-9252459 BKG: 9252452			
pH	8.49	7.96	6*	3
Batch number: 17284039402B	Sample number(s): 9252460 BKG: P253391			
pH	10.46	10.35	1	3
	%	%		
Batch number: 17290820007A	Sample number(s): 9252446-9252455,9252458-9252460 BKG: P254062			
Moisture	1.98	1.93	2 (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252456	92	99	86	84	81	85
9252457	85	89	77	87	81	83
Blank	86	87	76	78	81	79
LCS	96	95	85	84	82	89
LCSD	91	91	84	90	86	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9252456	103	91	97	101	94	92
9252457	90	78	93	93	85	79
Blank	85	101	114	93	90	80
LCS	97	96	104	101	87	88
LCSD	86	94	106	105	108	100
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9252456	83
9252457	69
Blank	74
LCS	74
LCSD	89
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17292002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252446	90	90	81	95	93	97
9252447	93	93	80	84	80	84
9252448	90	90	80	103	89	99
9252449	85	88	77	83	81	84
9252450	78	80	77	77	71	76
9252451	80	81	73	76	65	74
9252452	87	84	76	77	80	85
9252453	88	88	79	75	71	84
9252454	84	84	75	88	85	93
9252455	83	84	78	92	77	86

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17292002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9252458	68	69*	72	65	76	72
9252459	82	85	75	81	81	85
9252460	84	85	79	86	84	85
Blank	87	91	78	87	78	89
LCS	91	90	85	85	83	90
MS	89	90	84	80	83	86
MSD	80	81	74	83	76	74
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9252446	98	94	100	95	73	87
9252447	96	103	102	96	86	95
9252448	100	98	112	93	89	87
9252449	87	93	92	94	99	93
9252450	84	90	84	87	91	78
9252451	78	79	93	89	88	80
9252452	92	95	102	82	82	80
9252453	87	84	85	100	93	89
9252454	94	85	83	89	88	84
9252455	92	79	81	87	96	91
9252458	73	82	85	72	78	72
9252459	87	98	92	90	91	81
9252460	99	87	80	87	93	87
Blank	101	93	100	101	95	85
LCS	96	94	93	112	106	95
MS	88	89	100	96	98	90
MSD	90	91	84	78	87	75
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9252446	82
9252447	95
9252448	86
9252449	90
9252450	79
9252451	78
9252452	69

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 15:43

Group Number: 1860269

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17292002

	13C2-PFTeDA
9252453	86
9252454	81
9252455	83
9252458	67
9252459	79
9252460	81
Blank	81
LCS	92
MS	78
MSD	72
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1860269 9252446-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47375

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd Latham NY
Name: Michael DuPay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 mL plastic / PFCs (14)	Soil: 4oz glass / TOC, pH, moisture	Soil: % Solids	Preservative Code	Field Filtered Y/N	
										Y	Y				
										N	N				
1. SG3-D22-0-0.5'	0	0.5	ft	10/06/2017	0905	Soil	N	2		1	1				PFCs (14), TOC, pH
2. SG3-D22-0.5-1'	0.5	1	ft	10-6-17	0910	S	N	2		1	1				moisture
3. SG3-D22-1-1.5'	1	1.5	ft	10-6-17	0915	S	N	2		1	1				Metals/TAL cations excluding Hg
4. SG3-D22-3-4'	3	4	ft	10-6-17	0930	S	N	2		1	1				
5. SG3-D22-8-9'	8	9	ft	10-6-17	0945	S	N	2		1	1				
6. SG3-D22-14-15'	14	15	ft	10-6-17	1030	S	N	2		1	1				
7. SG3-D17-0-0.5'	0	0.5	ft	10-6-17	1420	S	N	2		1	1				Samples in 2 coolers
8. SG3-D17-0.5-1'	0.5	1	ft	10-6-17	1425	S	N	2		1	1				
9. SG3-D17-1-1.5'	1	1.5	ft	10-6-17	1430	S	N	2		1	1				
10. SG3-D17-3-4'	3	4	ft	10-6-17	1440	S	N	2		1	1				

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	DJE RAK							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10.7.17	10:15
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster PA	Lab WO:		Temperature on Receipt (°C): 1.4 | 1.1		Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1860269 9252446-60 SAMPLES IN TWO COOLERS

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47385

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blanks	Soil: Poly - PFCs (4)	Soil: Glass - TOC, pH, Metals, Moist.	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
									A / N	A / I	A / I				
1. SG3-LTB65-171005				10/05/2017	PM	Water	N	2	2						
2. SG3-LTB66-171005				10/05/2017	PM	Water	N	2	2						
3. SG3-MW-BR1-298-299'	298	299	ft.	10/06/2017	1000	S	N	2		1	1				Metals = TAL cations
4. SG3-D17-8-9'	8	9	ft.	10/06/2017	1455	S	N	2		1	1				excluding Hg
5. SG3-D17-9-10'	9	10	ft.	10/06/2017	1500	S	N	2		1	1				
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY	Relinquished by	On Ice? Y / N	Date	Time	Received by	Date	Time
Sampled by: RQM	RQM	Y	10/06/17	17:00			
Barr Proj. Manager: JTC							
Barr DQ Manager: MDD							
Lab Name: ELLE							
Lab Location: Lancaster, PA							

Relinquished by: — On Ice? — Date — Time — Received by: — Date 10-7-17 — Time 1015

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other: _____ Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.4 | 1.1 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 196766

Group Number(s): 1860269

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/07/2017 10:15
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4 Unpres., 2 Trizma

Unpacked by Nicole Reiff (25684) at 11:08 on 10/07/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.4	DT	Wet	Y	Bagged	N
2	DT42-02	1.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 11, 2017

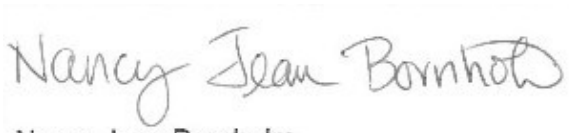
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1860865
SDG: SGB77
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FilteredWaterTKB-171007 Water	10/07/2017 11:10	9255279
SG3-AfterPOETB-171006 Water	10/06/2017 16:10	9255280

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1860865

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9255279, 9255280

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17283013 (Sample number(s): 9255279-9255280)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9255279, 9255280, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterTKB-171007 Water
SGPP - North Bennington

ELLE Sample # GW 9255279
ELLE Group # 1860865
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/07/2017 11:10 by RQM

Submitted: 10/10/2017 09:35
Reported: 10/11/2017 15:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB771 SDG#: SGB77-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2	U	2	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6**	**J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17283013	10/11/2017 09:47	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17283013	10/10/2017 13:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-AfterPOETB-171006 Water
SGPP - North Bennington

ELLE Sample # GW 9255280
ELLE Group # 1860865
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/06/2017 16:10 by RQM

Submitted: 10/10/2017 09:35
Reported: 10/11/2017 15:59

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

GB772 SDG#: SGB77-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2	U	2	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8	U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17283013	10/11/2017 10:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17283013	10/10/2017 13:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/11/2017 15:59

Group Number: 1860865

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17283013	Sample number(s): 9255279-9255280			
6:2 fluorotelomersulfonate	2	U	2	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17283013	Sample number(s): 9255279-9255280								
6:2 fluorotelomersulfonate	15.17	17.68	15.17	19.28	117	127	70-130	9	30
8:2 fluorotelomersulfonate	15.33	16.74	15.33	16.58	109	108	70-130	1	30
NEtFOSAA	5.44	6.62	5.44	6.37	122	117	70-130	4	30
NMeFOSAA	5.44	5.51	5.44	5.86	101	108	70-130	6	30
Perfluorobutanesulfonate	4.81	4.75	4.81	4.50	99	94	70-130	5	30
Perfluorobutanoic acid	5.44	5.85	5.44	5.61	108	103	70-130	4	30
Perfluorodecanoic acid	5.44	6.10	5.44	5.43	112	100	70-130	12	30
Perfluorododecanoic acid	5.44	6.20	5.44	6.03	114	111	70-130	3	30
Perfluoroheptanoic acid	5.44	5.96	5.44	5.11	110	94	70-130	15	30
Perfluorohexanesulfonate	5.14	5.59	5.14	4.67	109	91	70-130	18	30
Perfluorohexanoic acid	5.44	5.76	5.44	5.74	106	105	70-130	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1860865
Reported: 10/11/2017 15:59

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	6.33	5.44	5.78	116	106	70-130	9	30
Perfluorooctanesulfonamide	5.44	5.46	5.44	5.62	100	103	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.59	5.20	5.93	107	114	70-130	6	30
Perfluorooctanoic acid	5.44	6.02	5.44	5.71	111	105	70-130	5	30
Perfluoropentanoic acid	5.44	5.87	5.44	5.36	108	99	70-130	9	30
Perfluorotetradecanoic acid	5.44	6.05	5.44	5.70	111	105	70-130	6	30
Perfluorotridecanoic acid	5.44	5.79	5.44	5.79	106	106	70-130	0	30
Perfluoroundecanoic acid	5.44	5.58	5.44	5.33	103	98	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17283013

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9255279	86	97	94	76	69	71
9255280	73	75	70	75	70	69
Blank	77	81	75	87	82	79
LCS	85	87	85	80	71	78
LCSD	81	88	80	86	84	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9255279	103	81	80	106	79	90
9255280	56	73	66	65	70	54
Blank	71	79	79	77	68	52
LCS	76	84	81	97	79	78
LCSD	69	80	72	78	80	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9255279	62	84	72	72	68	38*
9255280	53	65	58	67	72	26*
Blank	50	70	47	69	63	30*
LCS	67	87	71	85	76	61*
LCSD	57	78	63	80	80	31*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1860865
Reported: 10/11/2017 15:59

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17283013

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Need Results ASAP! 37191 | 1860865 | 9255279-80

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47377

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	250ml Trizma PFCs (9)	% Solids
1. SG3-FilteredWaterTKB-171007				10/07/2017	11:10	Water	N	2	2	
2. SG3-AfterPOETB-171006				10/06/2017	16:10	Water	N	2	2	
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

Analysis Requested — Water / Soil

Preservative Code

Field Filtered Y/N

Need results ASAP!

BARR USE ONLY							
Sampled by: RQM/DSZ	Relinquished by: Dave Zander	On Ice? Y N	Date 10-9-17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/10/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C) 0.9/3.0	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196930

Group Number(s): 1860865

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/10/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 10:31 on 10/10/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.9	DT	Wet	Y	Bagged	N
2	DT42-01	3.0	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 13, 2017 12:18

Project: SGPP - Bennington

Account #: 37191
Group Number: 1861097
SDG: SGB78
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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REVISED

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D10-0-0.5' Soil	10/07/2017 13:10	9256051
SG3-D10-0.5-1' Soil	10/07/2017 13:15	9256052
SG3-D10-1-1.5' Soil	10/07/2017 13:25	9256053
SG3-D10-3-4' Soil	10/07/2017 13:35	9256054
SG3-D10-3-4' MS Soil	10/07/2017 13:35	9256055
SG3-D10-3-4' MSD Soil	10/07/2017 13:35	9256056
SG3-D10-3-4' Dupl Soil	10/07/2017 13:35	9256057
SG3-D10-8-9' Soil	10/07/2017 13:45	9256058
SG3-D10-18-19' Soil	10/07/2017 13:55	9256059
SG3-FDS11-171007 Soil	10/07/2017	9256060
SG3-FBS11-171007 Blank Water	10/07/2017 14:00	9256061
SG3-D10-28-29' Soil	10/07/2017 14:30	9256062
SG3-D10-38-39' Soil	10/08/2017 09:20	9256063
SG3-D10-48-49' Soil	10/08/2017 09:45	9256064
SG3-D10-58-59' Soil	10/08/2017 10:20	9256065
SG3-D10-68-69' Soil	10/08/2017 10:50	9256066
SG3-D10-78-79' Soil	10/09/2017 11:00	9256067
SG3-D10-88-89' Soil	10/09/2017 12:30	9256068
SG3-D10-98-99' Soil	10/09/2017 14:15	9256069
SG3-LTB67-171009 Blank Water	10/09/2017	9256070
SG3-LTB68-171009 Blank Water	10/09/2017	9256071

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1861097

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9256061, 9256070

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample #s: 9256071

The recovery for extraction standard 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

Sample #s: 9256059, 9256064, 9256065, 9256066, 9256067, 9256068, 9256069

The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9256062, 9256063

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17289008 (Sample number(s): 9256061, 9256070-9256071)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9256071

Batch #: 17292002 (Sample number(s): 9256051-9256056, 9256058 UNSPK: 9256054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window:

Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorohexanesulfonate

Batch #: 17294001 (Sample number(s): 9256059-9256060, 9256064-9256069 UNSPK: 9256059)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9256059, 9256064, 9256065, 9256066, 9256067, 9256068, 9256069, LCSD, MS

Batch #: 17303009 (Sample number(s): 9256062-9256063 UNSPK: P279984)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9256062, 9256063, MSD

SW-846 6010C, Metals

Sample #s: 9256069

Reporting limits were raised for metals due to interference from the sample matrix.

Batch #: 172841063704 (Sample number(s): 9256051-9256060, 9256062-9256069 UNSPK: 9256054 BKG: 9256054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Sodium, Manganese

SW-846 6020A, Metals

Batch #: 172841063704A (Sample number(s): 9256051-9256060, 9256062-9256069 UNSPK: 9256054 BKG: 9256054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Thallium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Copper, Lead, Silver

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Thallium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Copper, Silver

Batch #: 172841063704D (Sample number(s): 9256051-9256060, 9256062-9256069 UNSPK: 9256054 BKG: 9256054)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9256069

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17301245031B (Sample number(s): 9256051-9256055, 9256057-9256060, 9256062 UNSPK: 9256054 BKG: 9256054)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9256051

The pH was measured in water at 19.7 C.

Sample #s: 9256060

The pH was measured in water at 19.8 C.

Sample #s: 9256052, 9256053, 9256062, 9256064, 9256065

The pH was measured in water at 19.9 C.

Sample #s: 9256067, 9256069

The pH was measured in water at 20 C.

Sample #s: 9256058, 9256066

The pH was measured in water at 20.1 C.

Sample #s: 9256054, 9256059

The pH was measured in water at 20.2 C.

Sample #s: 9256057, 9256063, 9256068

The pH was measured in water at 20.3 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17291820003B (Sample number(s): 9256064-9256069 BKG: 9256064)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: **SG3-D10-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:10
SDG#: SGB78-01

C. T. Male Associates
ELLE Sample #: SW 9256051
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.2**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.1**	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.7**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36 J**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.29 J**	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.46 J**	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,620**	7.83	35.0	1
01650	**Calcium**	7440-70-2	**49,600**	14.6	175	5
01654	**Iron**	7439-89-6	**14,700**	7.05	35.0	1
01657	**Magnesium**	7439-95-4	**18,800**	2.13	17.5	1
06958	**Manganese**	7439-96-5	**415**	0.0727	0.876	1
01662	**Potassium**	7440-09-7	**1,090**	14.6	87.6	1
01667	**Sodium**	7440-23-5	**24.2 J**	14.6	175	1
06972	**Zinc**	7440-66-6	**34.2**	0.210	3.50	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0999 J**	0.0816	0.350	2
06125	**Arsenic**	7440-38-2	**5.53**	0.112	0.701	2
06126	**Barium**	7440-39-3	**55.8**	0.159	0.701	2
06127	**Beryllium**	7440-41-7	**0.343**	0.0092	0.175	2
06128	**Cadmium**	7440-43-9	**0.158 J**	0.0301	0.175	2
06131	**Chromium**	7440-47-3	**6.15**	0.152	0.701	2
06132	**Cobalt**	7440-48-4	**9.78**	0.0273	0.175	2
06133	**Copper**	7440-50-8	**14.1**	0.0939	0.701	2
06135	**Lead**	7439-92-1	**9.86**	0.0194	0.350	2
06139	**Nickel**	7440-02-0	**11.6**	0.174	0.701	2
06141	**Selenium**	7782-49-2	**0.127 J**	0.0876	0.701	2
06142	**Silver**	7440-22-4	**1.57**	0.0256	0.175	2
06145	**Thallium**	7440-28-0	**0.194**	0.0219	0.175	2
06148	**Vanadium**	7440-62-2	**7.67**	0.0373	0.175	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:10
SDG#: SGB78-01

C. T. Male Associates
ELLE Sample #: SW 9256051
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**34,500**	635	1,900	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 07:27	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:26	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:49	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:45	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:42	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:45	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:10
SDG#: SGB78-01

C. T. Male Associates
ELLE Sample #: SW 9256051
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:45	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 20:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039401B	10/12/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:15
SDG#: SGB78-02

C. T. Male Associates
ELLE Sample #: SW 9256052
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.44	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.44	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.15	0.44	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.2**	0.15	0.44	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.44	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.44	1
14027	Perfluorohexanoic acid	307-24-4	0.074 U	0.074	0.29	1
14027	**Perfluorononanoic acid**	375-95-1	**0.14 J**	0.074	0.29	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.1**	0.22	0.66	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.19 J**	0.15	0.44	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.44	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.40 J**	0.15	0.44	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.15 J**	0.15	0.44	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.48**	0.15	0.44	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,460**	7.14	31.9	1
01650	**Calcium**	7440-70-2	**54,400**	13.3	160	5
01654	**Iron**	7439-89-6	**15,800**	6.43	31.9	1
01657	**Magnesium**	7439-95-4	**19,000**	1.94	16.0	1
06958	**Manganese**	7439-96-5	**400**	0.0662	0.798	1
01662	**Potassium**	7440-09-7	**1,070**	13.3	79.8	1
01667	**Sodium**	7440-23-5	**23.2 J**	13.3	160	1
06972	**Zinc**	7440-66-6	**37.8**	0.192	3.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0907 J**	0.0744	0.319	2
06125	**Arsenic**	7440-38-2	**6.64**	0.102	0.639	2
06126	**Barium**	7440-39-3	**55.6**	0.145	0.639	2
06127	**Beryllium**	7440-41-7	**0.339**	0.0084	0.160	2
06128	**Cadmium**	7440-43-9	**0.152 J**	0.0275	0.160	2
06131	**Chromium**	7440-47-3	**6.27**	0.139	0.639	2
06132	**Cobalt**	7440-48-4	**9.42**	0.0249	0.160	2
06133	**Copper**	7440-50-8	**16.0**	0.0856	0.639	2
06135	**Lead**	7439-92-1	**10.6**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**12.2**	0.159	0.639	2
06141	**Selenium**	7782-49-2	**0.123 J**	0.0798	0.639	2
06142	**Silver**	7440-22-4	**2.97**	0.0233	0.160	2
06145	**Thallium**	7440-28-0	**0.172**	0.0200	0.160	2
06148	**Vanadium**	7440-62-2	**8.11**	0.0340	0.160	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:15
SDG#: SGB78-02

C. T. Male Associates
ELLE Sample #: SW 9256052
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,900**	425	1,270	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.97**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**5.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 08:29	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:30	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:53	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:48	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:44	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:48	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:15
SDG#: SGB78-02

C. T. Male Associates
ELLE Sample #: SW 9256052
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:48	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 21:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039401B	10/12/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:25
SDG#: SGB78-03

C. T. Male Associates
ELLE Sample #: SW 9256053
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	**Perfluorodecanoic acid**	335-76-2	**4.6**	0.17	0.51	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.8**	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.13 J**	0.085	0.34	1
14027	**Perfluorononanoic acid**	375-95-1	**0.42**	0.085	0.34	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.7**	0.26	0.77	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.35 J**	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.97**	0.17	0.51	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.33 J**	0.17	0.51	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.0**	0.17	0.51	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,350**	6.62	29.6	1
01650	**Calcium**	7440-70-2	**46,900**	12.3	148	5
01654	**Iron**	7439-89-6	**15,300**	5.96	29.6	1
01657	**Magnesium**	7439-95-4	**18,000**	1.80	14.8	1
06958	**Manganese**	7439-96-5	**369**	0.0614	0.740	1
01662	**Potassium**	7440-09-7	**954**	12.4	74.0	1
01667	**Sodium**	7440-23-5	**24.3 J**	12.4	148	1
06972	**Zinc**	7440-66-6	**39.8**	0.178	2.96	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.122 J**	0.0690	0.296	2
06125	**Arsenic**	7440-38-2	**5.76**	0.0947	0.592	2
06126	**Barium**	7440-39-3	**55.9**	0.134	0.592	2
06127	**Beryllium**	7440-41-7	**0.316**	0.0078	0.148	2
06128	**Cadmium**	7440-43-9	**0.209**	0.0255	0.148	2
06131	**Chromium**	7440-47-3	**6.99**	0.129	0.592	2
06132	**Cobalt**	7440-48-4	**8.49**	0.0231	0.148	2
06133	**Copper**	7440-50-8	**17.6**	0.0793	0.592	2
06135	**Lead**	7439-92-1	**11.6**	0.0164	0.296	2
06139	**Nickel**	7440-02-0	**11.9**	0.147	0.592	2
06141	**Selenium**	7782-49-2	**0.153 J**	0.0740	0.592	2
06142	**Silver**	7440-22-4	**5.47**	0.0216	0.148	2
06145	**Thallium**	7440-28-0	**0.149**	0.0185	0.148	2
06148	**Vanadium**	7440-62-2	**8.17**	0.0315	0.148	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:25
SDG#: SGB78-03

C. T. Male Associates
ELLE Sample #: SW 9256053
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,300**	249	746	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 08:49	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:34	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:56	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:51	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:45	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:51	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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REVISED

Sample Description: **SG3-D10-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:25
SDG#: SGB78-03

C. T. Male Associates
ELLE Sample #: SW 9256053
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:51	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 21:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039401B	10/12/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04BKG

C. T. Male Associates
ELLE Sample #: SW 9256054
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	**Perfluorodecanoic acid**	335-76-2	**17**	0.15	0.46	1
14027	**Perfluorododecanoic acid**	307-55-1	**5.3**	0.15	0.46	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.17 J**	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.14 J**	0.076	0.31	1
14027	**Perfluorononanoic acid**	375-95-1	**2.4**	0.076	0.31	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**16**	0.23	0.69	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.3**	0.15	0.46	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.39 J**	0.15	0.46	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,130**	6.93	31.0	1
01650	**Calcium**	7440-70-2	**66,500**	12.9	155	5
01654	**Iron**	7439-89-6	**14,100**	6.24	31.0	1
01657	**Magnesium**	7439-95-4	**22,000**	1.88	15.5	1
06958	**Manganese**	7439-96-5	**426**	0.0643	0.775	1
01662	**Potassium**	7440-09-7	**863**	12.9	77.5	1
01667	**Sodium**	7440-23-5	**24.2 J**	12.9	155	1
06972	**Zinc**	7440-66-6	**50.2**	0.186	3.10	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.115 J**	0.0722	0.310	2
06125	**Arsenic**	7440-38-2	**5.44**	0.0992	0.620	2
06126	**Barium**	7440-39-3	**82.3**	0.141	0.620	2
06127	**Beryllium**	7440-41-7	**0.298**	0.0081	0.155	2
06128	**Cadmium**	7440-43-9	**0.336**	0.0267	0.155	2
06131	**Chromium**	7440-47-3	**7.26**	0.135	0.620	2
06132	**Cobalt**	7440-48-4	**9.52**	0.0242	0.155	2
06133	**Copper**	7440-50-8	**29.1**	0.0831	0.620	2
06135	**Lead**	7439-92-1	**14.5**	0.0172	0.310	2
06139	**Nickel**	7440-02-0	**13.2**	0.154	0.620	2
06141	**Selenium**	7782-49-2	**0.275 J**	0.0775	0.620	2
06142	**Silver**	7440-22-4	**16.3**	0.0226	0.155	2
06145	**Thallium**	7440-28-0	**0.127 J**	0.0194	0.155	2
06148	**Vanadium**	7440-62-2	**8.05**	0.0330	0.155	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04BKG

C. T. Male Associates
ELLE Sample #: SW 9256054
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**26,100**	558	1,680	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 09:10	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 16:53	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:12	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:12	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:27	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:12	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: **SG3-D10-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04BKG

C. T. Male Associates
ELLE Sample #: SW 9256054
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:12	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/31/2017 22:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-3-4' MS Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04MS

C. T. Male Associates
ELLE Sample #: SW 9256055
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	Perfluorobutanesulfonate	375-73-5	**0.91**	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	**1.2**	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	**13**	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	**6.1**	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	**1.3**	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	**1.0**	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	**1.3**	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	**2.9**	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	**12**	0.26	0.78	1
14027	Perfluorooctanoic acid	335-67-1	**2.1**	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	**1.2**	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	**2.6**	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	**1.6**	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	**2.3**	0.17	0.52	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	Aluminum	7429-90-5	**8,690**	7.27	32.5	1
01650	Calcium	7440-70-2	**65,600**	13.5	163	5
01654	Iron	7439-89-6	**17,200**	6.55	32.5	1
01657	Magnesium	7439-95-4	**21,100**	1.98	16.3	1
06958	Manganese	7439-96-5	**388**	0.0675	0.813	1
01662	Potassium	7440-09-7	**2,180**	13.6	81.3	1
01667	Sodium	7440-23-5	**867**	13.6	163	1
06972	Zinc	7440-66-6	**87.7**	0.195	3.25	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	Antimony	7440-36-0	**0.715**	0.0758	0.325	2
06125	Arsenic	7440-38-2	**7.06**	0.104	0.651	2
06126	Barium	7440-39-3	**85.6**	0.148	0.651	2
06127	Beryllium	7440-41-7	**0.894**	0.0085	0.163	2
06128	Cadmium	7440-43-9	**1.07**	0.0280	0.163	2
06131	Chromium	7440-47-3	**14.8**	0.142	0.651	2
06132	Cobalt	7440-48-4	**42.5**	0.0254	0.163	2
06133	Copper	7440-50-8	**35.1**	0.0872	0.651	2
06135	Lead	7439-92-1	**16.9**	0.0181	0.325	2
06139	Nickel	7440-02-0	**20.6**	0.162	0.651	2
06141	Selenium	7782-49-2	**1.69**	0.0813	0.651	2
06142	Silver	7440-22-4	**23.8**	0.0237	0.163	2
06145	Thallium	7440-28-0	**0.394**	0.0203	0.163	2
06148	Vanadium	7440-62-2	**16.7**	0.0346	0.163	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-3-4' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04MS

C. T. Male Associates
ELLE Sample #: SW 9256055
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**40,100**	830	2,490	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 01:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:04	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:23	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:21	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:21	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:21	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 21:44	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-3-4' MSD Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04MSD

C. T. Male Associates
ELLE Sample #: SW 9256056
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.21	0.63	1
14027	**Perfluorodecanoic acid**	335-76-2	**12**	0.21	0.63	1
14027	**Perfluorododecanoic acid**	307-55-1	**5.5**	0.21	0.63	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.7**	0.21	0.63	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.21	0.63	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.11	0.42	1
14027	**Perfluorononanoic acid**	375-95-1	**3.0**	0.11	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**10**	0.32	0.95	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.4**	0.21	0.63	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.21	0.63	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.6**	0.21	0.63	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.9**	0.21	0.63	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.5**	0.21	0.63	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**8,620**	7.02	31.4	1
01650	**Calcium**	7440-70-2	**59,600**	13.1	157	5
01654	**Iron**	7439-89-6	**14,300**	6.32	31.4	1
01657	**Magnesium**	7439-95-4	**20,500**	1.91	15.7	1
06958	**Manganese**	7439-96-5	**581**	0.0652	0.785	1
01662	**Potassium**	7440-09-7	**2,210**	13.1	78.5	1
01667	**Sodium**	7440-23-5	**841**	13.1	157	1
06972	**Zinc**	7440-66-6	**92.2**	0.189	3.14	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.730**	0.0732	0.314	2
06125	**Arsenic**	7440-38-2	**7.21**	0.101	0.628	2
06126	**Barium**	7440-39-3	**93.0**	0.143	0.628	2
06127	**Beryllium**	7440-41-7	**0.914**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**1.11**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**15.1**	0.137	0.628	2
06132	**Cobalt**	7440-48-4	**44.8**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**32.9**	0.0842	0.628	2
06135	**Lead**	7439-92-1	**16.1**	0.0174	0.314	2
06139	**Nickel**	7440-02-0	**21.1**	0.156	0.628	2
06141	**Selenium**	7782-49-2	**1.72**	0.0785	0.628	2
06142	**Silver**	7440-22-4	**20.2**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.615**	0.0196	0.157	2
06148	**Vanadium**	7440-62-2	**17.1**	0.0335	0.157	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-3-4' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04MSD

C. T. Male Associates
ELLE Sample #: SW 9256056
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.8**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 01:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:08	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:26	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:24	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-3-4' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04DUP

C. T. Male Associates
ELLE Sample #: SW 9256057
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,010**	9.67	43.3	1
01650	**Calcium**	7440-70-2	**61,500**	18.0	216	5
01654	**Iron**	7439-89-6	**13,700**	8.71	43.3	1
01657	**Magnesium**	7439-95-4	**20,300**	2.63	21.6	1
06958	**Manganese**	7439-96-5	**336**	0.0898	1.08	1
01662	**Potassium**	7440-09-7	**894**	18.1	108	1
01667	Sodium	7440-23-5	18.1 U	18.1	216	1
06972	**Zinc**	7440-66-6	**45.4**	0.260	4.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.126 J**	0.101	0.433	2
06125	**Arsenic**	7440-38-2	**5.57**	0.138	0.866	2
06126	**Barium**	7440-39-3	**67.9**	0.196	0.866	2
06127	**Beryllium**	7440-41-7	**0.299**	0.0113	0.216	2
06128	**Cadmium**	7440-43-9	**0.275**	0.0372	0.216	2
06131	**Chromium**	7440-47-3	**6.78**	0.188	0.866	2
06132	**Cobalt**	7440-48-4	**7.57**	0.0338	0.216	2
06133	**Copper**	7440-50-8	**23.2**	0.116	0.866	2
06135	**Lead**	7439-92-1	**13.6**	0.0240	0.433	2
06139	**Nickel**	7440-02-0	**11.9**	0.216	0.866	2
06141	**Selenium**	7782-49-2	**0.242 J**	0.108	0.866	2
06142	**Silver**	7440-22-4	**11.7**	0.0316	0.216	2
06145	**Thallium**	7440-28-0	**0.141 J**	0.0270	0.216	2
06148	**Vanadium**	7440-62-2	**7.56**	0.0461	0.216	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**14,300**	596	1,790	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.92**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.8**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**13.4**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-3-4' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:35
SDG#: SGB78-04DUP

C. T. Male Associates
ELLE Sample #: SW 9256057
ELLE Group #: 1861097
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 17:01	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 17:20	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:31	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/31/2017 22:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:45
SDG#: SGB78-05

C. T. Male Associates
ELLE Sample #: SW 9256058
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.31 J**	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.20 J**	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,990**	8.61	38.5	1
01650	**Calcium**	7440-70-2	**13,100**	3.21	38.5	1
01654	**Iron**	7439-89-6	**22,300**	7.75	38.5	1
01657	**Magnesium**	7439-95-4	**6,240**	2.34	19.3	1
06958	**Manganese**	7439-96-5	**462**	0.0799	0.963	1
01662	**Potassium**	7440-09-7	**1,250**	16.1	96.3	1
01667	**Sodium**	7440-23-5	**21.3 J**	16.1	193	1
06972	**Zinc**	7440-66-6	**39.7**	0.231	3.85	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.130 J**	0.0898	0.385	2
06125	**Arsenic**	7440-38-2	**6.32**	0.123	0.771	2
06126	**Barium**	7440-39-3	**65.7**	0.175	0.771	2
06127	**Beryllium**	7440-41-7	**0.411**	0.0101	0.193	2
06128	**Cadmium**	7440-43-9	**0.152 J**	0.0331	0.193	2
06131	**Chromium**	7440-47-3	**45.3**	0.168	0.771	2
06132	**Cobalt**	7440-48-4	**89.5**	0.0301	0.193	2
06133	**Copper**	7440-50-8	**19.1**	0.103	0.771	2
06135	**Lead**	7439-92-1	**9.44**	0.0214	0.385	2
06139	**Nickel**	7440-02-0	**19.6**	0.192	0.771	2
06141	**Selenium**	7782-49-2	**0.147 J**	0.0963	0.771	2
06142	**Silver**	7440-22-4	**0.408**	0.0281	0.193	2
06145	**Thallium**	7440-28-0	**0.192 J**	0.0241	0.193	2
06148	**Vanadium**	7440-62-2	**10.1**	0.0410	0.193	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:45
SDG#: SGB78-05

C. T. Male Associates
ELLE Sample #: SW 9256058
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,960**	321	964	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.77**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**7.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17292002	10/22/2017 09:30	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17292002	10/19/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:00	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:54	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:47	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:54	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:45
SDG#: SGB78-05

C. T. Male Associates
ELLE Sample #: SW 9256058
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:54	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 22:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039401B	10/12/2017 18:45	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:55
SDG#: SGB78-06

C. T. Male Associates
ELLE Sample #: SW 9256059
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098 U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098 U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.88	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,430**	7.67	34.3	1
01650	**Calcium**	7440-70-2	**23,500**	2.86	34.3	1
01654	**Iron**	7439-89-6	**22,000**	6.90	34.3	1
01657	**Magnesium**	7439-95-4	**6,870**	2.08	17.2	1
06958	**Manganese**	7439-96-5	**396**	0.0712	0.858	1
01662	**Potassium**	7440-09-7	**1,660**	14.3	85.8	1
01667	**Sodium**	7440-23-5	**25.8 J**	14.3	172	1
06972	**Zinc**	7440-66-6	**46.5**	0.206	3.43	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.128 J**	0.0799	0.343	2
06125	**Arsenic**	7440-38-2	**14.6**	0.110	0.686	2
06126	**Barium**	7440-39-3	**85.8**	0.156	0.686	2
06127	**Beryllium**	7440-41-7	**0.551**	0.0090	0.172	2
06128	**Cadmium**	7440-43-9	**0.274**	0.0295	0.172	2
06131	**Chromium**	7440-47-3	**11.9**	0.149	0.686	2
06132	**Cobalt**	7440-48-4	**10.1**	0.0268	0.172	2
06133	**Copper**	7440-50-8	**19.3**	0.0919	0.686	2
06135	**Lead**	7439-92-1	**11.8**	0.0190	0.343	2
06139	**Nickel**	7440-02-0	**18.0**	0.171	0.686	2
06141	**Selenium**	7782-49-2	**0.316 J**	0.0858	0.686	2
06142	**Silver**	7440-22-4	**0.0453 J**	0.0250	0.172	2
06145	**Thallium**	7440-28-0	**0.193**	0.0214	0.172	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:55
SDG#: SGB78-06

C. T. Male Associates
ELLE Sample #: SW 9256059
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.0**	0.0365	0.172	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,550**	398	1,190	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 13:43	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:03	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 10:57	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:49	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 13:55
SDG#: SGB78-06

C. T. Male Associates
ELLE Sample #: SW 9256059
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 10:57	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 10:57	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 23:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS11-171007 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017
SDG#: SGB78-07FD

C. T. Male Associates
ELLE Sample #: SW 9256060
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	**Perfluorodecanoic acid**	335-76-2	**3.8**	0.20	0.59	1
14027	**Perfluorododecanoic acid**	307-55-1	**2.8**	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.39	1
14027	**Perfluorononanoic acid**	375-95-1	**0.39 J**	0.099	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**5.3**	0.30	0.89	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.39 J**	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.93**	0.20	0.59	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.28 J**	0.20	0.59	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.89**	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,950**	9.24	41.4	1
01650	**Calcium**	7440-70-2	**49,600**	3.44	41.4	1
01654	**Iron**	7439-89-6	**16,400**	8.32	41.4	1
01657	**Magnesium**	7439-95-4	**18,900**	2.51	20.7	1
06958	**Manganese**	7439-96-5	**462**	0.0858	1.03	1
01662	**Potassium**	7440-09-7	**1,170**	17.3	103	1
01667	**Sodium**	7440-23-5	**28.1 J**	17.3	207	1
06972	**Zinc**	7440-66-6	**41.8**	0.248	4.14	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.119 J**	0.0964	0.414	2
06125	**Arsenic**	7440-38-2	**6.00**	0.132	0.827	2
06126	**Barium**	7440-39-3	**77.1**	0.188	0.827	2
06127	**Beryllium**	7440-41-7	**0.368**	0.0108	0.207	2
06128	**Cadmium**	7440-43-9	**0.201 J**	0.0356	0.207	2
06131	**Chromium**	7440-47-3	**7.13**	0.180	0.827	2
06132	**Cobalt**	7440-48-4	**9.15**	0.0323	0.207	2
06133	**Copper**	7440-50-8	**20.2**	0.111	0.827	2
06135	**Lead**	7439-92-1	**13.0**	0.0230	0.414	2
06139	**Nickel**	7440-02-0	**12.7**	0.206	0.827	2
06141	**Selenium**	7782-49-2	**0.203 J**	0.103	0.827	2
06142	**Silver**	7440-22-4	**8.49**	0.0302	0.207	2
06145	**Thallium**	7440-28-0	**0.186 J**	0.0258	0.207	2
06148	**Vanadium**	7440-62-2	**8.58**	0.0440	0.207	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS11-171007 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017
SDG#: SGB78-07FD

C. T. Male Associates
ELLE Sample #: SW 9256060
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**18,300**	317	952	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.15**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 14:03	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:06	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:00	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 15:50	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:00	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS11-171007 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017
SDG#: SGB78-07FD

C. T. Male Associates
ELLE Sample #: SW 9256060
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:00	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 23:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS11-171007 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 14:00
SDG#: SGB78-08FB

C. T. Male Associates
ELLE Sample #: WW 9256061
ELLE Group #: 1861097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 04:46	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 14:30
SDG#: SGB78-09

C. T. Male Associates
ELLE Sample #: SW 9256062
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28 J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,800**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**3,290**	2.77	33.3	1
01654	**Iron**	7439-89-6	**33,900**	33.5	166	5
01657	**Magnesium**	7439-95-4	**1,950**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**570**	0.0690	0.832	1
01662	**Potassium**	7440-09-7	**1,540**	13.9	83.2	1
01667	**Sodium**	7440-23-5	**17.3 J**	13.9	166	1
06972	**Zinc**	7440-66-6	**68.3**	0.200	3.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.180 J**	0.0775	0.333	2
06125	**Arsenic**	7440-38-2	**15.2**	0.106	0.665	2
06126	**Barium**	7440-39-3	**118**	0.151	0.665	2
06127	**Beryllium**	7440-41-7	**0.752**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.182**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**13.3**	0.145	0.665	2
06132	**Cobalt**	7440-48-4	**16.2**	0.0260	0.166	2
06133	**Copper**	7440-50-8	**36.2**	0.0892	0.665	2
06135	**Lead**	7439-92-1	**19.7**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**29.5**	0.166	0.665	2
06141	**Selenium**	7782-49-2	**0.288 J**	0.0832	0.665	2
06142	**Silver**	7440-22-4	**0.0395 J**	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.443**	0.0208	0.166	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 14:30
SDG#: SGB78-09

C. T. Male Associates
ELLE Sample #: SW 9256062
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.3**	0.0354	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,350**	336	1,010	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.39**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 11:59	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 17:37	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:09	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:03	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/07/2017 14:30
SDG#: SGB78-09

C. T. Male Associates
ELLE Sample #: SW 9256062
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:03	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:03	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17301245031B	10/30/2017 23:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:20
SDG#: SGB78-10

C. T. Male Associates
ELLE Sample #: SW 9256063
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,300**	8.31	37.2	1
01650	**Calcium**	7440-70-2	**6,590**	3.09	37.2	1
01654	**Iron**	7439-89-6	**28,800**	37.4	186	5
01657	**Magnesium**	7439-95-4	**4,080**	2.26	18.6	1
06958	**Manganese**	7439-96-5	**754**	0.0771	0.929	1
01662	**Potassium**	7440-09-7	**1,640**	15.5	92.9	1
01667	**Sodium**	7440-23-5	**18.0 J**	15.5	186	1
06972	**Zinc**	7440-66-6	**70.9**	0.223	3.72	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.172 J**	0.0866	0.372	2
06125	**Arsenic**	7440-38-2	**14.1**	0.119	0.743	2
06126	**Barium**	7440-39-3	**135**	0.169	0.743	2
06127	**Beryllium**	7440-41-7	**0.717**	0.0097	0.186	2
06128	**Cadmium**	7440-43-9	**0.181 J**	0.0320	0.186	2
06131	**Chromium**	7440-47-3	**11.4**	0.162	0.743	2
06132	**Cobalt**	7440-48-4	**18.5**	0.0290	0.186	2
06133	**Copper**	7440-50-8	**33.7**	0.0996	0.743	2
06135	**Lead**	7439-92-1	**16.6**	0.0206	0.372	2
06139	**Nickel**	7440-02-0	**29.5**	0.185	0.743	2
06141	**Selenium**	7782-49-2	**0.262 J**	0.0929	0.743	2
06142	**Silver**	7440-22-4	**0.0385 J**	0.0271	0.186	2
06145	**Thallium**	7440-28-0	**0.336**	0.0232	0.186	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:20
SDG#: SGB78-10

C. T. Male Associates
ELLE Sample #: SW 9256063
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.6**	0.0396	0.186	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,770**	401	1,200	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.31**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 12:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 17:41	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:13	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:06	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:20
SDG#: SGB78-10

C. T. Male Associates
ELLE Sample #: SW 9256063
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:06	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:06	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 22:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003A	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-48-49' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:45
SDG#: SGB78-11

C. T. Male Associates
ELLE Sample #: SW 9256064
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,920**	8.21	36.7	1
01650	**Calcium**	7440-70-2	**3,720**	3.06	36.7	1
01654	**Iron**	7439-89-6	**37,100**	37.0	184	5
01657	**Magnesium**	7439-95-4	**2,270**	2.23	18.4	1
06958	**Manganese**	7439-96-5	**4,510**	0.381	4.59	5
01662	**Potassium**	7440-09-7	**1,400**	15.3	91.9	1
01667	**Sodium**	7440-23-5	**16.1 J**	15.3	184	1
06972	**Zinc**	7440-66-6	**121**	0.220	3.67	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.164 J**	0.0856	0.367	2
06125	**Arsenic**	7440-38-2	**14.9**	0.118	0.735	2
06126	**Barium**	7440-39-3	**293**	0.167	0.735	2
06127	**Beryllium**	7440-41-7	**0.862**	0.0096	0.184	2
06128	**Cadmium**	7440-43-9	**1.23**	0.0316	0.184	2
06131	**Chromium**	7440-47-3	**11.0**	0.160	0.735	2
06132	**Cobalt**	7440-48-4	**60.2**	0.0287	0.184	2
06133	**Copper**	7440-50-8	**64.4**	0.0985	0.735	2
06135	**Lead**	7439-92-1	**18.3**	0.0204	0.367	2
06139	**Nickel**	7440-02-0	**73.6**	0.183	0.735	2
06141	**Selenium**	7782-49-2	**0.247 J**	0.0919	0.735	2
06142	**Silver**	7440-22-4	**0.302**	0.0268	0.184	2
06145	**Thallium**	7440-28-0	**1.56**	0.0230	0.184	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:45
SDG#: SGB78-11

C. T. Male Associates
ELLE Sample #: SW 9256064
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.2**	0.0391	0.184	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,760**	369	1,110	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 15:05	Mark Makowiecki	1
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/25/2017 20:11	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 17:45	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/18/2017 17:45	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:16	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:09	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 09:45
SDG#: SGB78-11

C. T. Male Associates
ELLE Sample #: SW 9256064
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:09	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:09	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 22:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:20
SDG#: SGB78-12

C. T. Male Associates
ELLE Sample #: SW 9256065
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.078 U	0.078	0.31	1
14027	Perfluorononanoic acid	375-95-1	0.078 U	0.078	0.31	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,480**	7.01	31.3	1
01650	**Calcium**	7440-70-2	**4,270**	2.61	31.3	1
01654	**Iron**	7439-89-6	**35,300**	31.5	157	5
01657	**Magnesium**	7439-95-4	**2,210**	1.90	15.7	1
06958	**Manganese**	7439-96-5	**686**	0.0650	0.784	1
01662	**Potassium**	7440-09-7	**1,170**	13.1	78.4	1
01667	**Sodium**	7440-23-5	**14.1 J**	13.1	157	1
06972	**Zinc**	7440-66-6	**82.2**	0.188	3.13	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.154 J**	0.0730	0.313	2
06125	**Arsenic**	7440-38-2	**16.7**	0.100	0.627	2
06126	**Barium**	7440-39-3	**92.2**	0.142	0.627	2
06127	**Beryllium**	7440-41-7	**0.700**	0.0082	0.157	2
06128	**Cadmium**	7440-43-9	**0.199**	0.0270	0.157	2
06131	**Chromium**	7440-47-3	**10.6**	0.136	0.627	2
06132	**Cobalt**	7440-48-4	**23.0**	0.0245	0.157	2
06133	**Copper**	7440-50-8	**34.5**	0.0840	0.627	2
06135	**Lead**	7439-92-1	**17.7**	0.0174	0.313	2
06139	**Nickel**	7440-02-0	**47.5**	0.156	0.627	2
06141	**Selenium**	7782-49-2	**0.264 J**	0.0784	0.627	2
06142	**Silver**	7440-22-4	**0.0344 J**	0.0229	0.157	2
06145	**Thallium**	7440-28-0	**0.403**	0.0196	0.157	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:20
SDG#: SGB78-12

C. T. Male Associates
ELLE Sample #: SW 9256065
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.7**	0.0334	0.157	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,160**	244	733	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 15:26	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 17:53	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:25	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:20
SDG#: SGB78-12

C. T. Male Associates
ELLE Sample #: SW 9256065
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 20:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:50
SDG#: SGB78-13

C. T. Male Associates
ELLE Sample #: SW 9256066
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084 U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,870**	7.31	32.7	1
01650	**Calcium**	7440-70-2	**9,380**	2.72	32.7	1
01654	**Iron**	7439-89-6	**28,700**	32.9	164	5
01657	**Magnesium**	7439-95-4	**5,270**	1.99	16.4	1
06958	**Manganese**	7439-96-5	**536**	0.0679	0.818	1
01662	**Potassium**	7440-09-7	**1,190**	13.7	81.8	1
01667	Sodium	7440-23-5	13.7 U	13.7	164	1
06972	**Zinc**	7440-66-6	**73.2**	0.196	3.27	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.143 J**	0.0762	0.327	2
06125	**Arsenic**	7440-38-2	**15.5**	0.105	0.654	2
06126	**Barium**	7440-39-3	**94.2**	0.149	0.654	2
06127	**Beryllium**	7440-41-7	**0.705**	0.0086	0.164	2
06128	**Cadmium**	7440-43-9	**0.187**	0.0281	0.164	2
06131	**Chromium**	7440-47-3	**9.62**	0.142	0.654	2
06132	**Cobalt**	7440-48-4	**16.8**	0.0255	0.164	2
06133	**Copper**	7440-50-8	**30.5**	0.0877	0.654	2
06135	**Lead**	7439-92-1	**21.5**	0.0182	0.327	2
06139	**Nickel**	7440-02-0	**35.6**	0.163	0.654	2
06141	**Selenium**	7782-49-2	**0.255 J**	0.0818	0.654	2
06142	**Silver**	7440-22-4	**0.0649 J**	0.0239	0.164	2
06145	**Thallium**	7440-28-0	**0.317**	0.0204	0.164	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:50
SDG#: SGB78-13

C. T. Male Associates
ELLE Sample #: SW 9256066
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.6**	0.0348	0.164	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,310**	309	928	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 17:08	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 17:56	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:29	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:21	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/08/2017 10:50
SDG#: SGB78-13

C. T. Male Associates
ELLE Sample #: SW 9256066
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:21	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:21	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631A	11/01/2017 22:56	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 11:00
SDG#: SGB78-14

C. T. Male Associates
ELLE Sample #: SW 9256067
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,700**	10.3	46.3	1
01650	**Calcium**	7440-70-2	**2,360**	3.85	46.3	1
01654	**Iron**	7439-89-6	**38,500**	46.6	231	5
01657	**Magnesium**	7439-95-4	**2,330**	2.81	23.1	1
06958	**Manganese**	7439-96-5	**608**	0.0960	1.16	1
01662	**Potassium**	7440-09-7	**1,530**	19.3	116	1
01667	Sodium	7440-23-5	19.3 U	19.3	231	1
06972	**Zinc**	7440-66-6	**73.8**	0.278	4.63	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.168 J**	0.108	0.463	2
06125	**Arsenic**	7440-38-2	**17.3**	0.148	0.925	2
06126	**Barium**	7440-39-3	**77.7**	0.210	0.925	2
06127	**Beryllium**	7440-41-7	**0.883**	0.0121	0.231	2
06128	**Cadmium**	7440-43-9	**0.215 J**	0.0398	0.231	2
06131	**Chromium**	7440-47-3	**12.1**	0.201	0.925	2
06132	**Cobalt**	7440-48-4	**17.9**	0.0361	0.231	2
06133	**Copper**	7440-50-8	**36.8**	0.124	0.925	2
06135	**Lead**	7439-92-1	**20.2**	0.0257	0.463	2
06139	**Nickel**	7440-02-0	**31.3**	0.230	0.925	2
06141	**Selenium**	7782-49-2	**0.352 J**	0.116	0.925	2
06142	Silver	7440-22-4	0.0338 U	0.0338	0.231	2
06145	**Thallium**	7440-28-0	**0.330**	0.0289	0.231	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 11:00
SDG#: SGB78-14

C. T. Male Associates
ELLE Sample #: SW 9256067
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**19.3**	0.0493	0.231	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,060**	287	862	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.19**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 17:29	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 18:00	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:32	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 11:00
SDG#: SGB78-14

C. T. Male Associates
ELLE Sample #: SW 9256067
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:24	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631B	11/01/2017 23:09	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 12:30
SDG#: SGB78-15

C. T. Male Associates
ELLE Sample #: SW 9256068
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084 U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,500**	7.14	31.9	1
01650	**Calcium**	7440-70-2	**8,620**	2.66	31.9	1
01654	**Iron**	7439-89-6	**31,700**	32.1	160	5
01657	**Magnesium**	7439-95-4	**5,700**	1.94	16.0	1
06958	**Manganese**	7439-96-5	**671**	0.0663	0.798	1
01662	**Potassium**	7440-09-7	**1,050**	13.3	79.8	1
01667	Sodium	7440-23-5	13.3 U	13.3	160	1
06972	**Zinc**	7440-66-6	**67.2**	0.192	3.19	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.142 J**	0.0744	0.319	2
06125	**Arsenic**	7440-38-2	**14.9**	0.102	0.639	2
06126	**Barium**	7440-39-3	**87.2**	0.145	0.639	2
06127	**Beryllium**	7440-41-7	**0.889**	0.0084	0.160	2
06128	**Cadmium**	7440-43-9	**0.279**	0.0275	0.160	2
06131	**Chromium**	7440-47-3	**8.69**	0.139	0.639	2
06132	**Cobalt**	7440-48-4	**17.2**	0.0249	0.160	2
06133	**Copper**	7440-50-8	**26.1**	0.0856	0.639	2
06135	**Lead**	7439-92-1	**20.0**	0.0177	0.319	2
06139	**Nickel**	7440-02-0	**27.7**	0.159	0.639	2
06141	**Selenium**	7782-49-2	**0.140 J**	0.0798	0.639	2
06142	Silver	7440-22-4	0.0233 U	0.0233	0.160	2
06145	**Thallium**	7440-28-0	**0.400**	0.0200	0.160	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 12:30
SDG#: SGB78-15

C. T. Male Associates
ELLE Sample #: SW 9256068
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.1**	0.0340	0.160	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,530**	355	1,070	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.24**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 17:49	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 18:11	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063704	10/15/2017 18:35	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:27	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 12:30
SDG#: SGB78-15

C. T. Male Associates
ELLE Sample #: SW 9256068
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:27	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:27	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/03/2017 10:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402A	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 14:15
SDG#: SGB78-16

C. T. Male Associates
ELLE Sample #: SW 9256069
ELLE Group #: 1861097
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,120**	33.4	149	5
01650	**Calcium**	7440-70-2	**395**	12.4	149	5
01654	**Iron**	7439-89-6	**40,400**	30.0	149	5
01657	**Magnesium**	7439-95-4	**434**	9.07	74.7	5
06958	**Manganese**	7439-96-5	**565**	0.310	3.73	5
01662	**Potassium**	7440-09-7	**275 J**	62.3	373	5
01667	Sodium	7440-23-5	62.3 U	62.3	747	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**75.2**	0.896	14.9	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.279 J**	0.0696	0.299	2
06125	**Arsenic**	7440-38-2	**14.0**	0.0956	0.597	2
06126	**Barium**	7440-39-3	**28.9**	0.136	0.597	2
06127	**Beryllium**	7440-41-7	**1.59**	0.0078	0.149	2
06128	**Cadmium**	7440-43-9	**0.299**	0.0257	0.149	2
06131	**Chromium**	7440-47-3	**5.27**	0.130	0.597	2
06132	**Cobalt**	7440-48-4	**12.9**	0.0233	0.149	2
06133	**Copper**	7440-50-8	**25.4**	0.0800	0.597	2
06135	**Lead**	7439-92-1	**20.6**	0.0166	0.299	2
06139	**Nickel**	7440-02-0	**31.0**	0.149	0.597	2
06141	**Selenium**	7782-49-2	**0.128 J**	0.0747	0.597	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D10-98-99' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9256069
ELLE Group #: 1861097
Matrix: Soil

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 14:15
SDG#: SGB78-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0264 J**	0.0218	0.149	2
06145	**Thallium**	7440-28-0	**0.153**	0.0187	0.149	2
06148	**Vanadium**	7440-62-2	**15.4**	0.0318	0.149	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**224 J**	119	357	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.96**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 18:10	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172841063704	10/18/2017 18:15	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063704D	10/16/2017 11:30	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D10-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017 14:15
SDG#: SGB78-16

C. T. Male Associates
ELLE Sample #: SW 9256069
ELLE Group #: 1861097
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063704B	10/16/2017 11:30	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063704A	10/16/2017 11:30	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063704	10/13/2017 23:55	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631B	11/02/2017 16:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039402B	10/12/2017 19:35	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820003B	10/18/2017 14:35	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB67-171009 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SGB78-17TB

C. T. Male Associates
ELLE Sample #: WW 9256070
ELLE Group #: 1861097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the holding time and did not confirm.
Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 05:06	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB68-171009 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/10/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SGB78-18TB

C. T. Male Associates
ELLE Sample #: WW 9256071
ELLE Group #: 1861097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for extraction standard 13C6-PFDA is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 05:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17292002	Sample number(s): 9256051-9256056,9256058		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17294001	Sample number(s): 9256059-9256060,9256064-9256069		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17303009	Sample number(s): 9256062-9256063		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17289008	Sample number(s): 9256061,9256070-9256071		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.6 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172841063704	Sample number(s): 9256051-9256060,9256062-9256069		
Aluminum	8.94 U	8.94	40.0
Calcium	16.2 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	7.83 J	2.43	20.0
Manganese	0.288 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	1.63 J	0.240	4.00
Batch number: 172841063704A	Sample number(s): 9256051-9256060,9256062-9256069		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0323 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172841063704B	Sample number(s): 9256051-9256060,9256062-9256069		
Selenium	0.100 U	0.100	0.800
Batch number: 172841063704D	Sample number(s): 9256051-9256060,9256062-9256069		
Barium	0.182 U	0.182	0.800
Batch number: 17301245031B	Sample number(s): 9256051-9256055,9256057-9256060,9256062		
TOC	100 U	100	300
Batch number: 17305667631A	Sample number(s): 9256063-9256066		
TOC	100 U	100	300
Batch number: 17305667631B	Sample number(s): 9256067,9256069		
TOC	100 U	100	300
Batch number: 17306667631A	Sample number(s): 9256068		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17292002	Sample number(s): 9256051-9256056,9256058								
Perfluorobutanesulfonate	1.20	1.20			100		70-130		
Perfluorobutanoic acid	1.36	1.44			106		70-130		
Perfluorodecanoic acid	1.36	1.37			100		70-130		
Perfluorododecanoic acid	1.36	1.43			105		70-130		
Perfluoroheptanoic acid	1.36	1.46			108		70-130		
Perfluorohexanesulfonate	1.29	1.06			82		70-130		
Perfluorohexanoic acid	1.36	1.46			108		70-130		
Perfluorononanoic acid	1.36	1.31			96		70-130		
Perfluoro-octanesulfonate	1.30	1.16			89		70-130		
Perfluorooctanoic acid	1.36	1.35			99		70-130		
Perfluoropentanoic acid	1.36	1.40			103		70-130		
Perfluorotetradecanoic acid	1.36	1.26			93		70-130		
Perfluorotridecanoic acid	1.36	1.50			111		70-130		
Perfluoroundecanoic acid	1.36	1.55			114		70-130		
Batch number: 17294001	Sample number(s): 9256059-9256060,9256064-9256069								
Perfluorobutanesulfonate	1.20	1.18	1.20	1.20	98	100	70-130	2	30
Perfluorobutanoic acid	1.36	1.55	1.36	1.57	114	116	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorodecanoic acid	1.36	1.36	1.36	1.51	100	111	70-130	10	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.51	104	111	70-130	7	30
Perfluoroheptanoic acid	1.36	1.57	1.36	1.52	115	112	70-130	3	30
Perfluorohexanesulfonate	1.29	1.41	1.29	1.38	110	107	70-130	2	30
Perfluorohexanoic acid	1.36	1.42	1.36	1.48	105	109	70-130	4	30
Perfluorononanoic acid	1.36	1.69	1.36	1.65	124	121	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.61	1.30	1.30	124	100	70-130	22	30
Perfluorooctanoic acid	1.36	1.42	1.36	1.51	104	111	70-130	6	30
Perfluoropentanoic acid	1.36	1.46	1.36	1.50	107	110	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.44	1.36	1.55	106	114	70-130	7	30
Perfluorotridecanoic acid	1.36	1.51	1.36	1.62	111	119	70-130	6	30
Perfluoroundecanoic acid	1.36	1.65	1.36	1.58	121	116	70-130	4	30
Batch number: 17303009	Sample number(s): 9256062-9256063								
Perfluorobutanesulfonate	1.20	1.20			99		70-130		
Perfluorobutanoic acid	1.36	1.54			113		70-130		
Perfluorodecanoic acid	1.36	1.33			98		70-130		
Perfluorododecanoic acid	1.36	1.54			113		70-130		
Perfluoroheptanoic acid	1.36	1.53			113		70-130		
Perfluorohexanesulfonate	1.29	1.39			108		70-130		
Perfluorohexanoic acid	1.36	1.33			98		70-130		
Perfluorononanoic acid	1.36	1.28			94		70-130		
Perfluoro-octanesulfonate	1.30	1.48			114		70-130		
Perfluorooctanoic acid	1.36	1.63			120		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.43			105		70-130		
Perfluorotridecanoic acid	1.36	1.81			133*		70-130		
Perfluoroundecanoic acid	1.36	1.37			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17289008	Sample number(s): 9256061,9256070-9256071								
Perfluorobutanesulfonate	4.81	4.76	4.81	4.69	99	97	70-130	2	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.94	105	109	70-130	4	30
Perfluorodecanoic acid	5.44	5.55	5.44	6.60	102	121	70-130	17	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.73	105	105	70-130	0	30
Perfluoroheptanoic acid	5.44	5.11	5.44	4.67	94	86	70-130	9	30
Perfluorohexanesulfonate	5.14	4.77	5.14	4.67	93	91	70-130	2	30
Perfluorohexanoic acid	5.44	5.83	5.44	5.91	107	109	70-130	1	30
Perfluorononanoic acid	5.44	6.10	5.44	5.38	112	99	70-130	13	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.08	105	98	70-130	8	30
Perfluorooctanoic acid	5.44	6.00	5.44	6.64	110	122	70-130	10	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.74	104	106	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.63	98	104	70-130	6	30
Perfluorotridecanoic acid	5.44	4.55	5.44	5.45	84	100	70-130	18	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoroundecanoic acid	5.44	5.78	5.44	6.16	106	113	70-130	6	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172841063704	Sample number(s): 9256051-9256060,9256062-9256069								
Aluminum	200	197.83			99		80-120		
Calcium	400	408.67			102		80-120		
Iron	100	101.14			101		80-120		
Magnesium	200	193.24			97		80-120		
Manganese	50	49.43			99		80-120		
Potassium	1000	970.05			97		80-120		
Sodium	1000	941.5			94		80-120		
Zinc	50	49.92			100		80-120		
Batch number: 172841063704A	Sample number(s): 9256051-9256060,9256062-9256069								
Antimony	0.600	0.636			106		80-120		
Arsenic	1.00	1.02			102		80-120		
Beryllium	0.400	0.393			98		80-120		
Cadmium	0.500	0.536			107		80-120		
Chromium	5.00	5.12			102		80-120		
Cobalt	25	23.16			93		80-120		
Copper	5.00	5.22			104		80-120		
Lead	1.50	1.52			101		80-120		
Nickel	5.00	5.46			109		80-120		
Silver	5.00	5.38			108		80-120		
Thallium	0.200	0.206			103		80-120		
Vanadium	5.00	5.22			104		80-120		
Batch number: 172841063704B	Sample number(s): 9256051-9256060,9256062-9256069								
Selenium	1.00	1.06			106		80-120		
Batch number: 172841063704D	Sample number(s): 9256051-9256060,9256062-9256069								
Barium	5.00	5.17			103		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17301245031B	Sample number(s): 9256051-9256055,9256057-9256060,9256062								
TOC	7150	6329.99			89		47-143		
Batch number: 17305667631A	Sample number(s): 9256063-9256066								
TOC	7150	8834.36			124		47-143		
Batch number: 17305667631B	Sample number(s): 9256067,9256069								
TOC	7150	8834.36			124		47-143		
Batch number: 17306667631A	Sample number(s): 9256068								
TOC	7150	7121.91			100		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17285039401B	Sample number(s): 9256051-9256053,9256058								
pH	7.00	6.96			99		95-105		
Batch number: 17285039402A	Sample number(s): 9256054,9256057,9256059-9256060,9256062-9256068								
pH	7.00	6.95			99		95-105		
Batch number: 17285039402B	Sample number(s): 9256069								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17291820003A	Sample number(s): 9256051-9256060,9256062-9256063								
Moisture	89.5	89.33			100		99-101		
Moisture	89.5	89.33			100		99-101		
Moisture Duplicate	89.5	89.33			100		99-101		
Batch number: 17291820003B	Sample number(s): 9256064-9256069								
Moisture	89.5	89.33			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17292002	Sample number(s): 9256051-9256056,9256058 UNSPK: 9256054									
Perfluorobutanesulfonate	0.13 U	0.911	0.790	1.11	1.01	87	92	70-130	25	30
Perfluorobutanoic acid	0.13 U	1.03	1.06	1.25	1.36	103	109	70-130	25	30
Perfluorodecanoic acid	15.13	1.03	10.94	1.25	10.31	-406 (2)	-386 (2)	70-130	6	30
Perfluorododecanoic acid	4.66	1.03	5.34	1.25	4.84	66 (2)	14*	70-130	10	30
Perfluoroheptanoic acid	0.151	1.03	1.11	1.25	1.50	93	108	70-130	30	30
Perfluorohexanesulfonate	0.13 U	0.974	0.909	1.18	1.36	93	115	70-130	40*	30
Perfluorohexanoic acid	0.122	1.03	1.13	1.25	1.25	98	90	70-130	10	30
Perfluorononanoic acid	2.08	1.03	2.51	1.25	2.65	42*	45*	70-130	5	30
Perfluoro-octanesulfonate	13.82	0.985	10.29	1.19	8.86	-357 (2)	-415 (2)	70-130	15	30
Perfluorooctanoic acid	1.23	1.03	1.84	1.25	2.06	60*	66*	70-130	11	30
Perfluoropentanoic acid	0.13 U	1.03	1.03	1.25	1.28	100	103	70-130	22	30
Perfluorotetradecanoic acid	1.13	1.03	2.27	1.25	2.28	111	93	70-130	0	30
Perfluorotridecanoic acid	0.344	1.03	1.37	1.25	1.63	99	103	70-130	18	30
Perfluoroundecanoic acid	1.42	1.03	2.03	1.25	2.20	59*	62*	70-130	8	30
Batch number: 17294001	Sample number(s): 9256059-9256060,9256064-9256069 UNSPK: 9256059									
Perfluorobutanesulfonate	0.18 U	1.12	1.12			100		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanoic acid	0.18 U	1.27	1.38			108		70-130		
Perfluorodecanoic acid	0.18 U	1.27	1.16			91		70-130		
Perfluorododecanoic acid	0.18 U	1.27	1.56			123		70-130		
Perfluoroheptanoic acid	0.18 U	1.27	1.41			111		70-130		
Perfluorohexanesulfonate	0.18 U	1.20	1.07			89		70-130		
Perfluorohexanoic acid	0.088 U	1.27	1.40			110		70-130		
Perfluorononanoic acid	0.088 U	1.27	1.67			132*		70-130		
Perfluoro-octanesulfonate	0.27 U	1.22	1.33			109		70-130		
Perfluorooctanoic acid	0.18 U	1.27	1.56			123		70-130		
Perfluoropentanoic acid	0.18 U	1.27	1.35			107		70-130		
Perfluorotetradecanoic acid	0.18 U	1.27	1.49			117		70-130		
Perfluorotridecanoic acid	0.18 U	1.27	1.44			113		70-130		
Perfluoroundecanoic acid	0.18 U	1.27	1.64			129		70-130		
Batch number: 17303009	Sample number(s): 9256062-9256063 UNSPK: P279984									
Perfluorobutanesulfonate	0.15 U	1.00	0.946	1.05	1.09	94	104	70-130	14	30
Perfluorobutanoic acid	0.15 U	1.13	1.30	1.19	1.42	115	119	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.13	1.41	1.19	1.29	124	108	70-130	9	30
Perfluorododecanoic acid	0.15 U	1.13	1.27	1.19	1.19	112	100	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.13	1.24	1.19	1.23	109	103	70-130	0	30
Perfluorohexanesulfonate	0.15 U	1.07	1.26	1.13	1.32	118	117	70-130	4	30
Perfluorohexanoic acid	0.076 U	1.13	1.14	1.19	1.24	101	104	70-130	8	30
Perfluorononanoic acid	0.076 U	1.13	0.965	1.19	1.59	85	133*	70-130	49*	30
Perfluoro-octanesulfonate	0.23 U	1.08	1.06	1.14	1.37	98	120	70-130	25	30
Perfluorooctanoic acid	0.15 U	1.13	1.16	1.19	1.07	102	90	70-130	8	30
Perfluoropentanoic acid	0.15 U	1.13	1.11	1.19	1.27	98	107	70-130	13	30
Perfluorotetradecanoic acid	0.15 U	1.13	1.18	1.19	1.23	104	103	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.13	1.39	1.19	1.47	123	123	70-130	5	30
Perfluoroundecanoic acid	0.15 U	1.13	1.13	1.19	1.41	100	118	70-130	22	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172841063704	Sample number(s): 9256051-9256060,9256062-9256069 UNSPK: 9256054									
Aluminum	5348.13	141.84	7577.68	136.99	7517.18	1572 (2)	1583 (2)	75-125	1	20
Calcium	58024.2	283.69	57200.89	273.97	51983.39	-290 (2)	-2205 (2)	75-125	10	20
Iron	12283.94	70.92	15000.53	68.49	12460.05	3830 (2)	257 (2)	75-125	19	20
Magnesium	19216.61	141.84	18361.93	136.99	17848.43	-603 (2)	-999 (2)	75-125	3	20
Manganese	371.46	35.46	338.57	34.25	506.91	-93 (2)	396 (2)	75-125	40*	20
Potassium	752.17	709.22	1902.78	684.93	1922.8	162*	171*	75-125	1	20
Sodium	21.13	709.22	756.39	684.93	733.67	104	104	75-125	3	20
Zinc	43.75	35.46	76.46	34.25	80.4	92	107	75-125	5	20
Batch number: 172841063704A	Sample number(s): 9256051-9256060,9256062-9256069 UNSPK: 9256054									
Antimony	0.101	0.851	0.624	0.822	0.636	61*	65*	75-125	2	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Arsenic	4.74	1.42	6.15	1.37	6.29	100	113	75-125	2	20
Beryllium	0.260	0.567	0.779	0.548	0.797	92	98	75-125	2	20
Cadmium	0.293	0.709	0.934	0.685	0.968	90	99	75-125	4	20
Chromium	6.33	7.09	12.88	6.85	13.18	92	100	75-125	2	20
Cobalt	8.30	35.46	37.08	34.25	39.05	81	90	75-125	5	20
Copper	25.41	7.09	30.57	6.85	28.68	73*	48*	75-125	6	20
Lead	12.66	2.13	14.71	2.05	14.05	96 (2)	68 (2)	75-125	5	20
Nickel	11.51	7.09	17.94	6.85	18.36	91	100	75-125	2	20
Silver	14.24	7.09	20.72	6.85	17.6	91	49*	75-125	16	20
Thallium	0.111	0.284	0.344	0.274	0.536	82	155*	75-125	44*	20
Vanadium	7.02	7.09	14.57	6.85	14.92	106	115	75-125	2	20
Batch number: 172841063704B	Sample number(s): 9256051-9256060,9256062-9256069 UNSPK: 9256054									
Selenium	0.239	1.42	1.47	1.37	1.50	87	92	75-125	2	20
Batch number: 172841063704D	Sample number(s): 9256051-9256060,9256062-9256069 UNSPK: 9256054									
Barium	71.74	7.09	74.68	6.85	81.07	41 (2)	136 (2)	75-125	8	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17301245031B	Sample number(s): 9256051-9256055,9256057-9256060,9256062 UNSPK: 9256054									
TOC	22759.12	21720	34949.35			56		47-143		
Batch number: 17305667631A	Sample number(s): 9256063-9256066 UNSPK: P253261									
TOC	748.85	18780	24599.5			127		47-143		
Batch number: 17305667631B	Sample number(s): 9256067,9256069 UNSPK: 9256069									
TOC	200.97	27930	35530.73			126		47-143		
Batch number: 17306667631A	Sample number(s): 9256068 UNSPK: P258597									
TOC	102 U	20400	23738.95			116		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172841063704	Sample number(s): 9256051-9256060,9256062-9256069 BKG: 9256054			
Aluminum	5348.13	5237.02	2	20
Calcium	58024.2	53670.58	8	20
Iron	12283.94	11926.05	3	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Magnesium	19216.61	17673.58	8	20
Manganese	371.46	293.02	24*	20
Potassium	752.17	779.68	4	20
Sodium	21.13	15.8 U	200* (1)	20
Zinc	43.75	39.63	10	20
Batch number: 172841063704A	Sample number(s): 9256051-9256060,9256062-9256069 BKG: 9256054			
Antimony	0.101	0.110	9 (1)	20
Arsenic	4.74	4.86	2	20
Beryllium	0.260	0.261	0 (1)	20
Cadmium	0.293	0.240	20 (1)	20
Chromium	6.33	5.92	7	20
Cobalt	8.30	6.60	23*	20
Copper	25.41	20.26	23*	20
Lead	12.66	11.82	7	20
Nickel	11.51	10.37	10	20
Silver	14.24	10.19	33*	20
Thallium	0.111	0.123	11 (1)	20
Vanadium	7.02	6.60	6	20
Batch number: 172841063704B	Sample number(s): 9256051-9256060,9256062-9256069 BKG: 9256054			
Selenium	0.239	0.211	12 (1)	20
Batch number: 172841063704D	Sample number(s): 9256051-9256060,9256062-9256069 BKG: 9256054			
Barium	71.74	59.25	19	20
	mg/kg	mg/kg		
Batch number: 17301245031B	Sample number(s): 9256051-9256055,9256057-9256060,9256062 BKG: 9256054			
TOC	22759.12	12468.81	58*	7
Batch number: 17305667631A	Sample number(s): 9256063-9256066 BKG: P253261			
TOC	748.85	716.72	4 (1)	7
Batch number: 17305667631B	Sample number(s): 9256067,9256069 BKG: 9256069			
TOC	200.97	201.91	0 (1)	7
Batch number: 17306667631A	Sample number(s): 9256068 BKG: P258597			
TOC	102 U	101 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17285039401B	Sample number(s): 9256051-9256053,9256058 BKG: P255931			
pH	8.21	8.22	0	3
Batch number: 17285039402A	Sample number(s): 9256054,9256057,9256059-9256060,9256062-9256068 BKG: 9256054			
pH	7.98	7.92	1	3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc Std. Units	DUP Conc Std. Units	DUP RPD	DUP RPD Max
Batch number: 17285039402B	Sample number(s): 9256069 BKG: 9256069			
pH	7.96	7.93	0	3
	%	%		
Batch number: 17291820003A	Sample number(s): 9256051-9256060,9256062-9256063 BKG: 9256054, P256054			
Moisture	12.84	13.41	4	5
Moisture	12.84	13.41	4	5
Moisture Duplicate	12.84	13.41	4	5
Batch number: 17291820003B	Sample number(s): 9256064-9256069 BKG: 9256064			
Moisture	12.16	12.85	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9256061	87	88	78	82	83	88
9256070	93	94	87	103	90	95
9256071	93	93	79	93	84	93
Blank	86	87	76	78	81	79
LCS	96	95	85	84	82	89
LCSD	91	91	84	90	86	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9256061	99	100	102	95	95	84
9256070	97	108	105	96	93	84
9256071	93	90	112	116*	105	92
Blank	85	101	114	93	90	80
LCS	97	96	104	101	87	88
LCSD	86	94	106	105	108	100
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C2-PFTeDA
9256061	81
9256070	67
9256071	90
Blank	74
LCS	74
LCSD	89
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17292002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9256051	80	80	74	81	77	85
9256052	83	85	82	82	76	83
9256053	76	74	71	78	72	87
9256054	83	88	75	82	71	71
9256055	89	90	84	80	83	86
9256056	80	81	74	83	76	74
9256058	78	80	75	71	76	74
Blank	87	91	78	87	78	89
LCS	91	90	85	85	83	90
MS	89	90	84	80	83	86
MSD	80	81	74	83	76	74
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9256051	89	85	84	91	90	87
9256052	90	101	97	97	86	91
9256053	86	76	80	79	86	76
9256054	84	88	85	90	99	81
9256055	88	89	100	96	98	90
9256056	90	91	84	78	87	75
9256058	83	85	72	88	89	93
Blank	101	93	100	101	95	85
LCS	96	94	93	112	106	95
MS	88	89	100	96	98	90
MSD	90	91	84	78	87	75

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17292002

	13C2-PFTeDA
Limits:	44-115
9256051	80
9256052	87
9256053	74
9256054	75
9256055	78
9256056	72
9256058	85
Blank	81
LCS	92
MS	78
MSD	72
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17294001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9256059	66	69*	67	77	78	77
9256060	75	77	71	82	73	74
9256064	40	41*	60	45	60	46
9256065	52	53*	60	54	60	55
9256066	50	50*	57	50	56	50
9256067	48	50*	62	55	68	56
9256068	48	51*	58	49	59	50
9256069	51	52*	64	53	58	54
Blank	70	72	65	78	71	77
LCS	81	83	81	85	76	86
LCSD	64	63*	61	68	62	69
MS	64	65*	65	77	80	77
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9256059	82	75	73	72	68	60
9256060	84	86	88	96	89	80
9256064	48	71	39	43	52	48
9256065	64	66	57	62	61	57

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17294001

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9256066	57	62	46	62	61	53
9256067	59	68	49	62	56	54
9256068	53	67	52	56	61	50
9256069	53	74	55	63	62	65
Blank	82	64	68	82	84	76
LCS	97	72	80	91	81	85
LCSD	77	65	70	75	73	69
MS	85	65	54	72	64	63
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9256059	62
9256060	78
9256064	41
9256065	60
9256066	52
9256067	55
9256068	51
9256069	57
Blank	78
LCS	75
LCSD	68
MS	60
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17303009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9256062	47	45*	65	48	72	53
9256063	50	48*	61	53	73	51
Blank	91	88	84	87	86	82
LCS	83	77	78	86	76	87
MS	73	72	73	74	65	70
MSD	69	67*	75	74	75	82
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 12:18

Group Number: 1861097

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17303009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9256062	51	72	41	55	52	48
9256063	57	63	47	50	48	48
Blank	91	99	100	102	105	98
LCS	91	85	96	95	96	86
MS	79	70	73	68	86	73
MSD	80	77	65	69	70	69
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9256062	46
9256063	43
Blank	100
LCS	89
MS	73
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1840109 / 9256057-21

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47376

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	Soil: Poly - PFCs (4)	Soil: 4oz. - TOC, pH, metals, Moist	Soil: % Solids
								A		A	1	
								N		A	1	
1. SG3-D10-0-0.5'	0	0.5	ft.	10/07/2017	13:10	S	N	2		1	1	
2. SG3-D10-0.5-1'	0.5	1	ft.	10/07/2017	13:15	S	N	2		1	1	
3. SG3-D10-1-1.5'	1	1.5	ft.	10/07/2017	13:25	S	N	2		1	1	
4. SG3-D10-3-4'	3	4	ft.	10/07/2017	13:35	S	Y	6		3	3	
5. SG3-D10-8-9'	8	9	ft.	10/07/2017	13:45	S	N	2		1	1	
6. SG3-D10-18-19'	18	19	ft.	10/07/2017	13:55	S	N	2		1	1	
7. SG3-FDS11-171007	/	/	/	10/07/2017	/	S	N	2		1	1	
8. SG3-FBS11-171007	/	/	/	10/07/2017	14:00	Water	N	2	2			
9. SG3-D10-28-29'	28	29	ft.	10/07/2017	14:30	S	N	2		1	1	
10. SG3-D10-38-39'	38	39	ft	10-8-17	0920	S	N	2		1	1	

Preservative Code

Field Filtered Y/N

Metals = TAL cations excluding Hg

BARR USE ONLY							
Sampled by: RQM/DJZ	Relinquished by: Chris Zander	On Ice? (Y) N	Date 10-9-17	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/10/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:				Temperature on Receipt (°C) 0.7/30 Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191 / 1861097 / 9250051-71

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47397
COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SAPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250mL plastic / PFC (14) trip blank	Soil: 250 mL Plastic / PFCs (14)	Soil: 4oz glass/TOC, pH, Moist	Soil: Metals	% Solids	Preservative Code	Field Filtered Y/N
									2					A	N
1. SG3-D10-48-49'	48	49	ft	10-8-17	0945	Soil	N	2		1	1				
2. SG3-D10-58-59'	58	59	ft	10-8-17	1020	S	N	2		1	1				
3. SG3-D10-68-69'	68	69	ft	10-8-17	1050	S	N	2		1	1				
4. SG3-D10-78-79'	78	79	ft	10-9-17	1100	S	N	2		1	1				
5. SG3-D10-88-89'	88	89	ft	10-9-17	1230	S	N	2		1	1				
6. SG3-D10-98-99'	98	99	ft	10-9-17	1415	S	N	2		1	1				
7. SG3-LTB67-171009	—	—	—	—	AM	Water	N	2	2						
8. SG3-LTB68-171009	—	—	—	—	AM	Water	N	2	2						
9.															
10.															

Preservative Code: A

Field Filtered Y/N: N N

PFCs (14), TOC, pH

moisture

TAL metals excluding Hg

prepared by ELLE

prepared by ELLE

BARR USE ONLY							
Sampled by: DJZ	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/10/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C) 0.9/3.0	Custody Seal Intact? ☑ Y ☐ N ☐ None				

☒ Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 196930

Group Number(s): 1861097

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/10/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 10:31 on 10/10/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.9	DT	Wet	Y	Bagged	N
2	DT42-01	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 28, 2017 10:31

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1861721
SDG: SGB79
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-WaterTruckPump-171010 Water	10/10/2017 11:50	9258583
SG3-WaterTruckHose-171010 Water	10/10/2017 11:55	9258584
SG3-CityWaterFracTk-171010 Water	10/10/2017 12:40	9258585
Trip Blank Water	10/10/2017	9258586

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1861721

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9258583, 9258584, 9258586

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9258585

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Batch #: 17285003 (Sample number(s): 9258583-9258586)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9258583, 9258584, 9258585, 9258586, Blank, LCS, LCSD

Sample Description: **SG3-WaterTruckPump-171010 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 11:50
SDG#: SGB79-01

C. T. Male Associates
ELLE Sample #: WW 9258583
ELLE Group #: 1861721
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 11:55	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-WaterTruckHose-171010 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 11:55
SDG#: SGB79-02

C. T. Male Associates
ELLE Sample #: WW 9258584
ELLE Group #: 1861721
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 12:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CityWaterFracTk-171010 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 12:40
SDG#: SGB79-03

C. T. Male Associates
ELLE Sample #: WW 9258585
ELLE Group #: 1861721
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	7 U	7	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5 U	5	10	1
14473	NEtFOSAA	2991-50-6	1 U	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.7 U	0.7	2	1
14473	Perfluorobutanoic acid	375-22-4	5 U	5	10	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	5	1
14473	Perfluorododecanoic acid	307-55-1	0.7 U	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.7	2	1
14473	Perfluorohexanesulfonate	355-46-4	1 U	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.7	2	1
14473	Perfluorononanoic acid	375-95-1	0.7 U	0.7	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.7 U	0.7	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	2 U	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 J**	0.7	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.7 U	0.7	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.7 U	0.7	2	1
14473	Perfluoroundecanoic acid	2058-94-8	1 U	1	5	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 12:36	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017
SDG#: SGB79-04TB

C. T. Male Associates
ELLE Sample #: WW 9258586
ELLE Group #: 1861721
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for perfluorodecanoic acid and 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17285003	10/19/2017 12:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17285003	10/12/2017 15:06	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/28/2017 10:31

Group Number: 1861721

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17285003	Sample number(s): 9258583-9258586		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17285003	Sample number(s): 9258583-9258586								
6:2 fluorotelomersulfonate	15.17	15.02	15.17	14.68	99	97	70-130	2	30
8:2 fluorotelomersulfonate	15.33	18.6	15.33	16.21	121	106	70-130	14	30
NEtFOSAA	5.44	5.63	5.44	6.10	104	112	70-130	8	30
NMeFOSAA	5.44	6.52	5.44	5.91	120	109	70-130	10	30
Perfluorobutanesulfonate	4.81	5.65	4.81	5.66	117	118	70-130	0	30
Perfluorobutanoic acid	5.44	6.36	5.44	6.45	117	119	70-130	1	30
Perfluorodecanoic acid	5.44	7.28	5.44	6.01	134*	110	70-130	19	30
Perfluorododecanoic acid	5.44	6.44	5.44	6.36	118	117	70-130	1	30
Perfluoroheptanoic acid	5.44	6.78	5.44	6.52	125	120	70-130	4	30
Perfluorohexanesulfonate	5.14	6.08	5.14	5.51	118	107	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/28/2017 10:31

Group Number: 1861721

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.52	5.44	6.54	120	120	70-130	0	30
Perfluorononanoic acid	5.44	6.19	5.44	6.31	114	116	70-130	2	30
Perfluorooctanesulfonamide	5.44	6.63	5.44	6.55	122	120	70-130	1	30
Perfluoro-octanesulfonate	5.20	6.11	5.20	6.16	118	119	70-130	1	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.77	111	124	70-130	11	30
Perfluoropentanoic acid	5.44	6.36	5.44	6.27	117	115	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.82	5.44	5.81	107	107	70-130	0	30
Perfluorotridecanoic acid	5.44	5.60	5.44	5.34	103	98	70-130	5	30
Perfluoroundecanoic acid	5.44	6.76	5.44	6.66	124	122	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17285003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9258583	75	104	126	75	75	78
9258584	71	101	120	76	63	74
9258585	86	101	113	95	88	94
9258586	78	80	86	85	80	84
Blank	72	78	88	85	82	79
LCS	72	78	82	80	73	79
LCSD	77	81	90	91	93	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9258583	73	72	73	81	73	59
9258584	98	63	73	96	68	77
9258585	69	86	87	82	93	70
9258586	69	88	69	71	75	50
Blank	62	80	71	73	78	53
LCS	60	75	63	73	68	54
LCSD	69	82	74	68	81	64
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/28/2017 10:31

Group Number: 1861721

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17285003

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9258583	42	69	53	56	46	32*
9258584	39	60	49	51	39	24*
9258585	60	82	70	77	74	37*
9258586	46	70	59	65	65	47*
Blank	31	58	35	55	44	10*
LCS	32	59	38	53	47	5*
LCSD	37	62	42	55	47	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1861721 | 9258583-86

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47373

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CJ Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 4502/0004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml / Trizma pres.	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3 - Water truck pump - 171010				10/10/2017	11:50	water	N	2	2		PFCs (19)	
2. SG3 - water truck Hose - 171010				10/10/2017	11:55	water	N	2	2			
3. SG3 - City Water fill TK - 171010				10/10/2017	12:40	water	N	2	2			
4. Trip blank				—		water	N	2	2			
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY

Sampled by: KSM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] — On Ice? (Y) N — Date: 10/10/17 — Time: 17:00

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date — Time

Received by: [signature] — Date: 10/11/17 — Time: 0945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: — Temperature on Receipt (°C): 1.2, 2.1 — Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Report; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197089

Group Number(s): 1861721

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/11/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): TRIZMA (2) Unpreserved (4)

Unpacked by Ruth Shank (12390) at 11:35 on 10/11/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.2	DT	Wet	Y	Bagged	N
2	DT42-02	2.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 03, 2017 11:24

Project: SGPP - Bennington

Account #: 37191
Group Number: 1861723
SDG: SGB80
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D10-103-104' Soil	10/10/2017 08:30	9258597
SG3-D26-0-0.5' Soil	10/10/2017 14:40	9258598
SG3-D26-0.5-1' Soil	10/10/2017 14:50	9258599
SG3-D26-1-1.5' Soil	10/10/2017 15:00	9258600
SG3-D26-3-4' Soil	10/10/2017 15:05	9258601
SG3-D26-8-9' Soil	10/10/2017 15:15	9258602
SG3-LTB69-171010 Blank Water	10/10/2017	9258603
SG3-LTB70-171010 Blank Water	10/10/2017	9258604

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1861723

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9258597, 9258600, 9258601

The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9258599

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17294001 (Sample number(s): 9258597-9258598, 9258600-9258602 UNSPK: P256059)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9258597, 9258600, 9258601, LCSD, MS

Batch #: 17303009 (Sample number(s): 9258599 UNSPK: P279984)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MSD

SW-846 6010C, Metals

Batch #: 172841063705 (Sample number(s): 9258597-9258602 UNSPK: P254412 BKG: P254412)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Potassium, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium, Sodium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Sodium, Manganese

SW-846 6020A, Metals

Batch #: 172841063705A (Sample number(s): 9258597-9258602 UNSPK: P254412 BKG: P254412)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Nickel

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Thallium, Arsenic

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Arsenic, Nickel, Thallium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Cadmium, Nickel, Thallium, Vanadium

Batch #: 172841063705D (Sample number(s): 9258597-9258602 UNSPK: P254412 BKG: P254412)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9258597

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9258600

The pH was measured in water at 20 C.

Sample #s: 9258599, 9258601, 9258602

The pH was measured in water at 20.1 C.

Sample #s: 9258597, 9258598

The pH was measured in water at 20.2 C.

Sample Description: **SG3-D10-103-104' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 08:30
SDG#: SGB80-01

C. T. Male Associates
ELLE Sample #: SW 9258597
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,980**	8.41	37.6	1
01650	**Calcium**	7440-70-2	**236**	3.13	37.6	1
01654	**Iron**	7439-89-6	**6,020**	7.57	37.6	1
01657	**Magnesium**	7439-95-4	**284**	2.29	18.8	1
06958	**Manganese**	7439-96-5	**7,590**	0.781	9.41	10
01662	**Potassium**	7440-09-7	**295**	15.7	94.1	1
01667	Sodium	7440-23-5	15.7 U	15.7	188	1
06972	**Zinc**	7440-66-6	**79.0**	0.226	3.76	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0877 U	0.0877	0.376	2
06125	**Arsenic**	7440-38-2	**2.74**	0.120	0.753	2
06126	**Barium**	7440-39-3	**282**	0.171	0.753	2
06127	**Beryllium**	7440-41-7	**0.484**	0.0099	0.188	2
06128	**Cadmium**	7440-43-9	**0.160 J**	0.0324	0.188	2
06131	**Chromium**	7440-47-3	**3.08**	0.164	0.753	2
06132	**Cobalt**	7440-48-4	**23.4**	0.0294	0.188	2
06133	**Copper**	7440-50-8	**22.3**	0.101	0.753	2
06135	**Lead**	7439-92-1	**8.03**	0.0209	0.376	2
06139	**Nickel**	7440-02-0	**19.8**	0.187	0.753	2
06141	Selenium	7782-49-2	0.0941 U	0.0941	0.753	2
06142	**Silver**	7440-22-4	**0.179 J**	0.0275	0.188	2
06145	**Thallium**	7440-28-0	**2.74**	0.0235	0.188	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-103-104' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 08:30
SDG#: SGB80-01

C. T. Male Associates
ELLE Sample #: SW 9258597
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.73**	0.0401	0.188	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	107 U	107	322	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 18:30	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/17/2017 21:34	Cindy M Gehman	10
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 15:40	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:03	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-103-104' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 08:30
SDG#: SGB80-01

C. T. Male Associates
ELLE Sample #: SW 9258597
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:03	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:03	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 18:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:40
SDG#: SGB80-02

C. T. Male Associates
ELLE Sample #: SW 9258598
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.34 J**	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.076 U	0.076	0.30	1
14027	**Perfluorononanoic acid**	375-95-1	**0.73**	0.076	0.30	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.0**	0.23	0.69	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.28 J**	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,900**	7.77	34.8	1
01650	**Calcium**	7440-70-2	**251**	2.89	34.8	1
01654	**Iron**	7439-89-6	**25,300**	35.0	174	5
01657	**Magnesium**	7439-95-4	**2,320**	2.11	17.4	1
06958	**Manganese**	7439-96-5	**520**	0.0721	0.869	1
01662	**Potassium**	7440-09-7	**1,080**	14.5	86.9	1
01667	Sodium	7440-23-5	14.5 U	14.5	174	1
06972	**Zinc**	7440-66-6	**49.2**	0.209	3.48	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.263 J**	0.0810	0.348	2
06125	**Arsenic**	7440-38-2	**10.5**	0.111	0.695	2
06126	**Barium**	7440-39-3	**56.2**	0.158	0.695	2
06127	**Beryllium**	7440-41-7	**0.616**	0.0091	0.174	2
06128	**Cadmium**	7440-43-9	**0.104 J**	0.0299	0.174	2
06131	**Chromium**	7440-47-3	**10.5**	0.151	0.695	2
06132	**Cobalt**	7440-48-4	**19.5**	0.0271	0.174	2
06133	**Copper**	7440-50-8	**32.3**	0.0932	0.695	2
06135	**Lead**	7439-92-1	**12.8**	0.0193	0.348	2
06139	**Nickel**	7440-02-0	**24.3**	0.173	0.695	2
06141	**Selenium**	7782-49-2	**0.527 J**	0.0869	0.695	2
06142	Silver	7440-22-4	0.0254 U	0.0254	0.174	2
06145	**Thallium**	7440-28-0	**0.236**	0.0217	0.174	2
06148	**Vanadium**	7440-62-2	**12.8**	0.0370	0.174	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:40
SDG#: SGB80-02

C. T. Male Associates
ELLE Sample #: SW 9258598
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,070**	495	1,480	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.41**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 18:51	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/17/2017 21:42	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 15:44	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:13	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:13	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:40
SDG#: SGB80-02

C. T. Male Associates
ELLE Sample #: SW 9258598
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:13	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631B	11/02/2017 01:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:50
SDG#: SGB80-03

C. T. Male Associates
ELLE Sample #: SW 9258599
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	**Perfluorononanoic acid**	375-95-1	**0.46**	0.092	0.37	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.48 J**	0.28	0.83	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.21 J**	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,100**	7.11	31.8	1
01650	**Calcium**	7440-70-2	**245**	2.65	31.8	1
01654	**Iron**	7439-89-6	**23,500**	32.0	159	5
01657	**Magnesium**	7439-95-4	**4,860**	1.93	15.9	1
06958	**Manganese**	7439-96-5	**693**	0.0660	0.795	1
01662	**Potassium**	7440-09-7	**888**	13.3	79.5	1
01667	Sodium	7440-23-5	13.3 U	13.3	159	1
06972	**Zinc**	7440-66-6	**44.1**	0.191	3.18	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0894 J**	0.0741	0.318	2
06125	**Arsenic**	7440-38-2	**6.61**	0.102	0.636	2
06126	**Barium**	7440-39-3	**42.3**	0.144	0.636	2
06127	**Beryllium**	7440-41-7	**0.432**	0.0083	0.159	2
06128	**Cadmium**	7440-43-9	**0.0809 J**	0.0274	0.159	2
06131	**Chromium**	7440-47-3	**11.6**	0.138	0.636	2
06132	**Cobalt**	7440-48-4	**18.1**	0.0248	0.159	2
06133	**Copper**	7440-50-8	**18.2**	0.0852	0.636	2
06135	**Lead**	7439-92-1	**11.1**	0.0177	0.318	2
06139	**Nickel**	7440-02-0	**18.3**	0.158	0.636	2
06141	**Selenium**	7782-49-2	**0.276 J**	0.0795	0.636	2
06142	**Silver**	7440-22-4	**0.0633 J**	0.0232	0.159	2
06145	**Thallium**	7440-28-0	**0.196**	0.0199	0.159	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:50
SDG#: SGB80-03

C. T. Male Associates
ELLE Sample #: SW 9258599
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**11.3**	0.0339	0.159	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,670**	434	1,300	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**6.25**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 12:40	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/17/2017 21:45	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 15:53	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:16	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 14:50
SDG#: SGB80-03

C. T. Male Associates
ELLE Sample #: SW 9258599
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:16	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:16	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631B	11/02/2017 01:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:00
SDG#: SGB80-04

C. T. Male Associates
ELLE Sample #: SW 9258600
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**0.77**	0.089	0.36	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.58 J**	0.27	0.80	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.38 J**	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1

The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,420**	9.58	42.9	1
01650	**Calcium**	7440-70-2	**70.1**	3.57	42.9	1
01654	**Iron**	7439-89-6	**8,580**	8.63	42.9	1
01657	**Magnesium**	7439-95-4	**517**	2.60	21.4	1
06958	**Manganese**	7439-96-5	**253**	0.0889	1.07	1
01662	**Potassium**	7440-09-7	**683**	17.9	107	1
01667	Sodium	7440-23-5	17.9 U	17.9	214	1
06972	**Zinc**	7440-66-6	**14.0**	0.257	4.29	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0999 U	0.0999	0.429	2
06125	**Arsenic**	7440-38-2	**3.46**	0.137	0.857	2
06126	**Barium**	7440-39-3	**28.5**	0.195	0.857	2
06127	**Beryllium**	7440-41-7	**0.279**	0.0112	0.214	2
06128	Cadmium	7440-43-9	0.0369 U	0.0369	0.214	2
06131	**Chromium**	7440-47-3	**3.59**	0.186	0.857	2
06132	**Cobalt**	7440-48-4	**7.09**	0.0334	0.214	2
06133	**Copper**	7440-50-8	**7.53**	0.115	0.857	2
06135	**Lead**	7439-92-1	**4.07**	0.0238	0.429	2
06139	**Nickel**	7440-02-0	**6.64**	0.213	0.857	2
06141	Selenium	7782-49-2	0.107 U	0.107	0.857	2
06142	Silver	7440-22-4	0.0313 U	0.0313	0.214	2
06145	**Thallium**	7440-28-0	**0.160 J**	0.0268	0.214	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:00
SDG#: SGB80-04

C. T. Male Associates
ELLE Sample #: SW 9258600
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**3.68**	0.0456	0.214	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,170**	342	1,030	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.55**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 19:32	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 15:57	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:19	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:00
SDG#: SGB80-04

C. T. Male Associates
ELLE Sample #: SW 9258600
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:19	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:19	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667631B	11/02/2017 01:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:05
SDG#: SGB80-05

C. T. Male Associates
ELLE Sample #: SW 9258601
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	**Perfluorononanoic acid**	375-95-1	**0.14 J**	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.36 J**	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limit for 13C5-PFPeA is advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,400**	8.17	36.5	1
01650	**Calcium**	7440-70-2	**140**	3.04	36.5	1
01654	**Iron**	7439-89-6	**28,200**	36.8	183	5
01657	**Magnesium**	7439-95-4	**3,170**	2.22	18.3	1
06958	**Manganese**	7439-96-5	**643**	0.0758	0.913	1
01662	**Potassium**	7440-09-7	**1,440**	15.3	91.3	1
01667	**Sodium**	7440-23-5	**17.1 J**	15.3	183	1
06972	**Zinc**	7440-66-6	**55.7**	0.219	3.65	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.169 J**	0.0851	0.365	2
06125	**Arsenic**	7440-38-2	**11.4**	0.117	0.731	2
06126	**Barium**	7440-39-3	**85.3**	0.166	0.731	2
06127	**Beryllium**	7440-41-7	**0.686**	0.0096	0.183	2
06128	**Cadmium**	7440-43-9	**0.143 J**	0.0314	0.183	2
06131	**Chromium**	7440-47-3	**12.7**	0.159	0.731	2
06132	**Cobalt**	7440-48-4	**19.6**	0.0285	0.183	2
06133	**Copper**	7440-50-8	**37.4**	0.0979	0.731	2
06135	**Lead**	7439-92-1	**15.0**	0.0203	0.365	2
06139	**Nickel**	7440-02-0	**26.1**	0.182	0.731	2
06141	**Selenium**	7782-49-2	**0.545 J**	0.0913	0.731	2
06142	Silver	7440-22-4	0.0267 U	0.0267	0.183	2
06145	**Thallium**	7440-28-0	**0.338**	0.0228	0.183	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:05
SDG#: SGB80-05

C. T. Male Associates
ELLE Sample #: SW 9258601
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.8**	0.0389	0.183	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,660**	217	651	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.24**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 20:33	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/17/2017 21:49	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 16:00	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:22	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:05
SDG#: SGB80-05

C. T. Male Associates
ELLE Sample #: SW 9258601
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:22	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:22	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 21:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:15
SDG#: SGB80-06

C. T. Male Associates
ELLE Sample #: SW 9258602
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.99**	0.20	0.60	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.77**	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	**Perfluorononanoic acid**	375-95-1	**0.26 J**	0.099	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.4**	0.30	0.90	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.51 J**	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.24 J**	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.34 J**	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,000**	9.05	40.5	1
01650	**Calcium**	7440-70-2	**288**	3.37	40.5	1
01654	**Iron**	7439-89-6	**32,500**	40.8	203	5
01657	**Magnesium**	7439-95-4	**3,970**	2.46	20.3	1
06958	**Manganese**	7439-96-5	**491**	0.0840	1.01	1
01662	**Potassium**	7440-09-7	**1,450**	16.9	101	1
01667	Sodium	7440-23-5	16.9 U	16.9	203	1
06972	**Zinc**	7440-66-6	**71.7**	0.243	4.05	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.196 J**	0.0944	0.405	2
06125	**Arsenic**	7440-38-2	**15.8**	0.130	0.810	2
06126	**Barium**	7440-39-3	**63.4**	0.184	0.810	2
06127	**Beryllium**	7440-41-7	**0.591**	0.0106	0.203	2
06128	**Cadmium**	7440-43-9	**0.212**	0.0348	0.203	2
06131	**Chromium**	7440-47-3	**15.8**	0.176	0.810	2
06132	**Cobalt**	7440-48-4	**20.8**	0.0316	0.203	2
06133	**Copper**	7440-50-8	**43.4**	0.109	0.810	2
06135	**Lead**	7439-92-1	**14.6**	0.0225	0.405	2
06139	**Nickel**	7440-02-0	**35.9**	0.202	0.810	2
06141	**Selenium**	7782-49-2	**0.451 J**	0.101	0.810	2
06142	**Silver**	7440-22-4	**0.844**	0.0296	0.203	2
06145	**Thallium**	7440-28-0	**0.222**	0.0253	0.203	2
06148	**Vanadium**	7440-62-2	**15.6**	0.0431	0.203	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:15
SDG#: SGB80-06

C. T. Male Associates
ELLE Sample #: SW 9258602
ELLE Group #: 1861723
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**4,270**	616	1,850	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.98**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17294001	10/24/2017 20:54	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17294001	10/21/2017 09:45	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172841063705	10/17/2017 21:52	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172841063705	10/15/2017 16:03	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172841063705D	10/17/2017 12:25	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172841063705B	10/17/2017 12:25	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017 15:15
SDG#: SGB80-06

C. T. Male Associates
ELLE Sample #: SW 9258602
ELLE Group #: 1861723
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172841063705A	10/17/2017 12:25	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172841063705	10/12/2017 23:30	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 21:45	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17285039403A	10/12/2017 20:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820012A	10/18/2017 23:37	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB69-171010 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017
SDG#: SGB80-07TB

C. T. Male Associates
ELLE Sample #: WW 9258603
ELLE Group #: 1861723
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 05:05	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB70-171010 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/11/2017 09:45
Collection Date/Time: 10/10/2017
SDG#: SGB80-08TB

C. T. Male Associates
ELLE Sample #: WW 9258604
ELLE Group #: 1861723
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 05:25	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17294001	Sample number(s): 9258597-9258598,9258600-9258602		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17303009	Sample number(s): 9258599		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17297002	Sample number(s): 9258603-9258604		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172841063705	Sample number(s): 9258597-9258602		
Aluminum	8.94 U	8.94	40.0
Calcium	5.51 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.313 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.775 J	0.240	4.00
Batch number: 172841063705A	Sample number(s): 9258597-9258602		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172841063705B	Sample number(s): 9258597-9258602		
Selenium	0.100 U	0.100	0.800
Batch number: 172841063705D	Sample number(s): 9258597-9258602		
Barium	0.182 U	0.182	0.800
Batch number: 17305667631B	Sample number(s): 9258598-9258600		
TOC	100 U	100	300
Batch number: 17306667631A	Sample number(s): 9258597,9258601-9258602		
TOC	100 U	100	300

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17294001	Sample number(s): 9258597-9258598,9258600-9258602								
Perfluorobutanesulfonate	1.20	1.18	1.20	1.20	98	100	70-130	2	30
Perfluorobutanoic acid	1.36	1.55	1.36	1.57	114	116	70-130	1	30
Perfluorodecanoic acid	1.36	1.36	1.36	1.51	100	111	70-130	10	30
Perfluorododecanoic acid	1.36	1.41	1.36	1.51	104	111	70-130	7	30
Perfluoroheptanoic acid	1.36	1.57	1.36	1.52	115	112	70-130	3	30
Perfluorohexanesulfonate	1.29	1.41	1.29	1.38	110	107	70-130	2	30
Perfluorohexanoic acid	1.36	1.42	1.36	1.48	105	109	70-130	4	30
Perfluorononanoic acid	1.36	1.69	1.36	1.65	124	121	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.61	1.30	1.30	124	100	70-130	22	30
Perfluorooctanoic acid	1.36	1.42	1.36	1.51	104	111	70-130	6	30
Perfluoropentanoic acid	1.36	1.46	1.36	1.50	107	110	70-130	3	30
Perfluorotetradecanoic acid	1.36	1.44	1.36	1.55	106	114	70-130	7	30
Perfluorotridecanoic acid	1.36	1.51	1.36	1.62	111	119	70-130	6	30
Perfluoroundecanoic acid	1.36	1.65	1.36	1.58	121	116	70-130	4	30
Batch number: 17303009	Sample number(s): 9258599								
Perfluorobutanesulfonate	1.20	1.20			99		70-130		
Perfluorobutanoic acid	1.36	1.54			113		70-130		
Perfluorodecanoic acid	1.36	1.33			98		70-130		
Perfluorododecanoic acid	1.36	1.54			113		70-130		
Perfluoroheptanoic acid	1.36	1.53			113		70-130		
Perfluorohexanesulfonate	1.29	1.39			108		70-130		
Perfluorohexanoic acid	1.36	1.33			98		70-130		
Perfluorononanoic acid	1.36	1.28			94		70-130		
Perfluoro-octanesulfonate	1.30	1.48			114		70-130		
Perfluorooctanoic acid	1.36	1.63			120		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.43			105		70-130		
Perfluorotridecanoic acid	1.36	1.81			133*		70-130		
Perfluoroundecanoic acid	1.36	1.37			101		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17297002	Sample number(s): 9258603-9258604								
Perfluorobutanesulfonate	4.81	5.43	4.81	5.04	113	105	70-130	8	30
Perfluorobutanoic acid	5.44	6.18	5.44	6.10	114	112	70-130	1	30
Perfluorodecanoic acid	5.44	5.35	5.44	5.57	98	102	70-130	4	30
Perfluorododecanoic acid	5.44	5.89	5.44	6.24	108	115	70-130	6	30
Perfluoroheptanoic acid	5.44	5.24	5.44	6.00	96	110	70-130	14	30
Perfluorohexanesulfonate	5.14	4.62	5.14	4.85	90	94	70-130	5	30
Perfluorohexanoic acid	5.44	6.40	5.44	5.99	118	110	70-130	7	30
Perfluorononanoic acid	5.44	6.35	5.44	6.35	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.68	5.20	6.20	109	119	70-130	9	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.87	5.44	5.97	108	110	70-130	2	30
Perfluoropentanoic acid	5.44	5.87	5.44	5.90	108	108	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.03	5.44	6.02	111	111	70-130	0	30
Perfluorotridecanoic acid	5.44	5.25	5.44	5.88	97	108	70-130	11	30
Perfluoroundecanoic acid	5.44	6.26	5.44	6.44	115	118	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172841063705	Sample number(s): 9258597-9258602								
Aluminum	200	210.42			105		80-120		
Calcium	400	406.21			102		80-120		
Iron	100	100.09			100		80-120		
Magnesium	200	199.32			100		80-120		
Manganese	50	51.25			102		80-120		
Potassium	1000	996.83			100		80-120		
Sodium	1000	971.36			97		80-120		
Zinc	50	51.07			102		80-120		
Batch number: 172841063705A	Sample number(s): 9258597-9258602								
Antimony	0.600	0.656			109		80-120		
Arsenic	1.00	1.03			103		80-120		
Beryllium	0.400	0.379			95		80-120		
Cadmium	0.500	0.467			93		80-120		
Chromium	5.00	5.12			102		80-120		
Cobalt	25	26.27			105		80-120		
Copper	5.00	5.41			108		80-120		
Lead	1.50	1.47			98		80-120		
Nickel	5.00	5.42			108		80-120		
Silver	5.00	5.19			104		80-120		
Thallium	0.200	0.182			91		80-120		
Vanadium	5.00	4.88			98		80-120		
Batch number: 172841063705B	Sample number(s): 9258597-9258602								
Selenium	1.00	1.01			101		80-120		
Batch number: 172841063705D	Sample number(s): 9258597-9258602								
Barium	5.00	5.69			114		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17305667631B	Sample number(s): 9258598-9258600								
TOC	7150	8834.36			124		47-143		
Batch number: 17306667631A	Sample number(s): 9258597,9258601-9258602								
TOC	7150	7121.91			100		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					

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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17285039403A	Sample number(s): 9258597-9258602								
pH	7.00	6.95			99		95-105		
	%	%	%	%					
Batch number: 17291820012A	Sample number(s): 9258597-9258602								
Moisture	89.5	89.33			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17294001	Sample number(s): 9258597-9258598,9258600-9258602 UNSPK: P256059									
Perfluorobutanesulfonate	0.18 U	1.12	1.12			100		70-130		
Perfluorobutanoic acid	0.18 U	1.27	1.38			108		70-130		
Perfluorodecanoic acid	0.18 U	1.27	1.16			91		70-130		
Perfluorododecanoic acid	0.18 U	1.27	1.56			123		70-130		
Perfluoroheptanoic acid	0.18 U	1.27	1.41			111		70-130		
Perfluorohexanesulfonate	0.18 U	1.20	1.07			89		70-130		
Perfluorohexanoic acid	0.088 U	1.27	1.40			110		70-130		
Perfluorononanoic acid	0.088 U	1.27	1.67			132*		70-130		
Perfluoro-octanesulfonate	0.27 U	1.22	1.33			109		70-130		
Perfluorooctanoic acid	0.18 U	1.27	1.56			123		70-130		
Perfluoropentanoic acid	0.18 U	1.27	1.35			107		70-130		
Perfluorotetradecanoic acid	0.18 U	1.27	1.49			117		70-130		
Perfluorotridecanoic acid	0.18 U	1.27	1.44			113		70-130		
Perfluoroundecanoic acid	0.18 U	1.27	1.64			129		70-130		
Batch number: 17303009	Sample number(s): 9258599 UNSPK: P279984									
Perfluorobutanesulfonate	0.15 U	1.00	0.946	1.05	1.09	94	104	70-130	14	30
Perfluorobutanoic acid	0.15 U	1.13	1.30	1.19	1.42	115	119	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.13	1.41	1.19	1.29	124	108	70-130	9	30
Perfluorododecanoic acid	0.15 U	1.13	1.27	1.19	1.19	112	100	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.13	1.24	1.19	1.23	109	103	70-130	0	30
Perfluorohexanesulfonate	0.15 U	1.07	1.26	1.13	1.32	118	117	70-130	4	30
Perfluorohexanoic acid	0.076 U	1.13	1.14	1.19	1.24	101	104	70-130	8	30
Perfluorononanoic acid	0.076 U	1.13	0.965	1.19	1.59	85	133*	70-130	49*	30
Perfluoro-octanesulfonate	0.23 U	1.08	1.06	1.14	1.37	98	120	70-130	25	30
Perfluorooctanoic acid	0.15 U	1.13	1.16	1.19	1.07	102	90	70-130	8	30
Perfluoropentanoic acid	0.15 U	1.13	1.11	1.19	1.27	98	107	70-130	13	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	0.15 U	1.13	1.18	1.19	1.23	104	103	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.13	1.39	1.19	1.47	123	123	70-130	5	30
Perfluoroundecanoic acid	0.15 U	1.13	1.13	1.19	1.41	100	118	70-130	22	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172841063705	Sample number(s): 9258597-9258602 UNSPK: P254412									
Aluminum	2757.63	165.29	4044.42	149.25	3918.04	779 (2)	777 (2)	75-125	3	20
Calcium	4469.38	330.58	7001.82	298.51	5074.95	766 (2)	203 (2)	75-125	32*	20
Iron	4870.51	82.64	5802.49	74.63	5561.66	1128 (2)	926 (2)	75-125	4	20
Magnesium	2428.4	165.29	2775.92	149.25	2537.75	210 (2)	73 (2)	75-125	9	20
Manganese	235.75	41.32	203.66	37.31	176.44	-78 (2)	-159 (2)	75-125	14	20
Potassium	634.17	826.45	1721.4	746.27	1607.47	132*	130*	75-125	7	20
Sodium	510.09	826.45	1067.77	746.27	958	67*	60*	75-125	11	20
Zinc	11.43	41.32	53.79	37.31	49.03	103	101	75-125	9	20
Batch number: 172841063705A	Sample number(s): 9258597-9258602 UNSPK: P254412									
Antimony	0.0923 U	0.992	0.897	0.896	0.712	90	80	75-125	23*	20
Arsenic	1.21	1.65	2.19	1.49	2.72	59*	101	75-125	22*	20
Beryllium	0.126	0.661	0.725	0.597	0.683	91	93	75-125	6	20
Cadmium	0.0497	0.826	0.845	0.746	0.737	96	92	75-125	14	20
Chromium	5.25	8.26	13.24	7.46	12.3	97	94	75-125	7	20
Cobalt	2.66	41.32	43.58	37.31	40.56	99	102	75-125	7	20
Copper	5.22	8.26	12.97	7.46	13.14	94	106	75-125	1	20
Lead	1.74	2.48	4.37	2.24	4.54	106	125	75-125	4	20
Nickel	13.35	8.26	31.03	7.46	19.19	214*	78	75-125	47*	20
Silver	0.0289 U	8.26	7.98	7.46	7.42	97	99	75-125	7	20
Thallium	0.0531	0.331	0.356	0.299	0.269	92	72*	75-125	28*	20
Vanadium	6.22	8.26	13.93	7.46	14.51	93	111	75-125	4	20
Batch number: 172841063705B	Sample number(s): 9258597-9258602 UNSPK: P254412									
Selenium	0.0990 U	1.65	1.62	1.49	1.47	98	99	75-125	9	20
Batch number: 172841063705D	Sample number(s): 9258597-9258602 UNSPK: P254412									
Barium	15.1	8.26	26.81	7.46	27.84	142*	171*	75-125	4	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17305667631B	Sample number(s): 9258598-9258600 UNSPK: P256069									
TOC	200.97	27930	35530.73			126		47-143		
Batch number: 17306667631A	Sample number(s): 9258597,9258601-9258602 UNSPK: 9258597									
TOC	102 U	20400	23738.95			116		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172841063705	Sample number(s): 9258597-9258602 BKG: P254412			
Aluminum	2757.63	2749.15	0	20
Calcium	4469.38	3722.52	18	20
Iron	4870.51	5483.81	12	20
Magnesium	2428.4	2362.55	3	20
Manganese	235.75	121.42	64*	20
Potassium	634.17	549.36	14	20
Sodium	510.09	150	109* (1)	20
Zinc	11.43	12.01	5 (1)	20
Batch number: 172841063705A	Sample number(s): 9258597-9258602 BKG: P254412			
Antimony	0.0923 U	0.0728 U	0 (1)	20
Arsenic	1.21	0.664	58* (1)	20
Beryllium	0.126	0.135	6 (1)	20
Cadmium	0.0497	0.0269 U	200* (1)	20
Chromium	5.25	5.65	7	20
Cobalt	2.66	2.22	18	20
Copper	5.22	5.03	4	20
Lead	1.74	1.99	13 (1)	20
Nickel	13.35	10.39	25*	20
Silver	0.0289 U	0.0228 U	0 (1)	20
Thallium	0.0531	0.0270	65* (1)	20
Vanadium	6.22	7.86	23*	20
Batch number: 172841063705B	Sample number(s): 9258597-9258602 BKG: P254412			
Selenium	0.0990 U	0.0781 U	0 (1)	20
Batch number: 172841063705D	Sample number(s): 9258597-9258602 BKG: P254412			
Barium	15.1	20.72	31*	20
	mg/kg	mg/kg		
Batch number: 17305667631B	Sample number(s): 9258598-9258600 BKG: P256069			
TOC	200.97	201.91	0 (1)	7
Batch number: 17306667631A	Sample number(s): 9258597,9258601-9258602 BKG: 9258597			
TOC	102 U	101 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17285039403A	Sample number(s): 9258597-9258602 BKG: P258219			
pH	5.20	5.20	0	3
	%	%		
Batch number: 17291820012A	Sample number(s): 9258597-9258602 BKG: 9258600			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture	8.47	8.74	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17294001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9258597	60	64*	72	64	66	67
9258598	72	71	77	72	81	72
9258600	61	61*	70	70	68	68
9258601	61	65*	68	57	74	66
9258602	67	71	68	68	71	62
Blank	70	72	65	78	71	77
LCS	81	83	81	85	76	86
LCSD	64	63*	61	68	62	69
MS	64	65*	65	77	80	77
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9258597	67	73	63	68	59	66
9258598	86	86	76	85	83	78
9258600	70	78	66	69	69	61
9258601	66	81	63	74	68	66
9258602	73	75	72	80	69	66
Blank	82	64	68	82	84	76
LCS	97	72	80	91	81	85
LCSD	77	65	70	75	73	69
MS	85	65	54	72	64	63
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9258597	59
9258598	82
9258600	61

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17294001

	13C2-PFTeDA
9258601	59
9258602	65
Blank	78
LCS	75
LCSD	68
MS	60
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9258603	89	92	85	95	80	92
9258604	80	87	70	85	70	81
Blank	84	92	77	82	70	80
LCS	85	94	83	92	83	88
LCSD	85	96	89	87	85	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9258603	102	97	96	106	105	85
9258604	86	90	102	97	85	77
Blank	98	85	88	97	87	81
LCS	92	93	97	112	104	103
LCSD	98	91	115	101	95	86
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9258603	81
9258604	77
Blank	79
LCS	85
LCSD	80
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17303009

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:24

Group Number: 1861723

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17303009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9258599	76	75	74	79	88	72
Blank	91	88	84	87	86	82
LCS	83	77	78	86	76	87
MS	73	72	73	74	65	70
MSD	69	67*	75	74	75	82
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9258599	79	90	81	89	83	81
Blank	91	99	100	102	105	98
LCS	91	85	96	95	96	86
MS	79	70	73	68	86	73
MSD	80	77	65	69	70	69
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9258599	72
Blank	100
LCS	89
MS	73
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1861723 | 9258597-604

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: № 47386

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45102004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic HNO3 trip blank	Soil: 250 mL plastic / PFCs (14)	Soil: 4oz glass / TOC, pH, Moist.	Soil: Inorganics	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A			A	N	
1. SG3-D10-103-104'	103	104	ft	10-10-17	0830	Soil	N	2		1	1					PFCs (14), pH, TOC
2. SG3-D26-0-0.5'	0	0.5	ft	10-10-17	1440	S	N	2		1	1					moisture
3. SG3-D26-0.5-1'	0.5	1	ft	10-10-17	1450	S	N	2		1	1					TAL cations - Metals excluding Hg
4. SG3-D26-1-1.5'	1	1.5	ft	10-10-17	1500	S	N	2		1	1					
5. SG3-D26-3-4'	3	4	ft	10-10-17	1505	S	N	2		1	1					
6. SG3-D26-8-9'	8	9	ft	10-10-17	1515	S	N	2		1	1					
7. SG3-LTB69-171010	—	—	—	—	AM	Water	N	2	2							
8. SG3-LTB70-171010	—	—	—	—	AM	W	N	2	2							
9.																
10.																

BARR USE ONLY							
Sampled by: DSZ	Relinquished by: Derek Zander	On Ice? Y N	Date 10-10-17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/11/17	Time 0945
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 1.2, 2.1	Custody Seal Intact? ☐ Y ☐ N ☐ None				
Lab Location: Lancaster							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Project Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197089

Group Number(s): 1861723

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/11/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): TRIZMA (2) Unpreserved (4)

Unpacked by Ruth Shank (12390) at 11:35 on 10/11/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.2	DT	Wet	Y	Bagged	N
2	DT42-02	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 31, 2017 21:03

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1862366
SDG: SGB81
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB71-171011 Water	10/11/2017	9261624
SG3-LTB72-171011 Water	10/11/2017	9261625
SG3-FBS12-171011 Blank Water	10/11/2017 09:15	9261626
SG3-RBPLASTIC-171011 Water	10/11/2017 13:25	9261627
SG3-RBCORE-171011 Water	10/11/2017 14:00	9261628
SG3-RBCASING-171011 Water	10/11/2017 13:55	9261629
SG3-RBROD-171011 Water	10/11/2017 13:52	9261630
SG3-RBRIGTANK-171011 Water	10/11/2017 13:50	9261631

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1862366

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9261628

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Sample #s: 9261631

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9261629

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside hold time and the recovery for this extraction standard was within QC acceptance limits. The data reported is from the initial trial.

Sample #s: 9261624, 9261626, 9261627, 9261630

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17291005 (Sample number(s): 9261624-9261631)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9261624, 9261625, 9261626, 9261627, 9261628, 9261629, 9261630, 9261631, Blank, LCS, LCSD

Sample Description: **SG3-LTB71-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017
SDG#: SGB81-01TB

C. T. Male Associates
ELLE Sample #: WW 9261624
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/22/2017 22:06	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB72-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017
SDG#: SGB81-02TB

C. T. Male Associates
ELLE Sample #: WW 9261625
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/22/2017 23:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FBS12-171011 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:15
SDG#: SGB81-03FB

C. T. Male Associates
ELLE Sample #: WW 9261626
ELLE Group #: 1862366
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/22/2017 23:28	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBPLASTIC-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 13:25
SDG#: SGB81-04

C. T. Male Associates
ELLE Sample #: GW 9261627
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/22/2017 23:49	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBCORE-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 14:00
SDG#: SGB81-05

C. T. Male Associates
ELLE Sample #: GW 9261628
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 B**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/23/2017 00:09	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBCASING-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 13:55
SDG#: SGB81-06

C. T. Male Associates
ELLE Sample #: GW 9261629
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	7	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	7	1
14473	NEtFOSAA	2991-50-6	0.5 U	0.5	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.5 U	0.5	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 JB**	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.4 U	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.4 J**	0.4	1	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.4 U	0.4	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	4	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 JB**	0.4	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.4 U	0.4	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted outside hold time and the recovery for this extraction standard was within QC acceptance limits. The data reported is from the initial trial.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBCASING-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 13:55
SDG#: SGB81-06

C. T. Male Associates
ELLE Sample #: GW 9261629
ELLE Group #: 1862366
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/23/2017 00:30	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBROD-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 13:52
SDG#: SGB81-07

C. T. Male Associates
ELLE Sample #: GW 9261630
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	7	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	7	1
14473	NEtFOSAA	2991-50-6	0.5 U	0.5	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.5 U	0.5	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.4 U	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	1	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.4 U	0.4	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	4	1
14473	Perfluorooctanoic acid	335-67-1	0.4 U	0.4	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.4 U	0.4	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/23/2017 00:50	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RBRIGTANK-171011 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 13:50
SDG#: SGB81-08

C. T. Male Associates
ELLE Sample #: GW 9261631
ELLE Group #: 1862366
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	7	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	7	1
14473	NEtFOSAA	2991-50-6	0.5 U	0.5	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.5 U	0.5	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.4 U	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	1	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.4 U	0.4	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	4	1
14473	**Perfluorooctanoic acid**	335-67-1	**2 B**	0.4	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.4 U	0.4	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/23/2017 01:11	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 21:03

Group Number: 1862366

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17291005	Sample number(s): 9261624-9261631		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.8 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17291005	Sample number(s): 9261624-9261631								
6:2 fluorotelomersulfonate	15.17	16.57	15.17	17.68	109	117	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.22	15.33	20.04	106	131*	70-130	21	30
NEtFOSAA	5.44	5.32	5.44	5.33	98	98	70-130	0	30
NMeFOSAA	5.44	5.66	5.44	5.75	104	106	70-130	1	30
Perfluorobutanesulfonate	4.81	4.70	4.81	5.21	98	108	70-130	10	30
Perfluorobutanoic acid	5.44	5.53	5.44	5.86	102	108	70-130	6	30
Perfluorodecanoic acid	5.44	5.78	5.44	6.42	106	118	70-130	11	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.43	105	100	70-130	6	30
Perfluoroheptanoic acid	5.44	6.26	5.44	6.25	115	115	70-130	0	30
Perfluorohexanesulfonate	5.14	4.86	5.14	5.60	94	109	70-130	14	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 21:03

Group Number: 1862366

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.23	5.44	5.61	96	103	70-130	7	30
Perfluorononanoic acid	5.44	5.53	5.44	6.19	102	114	70-130	11	30
Perfluorooctanesulfonamide	5.44	5.33	5.44	5.71	98	105	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.06	5.20	5.11	97	98	70-130	1	30
Perfluorooctanoic acid	5.44	6.63	5.44	7.31	122	134*	70-130	10	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.74	100	106	70-130	5	30
Perfluorotetradecanoic acid	5.44	4.97	5.44	5.10	91	94	70-130	3	30
Perfluorotridecanoic acid	5.44	5.09	5.44	5.25	94	96	70-130	3	30
Perfluoroundecanoic acid	5.44	5.73	5.44	5.96	105	109	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9261624	91	91	89	103	91	96
9261625	89	88	83	100	91	97
9261626	86	85	88	94	81	88
9261627	83	81	82	97	91	97
9261628	94	103	95	89	84	91
9261629	91	101	100	82	72	87
9261630	86	89	90	87	78	94
9261631	90	94	93	97	95	108
Blank	94	96	93	102	96	98
LCS	78	77	79	93	82	80
LCSD	101	102	99	105	94	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9261624	75	93	90	90	93	68
9261625	79	94	93	100	101	71
9261626	65	86	82	79	89	73
9261627	72	94	85	108	92	62
9261628	78	84	97	110	102	88
9261629	95	83	84	106	90	79

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/31/2017 21:03

Group Number: 1862366

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291005

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9261630	81	84	89	107	82	75
9261631	96	85	94	101	95	70
Blank	84	93	90	90	101	68
LCS	70	80	73	70	77	55
LCSD	84	100	94	91	102	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9261624	77	97	96	83	88	26*
9261625	89	95	111	88	87	63*
9261626	63	89	82	70	68	20*
9261627	78	102	97	85	88	43*
9261628	67	105	92	82	71	30*
9261629	82	99	93	59	17*	23*
9261630	51	80	65	64	44	26*
9261631	68	81	87	77	51	58*
Blank	77	98	87	89	84	63*
LCS	50	68	62	62	62	23*
LCSD	69	96	81	85	86	42*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 18623366 | 9261624-31

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47380

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Drive.	Address: 50 Century Hill DR, Latham, NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250ml Plastic	Water 250ml Plastic-Trizma	Soil % Solids	Preservative Code	Field Filtered Y/N	
									A	A				
									N	N				
1. SG3-LTB71-171011	—	—	—	10/11/2017	AM	W	N	2	2					ELLE Prepared trip blank.
2. SG3-LTB72-171011	—	—	—	10/11/2017	AM	W	N	2	2					ELLE Prepared trip blank.
3. SG3-FBS12-171011	—	—	—	10/11/2017	0915	W	N	2		2				
4. SG3-RBPLASTIC-171011	—	—	—	10/11/2017	1325	W	N	2		2				
5. SG3-RBCORE-171011	—	—	—	10/11/2017	1400	W	N	2		2				
6. SG3-RBCASING-171011	—	—	—	10/11/2017	1355	W	N	2		2				
7. SG3-RBROD-171011	—	—	—	10/11/2017	1352	W	N	2		2				
8. SG3-RBRIGTANK-171011	—	—	—	10/11/2017	1350	W	N	2		2				
9.														
10.														

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	RAK/DA	Robert Kordosky	Y	10/11/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.12.17	Time 09:40
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.4			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197300

Group Number(s): 1862366

Client: BARR ENGINEERING CO.

ST. GOBAIN BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/12/2017 9:40
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 12:35 on 10/12/2017

Samples Chilled Details: ST. GOBAIN BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.0	DT	Wet	Y	Bagged	N
2	DT146	1.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 03, 2017 11:27

Project: SGPP - Bennington

Account #: 37191
Group Number: 1862367
SDG: SGB82
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D26-18-19' Soil	10/11/2017 09:00	9261632
SG3-D26-28-29' Soil	10/11/2017 09:20	9261633
SG3-D26-38-39' Soil	10/11/2017 09:40	9261634

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1862367

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9261632, 9261634

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17297009 (Sample number(s): 9261632-9261634 UNSPK: P247916)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9261632, 9261634, MS

SW-846 6010C, Metals

Batch #: 172891063702 (Sample number(s): 9261632-9261634 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Potassium, Calcium, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese, Zinc

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium

SW-846 6020A, Metals

Batch #: 172891063702A (Sample number(s): 9261632-9261634 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Copper, Lead

Batch #: 172891063702D (Sample number(s): 9261632-9261634 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9261632

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17305667632A (Sample number(s): 9261633-9261634 UNSPK: 9261633 BKG: 9261633)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9261632, 9261633, 9261634

The pH was measured in water at 20 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17291820014A (Sample number(s): 9261632-9261634 BKG: 9261632)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **SG3-D26-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:00
SDG#: SGB82-01

C. T. Male Associates
ELLE Sample #: SW 9261632
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.081 U	0.081	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.081 U	0.081	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.73	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,900**	9.27	41.5	1
01650	**Calcium**	7440-70-2	**618**	3.45	41.5	1
01654	**Iron**	7439-89-6	**22,900**	8.35	41.5	1
01657	**Magnesium**	7439-95-4	**1,670**	2.52	20.7	1
06958	**Manganese**	7439-96-5	**947**	0.0861	1.04	1
01662	**Potassium**	7440-09-7	**1,840**	17.3	104	1
01667	**Sodium**	7440-23-5	**64.7 J**	17.3	207	1
06972	**Zinc**	7440-66-6	**47.8**	0.249	4.15	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.125 J**	0.0966	0.415	2
06125	**Arsenic**	7440-38-2	**9.77**	0.133	0.829	2
06126	**Barium**	7440-39-3	**118**	0.188	0.829	2
06127	**Beryllium**	7440-41-7	**0.694**	0.0109	0.207	2
06128	**Cadmium**	7440-43-9	**0.259**	0.0357	0.207	2
06131	**Chromium**	7440-47-3	**11.9**	0.180	0.829	2
06132	**Cobalt**	7440-48-4	**15.8**	0.0324	0.207	2
06133	**Copper**	7440-50-8	**16.8**	0.111	0.829	2
06135	**Lead**	7439-92-1	**14.1**	0.0230	0.415	2
06139	**Nickel**	7440-02-0	**19.9**	0.207	0.829	2
06141	**Selenium**	7782-49-2	**0.168 J**	0.104	0.829	2
06142	**Silver**	7440-22-4	**0.0494 J**	0.0303	0.207	2
06145	**Thallium**	7440-28-0	**0.336**	0.0259	0.207	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:00
SDG#: SGB82-01

C. T. Male Associates
ELLE Sample #: SW 9261632
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.0**		0.0442	0.207	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**343**	**J**	115	346	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**		0.0100	0.0100	1
	The pH was measured in water at 20 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**10.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17297009	10/25/2017 16:45	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17297009	10/24/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:20	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:00
SDG#: SGB82-01

C. T. Male Associates
ELLE Sample #: SW 9261632
ELLE Group #: 1862367
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 21:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17286039402B	10/13/2017 19:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820014A	10/19/2017 11:25	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:20
SDG#: SGB82-02

C. T. Male Associates
ELLE Sample #: SW 9261633
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,550**	7.61	34.1	1
01650	**Calcium**	7440-70-2	**5,870**	2.84	34.1	1
01654	**Iron**	7439-89-6	**28,100**	34.3	170	5
01657	**Magnesium**	7439-95-4	**1,650**	2.07	17.0	1
06958	**Manganese**	7439-96-5	**868**	0.0707	0.852	1
01662	**Potassium**	7440-09-7	**1,210**	14.2	85.2	1
01667	**Sodium**	7440-23-5	**22.3 J**	14.2	170	1
06972	**Zinc**	7440-66-6	**39.3**	0.204	3.41	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.172 J**	0.0794	0.341	2
06125	**Arsenic**	7440-38-2	**12.1**	0.109	0.681	2
06126	**Barium**	7440-39-3	**140**	0.155	0.681	2
06127	**Beryllium**	7440-41-7	**0.460**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**0.0991 J**	0.0293	0.170	2
06131	**Chromium**	7440-47-3	**12.6**	0.148	0.681	2
06132	**Cobalt**	7440-48-4	**23.6**	0.0266	0.170	2
06133	**Copper**	7440-50-8	**41.3**	0.0913	0.681	2
06135	**Lead**	7439-92-1	**17.7**	0.0189	0.341	2
06139	**Nickel**	7440-02-0	**15.2**	0.170	0.681	2
06141	**Selenium**	7782-49-2	**0.599 J**	0.0852	0.681	2
06142	**Silver**	7440-22-4	**0.0605 J**	0.0249	0.170	2
06145	**Thallium**	7440-28-0	**0.250**	0.0213	0.170	2
06148	**Vanadium**	7440-62-2	**16.0**	0.0363	0.170	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:20
SDG#: SGB82-02

C. T. Male Associates
ELLE Sample #: SW 9261633
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,270**	129	388	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17297009	10/25/2017 17:06	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17297009	10/24/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:49	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:23	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:34	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:20
SDG#: SGB82-02

C. T. Male Associates
ELLE Sample #: SW 9261633
ELLE Group #: 1862367
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 16:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17286039402B	10/13/2017 19:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820014A	10/19/2017 11:25	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:40
SDG#: SGB82-03

C. T. Male Associates
ELLE Sample #: SW 9261634
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	**Perfluorononanoic acid**	375-95-1	**0.12 J**	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,230**	7.95	35.6	1
01650	**Calcium**	7440-70-2	**5,360**	2.96	35.6	1
01654	**Iron**	7439-89-6	**25,300**	35.8	178	5
01657	**Magnesium**	7439-95-4	**3,130**	2.16	17.8	1
06958	**Manganese**	7439-96-5	**1,090**	0.0738	0.889	1
01662	**Potassium**	7440-09-7	**911**	14.9	88.9	1
01667	**Sodium**	7440-23-5	**20.7 J**	14.9	178	1
06972	**Zinc**	7440-66-6	**47.8**	0.213	3.56	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0829	0.356	2
06125	**Arsenic**	7440-38-2	**12.1**	0.114	0.712	2
06126	**Barium**	7440-39-3	**123**	0.162	0.712	2
06127	**Beryllium**	7440-41-7	**0.655**	0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.211**	0.0306	0.178	2
06131	**Chromium**	7440-47-3	**9.18**	0.155	0.712	2
06132	**Cobalt**	7440-48-4	**19.3**	0.0278	0.178	2
06133	**Copper**	7440-50-8	**25.5**	0.0954	0.712	2
06135	**Lead**	7439-92-1	**14.7**	0.0197	0.356	2
06139	**Nickel**	7440-02-0	**20.5**	0.177	0.712	2
06141	**Selenium**	7782-49-2	**0.302 J**	0.0889	0.712	2
06142	**Silver**	7440-22-4	**0.0398 J**	0.0260	0.178	2
06145	**Thallium**	7440-28-0	**0.340**	0.0222	0.178	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:40
SDG#: SGB82-03

C. T. Male Associates
ELLE Sample #: SW 9261634
ELLE Group #: 1862367
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.1**	0.0379	0.178	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**910**	269	808	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.14**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17297009	10/25/2017 18:07	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17297009	10/24/2017 17:05	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:53	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:35	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:36	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/12/2017 09:40
Collection Date/Time: 10/11/2017 09:40
SDG#: SGB82-03

C. T. Male Associates
ELLE Sample #: SW 9261634
ELLE Group #: 1862367
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:24	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 04:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17286039401B	10/13/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17291820014A	10/19/2017 11:25	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17297009	Sample number(s): 9261632-9261634		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	mg/kg	mg/kg	mg/kg
Batch number: 172891063702	Sample number(s): 9261632-9261634		
Aluminum	8.94 U	8.94	40.0
Calcium	10.5 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	1.91	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	1.54 J	0.240	4.00
Batch number: 172891063702A	Sample number(s): 9261632-9261634		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0318 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0288 J	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Batch number: 172891063702B	Sample number(s): 9261632-9261634		
Selenium	0.100 U	0.100	0.800
Batch number: 172891063702D	Sample number(s): 9261632-9261634		
Barium	0.182 U	0.182	0.800
Batch number: 17305667632A	Sample number(s): 9261633-9261634		
TOC	100 U	100	300
Batch number: 17306667631A	Sample number(s): 9261632		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17297009	Sample number(s): 9261632-9261634								
Perfluorobutanesulfonate	1.20	1.28	1.20	1.20	106	99	70-130	7	30
Perfluorobutanoic acid	1.36	1.56	1.36	1.49	115	110	70-130	4	30
Perfluorodecanoic acid	1.36	1.40	1.36	1.41	103	104	70-130	0	30
Perfluorododecanoic acid	1.36	1.53	1.36	1.49	112	109	70-130	3	30
Perfluoroheptanoic acid	1.36	1.62	1.36	1.44	119	106	70-130	12	30
Perfluorohexanesulfonate	1.29	1.32	1.29	1.19	102	92	70-130	10	30
Perfluorohexanoic acid	1.36	1.54	1.36	1.47	114	108	70-130	5	30
Perfluorononanoic acid	1.36	1.67	1.36	1.73	123	127	70-130	3	30
Perfluoro-octanesulfonate	1.30	1.51	1.30	1.48	116	114	70-130	2	30
Perfluorooctanoic acid	1.36	1.33	1.36	1.28	98	94	70-130	4	30
Perfluoropentanoic acid	1.36	1.45	1.36	1.52	107	112	70-130	5	30
Perfluorotetradecanoic acid	1.36	1.47	1.36	1.42	108	105	70-130	3	30
Perfluorotridecanoic acid	1.36	1.59	1.36	1.51	117	111	70-130	5	30
Perfluoroundecanoic acid	1.36	1.51	1.36	1.49	111	110	70-130	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172891063702	Sample number(s): 9261632-9261634								
Aluminum	200	187.45			94		80-120		
Calcium	400	384.27			96		80-120		
Iron	100	95.03			95		80-120		
Magnesium	200	187.25			94		80-120		
Manganese	50	47.88			96		80-120		
Potassium	1000	948.44			95		80-120		
Sodium	1000	927.08			93		80-120		
Zinc	50	48.94			98		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 172891063702A	Sample number(s): 9261632-9261634								
Antimony	0.600	0.607			101		80-120		
Arsenic	1.00	0.963			96		80-120		
Beryllium	0.400	0.340			85		80-120		
Cadmium	0.500	0.518			104		80-120		
Chromium	5.00	5.11			102		80-120		
Cobalt	25	25.04			100		80-120		
Copper	5.00	5.30			106		80-120		
Lead	1.50	1.49			99		80-120		
Nickel	5.00	5.26			105		80-120		
Silver	5.00	5.11			102		80-120		
Thallium	0.200	0.186			93		80-120		
Vanadium	5.00	4.89			98		80-120		
Batch number: 172891063702B	Sample number(s): 9261632-9261634								
Selenium	1.00	0.989			99		80-120		
Batch number: 172891063702D	Sample number(s): 9261632-9261634								
Barium	5.00	4.64			93		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17305667632A	Sample number(s): 9261633-9261634								
TOC	7150	7905.9			111		47-143		
Batch number: 17306667631A	Sample number(s): 9261632								
TOC	7150	7121.91			100		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17286039401B	Sample number(s): 9261634								
pH	7.00	6.92			99		95-105		
Batch number: 17286039402B	Sample number(s): 9261632-9261633								
pH	7.00	6.93			99		95-105		
	%	**%**	**%**	**%**					
Batch number: 17291820014A	Sample number(s): 9261632-9261634								
Moisture	89.5	89.34			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17297009	Sample number(s): 9261632-9261634 UNSPK: P247916									
Perfluorobutanesulfonate	0.16 U	1.05	1.12			107		70-130		
Perfluorobutanoic acid	0.16 U	1.18	1.40			118		70-130		
Perfluorodecanoic acid	0.16 U	1.18	1.17			99		70-130		
Perfluorododecanoic acid	0.16 U	1.18	1.41			119		70-130		
Perfluoroheptanoic acid	0.16 U	1.18	1.26			107		70-130		
Perfluorohexanesulfonate	0.16 U	1.12	1.16			104		70-130		
Perfluorohexanoic acid	0.079 U	1.18	1.24			105		70-130		
Perfluorononanoic acid	0.079 U	1.18	1.30			110		70-130		
Perfluoro-octanesulfonate	0.24 U	1.13	1.34			119		70-130		
Perfluorooctanoic acid	0.16 U	1.18	1.24			105		70-130		
Perfluoropentanoic acid	0.16 U	1.18	1.20			101		70-130		
Perfluorotetradecanoic acid	0.16 U	1.18	1.26			107		70-130		
Perfluorotridecanoic acid	0.16 U	1.18	1.39			118		70-130		
Perfluoroundecanoic acid	0.16 U	1.18	1.17			99		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172891063702	Sample number(s): 9261632-9261634 UNSPK: P265110									
Aluminum	1555.22	144.93	4914.09	145.99	6264.13	2318 (2)	3226 (2)	75-125	24*	20
Calcium	185.01	289.86	902.62	291.97	458.89	248*	94	75-125	65*	20
Iron	17079.97	72.46	17291.13	72.99	17146.73	291 (2)	91 (2)	75-125	1	20
Magnesium	250.96	144.93	593.75	145.99	652.03	237*	275*	75-125	9	20
Manganese	579.68	36.23	512.8	36.5	514.75	-185 (2)	-178 (2)	75-125	0	20
Potassium	219.62	724.64	1444.91	729.93	1542.1	169*	181*	75-125	7	20
Sodium	12.9 U	724.64	607.49	729.93	635.96	84	87	75-125	5	20
Zinc	50.13	36.23	76.27	36.5	82.58	72*	89	75-125	8	20
Batch number: 172891063702A	Sample number(s): 9261632-9261634 UNSPK: P265110									
Antimony	0.0722 U	0.870	0.757	0.876	0.700	87	80	75-125	8	20
Arsenic	3.11	1.45	4.70	1.46	4.80	110	116	75-125	2	20
Beryllium	1.34	0.580	1.89	0.584	2.03	94	117	75-125	7	20
Cadmium	0.335	0.725	1.13	0.730	1.04	109	97	75-125	8	20
Chromium	0.872	7.25	8.31	7.30	8.48	103	104	75-125	2	20
Cobalt	7.39	36.23	44.09	36.5	44.34	101	101	75-125	1	20
Copper	13.06	7.25	21.21	7.30	23.14	113	138*	75-125	9	20
Lead	9.86	2.17	13.4	2.19	12.43	163 (2)	117 (2)	75-125	8	20
Nickel	12.65	7.25	20.81	7.30	21.2	113	117	75-125	2	20
Silver	0.0226 U	7.25	7.53	7.30	6.97	104	95	75-125	8	20
Thallium	0.645	0.290	0.977	0.292	0.997	114	120	75-125	2	20
Vanadium	6.11	7.25	13.9	7.30	14.58	107	116	75-125	5	20
Batch number: 172891063702B	Sample number(s): 9261632-9261634 UNSPK: P265110									
Selenium	0.0775 U	1.45	1.52	1.46	1.49	105	102	75-125	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172891063702D	Sample number(s): 9261632-9261634 UNSPK: P265110									
Barium	63.15	7.25	126.99	7.30	127.83	881 (2)	886 (2)	75-125	1	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17305667632A	Sample number(s): 9261633-9261634 UNSPK: 9261633									
TOC	2705.63	24780	29289.26			107		47-143		
Batch number: 17306667631A	Sample number(s): 9261632 UNSPK: P258597									
TOC	102 U	20400	23738.95			116		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172891063702	Sample number(s): 9261632-9261634 BKG: P265110			
Aluminum	1555.22	1719.59	10	20
Calcium	185.01	258.04	33*	20
Iron	17079.97	16158.49	6	20
Magnesium	250.96	259.09	3	20
Manganese	579.68	537.67	8	20
Potassium	219.62	262.47	18 (1)	20
Sodium	12.9 U	13.4 U	0 (1)	20
Zinc	50.13	50.22	0	20
Batch number: 172891063702A	Sample number(s): 9261632-9261634 BKG: P265110			
Antimony	0.0722 U	0.0746 U	0 (1)	20
Arsenic	3.11	2.57	19 (1)	20
Beryllium	1.34	1.22	10	20
Cadmium	0.335	0.324	3 (1)	20
Chromium	0.872	0.993	13 (1)	20
Cobalt	7.39	7.70	4	20
Copper	13.06	11.79	10	20
Lead	9.86	9.23	7	20
Nickel	12.65	11.71	8	20
Silver	0.0226 U	0.0234 U	0 (1)	20
Thallium	0.645	0.633	2 (1)	20
Vanadium	6.11	6.01	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172891063702B	Sample number(s): 9261632-9261634 BKG: P265110			
Selenium	0.0775 U	0.0800 U	0 (1)	20
Batch number: 172891063702D	Sample number(s): 9261632-9261634 BKG: P265110			
Barium	63.15	63.83	1	20
	mg/kg	mg/kg		
Batch number: 17305667632A	Sample number(s): 9261633-9261634 BKG: 9261633			
TOC	2705.63	662.37	121* (1)	7
Batch number: 17306667631A	Sample number(s): 9261632 BKG: P258597			
TOC	102 U	101 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17286039401B	Sample number(s): 9261634 BKG: 9261634			
pH	8.14	8.19	1	3
Batch number: 17286039402B	Sample number(s): 9261632-9261633 BKG: P261536			
pH	7.67	7.67	0	3
	%	%		
Batch number: 17291820014A	Sample number(s): 9261632-9261634 BKG: 9261632			
Moisture	10.69	10.12	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17297009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9261632	70	68*	69	76	81	72
9261633	76	72	73	76	87	77
9261634	67	66*	62	68	75	66
Blank	88	88	81	96	88	86
LCS	84	88	79	101	94	95
LCSD	82	84	79	97	87	92
MS	45	48*	58	47	58	48

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:27

Group Number: 1862367

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17297009

Limits:	37-107	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9261632	81	79	83	81	81	76
9261633	79	88	75	95	77	74
9261634	73	84	70	78	69	71
Blank	99	86	85	100	91	95
LCS	94	80	89	95	90	89
LCSD	102	80	84	96	89	87
MS	53	66	48	55	54	48
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9261632	75
9261633	77
9261634	64
Blank	91
LCS	81
LCSD	88
MS	52
Limits:	20-127

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37191 | 1862367 | 9261632-34

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47378

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd Latham NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 4502/004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic / PFCs (14)	Soil: 4 oz glass / TOC, pH, Moisture	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D26-18-19'	18	19	ft	10-11-17	0900	Soil	N	2		1	1				PFCs (14), pH, Moisture
2. SG3-D26-28-29'	28	29	ft	10-11-17	0920	S	N	2		1	1				TOC,
3. SG3-D26-38-39'	38	39	ft	10-11-17	0940	S	N	2		1	1				TAL metals/cations excluding Hg
4.															
5.															
6.															
7.															Samples in 2 coolers
8.															
9.															
10.															

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ	Derek Zander	Y	10/11/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10.12.17	0940
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 1.4			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197300

Group Number(s): 1862367

Client: BARR ENGINEERING CO.

SGPP BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/12/2017 9:40
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 12:35 on 10/12/2017

Samples Chilled Details: SGPP BENNINGTON

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.0	DT	Wet	Y	Bagged	N
2	DT146	1.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 14, 2017

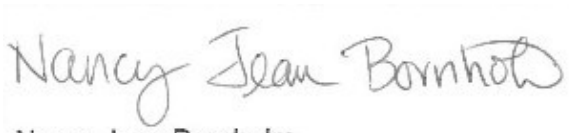
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1862759
SDG: SGB83
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FilteredWaterFracTKD-171012 Water	10/12/2017	9263161
Trip Blank Water	10/12/2017	9263162

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1862759

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9263161, 9263162

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17286008 (Sample number(s): 9263161-9263162)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9263161, 9263162, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterFracTKD-171012 Water
SGPP - North Bennington

ELLE Sample # GW 9263161
ELLE Group # 1862759
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/12/2017 by KAM

Submitted: 10/13/2017 09:30
Reported: 10/14/2017 07:35

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BENN3 SDG#: SGB83-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8	U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17286008	10/13/2017 20:38	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17286008	10/13/2017 11:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9263162
ELLE Group # 1862759
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/12/2017

Submitted: 10/13/2017 09:30
Reported: 10/14/2017 07:35

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

BENNT SDG#: SGB83-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8	U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17286008	10/13/2017 20:58	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17286008	10/13/2017 11:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/14/2017 07:35

Group Number: 1862759

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17286008	Sample number(s): 9263161-9263162			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17286008	Sample number(s): 9263161-9263162								
6:2 fluorotelomersulfonate	15.17	16.9	15.17	15.59	111	103	70-130	8	30
8:2 fluorotelomersulfonate	15.33	18.17	15.33	18.87	119	123	70-130	4	30
NEtFOSAA	5.44	5.97	5.44	5.64	110	104	70-130	6	30
NMeFOSAA	5.44	5.67	5.44	6.55	104	120	70-130	15	30
Perfluorobutanesulfonate	4.81	4.68	4.81	4.67	97	97	70-130	0	30
Perfluorobutanoic acid	5.44	5.74	5.44	5.88	105	108	70-130	2	30
Perfluorodecanoic acid	5.44	5.58	5.44	5.40	103	99	70-130	3	30
Perfluorododecanoic acid	5.44	6.54	5.44	6.23	120	115	70-130	5	30
Perfluoroheptanoic acid	5.44	5.35	5.44	5.42	98	100	70-130	1	30
Perfluorohexanesulfonate	5.14	5.05	5.14	5.94	98	115	70-130	16	30
Perfluorohexanoic acid	5.44	5.39	5.44	5.96	99	110	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/14/2017 07:35

Group Number: 1862759

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.90	5.44	5.68	108	104	70-130	4	30
Perfluorooctanesulfonamide	5.44	5.04	5.44	5.25	93	96	70-130	4	30
Perfluoro-octanesulfonate	5.20	5.23	5.20	5.36	101	103	70-130	2	30
Perfluorooctanoic acid	5.44	6.19	5.44	6.34	114	116	70-130	2	30
Perfluoropentanoic acid	5.44	5.94	5.44	5.90	109	109	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.63	5.44	5.96	104	110	70-130	6	30
Perfluorotridecanoic acid	5.44	5.72	5.44	6.53	105	120	70-130	13	30
Perfluoroundecanoic acid	5.44	5.58	5.44	5.68	103	104	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17286008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263161	83	88	84	89	79	79
9263162	85	86	86	94	89	87
Blank	90	93	83	92	86	91
LCS	92	88	86	84	87	85
LCSD	96	96	95	106	93	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9263161	75	88	85	85	91	97
9263162	85	91	85	94	93	97
Blank	82	82	90	102	88	65
LCS	86	87	90	98	97	84
LCSD	102	98	89	95	100	85
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9263161	76	94	87	87	99	36*
9263162	78	91	102	99	91	60*
Blank	63	86	76	83	80	33*
LCS	80	86	94	97	96	41*
LCSD	74	99	90	95	96	42*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1862759
Reported: 10/14/2017 07:35

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17286008

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

★ Rush – 24 Hr. T.A.T. ★ A-37191 G-1862759 5-926316(-62

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☐ Duluth ☐ Jefferson City
☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ MN ☐ SD Other: VT

COC Number: **52308**

COC ____ of ____

REPORT TO		INVOICE TO	
Company:	Barr Eng Co.	Company:	CT Male
Address:	4300 MarketPointe Dr.	Address:	50 Century Hill Dr.
Name:	Michael Dupay	Name:	Latham, NY
email:	Mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	SGPP	Barr Project No:	

Analysis Requested — Water: 250 ml plastic/Trizma; 250ml tripblank — Soil: — % Solids

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 ml plastic/Trizma	250ml tripblank	% Solids	Notes
Preservative Code									O	O		
Field Filtered Y/N									N	N		
1. SG3-Filtered Water frac TK D 171012	/	/	/	10/12/2017		Water	N	2	2			PFC's, (19)
2. Trip Blank	/	/	/	10/12/2017	—	Water	N	2		2		/
3.												
4.												
5.												Rush 24-Hr. T.A.T.
6.												
7.												
8.												
9.												
10.												

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

BARR USE ONLY	
Sampled by:	KAM
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	(Y) N	10/12/17	1230	~~Received by:~~		
~~Relinquished by:~~	~~On Ice?~~ Y N	~~Date~~	~~Time~~	Received by: [signature]	10.13.17	09:30

Samples Shipped VIA: ☒ Courier ☒ Federal Express ~~☐ Sampler~~ (KAM) ☐ Other: ____

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.9/4.0 Custody Seal Intact? ☑Y ☐N ☐None

Requested Due Date:
☐ Standard Turn Around Time
☒ Rush 24 HOUR (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197419

Group Number(s): 1862759

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/13/2017 9:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 09:57 on 10/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	4.0	DT	Wet	Y	Bagged	N
2	DT146	0.9	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 01, 2017 15:49

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1862908
SDG: SGB84
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AfterPoet(TKD)-171011 Grab Water	10/11/2017 18:20	9263644
SG3-RB-9"Casing-171012 Grab Water	10/12/2017 07:45	9263645
SG3-AfterPoet(GAC Change "D")-171012 Grab Water	10/12/2017 09:00	9263646
SG3-AfterPoet(TKC)-171012 Grab Water	10/12/2017 12:00	9263647

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1862908

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9263644

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9263645, 9263646, 9263647

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch #: 17291005 (Sample number(s): 9263644)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9263644, Blank, LCS, LCSD

Batch #: 17299005 (Sample number(s): 9263645-9263647)

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The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9263645, 9263646, 9263647, Blank, LCS, LCSD

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Sample Description: **SG3-AfterPoet(TKD)-171011 Grab Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/11/2017 18:20
SDG#: SGB84-01

C. T. Male Associates
ELLE Sample #: GW 9263644
ELLE Group #: 1862908
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 JB**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 B**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time and no reportable hits were detected in the method blank. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291005	10/23/2017 01:31	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291005	10/19/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **SG3-RB-9"Casing-171012 Grab Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 07:45
SDG#: SGB84-02

C. T. Male Associates
ELLE Sample #: GW 9263645
ELLE Group #: 1862908
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.3 J**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**14**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**3**	0.4	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**0.4 J**	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**4**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**8**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**1**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**7**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**0.8 J**	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 18:38	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3-AfterPoet(GAC Change "D")-171012 Grab Water
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 09:00
SDG#: SGB84-03

C. T. Male Associates
ELLE Sample #: GW 9263646
ELLE Group #: 1862908
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 18:58	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **SG3-AfterPoet(TKC)-171012 Grab Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 12:00
SDG#: SGB84-04

C. T. Male Associates
ELLE Sample #: GW 9263647
ELLE Group #: 1862908
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 19:19	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 15:49

Group Number: 1862908

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17291005	Sample number(s): 9263644		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.8 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17299005	Sample number(s): 9263645-9263647		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 15:49

Group Number: 1862908

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17291005	Sample number(s): 9263644								
6:2 fluorotelomersulfonate	15.17	16.57	15.17	17.68	109	117	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.22	15.33	20.04	106	131*	70-130	21	30
NEtFOSAA	5.44	5.32	5.44	5.33	98	98	70-130	0	30
NMeFOSAA	5.44	5.66	5.44	5.75	104	106	70-130	1	30
Perfluorobutanesulfonate	4.81	4.70	4.81	5.21	98	108	70-130	10	30
Perfluorobutanoic acid	5.44	5.53	5.44	5.86	102	108	70-130	6	30
Perfluorodecanoic acid	5.44	5.78	5.44	6.42	106	118	70-130	11	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.43	105	100	70-130	6	30
Perfluoroheptanoic acid	5.44	6.26	5.44	6.25	115	115	70-130	0	30
Perfluorohexanesulfonate	5.14	4.86	5.14	5.60	94	109	70-130	14	30
Perfluorohexanoic acid	5.44	5.23	5.44	5.61	96	103	70-130	7	30
Perfluorononanoic acid	5.44	5.53	5.44	6.19	102	114	70-130	11	30
Perfluorooctanesulfonamide	5.44	5.33	5.44	5.71	98	105	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.06	5.20	5.11	97	98	70-130	1	30
Perfluorooctanoic acid	5.44	6.63	5.44	7.31	122	134*	70-130	10	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.74	100	106	70-130	5	30
Perfluorotetradecanoic acid	5.44	4.97	5.44	5.10	91	94	70-130	3	30
Perfluorotridecanoic acid	5.44	5.09	5.44	5.25	94	96	70-130	3	30
Perfluoroundecanoic acid	5.44	5.73	5.44	5.96	105	109	70-130	4	30
Batch number: 17299005	Sample number(s): 9263645-9263647								
6:2 fluorotelomersulfonate	15.17	18.7	15.17	16.47	123	109	70-130	13	30
8:2 fluorotelomersulfonate	15.33	13.23	15.33	15.3	86	100	70-130	15	30
NEtFOSAA	5.44	7.87	5.44	8.15	145*	150*	70-130	3	30
NMeFOSAA	5.44	8.14	5.44	8.22	150*	151*	70-130	1	30
Perfluorobutanesulfonate	4.81	5.19	4.81	4.97	108	103	70-130	4	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.26	112	115	70-130	3	30
Perfluorodecanoic acid	5.44	6.66	5.44	5.83	122	107	70-130	13	30
Perfluorododecanoic acid	5.44	5.66	5.44	5.44	104	100	70-130	4	30
Perfluoroheptanoic acid	5.44	6.29	5.44	6.10	116	112	70-130	3	30
Perfluorohexanesulfonate	5.14	5.19	5.14	4.64	101	90	70-130	11	30
Perfluorohexanoic acid	5.44	5.87	5.44	5.78	108	106	70-130	2	30
Perfluorononanoic acid	5.44	5.43	5.44	5.03	100	92	70-130	8	30
Perfluorooctanesulfonamide	5.44	6.98	5.44	6.71	128	123	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/01/2017 15:49

Group Number: 1862908

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	4.85	5.20	5.56	93	107	70-130	14	30
Perfluorooctanoic acid	5.44	6.59	5.44	6.03	121	111	70-130	9	30
Perfluoropentanoic acid	5.44	5.94	5.44	6.13	109	113	70-130	3	30
Perfluorotetradecanoic acid	5.44	6.49	5.44	5.60	119	103	70-130	15	30
Perfluorotridecanoic acid	5.44	6.02	5.44	5.66	111	104	70-130	6	30
Perfluoroundecanoic acid	5.44	5.71	5.44	5.65	105	104	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263644	94	92	87	102	94	104
Blank	94	96	93	102	96	98
LCS	78	77	79	93	82	80
LCSD	101	102	99	105	94	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9263644	86	96	88	87	96	67
Blank	84	93	90	90	101	68
LCS	70	80	73	70	77	55
LCSD	84	100	94	91	102	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9263644	77	88	91	82	81	27*
Blank	77	98	87	89	84	63*
LCS	50	68	62	62	62	23*
LCSD	69	96	81	85	86	42*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1862908
Reported: 11/01/2017 15:49

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263645	81	77	95	63	73	67
9263646	81	78	78	88	87	85
9263647	88	85	87	81	90	86
Blank	88	85	85	101	99	97
LCS	77	79	77	75	84	75
LCSD	81	81	84	92	106	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9263645	106	80	82	92	70	88
9263646	73	81	74	71	82	56
9263647	67	86	80	87	77	49
Blank	88	89	80	71	81	58
LCS	64	80	77	72	74	79
LCSD	83	89	84	82	82	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9263645	54	64	65	47	15*	37*
9263646	64	63	77	58	33	37*
9263647	62	63	69	65	63	19*
Blank	59	76	71	75	80	60*
LCS	66	76	74	77	71	57*
LCSD	58	74	63	74	75	51*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1862908 9263644-47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47387

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill DR.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml Plastic / Trizma	Water: trip Blank / trizma	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-AfterPoet (TKD) - 171011				10/11/2017	18:20	water	N	2	2			PFC's (19)	
2. SG3-RB-9" casing-171012				10/12/2017	07:45	water	N	2	2				
3. SG3-AfterPoet (KAM) (GAC change "D") - 171012				10/12/2017	09:00	water	N	2	2				
4. SG3-AfterPoet (TKC) - 171012				10/12/2017	12:00	water	N	2	2				
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by:	KAM		6 N	10/12/17	17:00			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.13.17	Time 09:30
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:				Temperature on Receipt (°C) 0.9 | 4.0 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Document; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197419

Group Number(s): 1862908

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/13/2017 9:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 09:57 on 10/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	4.0	DT	Wet	Y	Bagged	N
2	DT146	0.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 13, 2017 11:44

Project: SGPP - Bennington

Account #: 37191
Group Number: 1862910
SDG: SGB85
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB73-171012 Blank Water	10/12/2017	9263652
SG3-LTB74-171012 Blank Water	10/12/2017	9263653
SG3-RBIBC1-171012 Blank Water	10/12/2017 07:45	9263654
SG3-RBIBC2-171012 Blank Water	10/12/2017 08:20	9263655
SG3-MWBR2-0-0.5' Soil	10/12/2017 07:50	9263656
SG3-MWBR2-0.5-1' Soil	10/12/2017 08:00	9263657
SG3-MWBR2-1-1.5' Soil	10/12/2017 08:10	9263658
SG3-MWBR2-3-4' Soil	10/12/2017 08:15	9263659
SG3-MWBR2-8-9' Soil	10/12/2017 08:20	9263660
SG3-MWBR2-18-19' Soil	10/12/2017 08:25	9263661
SG3-MWBR2-28-29' Soil	10/12/2017 09:45	9263662
SG3-MWBR2-38-39' Soil	10/12/2017 10:45	9263663
SG3-MWBR2-48-49' Soil	10/12/2017 10:55	9263664
SG3-MWBR2-58-59' Soil	10/12/2017 11:10	9263665
SG3-MWBR2-68-69' Soil	10/12/2017 11:30	9263666
SG3-MWBR2-78-79' Soil	10/12/2017 13:00	9263667
SG3-MWBR2-88-89' Soil	10/12/2017 15:40	9263668
SG3-FDS12-171012 Soil	10/12/2017	9263669
SG3-MWBR2-98-99' Soil	10/12/2017 16:20	9263670

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1862910

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9263655

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and comparable data was observed.

The recovery for extraction standard 13C2-PFTeDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and comparable data was observed. Both sets of data are reported in the data package.

Sample #s: 9263654

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and did not confirm. Comparable results were not observed between the two extractions. Both sets of data are included in the data package.

Sample #s: 9263656

The recovery for labeled compound used as extraction standard 13C7-PFDA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound PFDA is not detected, the data is reported.

Sample #s: 9263669

The recovery for several labeled compounds used as extraction

standards is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and the associated native compounds are not detected, the data is reported.

Sample #s: 9263659, 9263662, 9263663, 9263666, 9263667

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17289008 (Sample number(s): 9263654-9263655)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9263655

Batch #: 17298003 (Sample number(s): 9263656-9263670 UNSPK: 9263656)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9263656, 9263669

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9263659, 9263662, 9263663, 9263666, 9263667

SW-846 6010C, Metals

Batch #: 172891063702 (Sample number(s): 9263656-9263669 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Potassium, Calcium, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese, Zinc

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium

Batch #: 172911063701 (Sample number(s): 9263670 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Zinc

SW-846 6020A, Metals

Batch #: 172891063702A (Sample number(s): 9263656-9263669 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Copper, Lead

Batch #: 172891063702D (Sample number(s): 9263656-9263669 UNSPK: P265110 BKG: P265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 172911063701A (Sample number(s): 9263670 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Beryllium, Copper, Lead

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Silver, Thallium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Silver, Thallium

Batch #: 172911063701B (Sample number(s): 9263670 UNSPK: P265116 BKG: P265116)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Selenium

Batch #: 172911063701D (Sample number(s): 9263670 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9263664, 9263670

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17305667632A (Sample number(s): 9263656-9263662 UNSPK: P261633 BKG: P261633)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17305667632B (Sample number(s): 9263663, 9263665-9263667 UNSPK: P263871 BKG: P263871)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9263656, 9263657, 9263659, 9263661

The pH was measured in water at 20 C.

Sample #s: 9263658, 9263660, 9263662, 9263664, 9263665, 9263666, 9263668, 9263669, 9263670

The pH was measured in water at 20.1 C.

Sample #s: 9263667

The pH was measured in water at 20.2 C.

Sample #s: 9263663

The pH was measured in water at 20.3 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 172928200004B (Sample number(s): 9263656-9263670 BKG: P262332)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: **SG3-LTB73-171012 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017
SDG#: SGB85-01TB

C. T. Male Associates
ELLE Sample #: WW 9263652
ELLE Group #: 1862910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 05:46	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB74-171012 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017
SDG#: SGB85-02TB

C. T. Male Associates
ELLE Sample #: WW 9263653
ELLE Group #: 1862910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 06:06	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RBIBC1-171012 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 07:45
SDG#: SGB85-03RB

C. T. Male Associates
ELLE Sample #: WW 9263654
ELLE Group #: 1862910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 JB**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.3 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.4 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**0.5 J**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and did not confirm. Comparable results were not observed between the two extractions. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 07:50	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RBIBC2-171012 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:20
SDG#: SGB85-04RB

C. T. Male Associates
ELLE Sample #: WW 9263655
ELLE Group #: 1862910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 JB**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 JB**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and comparable data was observed.

The recovery for extraction standard 13C2-PFTeDA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and comparable data was observed.
Both sets of data are reported in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 08:11	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 07:50
SDG#: SGB85-05

C. T. Male Associates
ELLE Sample #: SW 9263656
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.39 J**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1

The recovery for labeled compound used as extraction standard 13C7-PFDA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound PFDA is not detected, the data is reported.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,220**	8.88	39.7	1
01650	**Calcium**	7440-70-2	**71,700**	16.5	199	5
01654	**Iron**	7439-89-6	**11,500**	8.00	39.7	1
01657	**Magnesium**	7439-95-4	**26,300**	2.41	19.9	1
06958	**Manganese**	7439-96-5	**302**	0.0824	0.993	1
01662	**Potassium**	7440-09-7	**763**	16.6	99.3	1
01667	**Sodium**	7440-23-5	**37.1 J**	16.6	199	1
06972	**Zinc**	7440-66-6	**28.6**	0.238	3.97	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0926 U	0.0926	0.397	2
06125	**Arsenic**	7440-38-2	**4.42**	0.127	0.795	2
06126	**Barium**	7440-39-3	**31.8**	0.180	0.795	2
06127	**Beryllium**	7440-41-7	**0.215**	0.0104	0.199	2
06128	**Cadmium**	7440-43-9	**0.107 J**	0.0342	0.199	2
06131	**Chromium**	7440-47-3	**5.25**	0.173	0.795	2
06132	**Cobalt**	7440-48-4	**6.58**	0.0310	0.199	2
06133	**Copper**	7440-50-8	**9.41**	0.106	0.795	2
06135	**Lead**	7439-92-1	**7.62**	0.0221	0.397	2
06139	**Nickel**	7440-02-0	**9.94**	0.198	0.795	2
06141	**Selenium**	7782-49-2	**0.115 J**	0.0993	0.795	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-0-0.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9263656
ELLE Group #: 1862910
Matrix: Soil

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 07:50
SDG#: SGB85-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.246**	0.0290	0.199	2
06145	**Thallium**	7440-28-0	**0.102 J**	0.0248	0.199	2
06148	**Vanadium**	7440-62-2	**6.13**	0.0423	0.199	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**15,700**	750	2,250	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.26**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 08:49	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:56	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:38	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/20/2017 07:38	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 07:50
SDG#: SGB85-05

C. T. Male Associates
ELLE Sample #: SW 9263656
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:27	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:27	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 04:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:00
SDG#: SGB85-06

C. T. Male Associates
ELLE Sample #: SW 9263657
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,770**	7.55	33.8	1
01650	**Calcium**	7440-70-2	**82,900**	14.1	169	5
01654	**Iron**	7439-89-6	**10,700**	6.80	33.8	1
01657	**Magnesium**	7439-95-4	**36,500**	2.05	16.9	1
06958	**Manganese**	7439-96-5	**292**	0.0701	0.844	1
01662	**Potassium**	7440-09-7	**733**	14.1	84.4	1
01667	**Sodium**	7440-23-5	**40.4 J**	14.1	169	1
06972	**Zinc**	7440-66-6	**26.1**	0.203	3.38	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0787 U	0.0787	0.338	2
06125	**Arsenic**	7440-38-2	**4.13**	0.108	0.675	2
06126	**Barium**	7440-39-3	**27.9**	0.153	0.675	2
06127	**Beryllium**	7440-41-7	**0.227**	0.0088	0.169	2
06128	**Cadmium**	7440-43-9	**0.0996 J**	0.0290	0.169	2
06131	**Chromium**	7440-47-3	**4.62**	0.147	0.675	2
06132	**Cobalt**	7440-48-4	**6.67**	0.0263	0.169	2
06133	**Copper**	7440-50-8	**8.40**	0.0905	0.675	2
06135	**Lead**	7439-92-1	**6.40**	0.0187	0.338	2
06139	**Nickel**	7440-02-0	**8.97**	0.168	0.675	2
06141	**Selenium**	7782-49-2	**0.0934 J**	0.0844	0.675	2
06142	**Silver**	7440-22-4	**0.0392 J**	0.0247	0.169	2
06145	**Thallium**	7440-28-0	**0.0971 J**	0.0211	0.169	2
06148	**Vanadium**	7440-62-2	**5.96**	0.0360	0.169	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-0.5-1' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:00
SDG#: SGB85-06

C. T. Male Associates
ELLE Sample #: SW 9263657
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,870**	673	2,020	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.47**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 09:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 07:30	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:43	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/20/2017 07:39	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:30	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:00
SDG#: SGB85-06

C. T. Male Associates
ELLE Sample #: SW 9263657
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:30	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 04:45	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:10
SDG#: SGB85-07

C. T. Male Associates
ELLE Sample #: SW 9263658
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,780**	10.3	45.9	1
01650	**Calcium**	7440-70-2	**52,500**	3.82	45.9	1
01654	**Iron**	7439-89-6	**14,000**	9.23	45.9	1
01657	**Magnesium**	7439-95-4	**20,800**	2.79	22.9	1
06958	**Manganese**	7439-96-5	**418**	0.0952	1.15	1
01662	**Potassium**	7440-09-7	**1,090**	19.1	115	1
01667	**Sodium**	7440-23-5	**37.7 J**	19.1	229	1
06972	**Zinc**	7440-66-6	**34.6**	0.275	4.59	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.107 U	0.107	0.459	2
06125	**Arsenic**	7440-38-2	**5.69**	0.147	0.917	2
06126	**Barium**	7440-39-3	**56.6**	0.208	0.917	2
06127	**Beryllium**	7440-41-7	**0.308**	0.0120	0.229	2
06128	**Cadmium**	7440-43-9	**0.137 J**	0.0394	0.229	2
06131	**Chromium**	7440-47-3	**6.06**	0.200	0.917	2
06132	**Cobalt**	7440-48-4	**10.2**	0.0358	0.229	2
06133	**Copper**	7440-50-8	**12.1**	0.123	0.917	2
06135	**Lead**	7439-92-1	**7.83**	0.0255	0.459	2
06139	**Nickel**	7440-02-0	**12.9**	0.228	0.917	2
06141	**Selenium**	7782-49-2	**0.122 J**	0.115	0.917	2
06142	Silver	7440-22-4	0.0335 U	0.0335	0.229	2
06145	**Thallium**	7440-28-0	**0.230**	0.0287	0.229	2
06148	**Vanadium**	7440-62-2	**7.14**	0.0488	0.229	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-1-1.5' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:10
SDG#: SGB85-07

C. T. Male Associates
ELLE Sample #: SW 9263658
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,700**	623	1,870	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.34**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 09:30	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:47	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/20/2017 07:44	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:33	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:10
SDG#: SGB85-07

C. T. Male Associates
ELLE Sample #: SW 9263658
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:33	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 04:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:15
SDG#: SGB85-08

C. T. Male Associates
ELLE Sample #: SW 9263659
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,510**	8.36	37.4	1
01650	**Calcium**	7440-70-2	**72,700**	15.6	187	5
01654	**Iron**	7439-89-6	**12,700**	7.53	37.4	1
01657	**Magnesium**	7439-95-4	**29,100**	2.27	18.7	1
06958	**Manganese**	7439-96-5	**316**	0.0776	0.935	1
01662	**Potassium**	7440-09-7	**804**	15.6	93.5	1
01667	**Sodium**	7440-23-5	**34.3 J**	15.6	187	1
06972	**Zinc**	7440-66-6	**31.1**	0.224	3.74	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0872 U	0.0872	0.374	2
06125	**Arsenic**	7440-38-2	**4.93**	0.120	0.748	2
06126	**Barium**	7440-39-3	**28.3**	0.170	0.748	2
06127	**Beryllium**	7440-41-7	**0.219**	0.0098	0.187	2
06128	**Cadmium**	7440-43-9	**0.128 J**	0.0322	0.187	2
06131	**Chromium**	7440-47-3	**5.22**	0.163	0.748	2
06132	**Cobalt**	7440-48-4	**7.23**	0.0292	0.187	2
06133	**Copper**	7440-50-8	**10.1**	0.100	0.748	2
06135	**Lead**	7439-92-1	**6.57**	0.0208	0.374	2
06139	**Nickel**	7440-02-0	**11.8**	0.186	0.748	2
06141	**Selenium**	7782-49-2	**0.122 J**	0.0935	0.748	2
06142	Silver	7440-22-4	0.0273 U	0.0273	0.187	2
06145	**Thallium**	7440-28-0	**0.0838 J**	0.0234	0.187	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:15
SDG#: SGB85-08

C. T. Male Associates
ELLE Sample #: SW 9263659
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.27**	0.0398	0.187	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,220**	570	1,710	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 09:51	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 07:33	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:51	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/20/2017 07:46	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:15
SDG#: SGB85-08

C. T. Male Associates
ELLE Sample #: SW 9263659
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:36	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:36	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 05:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:20
SDG#: SGB85-09

C. T. Male Associates
ELLE Sample #: SW 9263660
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,520**	9.49	42.5	1
01650	**Calcium**	7440-70-2	**37,900**	3.54	42.5	1
01654	**Iron**	7439-89-6	**19,600**	8.55	42.5	1
01657	**Magnesium**	7439-95-4	**16,900**	2.58	21.2	1
06958	**Manganese**	7439-96-5	**589**	0.0881	1.06	1
01662	**Potassium**	7440-09-7	**1,040**	17.7	106	1
01667	**Sodium**	7440-23-5	**27.4 J**	17.7	212	1
06972	**Zinc**	7440-66-6	**43.5**	0.255	4.25	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.189 J**	0.0990	0.425	2
06125	**Arsenic**	7440-38-2	**11.9**	0.136	0.850	2
06126	**Barium**	7440-39-3	**98.7**	0.193	0.850	2
06127	**Beryllium**	7440-41-7	**0.496**	0.0111	0.212	2
06128	**Cadmium**	7440-43-9	**0.189 J**	0.0365	0.212	2
06131	**Chromium**	7440-47-3	**6.62**	0.185	0.850	2
06132	**Cobalt**	7440-48-4	**16.1**	0.0331	0.212	2
06133	**Copper**	7440-50-8	**17.9**	0.114	0.850	2
06135	**Lead**	7439-92-1	**11.0**	0.0236	0.425	2
06139	**Nickel**	7440-02-0	**19.6**	0.212	0.850	2
06141	**Selenium**	7782-49-2	**0.211 J**	0.106	0.850	2
06142	**Silver**	7440-22-4	**0.0393 J**	0.0310	0.212	2
06145	**Thallium**	7440-28-0	**0.271**	0.0266	0.212	2
06148	**Vanadium**	7440-62-2	**8.54**	0.0452	0.212	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-8-9' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:20
SDG#: SGB85-09

C. T. Male Associates
ELLE Sample #: SW 9263660
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,400**	459	1,380	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.56**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 10:11	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:55	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:48	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:40	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:40	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:20
SDG#: SGB85-09

C. T. Male Associates
ELLE Sample #: SW 9263660
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:40	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 06:03	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:25
SDG#: SGB85-10

C. T. Male Associates
ELLE Sample #: SW 9263661
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,950**	7.10	31.8	1
01650	**Calcium**	7440-70-2	**19,400**	2.64	31.8	1
01654	**Iron**	7439-89-6	**23,500**	32.0	159	5
01657	**Magnesium**	7439-95-4	**7,820**	1.93	15.9	1
06958	**Manganese**	7439-96-5	**1,170**	0.0659	0.794	1
01662	**Potassium**	7440-09-7	**1,300**	13.3	79.4	1
01667	**Sodium**	7440-23-5	**36.7 J**	13.3	159	1
06972	**Zinc**	7440-66-6	**51.8**	0.191	3.18	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.120 J**	0.0740	0.318	2
06125	**Arsenic**	7440-38-2	**7.87**	0.102	0.635	2
06126	**Barium**	7440-39-3	**110**	0.144	0.635	2
06127	**Beryllium**	7440-41-7	**0.520**	0.0083	0.159	2
06128	**Cadmium**	7440-43-9	**0.191**	0.0273	0.159	2
06131	**Chromium**	7440-47-3	**14.0**	0.138	0.635	2
06132	**Cobalt**	7440-48-4	**13.7**	0.0248	0.159	2
06133	**Copper**	7440-50-8	**20.6**	0.0851	0.635	2
06135	**Lead**	7439-92-1	**11.4**	0.0176	0.318	2
06139	**Nickel**	7440-02-0	**26.6**	0.158	0.635	2
06141	**Selenium**	7782-49-2	**0.233 J**	0.0794	0.635	2
06142	**Silver**	7440-22-4	**0.111 J**	0.0232	0.159	2
06145	**Thallium**	7440-28-0	**0.373**	0.0199	0.159	2
06148	**Vanadium**	7440-62-2	**12.4**	0.0338	0.159	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:25
SDG#: SGB85-10

C. T. Male Associates
ELLE Sample #: SW 9263661
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,860**	447	1,340	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 11:54	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 07:37	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:59	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:50	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:43	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:43	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 08:25
SDG#: SGB85-10

C. T. Male Associates
ELLE Sample #: SW 9263661
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:43	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 06:16	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 09:45
SDG#: SGB85-11

C. T. Male Associates
ELLE Sample #: SW 9263662
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.29 J**	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,580**	7.70	34.5	1
01650	**Calcium**	7440-70-2	**7,600**	2.87	34.5	1
01654	**Iron**	7439-89-6	**34,400**	34.7	172	5
01657	**Magnesium**	7439-95-4	**4,540**	2.09	17.2	1
06958	**Manganese**	7439-96-5	**555**	0.0715	0.861	1
01662	**Potassium**	7440-09-7	**1,660**	14.4	86.1	1
01667	**Sodium**	7440-23-5	**31.9 J**	14.4	172	1
06972	**Zinc**	7440-66-6	**46.1**	0.207	3.45	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.124 J**	0.0803	0.345	2
06125	**Arsenic**	7440-38-2	**13.6**	0.110	0.689	2
06126	**Barium**	7440-39-3	**95.1**	0.156	0.689	2
06127	**Beryllium**	7440-41-7	**0.566**	0.0090	0.172	2
06128	**Cadmium**	7440-43-9	**0.136 J**	0.0296	0.172	2
06131	**Chromium**	7440-47-3	**13.8**	0.150	0.689	2
06132	**Cobalt**	7440-48-4	**20.4**	0.0269	0.172	2
06133	**Copper**	7440-50-8	**34.3**	0.0924	0.689	2
06135	**Lead**	7439-92-1	**12.0**	0.0191	0.345	2
06139	**Nickel**	7440-02-0	**21.5**	0.172	0.689	2
06141	**Selenium**	7782-49-2	**0.327 J**	0.0861	0.689	2
06142	**Silver**	7440-22-4	**0.0424 J**	0.0252	0.172	2
06145	**Thallium**	7440-28-0	**0.272**	0.0215	0.172	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 09:45
SDG#: SGB85-11

C. T. Male Associates
ELLE Sample #: SW 9263662
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.7**	0.0367	0.172	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**667**	210	630	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/29/2017 13:12	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 07:40	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:03	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:51	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:46	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 09:45
SDG#: SGB85-11

C. T. Male Associates
ELLE Sample #: SW 9263662
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:46	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:46	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632A	11/02/2017 06:29	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039401B	10/18/2017 18:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-38-39' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:45
SDG#: SGB85-12

C. T. Male Associates
ELLE Sample #: SW 9263663
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.082 U	0.082	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.082 U	0.082	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,650**	8.42	37.7	1
01650	**Calcium**	7440-70-2	**3,750**	3.13	37.7	1
01654	**Iron**	7439-89-6	**24,900**	7.58	37.7	1
01657	**Magnesium**	7439-95-4	**2,100**	2.29	18.8	1
06958	**Manganese**	7439-96-5	**919**	0.0781	0.941	1
01662	**Potassium**	7440-09-7	**1,310**	15.7	94.1	1
01667	**Sodium**	7440-23-5	**25.7 J**	15.7	188	1
06972	**Zinc**	7440-66-6	**53.3**	0.226	3.77	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.146 J**	0.0877	0.377	2
06125	**Arsenic**	7440-38-2	**11.1**	0.120	0.753	2
06126	**Barium**	7440-39-3	**102**	0.171	0.753	2
06127	**Beryllium**	7440-41-7	**0.438**	0.0099	0.188	2
06128	**Cadmium**	7440-43-9	**0.143 J**	0.0324	0.188	2
06131	**Chromium**	7440-47-3	**13.9**	0.164	0.753	2
06132	**Cobalt**	7440-48-4	**19.2**	0.0294	0.188	2
06133	**Copper**	7440-50-8	**28.9**	0.101	0.753	2
06135	**Lead**	7439-92-1	**12.3**	0.0209	0.377	2
06139	**Nickel**	7440-02-0	**25.3**	0.188	0.753	2
06141	**Selenium**	7782-49-2	**0.297 J**	0.0941	0.753	2
06142	**Silver**	7440-22-4	**0.615**	0.0275	0.188	2
06145	**Thallium**	7440-28-0	**0.292**	0.0235	0.188	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:45
SDG#: SGB85-12

C. T. Male Associates
ELLE Sample #: SW 9263663
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**12.2**	0.0401	0.188	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,010**	178	535	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.40**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 12:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:06	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:53	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:49	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:45
SDG#: SGB85-12

C. T. Male Associates
ELLE Sample #: SW 9263663
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:49	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:49	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632B	11/02/2017 06:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:55
SDG#: SGB85-13

C. T. Male Associates
ELLE Sample #: SW 9263664
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,970**	9.23	41.3	1
01650	**Calcium**	7440-70-2	**5,030**	3.44	41.3	1
01654	**Iron**	7439-89-6	**33,000**	41.5	206	5
01657	**Magnesium**	7439-95-4	**3,300**	2.51	20.6	1
06958	**Manganese**	7439-96-5	**580**	0.0857	1.03	1
01662	**Potassium**	7440-09-7	**1,170**	17.2	103	1
01667	**Sodium**	7440-23-5	**24.1 J**	17.2	206	1
06972	**Zinc**	7440-66-6	**66.4**	0.248	4.13	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.164 J**	0.0962	0.413	2
06125	**Arsenic**	7440-38-2	**14.5**	0.132	0.826	2
06126	**Barium**	7440-39-3	**86.8**	0.187	0.826	2
06127	**Beryllium**	7440-41-7	**0.801**	0.0108	0.206	2
06128	**Cadmium**	7440-43-9	**0.196 J**	0.0355	0.206	2
06131	**Chromium**	7440-47-3	**11.8**	0.180	0.826	2
06132	**Cobalt**	7440-48-4	**33.7**	0.0322	0.206	2
06133	**Copper**	7440-50-8	**36.1**	0.111	0.826	2
06135	**Lead**	7439-92-1	**22.0**	0.0229	0.413	2
06139	**Nickel**	7440-02-0	**28.2**	0.206	0.826	2
06141	**Selenium**	7782-49-2	**0.347 J**	0.103	0.826	2
06142	Silver	7440-22-4	0.0301 U	0.0301	0.206	2
06145	**Thallium**	7440-28-0	**0.328**	0.0258	0.206	2
06148	**Vanadium**	7440-62-2	**15.9**	0.0440	0.206	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-48-49' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:55
SDG#: SGB85-13

C. T. Male Associates
ELLE Sample #: SW 9263664
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,860**	119	357	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.38**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 12:56	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 07:44	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:10	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:55	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:02	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 10:55
SDG#: SGB85-13

C. T. Male Associates
ELLE Sample #: SW 9263664
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 22:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:10
SDG#: SGB85-14

C. T. Male Associates
ELLE Sample #: SW 9263665
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,170**	9.25	41.4	1
01650	**Calcium**	7440-70-2	**3,990**	3.45	41.4	1
01654	**Iron**	7439-89-6	**23,500**	8.33	41.4	1
01657	**Magnesium**	7439-95-4	**2,420**	2.51	20.7	1
06958	**Manganese**	7439-96-5	**546**	0.0859	1.03	1
01662	**Potassium**	7440-09-7	**1,050**	17.3	103	1
01667	**Sodium**	7440-23-5	**26.6 J**	17.3	207	1
06972	**Zinc**	7440-66-6	**51.1**	0.248	4.14	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.163 J**	0.0964	0.414	2
06125	**Arsenic**	7440-38-2	**14.7**	0.132	0.828	2
06126	**Barium**	7440-39-3	**55.2**	0.188	0.828	2
06127	**Beryllium**	7440-41-7	**0.692**	0.0108	0.207	2
06128	**Cadmium**	7440-43-9	**0.160 J**	0.0356	0.207	2
06131	**Chromium**	7440-47-3	**17.1**	0.180	0.828	2
06132	**Cobalt**	7440-48-4	**15.6**	0.0323	0.207	2
06133	**Copper**	7440-50-8	**25.7**	0.111	0.828	2
06135	**Lead**	7439-92-1	**13.9**	0.0230	0.414	2
06139	**Nickel**	7440-02-0	**20.1**	0.206	0.828	2
06141	**Selenium**	7782-49-2	**0.239 J**	0.103	0.828	2
06142	**Silver**	7440-22-4	**0.259**	0.0302	0.207	2
06145	**Thallium**	7440-28-0	**0.251**	0.0259	0.207	2
06148	**Vanadium**	7440-62-2	**14.9**	0.0441	0.207	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-58-59' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:10
SDG#: SGB85-14

C. T. Male Associates
ELLE Sample #: SW 9263665
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,660**	241	723	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 13:16	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:21	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:57	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:10
SDG#: SGB85-14

C. T. Male Associates
ELLE Sample #: SW 9263665
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632B	11/02/2017 07:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402A	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MWBR2-68-69' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:30
SDG#: SGB85-15

C. T. Male Associates
ELLE Sample #: SW 9263666
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.52	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.52	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.52	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.52	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.52	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.52	1
14027	Perfluorohexanoic acid	307-24-4	0.087 U	0.087	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.087 U	0.087	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.78	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.52	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.52	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.52	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.52	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.52	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,670**	8.09	36.2	1
01650	**Calcium**	7440-70-2	**5,190**	3.01	36.2	1
01654	**Iron**	7439-89-6	**27,600**	36.4	181	5
01657	**Magnesium**	7439-95-4	**3,020**	2.20	18.1	1
06958	**Manganese**	7439-96-5	**799**	0.0751	0.905	1
01662	**Potassium**	7440-09-7	**777**	15.1	90.5	1
01667	**Sodium**	7440-23-5	**20.2 J**	15.1	181	1
06972	**Zinc**	7440-66-6	**52.9**	0.217	3.62	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.161 J**	0.0843	0.362	2
06125	**Arsenic**	7440-38-2	**13.8**	0.116	0.724	2
06126	**Barium**	7440-39-3	**81.3**	0.164	0.724	2
06127	**Beryllium**	7440-41-7	**0.825**	0.0095	0.181	2
06128	**Cadmium**	7440-43-9	**0.265**	0.0311	0.181	2
06131	**Chromium**	7440-47-3	**8.48**	0.157	0.724	2
06132	**Cobalt**	7440-48-4	**17.9**	0.0282	0.181	2
06133	**Copper**	7440-50-8	**22.5**	0.0970	0.724	2
06135	**Lead**	7439-92-1	**17.2**	0.0201	0.362	2
06139	**Nickel**	7440-02-0	**22.2**	0.180	0.724	2
06141	**Selenium**	7782-49-2	**0.218 J**	0.0905	0.724	2
06142	**Silver**	7440-22-4	**0.0382 J**	0.0264	0.181	2
06145	**Thallium**	7440-28-0	**0.456**	0.0226	0.181	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:30
SDG#: SGB85-15

C. T. Male Associates
ELLE Sample #: SW 9263666
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.0**	0.0386	0.181	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,540**	250	749	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.33**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 13:37	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 07:47	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:25	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:58	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 11:30
SDG#: SGB85-15

C. T. Male Associates
ELLE Sample #: SW 9263666
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:08	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632B	11/02/2017 07:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402B	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 13:00
SDG#: SGB85-16

C. T. Male Associates
ELLE Sample #: SW 9263667
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.20 J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,010**	9.47	42.4	1
01650	**Calcium**	7440-70-2	**2,770**	3.53	42.4	1
01654	**Iron**	7439-89-6	**27,200**	8.53	42.4	1
01657	**Magnesium**	7439-95-4	**2,290**	2.57	21.2	1
06958	**Manganese**	7439-96-5	**607**	0.0879	1.06	1
01662	**Potassium**	7440-09-7	**813**	17.7	106	1
01667	**Sodium**	7440-23-5	**21.0 J**	17.7	212	1
06972	**Zinc**	7440-66-6	**60.4**	0.254	4.24	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.121 J**	0.0987	0.424	2
06125	**Arsenic**	7440-38-2	**13.7**	0.136	0.848	2
06126	**Barium**	7440-39-3	**75.5**	0.192	0.848	2
06127	**Beryllium**	7440-41-7	**1.02**	0.0111	0.212	2
06128	**Cadmium**	7440-43-9	**0.225**	0.0364	0.212	2
06131	**Chromium**	7440-47-3	**9.74**	0.184	0.848	2
06132	**Cobalt**	7440-48-4	**16.9**	0.0331	0.212	2
06133	**Copper**	7440-50-8	**28.5**	0.114	0.848	2
06135	**Lead**	7439-92-1	**17.9**	0.0235	0.424	2
06139	**Nickel**	7440-02-0	**23.2**	0.211	0.848	2
06141	**Selenium**	7782-49-2	**0.531 J**	0.106	0.848	2
06142	Silver	7440-22-4	0.0309 U	0.0309	0.212	2
06145	**Thallium**	7440-28-0	**0.407**	0.0265	0.212	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 13:00
SDG#: SGB85-16

C. T. Male Associates
ELLE Sample #: SW 9263667
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**17.3**	0.0451	0.212	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,920**	247	741	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 13:57	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:29	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 08:00	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 13:00
SDG#: SGB85-16

C. T. Male Associates
ELLE Sample #: SW 9263667
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17305667632B	11/02/2017 07:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402B	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 15:40
SDG#: SGB85-17

C. T. Male Associates
ELLE Sample #: SW 9263668
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,990**	7.27	32.5	1
01650	**Calcium**	7440-70-2	**84,600**	13.5	163	5
01654	**Iron**	7439-89-6	**28,400**	32.7	163	5
01657	**Magnesium**	7439-95-4	**41,700**	1.98	16.3	1
06958	**Manganese**	7439-96-5	**983**	0.0675	0.813	1
01662	**Potassium**	7440-09-7	**912**	13.6	81.3	1
01667	**Sodium**	7440-23-5	**36.3 J**	13.6	163	1
06972	**Zinc**	7440-66-6	**72.7**	0.195	3.25	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.163 J**	0.0758	0.325	2
06125	**Arsenic**	7440-38-2	**6.94**	0.104	0.651	2
06126	**Barium**	7440-39-3	**147**	0.148	0.651	2
06127	**Beryllium**	7440-41-7	**1.89**	0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.535**	0.0280	0.163	2
06131	**Chromium**	7440-47-3	**6.30**	0.142	0.651	2
06132	**Cobalt**	7440-48-4	**8.73**	0.0254	0.163	2
06133	**Copper**	7440-50-8	**20.8**	0.0872	0.651	2
06135	**Lead**	7439-92-1	**16.3**	0.0181	0.325	2
06139	**Nickel**	7440-02-0	**22.0**	0.162	0.651	2
06141	**Selenium**	7782-49-2	**0.113 J**	0.0813	0.651	2
06142	**Silver**	7440-22-4	**0.0573 J**	0.0237	0.163	2
06145	**Thallium**	7440-28-0	**0.563**	0.0203	0.163	2
06148	**Vanadium**	7440-62-2	**18.5**	0.0346	0.163	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 15:40
SDG#: SGB85-17

C. T. Male Associates
ELLE Sample #: SW 9263668
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**34,800**	1,500	4,500	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.59**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 14:18	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/23/2017 15:24	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	172891063702	10/23/2017 15:24	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:33	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 08:05	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 15:40
SDG#: SGB85-17

C. T. Male Associates
ELLE Sample #: SW 9263668
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 22:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402B	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS12-171012 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017
SDG#: SGB85-18

C. T. Male Associates
ELLE Sample #: SW 9263669
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and the associated native compounds are not detected, the data is reported.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,460**	9.06	40.5	1
01650	**Calcium**	7440-70-2	**89,500**	16.9	203	5
01654	**Iron**	7439-89-6	**23,700**	8.15	40.5	1
01657	**Magnesium**	7439-95-4	**44,700**	2.46	20.3	1
06958	**Manganese**	7439-96-5	**1,040**	0.0841	1.01	1
01662	**Potassium**	7440-09-7	**1,010**	16.9	101	1
01667	**Sodium**	7440-23-5	**40.0 J**	16.9	203	1
06972	**Zinc**	7440-66-6	**75.4**	0.243	4.05	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.156 J**	0.0944	0.405	2
06125	**Arsenic**	7440-38-2	**7.35**	0.130	0.810	2
06126	**Barium**	7440-39-3	**149**	0.184	0.810	2
06127	**Beryllium**	7440-41-7	**1.79**	0.0106	0.203	2
06128	**Cadmium**	7440-43-9	**0.573**	0.0348	0.203	2
06131	**Chromium**	7440-47-3	**6.21**	0.176	0.810	2
06132	**Cobalt**	7440-48-4	**8.76**	0.0316	0.203	2
06133	**Copper**	7440-50-8	**20.9**	0.109	0.810	2
06135	**Lead**	7439-92-1	**15.8**	0.0225	0.405	2
06139	**Nickel**	7440-02-0	**26.1**	0.202	0.810	2
06141	**Selenium**	7782-49-2	**0.128 J**	0.101	0.810	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS12-171012 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017
SDG#: SGB85-18

C. T. Male Associates
ELLE Sample #: SW 9263669
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0616 J**	0.0296	0.203	2
06145	**Thallium**	7440-28-0	**0.620**	0.0253	0.203	2
06148	**Vanadium**	7440-62-2	**18.1**	0.0432	0.203	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,900**	2,310	6,930	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.56**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 15:20	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/23/2017 15:27	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:37	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 08:07	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:18	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS12-171012 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017
SDG#: SGB85-18

C. T. Male Associates
ELLE Sample #: SW 9263669
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:18	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 22:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402B	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 16:20
SDG#: SGB85-19

C. T. Male Associates
ELLE Sample #: SW 9263670
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.43	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.97	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,930**	10.1	45.0	1
01650	**Calcium**	7440-70-2	**467**	3.74	45.0	1
01654	**Iron**	7439-89-6	**37,100**	45.3	225	5
01657	**Magnesium**	7439-95-4	**1,240**	2.73	22.5	1
06958	**Manganese**	7439-96-5	**993**	0.0933	1.12	1
01662	**Potassium**	7440-09-7	**1,150**	18.8	112	1
01667	Sodium	7440-23-5	18.8 U	18.8	225	1
06972	**Zinc**	7440-66-6	**99.2**	0.270	4.50	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.554**	0.105	0.450	2
06125	**Arsenic**	7440-38-2	**6.28**	0.144	0.900	2
06126	**Barium**	7440-39-3	**205**	0.204	0.900	2
06127	**Beryllium**	7440-41-7	**3.10**	0.0118	0.225	2
06128	**Cadmium**	7440-43-9	**0.656**	0.0387	0.225	2
06131	**Chromium**	7440-47-3	**4.25**	0.196	0.900	2
06132	**Cobalt**	7440-48-4	**32.6**	0.0351	0.225	2
06133	**Copper**	7440-50-8	**30.1**	0.121	0.900	2
06135	**Lead**	7439-92-1	**16.8**	0.0250	0.450	2
06139	**Nickel**	7440-02-0	**36.2**	0.224	0.900	2
06141	**Selenium**	7782-49-2	**0.222 J**	0.112	0.900	2
06142	**Silver**	7440-22-4	**0.0394 J**	0.0328	0.225	2
06145	**Thallium**	7440-28-0	**1.02**	0.0281	0.225	2
06148	**Vanadium**	7440-62-2	**12.9**	0.0479	0.225	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 16:20
SDG#: SGB85-19

C. T. Male Associates
ELLE Sample #: SW 9263670
ELLE Group #: 1862910
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**207**	**J**	128	383	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.13**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298003	10/27/2017 15:40	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298003	10/25/2017 09:45	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:39	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 12:52	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:53	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 13:54	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/24/2017 17:53	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/13/2017 09:30
Collection Date/Time: 10/12/2017 16:20
SDG#: SGB85-19

C. T. Male Associates
ELLE Sample #: SW 9263670
ELLE Group #: 1862910
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 13:54	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 13:54	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/24/2017 17:53	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 22:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17291039402B	10/18/2017 19:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820004B	10/19/2017 23:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17298003	Sample number(s): 9263656-9263670		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17289008	Sample number(s): 9263654-9263655		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.6 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17297002	Sample number(s): 9263652-9263653		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172891063702	Sample number(s): 9263656-9263669		
Aluminum	8.94 U	8.94	40.0
Calcium	10.5 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	1.91	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	1.54 J	0.240	4.00
Batch number: 172891063702A	Sample number(s): 9263656-9263669		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0318 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0288 J	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172891063702B	Sample number(s): 9263656-9263669		
Selenium	0.100 U	0.100	0.800
Batch number: 172891063702D	Sample number(s): 9263656-9263669		
Barium	0.182 U	0.182	0.800
Batch number: 172911063701	Sample number(s): 9263670		
Aluminum	8.94 U	8.94	40.0
Calcium	13.9 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	8.02 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Sodium	16.7 U	16.7	200
Zinc	0.504 J	0.240	4.00
Batch number: 172911063701A	Sample number(s): 9263670		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0244 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172911063701B	Sample number(s): 9263670		
Selenium	0.100 U	0.100	0.800
Batch number: 172911063701D	Sample number(s): 9263670		
Barium	0.182 U	0.182	0.800
Batch number: 17305667632A	Sample number(s): 9263656-9263662		
TOC	100 U	100	300
Batch number: 17305667632B	Sample number(s): 9263663,9263665-9263667		
TOC	100 U	100	300
Batch number: 17306667631A	Sample number(s): 9263664,9263668-9263670		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298003	Sample number(s): 9263656-9263670								
Perfluorobutanesulfonate	1.20	1.19	1.20	1.18	99	98	70-130	1	30
Perfluorobutanoic acid	1.36	1.43	1.36	1.45	105	107	70-130	1	30
Perfluorodecanoic acid	1.36	1.51	1.36	1.35	111	99	70-130	11	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.42	110	104	70-130	5	30
Perfluoroheptanoic acid	1.36	1.28	1.36	1.41	94	104	70-130	10	30
Perfluorohexanesulfonate	1.29	1.05	1.29	1.34	82	105	70-130	24	30
Perfluorohexanoic acid	1.36	1.38	1.36	1.27	102	94	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	1.36	1.46	1.36	1.68	108	123	70-130	14	30
Perfluoro-octanesulfonate	1.30	1.18	1.30	1.25	91	96	70-130	6	30
Perfluorooctanoic acid	1.36	1.32	1.36	1.18	97	87	70-130	11	30
Perfluoropentanoic acid	1.36	1.38	1.36	1.30	101	96	70-130	6	30
Perfluorotetradecanoic acid	1.36	1.34	1.36	1.29	98	95	70-130	4	30
Perfluorotridecanoic acid	1.36	1.33	1.36	1.46	98	107	70-130	10	30
Perfluoroundecanoic acid	1.36	1.29	1.36	1.55	95	114	70-130	18	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17289008	Sample number(s): 9263654-9263655								
Perfluorobutanesulfonate	4.81	4.76	4.81	4.69	99	97	70-130	2	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.94	105	109	70-130	4	30
Perfluorodecanoic acid	5.44	5.55	5.44	6.60	102	121	70-130	17	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.73	105	105	70-130	0	30
Perfluoroheptanoic acid	5.44	5.11	5.44	4.67	94	86	70-130	9	30
Perfluorohexanesulfonate	5.14	4.77	5.14	4.67	93	91	70-130	2	30
Perfluorohexanoic acid	5.44	5.83	5.44	5.91	107	109	70-130	1	30
Perfluorononanoic acid	5.44	6.10	5.44	5.38	112	99	70-130	13	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.08	105	98	70-130	8	30
Perfluorooctanoic acid	5.44	6.00	5.44	6.64	110	122	70-130	10	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.74	104	106	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.63	98	104	70-130	6	30
Perfluorotridecanoic acid	5.44	4.55	5.44	5.45	84	100	70-130	18	30
Perfluoroundecanoic acid	5.44	5.78	5.44	6.16	106	113	70-130	6	30
Batch number: 17297002	Sample number(s): 9263652-9263653								
Perfluorobutanesulfonate	4.81	5.43	4.81	5.04	113	105	70-130	8	30
Perfluorobutanoic acid	5.44	6.18	5.44	6.10	114	112	70-130	1	30
Perfluorodecanoic acid	5.44	5.35	5.44	5.57	98	102	70-130	4	30
Perfluorododecanoic acid	5.44	5.89	5.44	6.24	108	115	70-130	6	30
Perfluoroheptanoic acid	5.44	5.24	5.44	6.00	96	110	70-130	14	30
Perfluorohexanesulfonate	5.14	4.62	5.14	4.85	90	94	70-130	5	30
Perfluorohexanoic acid	5.44	6.40	5.44	5.99	118	110	70-130	7	30
Perfluorononanoic acid	5.44	6.35	5.44	6.35	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.68	5.20	6.20	109	119	70-130	9	30
Perfluorooctanoic acid	5.44	5.87	5.44	5.97	108	110	70-130	2	30
Perfluoropentanoic acid	5.44	5.87	5.44	5.90	108	108	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.03	5.44	6.02	111	111	70-130	0	30
Perfluorotridecanoic acid	5.44	5.25	5.44	5.88	97	108	70-130	11	30
Perfluoroundecanoic acid	5.44	6.26	5.44	6.44	115	118	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172891063702	Sample number(s): 9263656-9263669								
Aluminum	200	187.45			94		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Calcium	400	384.27			96		80-120		
Iron	100	95.03			95		80-120		
Magnesium	200	187.25			94		80-120		
Manganese	50	47.88			96		80-120		
Potassium	1000	948.44			95		80-120		
Sodium	1000	927.08			93		80-120		
Zinc	50	48.94			98		80-120		
Batch number: 172891063702A	Sample number(s): 9263656-9263669								
Antimony	0.600	0.607			101		80-120		
Arsenic	1.00	0.963			96		80-120		
Beryllium	0.400	0.340			85		80-120		
Cadmium	0.500	0.518			104		80-120		
Chromium	5.00	5.11			102		80-120		
Cobalt	25	25.04			100		80-120		
Copper	5.00	5.30			106		80-120		
Lead	1.50	1.49			99		80-120		
Nickel	5.00	5.26			105		80-120		
Silver	5.00	5.11			102		80-120		
Thallium	0.200	0.186			93		80-120		
Vanadium	5.00	4.89			98		80-120		
Batch number: 172891063702B	Sample number(s): 9263656-9263669								
Selenium	1.00	0.989			99		80-120		
Batch number: 172891063702D	Sample number(s): 9263656-9263669								
Barium	5.00	4.64			93		80-120		
Batch number: 172911063701	Sample number(s): 9263670								
Aluminum	200	194.18			97		80-120		
Calcium	400	387.78			97		80-120		
Iron	100	96.69			97		80-120		
Magnesium	200	193.46			97		80-120		
Manganese	50	53.43			107		80-120		
Potassium	1000	971.33			97		80-120		
Sodium	1000	950.79			95		80-120		
Zinc	50	48.9			98		80-120		
Batch number: 172911063701A	Sample number(s): 9263670								
Antimony	0.600	0.540			90		80-120		
Arsenic	1.00	1.12			112		80-120		
Beryllium	0.400	0.411			103		80-120		
Cadmium	0.500	0.563			113		80-120		
Chromium	5.00	5.75			115		80-120		
Cobalt	25	26.54			106		80-120		
Copper	5.00	5.74			115		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Lead	1.50	1.55			103		80-120		
Nickel	5.00	5.09			102		80-120		
Silver	5.00	5.60			112		80-120		
Thallium	0.200	0.196			98		80-120		
Vanadium	5.00	5.08			102		80-120		
Batch number: 172911063701B	Sample number(s): 9263670								
Selenium	1.00	1.11			111		80-120		
Batch number: 172911063701D	Sample number(s): 9263670								
Barium	5.00	5.19			104		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17305667632A	Sample number(s): 9263656-9263662								
TOC	7150	7905.9			111		47-143		
Batch number: 17305667632B	Sample number(s): 9263663,9263665-9263667								
TOC	7150	7905.9			111		47-143		
Batch number: 17306667631A	Sample number(s): 9263664,9263668-9263670								
TOC	7150	7121.91			100		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17291039401B	Sample number(s): 9263662								
pH	7.00	6.89			98		95-105		
Batch number: 17291039402A	Sample number(s): 9263656-9263661,9263663-9263665								
pH	7.00	6.93			99		95-105		
Batch number: 17291039402B	Sample number(s): 9263666-9263670								
pH	7.00	6.93			99		95-105		
	%	**%**	**%**	**%**					
Batch number: 17292820004B	Sample number(s): 9263656-9263670								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298003	Sample number(s): 9263656-9263670 UNSPK: 9263656									

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanesulfonate	0.19 U	0.962	1.02			106		70-130		
Perfluorobutanoic acid	0.19 U	1.09	1.19			110		70-130		
Perfluorodecanoic acid	0.19 U	1.09	1.20			110		70-130		
Perfluorododecanoic acid	0.19 U	1.09	1.33			122		70-130		
Perfluoroheptanoic acid	0.19 U	1.09	1.27			117		70-130		
Perfluorohexanesulfonate	0.19 U	1.03	1.05			102		70-130		
Perfluorohexanoic acid	0.095 U	1.09	1.04			96		70-130		
Perfluorononanoic acid	0.095 U	1.09	1.18			108		70-130		
Perfluoro-octanesulfonate	0.29 U	1.04	1.57			151*		70-130		
Perfluorooctanoic acid	0.321	1.09	1.50			109		70-130		
Perfluoropentanoic acid	0.19 U	1.09	1.24			114		70-130		
Perfluorotetradecanoic acid	0.19 U	1.09	1.18			108		70-130		
Perfluorotridecanoic acid	0.19 U	1.09	1.28			118		70-130		
Perfluoroundecanoic acid	0.19 U	1.09	1.27			117		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172891063702	Sample number(s): 9263656-9263669 UNSPK: P265110									
Aluminum	1555.22	144.93	4914.09	145.99	6264.13	2318 (2)	3226 (2)	75-125	24*	20
Calcium	185.01	289.86	902.62	291.97	458.89	248*	94	75-125	65*	20
Iron	17079.97	72.46	17291.13	72.99	17146.73	291 (2)	91 (2)	75-125	1	20
Magnesium	250.96	144.93	593.75	145.99	652.03	237*	275*	75-125	9	20
Manganese	579.68	36.23	512.8	36.5	514.75	-185 (2)	-178 (2)	75-125	0	20
Potassium	219.62	724.64	1444.91	729.93	1542.1	169*	181*	75-125	7	20
Sodium	12.9 U	724.64	607.49	729.93	635.96	84	87	75-125	5	20
Zinc	50.13	36.23	76.27	36.5	82.58	72*	89	75-125	8	20
Batch number: 172891063702A	Sample number(s): 9263656-9263669 UNSPK: P265110									
Antimony	0.0722 U	0.870	0.757	0.876	0.700	87	80	75-125	8	20
Arsenic	3.11	1.45	4.70	1.46	4.80	110	116	75-125	2	20
Beryllium	1.34	0.580	1.89	0.584	2.03	94	117	75-125	7	20
Cadmium	0.335	0.725	1.13	0.730	1.04	109	97	75-125	8	20
Chromium	0.872	7.25	8.31	7.30	8.48	103	104	75-125	2	20
Cobalt	7.39	36.23	44.09	36.5	44.34	101	101	75-125	1	20
Copper	13.06	7.25	21.21	7.30	23.14	113	138*	75-125	9	20
Lead	9.86	2.17	13.4	2.19	12.43	163 (2)	117 (2)	75-125	8	20
Nickel	12.65	7.25	20.81	7.30	21.2	113	117	75-125	2	20
Silver	0.0226 U	7.25	7.53	7.30	6.97	104	95	75-125	8	20
Thallium	0.645	0.290	0.977	0.292	0.997	114	120	75-125	2	20
Vanadium	6.11	7.25	13.9	7.30	14.58	107	116	75-125	5	20
Batch number: 172891063702B	Sample number(s): 9263656-9263669 UNSPK: P265110									
Selenium	0.0775 U	1.45	1.52	1.46	1.49	105	102	75-125	2	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172891063702D	Sample number(s): 9263656-9263669 UNSPK: P265110									
Barium	63.15	7.25	126.99	7.30	127.83	881 (2)	886 (2)	75-125	1	20
Batch number: 172911063701	Sample number(s): 9263670 UNSPK: P265116									
Aluminum	2690.09	142.86	5787.85	185.19	5687.31	2168 (2)	1618 (2)	75-125	2	20
Calcium	206.85	285.71	487.62	370.37	556.83	98	94	75-125	13	20
Iron	7402.45	71.43	6783.34	92.59	6959.13	-867 (2)	-479 (2)	75-125	3	20
Magnesium	241.01	142.86	527.49	185.19	539.3	201*	161*	75-125	2	20
Manganese	116.99	35.71	161.33	46.3	176.55	124	129*	75-125	9	20
Potassium	172.51	714.29	1136.66	925.93	1265.91	135*	118	75-125	11	20
Sodium	83.5 U	714.29	719.13	925.93	913.94	101	99	75-125	24*	20
Zinc	39.68	35.71	76.82	46.3	87.06	104	102	75-125	13	20
Batch number: 172911063701A	Sample number(s): 9263670 UNSPK: P265116									
Antimony	0.130	0.857	0.941	1.11	1.19	95	95	75-125	23*	20
Arsenic	3.22	1.43	3.77	1.85	4.16	39*	51*	75-125	10	20
Beryllium	0.932	0.571	1.42	0.741	1.46	85	72*	75-125	3	20
Cadmium	0.135	0.714	0.798	0.926	0.955	93	89	75-125	18	20
Chromium	2.32	7.14	10.23	9.26	11.22	111	96	75-125	9	20
Cobalt	5.98	35.71	42.13	46.3	50.83	101	97	75-125	19	20
Copper	12.15	7.14	18.05	9.26	18.2	83	65*	75-125	1	20
Lead	7.36	2.14	8.93	2.78	8.57	73*	43*	75-125	4	20
Nickel	13.36	7.14	20.9	9.26	20.5	105	77	75-125	2	20
Silver	0.0354	7.14	7.63	9.26	9.46	106	102	75-125	21*	20
Thallium	0.101	0.286	0.341	0.370	0.433	84	90	75-125	24*	20
Vanadium	3.85	7.14	11.17	9.26	12.93	103	98	75-125	15	20
Batch number: 172911063701B	Sample number(s): 9263670 UNSPK: P265116									
Selenium	0.181	1.43	1.58	1.85	2.04	98	100	75-125	25*	20
Batch number: 172911063701D	Sample number(s): 9263670 UNSPK: P265116									
Barium	6.85	7.14	17.87	9.26	16.18	154*	101	75-125	10	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17305667632A	Sample number(s): 9263656-9263662 UNSPK: P261633									
TOC	2705.63	24780	29289.26			107		47-143		
Batch number: 17305667632B	Sample number(s): 9263663,9263665-9263667 UNSPK: P263871									
TOC	1117.41	45600	51823.71			111		47-143		
Batch number: 17306667631A	Sample number(s): 9263664,9263668-9263670 UNSPK: P258597									
TOC	102 U	20400	23738.95			116		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172891063702	Sample number(s): 9263656-9263669 BKG: P265110			
Aluminum	1555.22	1719.59	10	20
Calcium	185.01	258.04	33*	20
Iron	17079.97	16158.49	6	20
Magnesium	250.96	259.09	3	20
Manganese	579.68	537.67	8	20
Potassium	219.62	262.47	18 (1)	20
Sodium	12.9 U	13.4 U	0 (1)	20
Zinc	50.13	50.22	0	20
Batch number: 172891063702A	Sample number(s): 9263656-9263669 BKG: P265110			
Antimony	0.0722 U	0.0746 U	0 (1)	20
Arsenic	3.11	2.57	19 (1)	20
Beryllium	1.34	1.22	10	20
Cadmium	0.335	0.324	3 (1)	20
Chromium	0.872	0.993	13 (1)	20
Cobalt	7.39	7.70	4	20
Copper	13.06	11.79	10	20
Lead	9.86	9.23	7	20
Nickel	12.65	11.71	8	20
Silver	0.0226 U	0.0234 U	0 (1)	20
Thallium	0.645	0.633	2 (1)	20
Vanadium	6.11	6.01	2	20
Batch number: 172891063702B	Sample number(s): 9263656-9263669 BKG: P265110			
Selenium	0.0775 U	0.0800 U	0 (1)	20
Batch number: 172891063702D	Sample number(s): 9263656-9263669 BKG: P265110			
Barium	63.15	63.83	1	20
Batch number: 172911063701	Sample number(s): 9263670 BKG: P265116			
Aluminum	2690.09	2650.04	1	20
Calcium	206.85	227.65	10 (1)	20
Iron	7402.45	8434.06	13	20
Magnesium	241.01	248.59	3 (1)	20
Manganese	116.99	97.32	18	20
Potassium	172.51	176.69	2 (1)	20
Sodium	83.5 U	73.9 U	0 (1)	20
Zinc	39.68	48.97	21* (1)	20
Batch number: 172911063701A	Sample number(s): 9263670 BKG: P265116			
Antimony	0.130	0.131	1 (1)	20
Arsenic	3.22	3.03	6 (1)	20
Beryllium	0.932	1.06	13 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Cadmium	0.135	0.0906	39* (1)	20
Chromium	2.32	2.15	8 (1)	20
Cobalt	5.98	4.94	19	20
Copper	12.15	11.22	8	20
Lead	7.36	6.89	7	20
Nickel	13.36	13.33	0	20
Silver	0.0354	0.0258 U	200* (1)	20
Thallium	0.101	0.147	38* (1)	20
Vanadium	3.85	3.78	2	20
Batch number: 172911063701B	Sample number(s): 9263670 BKG: P265116			
Selenium	0.181	0.165	9 (1)	20
Batch number: 172911063701D	Sample number(s): 9263670 BKG: P265116			
Barium	6.85	4.33	45*	20
	mg/kg	mg/kg		
Batch number: 17305667632A	Sample number(s): 9263656-9263662 BKG: P261633			
TOC	2705.63	662.37	121* (1)	7
Batch number: 17305667632B	Sample number(s): 9263663,9263665-9263667 BKG: P263871			
TOC	1117.41	1033.14	8* (1)	7
Batch number: 17306667631A	Sample number(s): 9263664,9263668-9263670 BKG: P258597			
TOC	102 U	101 U	0 (1)	7
	Std. Units	Std. Units		
Batch number: 17291039401B	Sample number(s): 9263662 BKG: 9263662			
pH	8.41	8.44	0	3
Batch number: 17291039402A	Sample number(s): 9263656-9263661,9263663-9263665 BKG: 9263664			
pH	8.38	8.32	1	3
Batch number: 17291039402B	Sample number(s): 9263666-9263670 BKG: 9263667			
pH	8.22	8.27	1	3
	%	%		
Batch number: 17292820004B	Sample number(s): 9263656-9263670 BKG: P262332			
Moisture	14.42	17.4	19*	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263654	82	93	80	76	61	69
9263655	92	101	92	104	82	94
Blank	86	87	76	78	81	79
LCS	96	95	85	84	82	89
LCSD	91	91	84	90	86	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9263654	76	80	101	93	79	75
9263655	92	84	93	88	70	48
Blank	85	101	114	93	90	80
LCS	97	96	104	101	87	88
LCSD	86	94	106	105	108	100
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9263654	47
9263655	11*
Blank	74
LCS	74
LCSD	89
Limits:	26-119

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263652	85	92	77	89	70	92
9263653	90	93	91	94	82	90
Blank	84	92	77	82	70	80
LCS	85	94	83	92	83	88
LCSD	85	96	89	87	85	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9263652	98	94	97	82	77	73
9263653	105	91	109	108	110	99
Blank	98	85	88	97	87	81

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCS	92	93	97	112	104	103
LCSD	98	91	115	101	95	86
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9263652	70
9263653	84
Blank	79
LCS	85
LCSD	80
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17298003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9263656	95	101	93	97	98	95
9263657	74	74	68	80	79	80
9263658	79	79	83	80	77	80
9263659	57	58*	55	60	61	59
9263660	71	75	72	75	82	75
9263661	81	86	79	84	80	79
9263662	45	43*	55	48	58	47
9263663	47	48*	59	48	66	50
9263664	73	71	79	74	67	72
9263665	70	71	76	72	76	77
9263666	63	65*	67	61	70	66
9263667	61	62*	72	75	78	71
9263668	78	78	83	87	79	78
9263669	120*	123	116	129*	121	119*
9263670	80	84	81	74	78	75
Blank	90	90	79	84	83	96
LCS	96	101	87	97	89	98
LCSD	92	95	82	95	84	93
MS	81	81	72	90	81	78
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9263656	112	102	92	125*	112	105
9263657	88	85	84	101	92	91
9263658	85	94	90	81	86	79
9263659	63	75	65	66	56	55
9263660	77	92	83	84	78	78
9263661	91	78	89	100	95	82
9263662	50	55	44	54	48	52
9263663	57	71	54	62	55	51
9263664	76	89	78	91	89	78
9263665	79	92	79	90	86	84
9263666	70	91	67	83	78	74
9263667	71	96	63	70	60	59
9263668	86	82	88	90	82	89
9263669	130*	162*	132*	136*	129	118
9263670	87	82	84	97	89	85
Blank	90	95	108	88	99	96
LCS	108	103	99	103	98	97
LCSD	106	89	78	101	97	96
MS	89	72	86	92	82	77
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9263656	106
9263657	92
9263658	82
9263659	62
9263660	89
9263661	88
9263662	51
9263663	53
9263664	79
9263665	81
9263666	71
9263667	62
9263668	76
9263669	120
9263670	83
Blank	87

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 11:44

Group Number: 1862910

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298003

	13C2-PFTeDA
LCS	103
LCSD	98
MS	85
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1862910 9263652-70

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: № 47384

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Drive	Address: 50 Century Hill Dr, Latham NY
Name: Michael Dupay	Name:
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic (PFCs (14))	Water: 250 mL plastic-TraceMet/PFCs (14)	Soil: 250 mL plastic (PFCs (14))	Soil: 4oz glass/TOC pH, Moist, Metals	% Solids
									1	2	A	A	
							N	N	N	N	N	N	
1. SG3-LTB73-171012	-	-	-	10/12/2017	AM	W	N	2	2				
2. SG3-LTB74-171012	-	-	-	10/12/2017	AM	W	N	2	2				
3. SG3-RBIBC1-171012	-	-	-	10/12/2017	0745	W	N	2		2			
4. SG3-RBIBC2-171012	-	-	-	10/12/2017	0820	W	N	2		2			
5. SG3-MWBR2-0-0.5'	0	0.5	ft	10/12/2017	0750	S	N	2			1	1	
6. SG3-MWBR2-0.5-1'	0.5	1	ft	10/12/2017	0800	S	N	2			1	1	
7. SG3-MWBR2-1-1.5'	1	1.5	ft	10/12/2017	0810	S	N	2			1	1	
8. SG3-MWBR2-3-4'	3	4	ft	10/12/2017	0815	S	N	2			1	1	
9. SG3-MWBR2-8-9'	8	9	ft	10/12/2017	0820	S	N	2			1	1	
10. SG3-MWBR2-18-19'	18	19	ft	10/12/2017	0825	S	N	2			1	1	

Preservative Code

Field Filtered Y/N

PFCs (14), pH, moisture, TAL metals/cations excluding Mercury, TOC

BARR USE ONLY							
Sampled by: DA, RAK	Relinquished by:	On Ice? (Y) N	Date 10/12/17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10.13.17	Time 09:30
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Name: ELLE	Lab WO:				Temperature on Receipt (°C): 0.9 4.0	Custody Seal Intact? ☑ Y ☐ N ☐ None	
...n: Lancaster							

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1862910 9263652-70

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47381

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Drive	Address: 50 Century Hill Dr Latham, NY
Name: Michael Dupay	Name:
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water	Soil	% Solids	Preservative Code	Field Filtered Y/N	
										250mL plastic / PFCs (14)	4oz Glass / TOC pH meter, moist			
										A	B			
										N	N			
1. SG3-MWBR2-28-29	28	29	ft	10/12/2017	0945	So.1	N	2				1	1	PFCs (14), pH, moisture
2. SG3-MWBR2-38-39	38	39	ft	10/12/2017	1045	S	N	2				1	1	TAL metals/cations excluding
3. SG3-MWBR2-48-49	48	49	ft	10/12/2017	1055	S	N	2				1	1	mercury, TOC
4. SG3-MWBR2-58-59	58	59	ft	10/12/2017	1110	S	N	2				1	1	
5. SG3-MWBR2-68-69	68	69	ft	10/12/2017	1130	S	N	2				1	1	
6. SG3-MWBR2-78-79	78	79	ft	10/12/2017	1300	S	N	2				1	1	
7. SG3-MWBR2-88-89	88	89	ft	10/12/17	1540	S	N	2				1	1	
8. SG3-FD512-171012	/	/	/	10/12/17	/	S	N	2				1	1	
9. SG3-MWBR2-98-99	98	99	ft	10/12/17	1620	S	N	2				1	1	
10.														

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: DA, RAK		(Y) N	10/12/17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MOD						10-13-17	09:30
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster	Lab WO:				Temperature on Receipt (°C): 0.9 / 4.0 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 197419

Group Number(s): 1862910

Client: BARR ENGINEERING CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/13/2017 9:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 09:57 on 10/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	4.0	DT	Wet	Y	Bagged	N
2	DT146	0.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 16, 2017

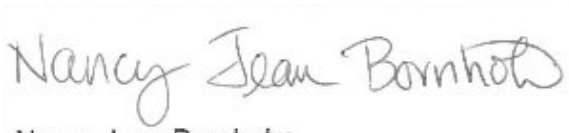
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1863179
SDG: SGB86
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FilteredWaterFracTKC-171013 Water	10/13/2017 13:45	9265012
Trip Blank Water	10/13/2017	9265013

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1863179

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9265012, 9265013

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard used as labeled compound d5-NMeFOSAA is outside of QC acceptance limits in the opening and closing calibration verification standard (CCV).

The recovery for extraction standard used as labled compound d5-NEtFOSAA is oustide of QC acceptance limits in the closing calibration verification standard (CCV).

Batch #: 17288005 (Sample number(s): 9265012-9265013)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9265012, 9265013, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterFracTKC-171013 Water
SGPP - North Bennington

ELLE Sample # GW 9265012
ELLE Group # 1863179
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/13/2017 13:45 by KAM

Submitted: 10/14/2017 09:50
Reported: 10/16/2017 10:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B8601 SDG#: SGB86-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**		0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard used as labeled compound d5-NMeFOSAA is outside of QC acceptance limits in the opening and closing calibration verification standard (CCV).

The recovery for extraction standard used as labled compound d5-NEtFOSAA is oustide of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FilteredWaterFracTKC-171013 Water
SGPP - North Bennington

ELLE Sample # GW 9265012
ELLE Group # 1863179
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/13/2017 13:45 by KAM

Submitted: 10/14/2017 09:50
Reported: 10/16/2017 10:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B8601 SDG#: SGB86-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17288005	10/16/2017 00:15	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17288005	10/15/2017 10:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9265013
ELLE Group # 1863179
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/13/2017

Submitted: 10/14/2017 09:50
Reported: 10/16/2017 10:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B8602 SDG#: SGB86-02TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The response for native compound 8:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for extraction standard used as labeled compound d5-NMeFOSAA is outside of QC acceptance limits in the opening and closing calibration verification standard (CCV).

The recovery for extraction standard used as labled compound d5-NEtFOSAA is oustide of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9265013
ELLE Group # 1863179
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/13/2017

Submitted: 10/14/2017 09:50
Reported: 10/16/2017 10:29

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B8602 SDG#: SGB86-02TB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17288005	10/16/2017 00:36	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17288005	10/15/2017 10:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1863179
Reported: 10/16/2017 10:29

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17288005	Sample number(s): 9265012-9265013			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17288005	Sample number(s): 9265012-9265013								
6:2 fluorotelomersulfonate	15.17	16.2	15.17	15.25	107	101	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.45	15.33	16.45	107	107	70-130	0	30
NEtFOSAA	5.44	5.88	5.44	5.43	108	100	70-130	8	30
NMeFOSAA	5.44	5.57	5.44	6.05	102	111	70-130	8	30
Perfluorobutanesulfonate	4.81	4.50	4.81	4.21	94	88	70-130	7	30
Perfluorobutanoic acid	5.44	5.57	5.44	5.54	102	102	70-130	0	30
Perfluorodecanoic acid	5.44	5.55	5.44	4.98	102	92	70-130	11	30
Perfluorododecanoic acid	5.44	5.99	5.44	5.23	110	96	70-130	13	30
Perfluoroheptanoic acid	5.44	6.36	5.44	4.98	117	92	70-130	24	30
Perfluorohexanesulfonate	5.14	4.98	5.14	4.83	97	94	70-130	3	30
Perfluorohexanoic acid	5.44	5.45	5.44	5.00	100	92	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/16/2017 10:29

Group Number: 1863179

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.68	5.44	5.19	104	95	70-130	9	30
Perfluorooctanesulfonamide	5.44	4.68	5.44	4.54	86	83	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.19	5.20	4.89	100	94	70-130	6	30
Perfluorooctanoic acid	5.44	5.12	5.44	5.24	94	96	70-130	2	30
Perfluoropentanoic acid	5.44	5.32	5.44	5.39	98	99	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.54	5.44	5.33	102	98	70-130	4	30
Perfluorotridecanoic acid	5.44	5.88	5.44	5.09	108	94	70-130	14	30
Perfluoroundecanoic acid	5.44	6.19	5.44	5.51	114	101	70-130	12	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17288005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265012	69	70	67	79	79	73
9265013	63	64	60	64	66	64
Blank	80	77	78	80	75	77
LCS	75	73	80	67	77	58
LCSD	85	84	83	85	85	89
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9265012	83	74	71	67	75	54
9265013	62	68	50	55	77	45
Blank	76	85	86	80	81	54
LCS	73	65	85	65	73	62
LCSD	78	84	81	84	84	69
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9265012	67	74	85	69	69	7*
9265013	56	62	64	61	58	9*
Blank	62	72	76	68	65	12*
LCS	67	78	86	74	75	8*
LCSD	70	84	92	93	79	10*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1863179
Reported: 10/16/2017 10:29

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17288005

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

* Rush - 24 Hour TAT * 37191/1863179/9265012-13

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47391

COC 3 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml Trizma	Water: Trip blank / Trizma	Soil	% Solids	Preservative Code	Field Filtered Y/N	Notes
									0	0				N	
1. SG3 - Filtered Water Frac TKC - 171013				10/13/2017	13:45	water	N	2	2						PFC's (19)
2. Trip Blank				10/13/2017		water	N	2		2					
3.															
4.															
5.															24 Hr. TAT.
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY

Sampled by: KRM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? (Y) N Date 10/13/17 Time 17:00

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 10-14-17 Time 950

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.5-1.8 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr. TAT (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 197556

Group Number(s): 1863179

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/14/2017 9:50
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	6
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles(Unpre), 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 11:19 on 10/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.5	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 03, 2017 11:33

Project: SGPP - Bennington

Account #: 37191
Group Number: 1863202
SDG: SGB87
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB75-171013 Blank Water	10/13/2017	9265108
SG3-LTB76-171013 Blank Water	10/13/2017	9265109
SG3-MWBR2-108-109 Soil	10/13/2017 09:00	9265110
SG3-MWBR2-108-109 MS Soil	10/13/2017 09:00	9265111
SG3-MWBR2-108-109 MSD Soil	10/13/2017 09:00	9265112
SG3-MWBR2-108-109 Dupl Soil	10/13/2017 09:00	9265113
SG3-MWBR2-118-119 Soil	10/13/2017 09:25	9265114
SG3-MWBR2-128-129 Soil	10/13/2017 10:15	9265115

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1863202

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9265110, 9265111, 9265112, 9265114, 9265115

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17300009 (Sample number(s): 9265110-9265112, 9265114-9265115 UNSPK: 9265110)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorohexanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9265110, 9265111, 9265112, 9265114, 9265115, MS, MSD

SW-846 6010C, Metals

Sample #s: 9265114, 9265115

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172891063702 (Sample number(s): 9265110-9265115 UNSPK: 9265110 BKG: 9265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Potassium, Calcium, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese, Zinc

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Aluminum, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Calcium

SW-846 6020A, Metals

Batch #: 172891063702A (Sample number(s): 9265110-9265115 UNSPK: 9265110 BKG: 9265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Copper, Lead

Batch #: 172891063702D (Sample number(s): 9265110-9265115 UNSPK: 9265110 BKG: 9265110)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9265110, 9265113, 9265114, 9265115

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17306667631B (Sample number(s): 9265110-9265111, 9265113, 9265115 UNSPK: 9265110 BKG: 9265110)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9265115

The pH was measured in water at 20.1 C.

Sample #s: 9265110, 9265113

The pH was measured in water at 20.2 C.

Sample #s: 9265114

The pH was measured in water at 20.3 C.

Sample Description: **SG3-LTB75-171013 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017
SDG#: SGB87-01TB

C. T. Male Associates
ELLE Sample #: WW 9265108
ELLE Group #: 1863202
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17289008	10/21/2017 08:32	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17289008	10/18/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB76-171013 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017
SDG#: SGB87-02TB

C. T. Male Associates
ELLE Sample #: WW 9265109
ELLE Group #: 1863202
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 07:49	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03BKG

C. T. Male Associates
ELLE Sample #: SW 9265110
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,770**	7.90	35.4	1
01650	**Calcium**	7440-70-2	**211**	2.94	35.4	1
01654	**Iron**	7439-89-6	**19,500**	7.12	35.4	1
01657	**Magnesium**	7439-95-4	**286**	2.15	17.7	1
06958	**Manganese**	7439-96-5	**661**	0.0734	0.884	1
01662	**Potassium**	7440-09-7	**250**	14.8	88.4	1
01667	Sodium	7440-23-5	14.8 U	14.8	177	1
06972	**Zinc**	7440-66-6	**57.2**	0.212	3.54	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0824 U	0.0824	0.354	2
06125	**Arsenic**	7440-38-2	**3.54**	0.113	0.707	2
06126	**Barium**	7440-39-3	**72.0**	0.161	0.707	2
06127	**Beryllium**	7440-41-7	**1.53**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.382**	0.0304	0.177	2
06131	**Chromium**	7440-47-3	**0.995**	0.154	0.707	2
06132	**Cobalt**	7440-48-4	**8.43**	0.0276	0.177	2
06133	**Copper**	7440-50-8	**14.9**	0.0948	0.707	2
06135	**Lead**	7439-92-1	**11.2**	0.0196	0.354	2
06139	**Nickel**	7440-02-0	**14.4**	0.176	0.707	2
06141	Selenium	7782-49-2	0.0884 U	0.0884	0.707	2
06142	Silver	7440-22-4	0.0258 U	0.0258	0.177	2
06145	**Thallium**	7440-28-0	**0.736**	0.0221	0.177	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03BKG

C. T. Male Associates
ELLE Sample #: SW 9265110
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**6.97**		0.0377	0.177	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**118**	**J**	116	349	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.30**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17300009	10/31/2017 23:44	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17300009	10/29/2017 08:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 04:56	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 12:52	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03BKG

C. T. Male Associates
ELLE Sample #: SW 9265110
ELLE Group #: 1863202
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 12:52	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 12:52	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/02/2017 23:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17294039402B	10/21/2017 10:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03MS

C. T. Male Associates
ELLE Sample #: SW 9265111
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.18	0.54	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.3**	0.18	0.54	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.3**	0.18	0.54	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.18	0.54	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.3**	0.18	0.54	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.2**	0.18	0.54	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.090	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**1.1**	0.090	0.36	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	0.27	0.81	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.18	0.54	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.3**	0.18	0.54	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.4**	0.18	0.54	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.18	0.54	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.3**	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,600**	7.39	33.1	1
01650	**Calcium**	7440-70-2	**1,030**	2.75	33.1	1
01654	**Iron**	7439-89-6	**19,700**	6.65	33.1	1
01657	**Magnesium**	7439-95-4	**677**	2.01	16.5	1
06958	**Manganese**	7439-96-5	**585**	0.0686	0.826	1
01662	**Potassium**	7440-09-7	**1,650**	13.8	82.6	1
01667	**Sodium**	7440-23-5	**693**	13.8	165	1
06972	**Zinc**	7440-66-6	**87.0**	0.198	3.31	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.864**	0.0770	0.331	2
06125	**Arsenic**	7440-38-2	**5.36**	0.106	0.661	2
06126	**Barium**	7440-39-3	**145**	0.150	0.661	2
06127	**Beryllium**	7440-41-7	**2.15**	0.0087	0.165	2
06128	**Cadmium**	7440-43-9	**1.28**	0.0284	0.165	2
06131	**Chromium**	7440-47-3	**9.47**	0.144	0.661	2
06132	**Cobalt**	7440-48-4	**50.3**	0.0258	0.165	2
06133	**Copper**	7440-50-8	**24.2**	0.0886	0.661	2
06135	**Lead**	7439-92-1	**15.3**	0.0183	0.331	2
06139	**Nickel**	7440-02-0	**23.7**	0.165	0.661	2
06141	**Selenium**	7782-49-2	**1.73**	0.0826	0.661	2
06142	**Silver**	7440-22-4	**8.59**	0.0241	0.165	2
06145	**Thallium**	7440-28-0	**1.11**	0.0207	0.165	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03MS

C. T. Male Associates
ELLE Sample #: SW 9265111
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.8**	0.0352	0.165	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,900**	643	1,930	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17300009	10/31/2017 22:22	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17300009	10/29/2017 08:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:08	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:29	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:02	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 00:07	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03MS

C. T. Male Associates
ELLE Sample #: SW 9265111
ELLE Group #: 1863202
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03MSD

C. T. Male Associates
ELLE Sample #: SW 9265112
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.0**	0.16	0.47	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2**	0.16	0.47	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.2**	0.16	0.47	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.2**	0.16	0.47	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.2**	0.16	0.47	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.0**	0.16	0.47	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.1**	0.078	0.31	1
14027	**Perfluorononanoic acid**	375-95-1	**1.1**	0.078	0.31	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.0**	0.23	0.70	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**	0.16	0.47	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.1**	0.16	0.47	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.1**	0.16	0.47	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.1**	0.16	0.47	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.0**	0.16	0.47	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,140**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**523**	2.77	33.3	1
01654	**Iron**	7439-89-6	**19,600**	6.70	33.3	1
01657	**Magnesium**	7439-95-4	**743**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**587**	0.0691	0.832	1
01662	**Potassium**	7440-09-7	**1,760**	13.9	83.2	1
01667	**Sodium**	7440-23-5	**725**	13.9	166	1
06972	**Zinc**	7440-66-6	**94.2**	0.200	3.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.798**	0.0776	0.333	2
06125	**Arsenic**	7440-38-2	**5.47**	0.107	0.666	2
06126	**Barium**	7440-39-3	**146**	0.151	0.666	2
06127	**Beryllium**	7440-41-7	**2.32**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**1.19**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**9.67**	0.145	0.666	2
06132	**Cobalt**	7440-48-4	**50.6**	0.0260	0.166	2
06133	**Copper**	7440-50-8	**26.4**	0.0892	0.666	2
06135	**Lead**	7439-92-1	**14.2**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**24.2**	0.166	0.666	2
06141	**Selenium**	7782-49-2	**1.69**	0.0832	0.666	2
06142	**Silver**	7440-22-4	**7.94**	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**1.14**	0.0208	0.166	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03MSD

C. T. Male Associates
ELLE Sample #: SW 9265112
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.6**	0.0355	0.166	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17300009	10/31/2017 22:43	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17300009	10/29/2017 08:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:12	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:31	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 13:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 13:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 13:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03DUP

C. T. Male Associates
ELLE Sample #: SW 9265113
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,960**	8.16	36.5	1
01650	**Calcium**	7440-70-2	**294**	3.04	36.5	1
01654	**Iron**	7439-89-6	**18,400**	7.34	36.5	1
01657	**Magnesium**	7439-95-4	**295**	2.22	18.2	1
06958	**Manganese**	7439-96-5	**613**	0.0757	0.912	1
01662	**Potassium**	7440-09-7	**299**	15.2	91.2	1
01667	Sodium	7440-23-5	15.2 U	15.2	182	1
06972	**Zinc**	7440-66-6	**57.3**	0.219	3.65	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0850 U	0.0850	0.365	2
06125	**Arsenic**	7440-38-2	**2.93**	0.117	0.730	2
06126	**Barium**	7440-39-3	**72.8**	0.166	0.730	2
06127	**Beryllium**	7440-41-7	**1.39**	0.0096	0.182	2
06128	**Cadmium**	7440-43-9	**0.370**	0.0314	0.182	2
06131	**Chromium**	7440-47-3	**1.13**	0.159	0.730	2
06132	**Cobalt**	7440-48-4	**8.78**	0.0285	0.182	2
06133	**Copper**	7440-50-8	**13.4**	0.0978	0.730	2
06135	**Lead**	7439-92-1	**10.5**	0.0203	0.365	2
06139	**Nickel**	7440-02-0	**13.4**	0.182	0.730	2
06141	Selenium	7782-49-2	0.0912 U	0.0912	0.730	2
06142	Silver	7440-22-4	0.0266 U	0.0266	0.182	2
06145	**Thallium**	7440-28-0	**0.722**	0.0228	0.182	2
06148	**Vanadium**	7440-62-2	**6.85**	0.0389	0.182	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**140 J**	116	349	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.28**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**11.9**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-108-109 Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:00
SDG#: SGB87-03DUP

C. T. Male Associates
ELLE Sample #: SW 9265113
ELLE Group #: 1863202
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
01650	Calcium	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
01654	Iron	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
01657	Magnesium	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
01667	Sodium	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 05:04	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 07:28	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 12:58	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 12:58	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 12:58	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 00:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17294039402B	10/21/2017 10:00	Luz M Groff	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-118-119 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:25
SDG#: SGB87-04

C. T. Male Associates
ELLE Sample #: SW 9265114
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,060**	48.7	218	5
01650	**Calcium**	7440-70-2	**371**	18.2	218	5
01654	**Iron**	7439-89-6	**27,100**	43.9	218	5
01657	**Magnesium**	7439-95-4	**525**	13.2	109	5
06958	**Manganese**	7439-96-5	**1,740**	0.0905	1.09	1
01662	**Potassium**	7440-09-7	**569**	91.0	545	5
01667	Sodium	7440-23-5	91.0 U	91.0	1,090	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**68.5**	0.262	4.36	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.206 J**	0.102	0.436	2
06125	**Arsenic**	7440-38-2	**4.62**	0.140	0.872	2
06126	**Barium**	7440-39-3	**307**	0.198	0.872	2
06127	**Beryllium**	7440-41-7	**2.23**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.598**	0.0375	0.218	2
06131	**Chromium**	7440-47-3	**1.97**	0.190	0.872	2
06132	**Cobalt**	7440-48-4	**16.7**	0.0340	0.218	2
06133	**Copper**	7440-50-8	**22.6**	0.117	0.872	2
06135	**Lead**	7439-92-1	**14.1**	0.0242	0.436	2
06139	**Nickel**	7440-02-0	**32.3**	0.217	0.872	2
06141	Selenium	7782-49-2	0.109 U	0.109	0.872	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-118-119 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:25
SDG#: SGB87-04

C. T. Male Associates
ELLE Sample #: SW 9265114
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0794 J**	0.0318	0.218	2
06145	**Thallium**	7440-28-0	**2.01**	0.0273	0.218	2
06148	**Vanadium**	7440-62-2	**8.42**	0.0464	0.218	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**162 J**	116	347	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**5.92**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**11.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17300009	11/01/2017 00:05	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17300009	10/29/2017 08:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
06958	Manganese	SW-846 6010C	1	172891063702	10/20/2017 06:41	Jonathan J Allen	1
01662	Potassium	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	172891063702	10/23/2017 15:30	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	172891063702	10/20/2017 06:41	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 08:08	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:21	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MWBR2-118-119 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 09:25
SDG#: SGB87-04

C. T. Male Associates
ELLE Sample #: SW 9265114
ELLE Group #: 1863202
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:21	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:21	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631A	11/02/2017 23:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17294039402B	10/21/2017 10:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-128-129 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:15
SDG#: SGB87-05

C. T. Male Associates
ELLE Sample #: SW 9265115
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,600**	93.5	418	10
01650	**Calcium**	7440-70-2	**1,190**	34.8	418	10
01654	**Iron**	7439-89-6	**64,700**	84.2	418	10
01657	**Magnesium**	7439-95-4	**1,150**	25.4	209	10
06958	**Manganese**	7439-96-5	**4,150**	0.434	5.23	5
01662	**Potassium**	7440-09-7	**579 J**	175	1,050	10
01667	Sodium	7440-23-5	175 U	175	2,090	10
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**192**	1.25	20.9	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.417 J**	0.0974	0.418	2
06125	**Arsenic**	7440-38-2	**22.8**	0.134	0.836	2
06126	**Barium**	7440-39-3	**291**	0.190	0.836	2
06127	**Beryllium**	7440-41-7	**13.4**	0.0110	0.209	2
06128	**Cadmium**	7440-43-9	**1.79**	0.0360	0.209	2
06131	**Chromium**	7440-47-3	**5.03**	0.182	0.836	2
06132	**Cobalt**	7440-48-4	**22.8**	0.0326	0.209	2
06133	**Copper**	7440-50-8	**38.7**	0.112	0.836	2
06135	**Lead**	7439-92-1	**54.5**	0.0232	0.418	2
06139	**Nickel**	7440-02-0	**62.2**	0.208	0.836	2
06141	**Selenium**	7782-49-2	**0.780 J**	0.105	0.836	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-128-129 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:15
SDG#: SGB87-05

C. T. Male Associates
ELLE Sample #: SW 9265115
ELLE Group #: 1863202
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0374 J**	0.0305	0.209	2
06145	**Thallium**	7440-28-0	**2.68**	0.0261	0.209	2
06148	**Vanadium**	7440-62-2	**28.0**	0.0445	0.209	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**383 J**	134	403	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.93**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**20.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17300009	11/01/2017 00:25	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17300009	10/29/2017 08:35	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
01650	Calcium	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
01654	Iron	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
01657	Magnesium	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
06958	Manganese	SW-846 6010C	1	172891063702	10/23/2017 15:33	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
01667	Sodium	SW-846 6010C	1	172891063702	10/30/2017 16:55	Cindy M Gehman	10
06972	Zinc	SW-846 6010C	1	172891063702	10/23/2017 15:33	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	172891063702A	10/20/2017 08:10	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172891063702D	10/18/2017 14:24	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-128-129 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:15
SDG#: SGB87-05

C. T. Male Associates
ELLE Sample #: SW 9265115
ELLE Group #: 1863202
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172891063702B	10/18/2017 14:24	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172891063702A	10/18/2017 14:24	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172891063702	10/16/2017 22:50	Denise L Trimby	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 00:33	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17295039403A	10/22/2017 13:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820006B	10/20/2017 03:20	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17300009	Sample number(s): 9265110-9265112,9265114-9265115		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17289008	Sample number(s): 9265108		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.6 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.9 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17297002	Sample number(s): 9265109		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172891063702	Sample number(s): 9265110-9265115		
Aluminum	8.94 U	8.94	40.0
Calcium	10.5 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	1.91	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	1.54 J	0.240	4.00
Batch number: 172891063702A	Sample number(s): 9265110-9265115		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0318 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0288 J	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172891063702B	Sample number(s): 9265110-9265115		
Selenium	0.100 U	0.100	0.800
Batch number: 172891063702D	Sample number(s): 9265110-9265115		
Barium	0.182 U	0.182	0.800
Batch number: 17306667631A	Sample number(s): 9265114		
TOC	100 U	100	300
Batch number: 17306667631B	Sample number(s): 9265110-9265111,9265113,9265115		
TOC	100 U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17300009	Sample number(s): 9265110-9265112,9265114-9265115								
Perfluorobutanesulfonate	1.20	1.29			107		70-130		
Perfluorobutanoic acid	1.36	1.56			114		70-130		
Perfluorodecanoic acid	1.36	1.53			112		70-130		
Perfluorododecanoic acid	1.36	1.57			115		70-130		
Perfluoroheptanoic acid	1.36	1.45			107		70-130		
Perfluorohexanesulfonate	1.29	1.35			105		70-130		
Perfluorohexanoic acid	1.36	1.43			105		70-130		
Perfluorononanoic acid	1.36	1.22			89		70-130		
Perfluoro-octanesulfonate	1.30	1.37			105		70-130		
Perfluorooctanoic acid	1.36	1.46			107		70-130		
Perfluoropentanoic acid	1.36	1.60			118		70-130		
Perfluorotetradecanoic acid	1.36	1.51			111		70-130		
Perfluorotridecanoic acid	1.36	1.51			111		70-130		
Perfluoroundecanoic acid	1.36	1.40			103		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17289008	Sample number(s): 9265108								
Perfluorobutanesulfonate	4.81	4.76	4.81	4.69	99	97	70-130	2	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.94	105	109	70-130	4	30
Perfluorodecanoic acid	5.44	5.55	5.44	6.60	102	121	70-130	17	30
Perfluorododecanoic acid	5.44	5.73	5.44	5.73	105	105	70-130	0	30
Perfluoroheptanoic acid	5.44	5.11	5.44	4.67	94	86	70-130	9	30
Perfluorohexanesulfonate	5.14	4.77	5.14	4.67	93	91	70-130	2	30
Perfluorohexanoic acid	5.44	5.83	5.44	5.91	107	109	70-130	1	30
Perfluorononanoic acid	5.44	6.10	5.44	5.38	112	99	70-130	13	30
Perfluoro-octanesulfonate	5.20	5.48	5.20	5.08	105	98	70-130	8	30
Perfluorooctanoic acid	5.44	6.00	5.44	6.64	110	122	70-130	10	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.74	104	106	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.33	5.44	5.63	98	104	70-130	6	30
Perfluorotridecanoic acid	5.44	4.55	5.44	5.45	84	100	70-130	18	30
Perfluoroundecanoic acid	5.44	5.78	5.44	6.16	106	113	70-130	6	30
Batch number: 17297002	Sample number(s): 9265109								
Perfluorobutanesulfonate	4.81	5.43	4.81	5.04	113	105	70-130	8	30
Perfluorobutanoic acid	5.44	6.18	5.44	6.10	114	112	70-130	1	30
Perfluorodecanoic acid	5.44	5.35	5.44	5.57	98	102	70-130	4	30
Perfluorododecanoic acid	5.44	5.89	5.44	6.24	108	115	70-130	6	30
Perfluoroheptanoic acid	5.44	5.24	5.44	6.00	96	110	70-130	14	30
Perfluorohexanesulfonate	5.14	4.62	5.14	4.85	90	94	70-130	5	30
Perfluorohexanoic acid	5.44	6.40	5.44	5.99	118	110	70-130	7	30
Perfluorononanoic acid	5.44	6.35	5.44	6.35	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.68	5.20	6.20	109	119	70-130	9	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.87	5.44	5.97	108	110	70-130	2	30
Perfluoropentanoic acid	5.44	5.87	5.44	5.90	108	108	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.03	5.44	6.02	111	111	70-130	0	30
Perfluorotridecanoic acid	5.44	5.25	5.44	5.88	97	108	70-130	11	30
Perfluoroundecanoic acid	5.44	6.26	5.44	6.44	115	118	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172891063702	Sample number(s): 9265110-9265115								
Aluminum	200	187.45			94		80-120		
Calcium	400	384.27			96		80-120		
Iron	100	95.03			95		80-120		
Magnesium	200	187.25			94		80-120		
Manganese	50	47.88			96		80-120		
Potassium	1000	948.44			95		80-120		
Sodium	1000	927.08			93		80-120		
Zinc	50	48.94			98		80-120		
Batch number: 172891063702A	Sample number(s): 9265110-9265115								
Antimony	0.600	0.607			101		80-120		
Arsenic	1.00	0.963			96		80-120		
Beryllium	0.400	0.340			85		80-120		
Cadmium	0.500	0.518			104		80-120		
Chromium	5.00	5.11			102		80-120		
Cobalt	25	25.04			100		80-120		
Copper	5.00	5.30			106		80-120		
Lead	1.50	1.49			99		80-120		
Nickel	5.00	5.26			105		80-120		
Silver	5.00	5.11			102		80-120		
Thallium	0.200	0.186			93		80-120		
Vanadium	5.00	4.89			98		80-120		
Batch number: 172891063702B	Sample number(s): 9265110-9265115								
Selenium	1.00	0.989			99		80-120		
Batch number: 172891063702D	Sample number(s): 9265110-9265115								
Barium	5.00	4.64			93		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17306667631A	Sample number(s): 9265114								
TOC	7150	7121.91			100		47-143		
Batch number: 17306667631B	Sample number(s): 9265110-9265111,9265113,9265115								
TOC	7150	7121.91			100		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17294039402B	Sample number(s): 9265110,9265113-9265114								
pH	7.00	6.99			100		95-105		
Batch number: 17295039403A	Sample number(s): 9265115								
pH	7.00	7.00			100		95-105		
	%	%	%	%					
Batch number: 17292820006B	Sample number(s): 9265110-9265115								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17300009	Sample number(s): 9265110-9265112,9265114-9265115 UNSPK: 9265110									
Perfluorobutanesulfonate	0.18 U	0.946	1.01	0.823	0.891	107	108	70-130	13	30
Perfluorobutanoic acid	0.18 U	1.07	1.17	0.932	1.02	109	110	70-130	14	30
Perfluorodecanoic acid	0.18 U	1.07	1.12	0.932	1.05	104	113	70-130	6	30
Perfluorododecanoic acid	0.18 U	1.07	1.19	0.932	1.09	112	117	70-130	9	30
Perfluoroheptanoic acid	0.18 U	1.07	1.16	0.932	1.04	108	111	70-130	11	30
Perfluorohexanesulfonate	0.18 U	1.01	1.04	0.881	0.904	102	103	70-130	14	30
Perfluorohexanoic acid	0.090 U	1.07	1.30	0.932	0.927	121	99	70-130	33*	30
Perfluorononanoic acid	0.090 U	1.07	0.985	0.932	0.940	92	101	70-130	5	30
Perfluoro-octanesulfonate	0.27 U	1.02	1.03	0.890	0.915	101	103	70-130	12	30
Perfluorooctanoic acid	0.18 U	1.07	1.17	0.932	1.03	110	110	70-130	13	30
Perfluoropentanoic acid	0.18 U	1.07	1.17	0.932	0.928	109	100	70-130	23	30
Perfluorotetradecanoic acid	0.18 U	1.07	1.27	0.932	0.996	119	107	70-130	24	30
Perfluorotridecanoic acid	0.18 U	1.07	1.21	0.932	0.968	113	104	70-130	22	30
Perfluoroundecanoic acid	0.18 U	1.07	1.18	0.932	0.914	110	98	70-130	26	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172891063702	Sample number(s): 9265110-9265115 UNSPK: 9265110									
Aluminum	1555.22	144.93	4914.09	145.99	6264.13	2318 (2)	3226 (2)	75-125	24*	20
Calcium	185.01	289.86	902.62	291.97	458.89	248*	94	75-125	65*	20
Iron	17079.97	72.46	17291.13	72.99	17146.73	291 (2)	91 (2)	75-125	1	20
Magnesium	250.96	144.93	593.75	145.99	652.03	237*	275*	75-125	9	20
Manganese	579.68	36.23	512.8	36.5	514.75	-185 (2)	-178 (2)	75-125	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Potassium	219.62	724.64	1444.91	729.93	1542.1	169*	181*	75-125	7	20
Sodium	12.9 U	724.64	607.49	729.93	635.96	84	87	75-125	5	20
Zinc	50.13	36.23	76.27	36.5	82.58	72*	89	75-125	8	20
Batch number: 172891063702A	Sample number(s): 9265110-9265115 UNSPK: 9265110									
Antimony	0.0722 U	0.870	0.757	0.876	0.700	87	80	75-125	8	20
Arsenic	3.11	1.45	4.70	1.46	4.80	110	116	75-125	2	20
Beryllium	1.34	0.580	1.89	0.584	2.03	94	117	75-125	7	20
Cadmium	0.335	0.725	1.13	0.730	1.04	109	97	75-125	8	20
Chromium	0.872	7.25	8.31	7.30	8.48	103	104	75-125	2	20
Cobalt	7.39	36.23	44.09	36.5	44.34	101	101	75-125	1	20
Copper	13.06	7.25	21.21	7.30	23.14	113	138*	75-125	9	20
Lead	9.86	2.17	13.4	2.19	12.43	163 (2)	117 (2)	75-125	8	20
Nickel	12.65	7.25	20.81	7.30	21.2	113	117	75-125	2	20
Silver	0.0226 U	7.25	7.53	7.30	6.97	104	95	75-125	8	20
Thallium	0.645	0.290	0.977	0.292	0.997	114	120	75-125	2	20
Vanadium	6.11	7.25	13.9	7.30	14.58	107	116	75-125	5	20
Batch number: 172891063702B	Sample number(s): 9265110-9265115 UNSPK: 9265110									
Selenium	0.0775 U	1.45	1.52	1.46	1.49	105	102	75-125	2	20
Batch number: 172891063702D	Sample number(s): 9265110-9265115 UNSPK: 9265110									
Barium	63.15	7.25	126.99	7.30	127.83	881 (2)	886 (2)	75-125	1	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17306667631A	Sample number(s): 9265114 UNSPK: P258597									
TOC	102 U	20400	23738.95			116		47-143		
Batch number: 17306667631B	Sample number(s): 9265110-9265111,9265113,9265115 UNSPK: 9265110									
TOC	103.34	16920	18336.15			108		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172891063702	Sample number(s): 9265110-9265115 BKG: 9265110			
Aluminum	1555.22	1719.59	10	20
Calcium	185.01	258.04	33*	20
Iron	17079.97	16158.49	6	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Magnesium	250.96	259.09	3	20
Manganese	579.68	537.67	8	20
Potassium	219.62	262.47	18 (1)	20
Sodium	12.9 U	13.4 U	0 (1)	20
Zinc	50.13	50.22	0	20
Batch number: 172891063702A	Sample number(s): 9265110-9265115 BKG: 9265110			
Antimony	0.0722 U	0.0746 U	0 (1)	20
Arsenic	3.11	2.57	19 (1)	20
Beryllium	1.34	1.22	10	20
Cadmium	0.335	0.324	3 (1)	20
Chromium	0.872	0.993	13 (1)	20
Cobalt	7.39	7.70	4	20
Copper	13.06	11.79	10	20
Lead	9.86	9.23	7	20
Nickel	12.65	11.71	8	20
Silver	0.0226 U	0.0234 U	0 (1)	20
Thallium	0.645	0.633	2 (1)	20
Vanadium	6.11	6.01	2	20
Batch number: 172891063702B	Sample number(s): 9265110-9265115 BKG: 9265110			
Selenium	0.0775 U	0.0800 U	0 (1)	20
Batch number: 172891063702D	Sample number(s): 9265110-9265115 BKG: 9265110			
Barium	63.15	63.83	1	20
	mg/kg	mg/kg		
Batch number: 17306667631A	Sample number(s): 9265114 BKG: P258597			
TOC	102 U	101 U	0 (1)	7
Batch number: 17306667631B	Sample number(s): 9265110-9265111,9265113,9265115 BKG: 9265110			
TOC	103.34	122.4	17* (1)	7
	Std. Units	Std. Units		
Batch number: 17294039402B	Sample number(s): 9265110,9265113-9265114 BKG: 9265110			
pH	8.30	8.34	0	3
Batch number: 17295039403A	Sample number(s): 9265115 BKG: P265116			
pH	8.18	8.22	0	3
	%	%		
Batch number: 17292820006B	Sample number(s): 9265110-9265115 BKG: 9265110, P265110			
Moisture	12.28	11.92	3	5
Moisture	12.28	11.92	3	5
Moisture Duplicate	12.28	11.92	3	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17289008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265108	85	91	79	98	94	96
Blank	86	87	76	78	81	79
LCS	96	95	85	84	82	89
LCSD	91	91	84	90	86	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9265108	100	84	99	93	90	81
Blank	85	101	114	93	90	80
LCS	97	96	104	101	87	88
LCSD	86	94	106	105	108	100
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9265108	73
Blank	74
LCS	74
LCSD	89
Limits:	26-119

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265109	87	93	87	102	82	84
Blank	84	92	77	82	70	80
LCS	85	94	83	92	83	88
LCSD	85	96	89	87	85	88

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
9265109	103	88	98	98	96	83
Blank	98	85	88	97	87	81
LCS	92	93	97	112	104	103
LCSD	98	91	115	101	95	86

	13C2-PFTeDA
Limits:	43-112
9265109	74
Blank	79
LCS	85
LCSD	80

Limits: 26-119

Analysis Name: 14 PFCs
Batch number: 17300009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265110	64	60*	61	63	74	64
9265111	67	63*	70	63	80	67
9265112	65	68*	67	69	79	67
9265114	54	52*	61	51	65	53
9265115	52	48*	59	48	68	51
Blank	74	74	75	83	89	82
LCS	72	71	75	77	82	83
MS	67	63*	70	63	80	67
MSD	65	68*	67	69	79	67
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9265110	68	65	62	64	68	71
9265111	69	74	64	63	61	64
9265112	72	71	62	68	73	70
9265114	53	65	49	51	51	51
9265115	53	66	59	53	57	54
Blank	80	87	84	77	80	79

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 11:33

Group Number: 1863202

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17300009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCS	81	76	77	73	84	78
MS	69	74	64	63	61	64
MSD	72	71	62	68	73	70
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9265110	68
9265111	64
9265112	73
9265114	55
9265115	56
Blank	84
LCS	84
MS	64
MSD	73
Limits:	20-127

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37191/18632002/9265108-15

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ SD ☐ MN Other: VT

COC Number: № 47388

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Drive	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250mL plastic /PFCs (14)	Water: 250mL plastic Trauma/PFC (14)	Soil: 250mL plastic /PFC (14)	Soil: 4oz Glass/rad/pH moist metals	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
									A N	A O N	A N	A N				
1. SG3-LTB75-171013	—	—	—	10/13/2017	AM	W	N	2	2							PFCs(14), pH, moisture
2. SG3-LTB76-171013	—	—	—	10/13/2017	AM	W	N	2	2							TAL metals/cations excl.
3. SG3-MWBR2-108-109*	108	109	ft	10/13/2017	0900	S	Y	6			3	3				Mercury, TOC) *MS/MSD Here
4. SG3-MWBR2-118-119	118	119	ft	10/13/2017	0925	S	N	2			1	1				
5. SG3-MWBR2-128-129	128	129	ft	10/13/2017	1015	S	N	2			1	1				
6. SG3-MWBR2-133-134*	133	134	ft	10/13/2017	1025	S	Y	6			3	3				*MS/MSD Here
7. SG3-FD513-171013	/	/	/	10/13/2017	/	S	N	2			1	1				
8. SG3-MWBR2-137-138	137	138	ft	10/13/2017	1045	S	N	2			1	1				
9. SG3-FB513-171013	—	—	—	10/13/2017	1120	W	N	2	2							
10.																

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: DA, RAK	Robert Kurbusky	(Y) N	10-13-17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: E Dauler	Date 10-14-17	Time 850
Barr DQ Manager: MDD							
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 1.5=1.5 CCS 10-14-17			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197556

Group Number(s): 1863202

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/14/2017 9:50
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	6
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles(Unpre), 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 11:19 on 10/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.5	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 07, 2017 04:10

Project: SGPP - Bennington

Account #: 37191
Group Number: 1863203
SDG: SGB88
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-133-134 Soil	10/13/2017 10:25	9265116
SG3-MWBR2-133-134 MS Soil	10/13/2017 10:25	9265117
SG3-MWBR2-133-134 MSD Soil	10/13/2017 10:25	9265118
SG3-MWBR2-133-134 Dupl Soil	10/13/2017 10:25	9265119
SG3-FDS13-171013 Soil	10/13/2017	9265120
SG3-MWBR2-137-138 Soil	10/13/2017 10:45	9265121
SG3-FBS13-171013 Blank Water	10/13/2017 11:20	9265122
SG3-AfterPoetTKB-171013 Water	10/13/2017 14:15	9265123

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1863203

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9265120

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17298009 (Sample number(s): 9265116-9265118, 9265120-9265121 UNSPK: 9265116)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9265120

SW-846 6010C, Metals

Sample #s: 9265116, 9265117, 9265118, 9265119, 9265120, 9265121

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172911063701 (Sample number(s): 9265116-9265121 UNSPK: 9265116 BKG: 9265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Zinc

SW-846 6020A, Metals

Sample #s: 9265121

Reporting limits for metals were raised due to interference from the sample

matrix.

Batch #: 172911063701A (Sample number(s): 9265116-9265121 UNSPK: 9265116 BKG: 9265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Beryllium, Copper, Lead

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Silver, Thallium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Silver, Thallium

Batch #: 172911063701B (Sample number(s): 9265116-9265121 UNSPK: 9265116 BKG: 9265116)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Selenium

Batch #: 172911063701D (Sample number(s): 9265116-9265121 UNSPK: 9265116 BKG: 9265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9265116, 9265119, 9265120, 9265121

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17306667631B (Sample number(s): 9265120-9265121 UNSPK: P265110 BKG: P265110)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17307667631B (Sample number(s): 9265116-9265117, 9265119 UNSPK: 9265116 BKG: 9265116)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9265121

The pH was measured in water at 16.6 C.

Sample #s: 9265120

The pH was measured in water at 19.6 C.

Sample #s: 9265116

The pH was measured in water at 19.9 C.

Sample #s: 9265119

The pH was measured in water at 20 C.

Sample Description: **SG3-MWBR2-133-134 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01BKG

C. T. Male Associates
ELLE Sample #: SW 9265116
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.086 U	0.086	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.086 U	0.086	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,070**	51.0	228	5
01650	**Calcium**	7440-70-2	**236**	19.0	228	5
01654	**Iron**	7439-89-6	**8,450**	45.9	228	5
01657	**Magnesium**	7439-95-4	**275**	13.9	114	5
06958	**Manganese**	7439-96-5	**134**	0.474	5.71	5
01662	**Potassium**	7440-09-7	**197 J**	95.3	571	5
01667	Sodium	7440-23-5	95.3 U	95.3	1,140	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**45.3**	1.37	22.8	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.148 J**	0.106	0.457	2
06125	**Arsenic**	7440-38-2	**3.67**	0.146	0.913	2
06126	**Barium**	7440-39-3	**7.82**	0.207	0.913	2
06127	**Beryllium**	7440-41-7	**1.06**	0.0120	0.228	2
06128	**Cadmium**	7440-43-9	**0.154 J**	0.0393	0.228	2
06131	**Chromium**	7440-47-3	**2.65**	0.199	0.913	2
06132	**Cobalt**	7440-48-4	**6.83**	0.0356	0.228	2
06133	**Copper**	7440-50-8	**13.9**	0.122	0.913	2
06135	**Lead**	7439-92-1	**8.40**	0.0253	0.457	2
06139	**Nickel**	7440-02-0	**15.3**	0.227	0.913	2
06141	**Selenium**	7782-49-2	**0.207 J**	0.114	0.913	2
06142	**Silver**	7440-22-4	**0.0404 J**	0.0333	0.228	2
06145	**Thallium**	7440-28-0	**0.115 J**	0.0285	0.228	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01BKG

C. T. Male Associates
ELLE Sample #: SW 9265116
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**4.40**		0.0486	0.228	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**128**	**J**	121	363	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.18**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 20:28	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:18	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:42	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 13:29	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01BKG

C. T. Male Associates
ELLE Sample #: SW 9265116
ELLE Group #: 1863203
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 13:29	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 13:29	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/24/2017 17:42	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631B	11/03/2017 20:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17295039403A	10/22/2017 13:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01MS

C. T. Male Associates
ELLE Sample #: SW 9265117
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.21	0.62	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.4**	0.21	0.62	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.21	0.62	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.21	0.62	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.2**	0.21	0.62	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.10	0.42	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.10	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.3**	0.31	0.93	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.21	0.62	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.21	0.62	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.5**	0.21	0.62	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.21	0.62	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,610**	36.4	163	5
01650	**Calcium**	7440-70-2	**557**	13.6	163	5
01654	**Iron**	7439-89-6	**7,740**	32.8	163	5
01657	**Magnesium**	7439-95-4	**602**	9.91	81.5	5
06958	**Manganese**	7439-96-5	**184**	0.338	4.08	5
01662	**Potassium**	7440-09-7	**1,300**	68.1	408	5
01667	**Sodium**	7440-23-5	**821**	68.1	815	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**87.7**	0.978	16.3	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.07**	0.0760	0.326	2
06125	**Arsenic**	7440-38-2	**4.31**	0.104	0.652	2
06126	**Barium**	7440-39-3	**20.4**	0.148	0.652	2
06127	**Beryllium**	7440-41-7	**1.62**	0.0085	0.163	2
06128	**Cadmium**	7440-43-9	**0.911**	0.0280	0.163	2
06131	**Chromium**	7440-47-3	**11.7**	0.142	0.652	2
06132	**Cobalt**	7440-48-4	**48.1**	0.0254	0.163	2
06133	**Copper**	7440-50-8	**20.6**	0.0874	0.652	2
06135	**Lead**	7439-92-1	**10.2**	0.0181	0.326	2
06139	**Nickel**	7440-02-0	**23.9**	0.162	0.652	2
06141	**Selenium**	7782-49-2	**1.80**	0.0815	0.652	2
06142	**Silver**	7440-22-4	**8.71**	0.0238	0.163	2
06145	**Thallium**	7440-28-0	**0.389**	0.0204	0.163	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01MS

C. T. Male Associates
ELLE Sample #: SW 9265117
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**12.8**	0.0347	0.163	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**32,500**	971	2,910	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 19:05	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:27	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 13:39	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 13:39	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 13:39	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/24/2017 17:48	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631B	11/03/2017 20:42	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01MS

C. T. Male Associates
ELLE Sample #: SW 9265117
ELLE Group #: 1863203
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01MSD

C. T. Male Associates
ELLE Sample #: SW 9265118
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**		**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.5**		0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**		0.22	0.65	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**		0.22	0.65	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**		0.22	0.65	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**		0.22	0.65	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**		0.22	0.65	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**		0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**		0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.1**		0.33	0.98	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**		0.22	0.65	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**		0.22	0.65	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.4**		0.22	0.65	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**		0.22	0.65	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**		0.22	0.65	1
Metals	**SW-846 6010C**		**mg/kg**		**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,490**		47.2	211	5
01650	**Calcium**	7440-70-2	**636**		17.6	211	5
01654	**Iron**	7439-89-6	**7,940**		42.5	211	5
01657	**Magnesium**	7439-95-4	**616**		12.8	106	5
06958	**Manganese**	7439-96-5	**202**		0.439	5.28	5
01662	**Potassium**	7440-09-7	**1,450**		88.3	528	5
01667	**Sodium**	7440-23-5	**1,040**	**J**	88.3	1,060	5
	Reporting limits for metals were raised due to interference from the sample matrix.						
06972	**Zinc**	7440-66-6	**99.4**		1.27	21.1	5
	SW-846 6020A		**mg/kg**		**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.36**		0.0985	0.423	2
06125	**Arsenic**	7440-38-2	**4.74**		0.135	0.846	2
06126	**Barium**	7440-39-3	**18.5**		0.192	0.846	2
06127	**Beryllium**	7440-41-7	**1.67**		0.0111	0.211	2
06128	**Cadmium**	7440-43-9	**1.09**		0.0364	0.211	2
06131	**Chromium**	7440-47-3	**12.8**		0.184	0.846	2
06132	**Cobalt**	7440-48-4	**58.0**		0.0330	0.211	2
06133	**Copper**	7440-50-8	**20.8**		0.113	0.846	2
06135	**Lead**	7439-92-1	**9.78**		0.0235	0.423	2
06139	**Nickel**	7440-02-0	**23.4**		0.211	0.846	2
06141	**Selenium**	7782-49-2	**2.32**		0.106	0.846	2
06142	**Silver**	7440-22-4	**10.8**		0.0309	0.211	2
06145	**Thallium**	7440-28-0	**0.494**		0.0264	0.211	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01MSD

C. T. Male Associates
ELLE Sample #: SW 9265118
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.8**	0.0450	0.211	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 19:26	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:30	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:49	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 13:42	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 13:42	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 13:42	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/24/2017 17:49	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01DUP

C. T. Male Associates
ELLE Sample #: SW 9265119
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,030**	45.2	202	5
01650	**Calcium**	7440-70-2	**260**	16.8	202	5
01654	**Iron**	7439-89-6	**9,630**	40.7	202	5
01657	**Magnesium**	7439-95-4	**284**	12.3	101	5
06958	**Manganese**	7439-96-5	**111**	0.419	5.05	5
01662	**Potassium**	7440-09-7	**202 J**	84.4	505	5
01667	Sodium	7440-23-5	84.4 U	84.4	1,010	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**55.9**	1.21	20.2	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.150 J**	0.0942	0.404	2
06125	**Arsenic**	7440-38-2	**3.46**	0.129	0.808	2
06126	**Barium**	7440-39-3	**4.95**	0.183	0.808	2
06127	**Beryllium**	7440-41-7	**1.21**	0.0106	0.202	2
06128	**Cadmium**	7440-43-9	**0.103 J**	0.0348	0.202	2
06131	**Chromium**	7440-47-3	**2.45**	0.176	0.808	2
06132	**Cobalt**	7440-48-4	**5.64**	0.0315	0.202	2
06133	**Copper**	7440-50-8	**12.8**	0.108	0.808	2
06135	**Lead**	7439-92-1	**7.86**	0.0224	0.404	2
06139	**Nickel**	7440-02-0	**15.2**	0.201	0.808	2
06141	**Selenium**	7782-49-2	**0.189 J**	0.101	0.808	2
06142	Silver	7440-22-4	0.0295 U	0.0295	0.202	2
06145	**Thallium**	7440-28-0	**0.168 J**	0.0253	0.202	2
06148	**Vanadium**	7440-62-2	**4.32**	0.0430	0.202	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**152 J**	116	349	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**12.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**12.8**	0.50	0.50	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-133-134 Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:25
SDG#: SGB88-01DUP

C. T. Male Associates
ELLE Sample #: SW 9265119
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:24	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:46	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/24/2017 17:46	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 13:36	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 13:36	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/24/2017 17:46	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631B	11/03/2017 20:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17295039403A	10/22/2017 13:10	Luz M Groff	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS13-171013 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017
SDG#: SGB88-02FD

C. T. Male Associates
ELLE Sample #: SW 9265120
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**5,960**	46.2	207	5
01650	**Calcium**	7440-70-2	**443**	17.2	207	5
01654	**Iron**	7439-89-6	**40,900**	41.6	207	5
01657	**Magnesium**	7439-95-4	**723**	12.6	103	5
06958	**Manganese**	7439-96-5	**2,690**	0.429	5.17	5
01662	**Potassium**	7440-09-7	**756**	86.4	517	5
01667	Sodium	7440-23-5	86.4 U	86.4	1,030	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**118**	1.24	20.7	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.172 J**	0.0964	0.414	2
06125	**Arsenic**	7440-38-2	**7.63**	0.132	0.828	2
06126	**Barium**	7440-39-3	**384**	0.188	0.828	2
06127	**Beryllium**	7440-41-7	**3.50**	0.0108	0.207	2
06128	**Cadmium**	7440-43-9	**0.838**	0.0356	0.207	2
06131	**Chromium**	7440-47-3	**3.11**	0.180	0.828	2
06132	**Cobalt**	7440-48-4	**22.8**	0.0323	0.207	2
06133	**Copper**	7440-50-8	**33.6**	0.111	0.828	2
06135	**Lead**	7439-92-1	**17.0**	0.0230	0.414	2
06139	**Nickel**	7440-02-0	**45.1**	0.206	0.828	2
06141	**Selenium**	7782-49-2	**0.191 J**	0.103	0.828	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FDS13-171013 Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017
SDG#: SGB88-02FD

C. T. Male Associates
ELLE Sample #: SW 9265120
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.0778 J**	0.0302	0.207	2
06145	**Thallium**	7440-28-0	**2.03**	0.0259	0.207	2
06148	**Vanadium**	7440-62-2	**13.2**	0.0441	0.207	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**226 J**	131	393	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.77**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**15.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 20:48	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:48	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 17:59	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:31	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-FDS13-171013 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017
SDG#: SGB88-02FD

C. T. Male Associates
ELLE Sample #: SW 9265120
ELLE Group #: 1863203
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:31	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:31	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 00:46	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039403A	10/25/2017 20:45	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-137-138 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:45
SDG#: SGB88-03

C. T. Male Associates
ELLE Sample #: SW 9265121
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.090 U	0.090	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.090 U	0.090	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.81	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,130**	45.6	204	5
01650	**Calcium**	7440-70-2	**177 J**	17.0	204	5
01654	**Iron**	7439-89-6	**7,880**	41.0	204	5
01657	**Magnesium**	7439-95-4	**190**	12.4	102	5
06958	**Manganese**	7439-96-5	**117**	0.423	5.10	5
01662	**Potassium**	7440-09-7	**140 J**	85.1	510	5
01667	Sodium	7440-23-5	85.1 U	85.1	1,020	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**54.2**	1.22	20.4	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.102 J**	0.0950	0.408	2
06125	**Arsenic**	7440-38-2	**3.96**	0.130	0.815	2
06126	**Barium**	7440-39-3	**5.14**	0.185	0.815	2
06127	**Beryllium**	7440-41-7	**1.12**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.104 J**	0.0351	0.204	2
06131	**Chromium**	7440-47-3	**2.00**	0.177	0.815	2
06132	**Cobalt**	7440-48-4	**5.35**	0.0318	0.204	2
06133	**Copper**	7440-50-8	**13.3**	0.109	0.815	2
06135	**Lead**	7439-92-1	**7.64**	0.113	2.04	10
06139	**Nickel**	7440-02-0	**20.9**	0.203	0.815	2
06141	**Selenium**	7782-49-2	**0.261 J**	0.102	0.815	2
06142	Silver	7440-22-4	0.0298 U	0.0298	0.204	2
06145	**Thallium**	7440-28-0	**0.199 J**	0.127	1.02	10

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-137-138 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:45
SDG#: SGB88-03

C. T. Male Associates
ELLE Sample #: SW 9265121
ELLE Group #: 1863203
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
	Reporting limits for metals were raised due to interference from the sample matrix.						
06148	**Vanadium**	7440-62-2	**4.43**		0.0434	0.204	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**118**	**J**	116	349	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.83**		0.0100	0.0100	1
	The pH was measured in water at 16.6 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.4**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 21:09	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
01662	Potassium	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
01667	Sodium	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
06972	Zinc	SW-846 6010C	1	172911063701	10/23/2017 04:51	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:00	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:34	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MWBR2-137-138 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 10:45
SDG#: SGB88-03

C. T. Male Associates
ELLE Sample #: SW 9265121
ELLE Group #: 1863203
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 15:14	Choon Y Tian	10
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:34	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 15:14	Choon Y Tian	10
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:34	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 00:59	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039401B	10/25/2017 14:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17292820010A	10/20/2017 10:45	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FBS13-171013 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 11:20
SDG#: SGB88-04FB

C. T. Male Associates
ELLE Sample #: WW 9265122
ELLE Group #: 1863203
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 08:09	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AfterPoetTKB-171013 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/14/2017 09:50
Collection Date/Time: 10/13/2017 14:15
SDG#: SGB88-05

C. T. Male Associates
ELLE Sample #: WW 9265123
ELLE Group #: 1863203
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297002	10/26/2017 08:30	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17297002	10/24/2017 08:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

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Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17298009	Sample number(s): 9265116-9265118,9265120-9265121		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17297002	Sample number(s): 9265122-9265123		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 172911063701	Sample number(s): 9265116-9265121		
Aluminum	8.94 U	8.94	40.0
Calcium	13.9 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	8.02 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

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Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.504 J	0.240	4.00
Batch number: 172911063701A	Sample number(s): 9265116-9265121		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0244 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172911063701B	Sample number(s): 9265116-9265121		
Selenium	0.100 U	0.100	0.800
Batch number: 172911063701D	Sample number(s): 9265116-9265121		
Barium	0.182 U	0.182	0.800
Batch number: 17306667631B	Sample number(s): 9265120-9265121		
TOC	100 U	100	300
Batch number: 17307667631B	Sample number(s): 9265116-9265117,9265119		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9265116-9265118,9265120-9265121								
Perfluorobutanesulfonate	1.20	1.24			103		70-130		
Perfluorobutanoic acid	1.36	1.46			107		70-130		
Perfluorodecanoic acid	1.36	1.28			94		70-130		
Perfluorododecanoic acid	1.36	1.31			96		70-130		
Perfluoroheptanoic acid	1.36	1.41			103		70-130		
Perfluorohexanesulfonate	1.29	1.05			82		70-130		
Perfluorohexanoic acid	1.36	1.35			99		70-130		
Perfluorononanoic acid	1.36	1.50			110		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.53			118		70-130		
Perfluorooctanoic acid	1.36	1.35			100		70-130		
Perfluoropentanoic acid	1.36	1.39			102		70-130		
Perfluorotetradecanoic acid	1.36	1.45			106		70-130		
Perfluorotridecanoic acid	1.36	1.35			99		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17297002	Sample number(s): 9265122-9265123								
Perfluorobutanesulfonate	4.81	5.43	4.81	5.04	113	105	70-130	8	30
Perfluorobutanoic acid	5.44	6.18	5.44	6.10	114	112	70-130	1	30
Perfluorodecanoic acid	5.44	5.35	5.44	5.57	98	102	70-130	4	30
Perfluorododecanoic acid	5.44	5.89	5.44	6.24	108	115	70-130	6	30
Perfluoroheptanoic acid	5.44	5.24	5.44	6.00	96	110	70-130	14	30
Perfluorohexanesulfonate	5.14	4.62	5.14	4.85	90	94	70-130	5	30
Perfluorohexanoic acid	5.44	6.40	5.44	5.99	118	110	70-130	7	30
Perfluorononanoic acid	5.44	6.35	5.44	6.35	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.68	5.20	6.20	109	119	70-130	9	30
Perfluorooctanoic acid	5.44	5.87	5.44	5.97	108	110	70-130	2	30
Perfluoropentanoic acid	5.44	5.87	5.44	5.90	108	108	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.03	5.44	6.02	111	111	70-130	0	30
Perfluorotridecanoic acid	5.44	5.25	5.44	5.88	97	108	70-130	11	30
Perfluoroundecanoic acid	5.44	6.26	5.44	6.44	115	118	70-130	3	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172911063701	Sample number(s): 9265116-9265121								
Aluminum	200	194.18			97		80-120		
Calcium	400	387.78			97		80-120		
Iron	100	96.69			97		80-120		
Magnesium	200	193.46			97		80-120		
Manganese	50	53.43			107		80-120		
Potassium	1000	971.33			97		80-120		
Sodium	1000	950.79			95		80-120		
Zinc	50	48.9			98		80-120		
Batch number: 172911063701A	Sample number(s): 9265116-9265121								
Antimony	0.600	0.540			90		80-120		
Arsenic	1.00	1.12			112		80-120		
Beryllium	0.400	0.411			103		80-120		
Cadmium	0.500	0.563			113		80-120		
Chromium	5.00	5.75			115		80-120		
Cobalt	25	26.54			106		80-120		
Copper	5.00	5.74			115		80-120		
Lead	1.50	1.55			103		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	5.09			102		80-120		
Silver	5.00	5.60			112		80-120		
Thallium	0.200	0.196			98		80-120		
Vanadium	5.00	5.08			102		80-120		
Batch number: 172911063701B	Sample number(s): 9265116-9265121								
Selenium	1.00	1.11			111		80-120		
Batch number: 172911063701D	Sample number(s): 9265116-9265121								
Barium	5.00	5.19			104		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17306667631B	Sample number(s): 9265120-9265121								
TOC	7150	7121.91			100		47-143		
Batch number: 17307667631B	Sample number(s): 9265116-9265117,9265119								
TOC	7150	7468.54			104		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17295039403A	Sample number(s): 9265116,9265119								
pH	7.00	7.00			100		95-105		
Batch number: 17298039401B	Sample number(s): 9265121								
pH	7.00	6.95			99		95-105		
Batch number: 17298039403A	Sample number(s): 9265120								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17292820010A	Sample number(s): 9265116-9265121								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9265116-9265118,9265120-9265121 UNSPK: 9265116									
Perfluorobutanesulfonate	0.15 U	1.09	1.01	1.15	1.28	93	112	70-130	23	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorobutanoic acid	0.15 U	1.24	1.36	1.30	1.38	110	107	70-130	2	30
Perfluorodecanoic acid	0.15 U	1.24	1.26	1.30	1.27	102	98	70-130	1	30
Perfluorododecanoic acid	0.15 U	1.24	1.25	1.30	1.34	101	103	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.24	1.57	1.30	1.41	127	109	70-130	11	30
Perfluorohexanesulfonate	0.15 U	1.17	1.05	1.23	1.18	90	96	70-130	12	30
Perfluorohexanoic acid	0.075 U	1.24	1.23	1.30	1.24	100	96	70-130	1	30
Perfluorononanoic acid	0.075 U	1.24	1.51	1.30	1.30	122	100	70-130	15	30
Perfluoro-octanesulfonate	0.23 U	1.18	1.15	1.24	0.934	97	75	70-130	21	30
Perfluorooctanoic acid	0.15 U	1.24	1.16	1.30	1.20	94	92	70-130	3	30
Perfluoropentanoic acid	0.15 U	1.24	1.26	1.30	1.29	102	100	70-130	3	30
Perfluorotetradecanoic acid	0.15 U	1.24	1.28	1.30	1.25	104	97	70-130	2	30
Perfluorotridecanoic acid	0.15 U	1.24	1.21	1.30	1.20	98	92	70-130	1	30
Perfluoroundecanoic acid	0.15 U	1.24	1.25	1.30	1.48	101	114	70-130	17	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172911063701	Sample number(s): 9265116-9265121 UNSPK: 9265116									
Aluminum	2690.09	142.86	5787.85	185.19	5687.31	2168 (2)	1618 (2)	75-125	2	20
Calcium	206.85	285.71	487.62	370.37	556.83	98	94	75-125	13	20
Iron	7402.45	71.43	6783.34	92.59	6959.13	-867 (2)	-479 (2)	75-125	3	20
Magnesium	241.01	142.86	527.49	185.19	539.3	201*	161*	75-125	2	20
Manganese	116.99	35.71	161.33	46.3	176.55	124	129*	75-125	9	20
Potassium	172.51	714.29	1136.66	925.93	1265.91	135*	118	75-125	11	20
Sodium	83.5 U	714.29	719.13	925.93	913.94	101	99	75-125	24*	20
Zinc	39.68	35.71	76.82	46.3	87.06	104	102	75-125	13	20
Batch number: 172911063701A	Sample number(s): 9265116-9265121 UNSPK: 9265116									
Antimony	0.130	0.857	0.941	1.11	1.19	95	95	75-125	23*	20
Arsenic	3.22	1.43	3.77	1.85	4.16	39*	51*	75-125	10	20
Beryllium	0.932	0.571	1.42	0.741	1.46	85	72*	75-125	3	20
Cadmium	0.135	0.714	0.798	0.926	0.955	93	89	75-125	18	20
Chromium	2.32	7.14	10.23	9.26	11.22	111	96	75-125	9	20
Cobalt	5.98	35.71	42.13	46.3	50.83	101	97	75-125	19	20
Copper	12.15	7.14	18.05	9.26	18.2	83	65*	75-125	1	20
Lead	7.36	2.14	8.93	2.78	8.57	73*	43*	75-125	4	20
Nickel	13.36	7.14	20.9	9.26	20.5	105	77	75-125	2	20
Silver	0.0354	7.14	7.63	9.26	9.46	106	102	75-125	21*	20
Thallium	0.101	0.286	0.341	0.370	0.433	84	90	75-125	24*	20
Vanadium	3.85	7.14	11.17	9.26	12.93	103	98	75-125	15	20
Batch number: 172911063701B	Sample number(s): 9265116-9265121 UNSPK: 9265116									
Selenium	0.181	1.43	1.58	1.85	2.04	98	100	75-125	25*	20
Batch number: 172911063701D	Sample number(s): 9265116-9265121 UNSPK: 9265116									

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Barium	6.85	7.14	17.87	9.26	16.18	154*	101	75-125	10	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17306667631B	Sample number(s): 9265120-9265121 UNSPK: P265110									
TOC	103.34	16920	18336.15			108		47-143		
Batch number: 17307667631B	Sample number(s): 9265116-9265117,9265119 UNSPK: 9265116									
TOC	111.96	25530	28468.09			111		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172911063701	Sample number(s): 9265116-9265121 BKG: 9265116			
Aluminum	2690.09	2650.04	1	20
Calcium	206.85	227.65	10 (1)	20
Iron	7402.45	8434.06	13	20
Magnesium	241.01	248.59	3 (1)	20
Manganese	116.99	97.32	18	20
Potassium	172.51	176.69	2 (1)	20
Sodium	83.5 U	73.9 U	0 (1)	20
Zinc	39.68	48.97	21* (1)	20
Batch number: 172911063701A	Sample number(s): 9265116-9265121 BKG: 9265116			
Antimony	0.130	0.131	1 (1)	20
Arsenic	3.22	3.03	6 (1)	20
Beryllium	0.932	1.06	13 (1)	20
Cadmium	0.135	0.0906	39* (1)	20
Chromium	2.32	2.15	8 (1)	20
Cobalt	5.98	4.94	19	20
Copper	12.15	11.22	8	20
Lead	7.36	6.89	7	20
Nickel	13.36	13.33	0	20
Silver	0.0354	0.0258 U	200* (1)	20
Thallium	0.101	0.147	38* (1)	20
Vanadium	3.85	3.78	2	20
Batch number: 172911063701B	Sample number(s): 9265116-9265121 BKG: 9265116			
Selenium	0.181	0.165	9 (1)	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172911063701D	Sample number(s): 9265116-9265121 BKG: 9265116			
Barium	6.85	4.33	45*	20
	mg/kg	mg/kg		
Batch number: 17306667631B	Sample number(s): 9265120-9265121 BKG: P265110			
TOC	103.34	122.4	17* (1)	7
Batch number: 17307667631B	Sample number(s): 9265116-9265117,9265119 BKG: 9265116			
TOC	111.96	133.17	17* (1)	7
	Std. Units	Std. Units		
Batch number: 17295039403A	Sample number(s): 9265116,9265119 BKG: 9265116			
pH	8.18	8.22	0	3
Batch number: 17298039401B	Sample number(s): 9265121 BKG: P265983			
pH	8.68	8.85	2	3
Batch number: 17298039403A	Sample number(s): 9265120 BKG: P272591			
pH	8.13	8.17	0	3
	%	%		
Batch number: 17292820010A	Sample number(s): 9265116-9265121 BKG: 9265116, P265116			
Moisture	12.41	12.81	3	5
Moisture	12.41	12.81	3	5
Moisture Duplicate	12.41	12.81	3	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265122	80	84	77	84	72	79
9265123	74	81	75	81	67	78
Blank	84	92	77	82	70	80
LCS	85	94	83	92	83	88
LCSD	85	96	89	87	85	88

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17297002

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
9265122	97	81	89	86	87	86
9265123	89	85	98	83	89	80
Blank	98	85	88	97	87	81
LCS	92	93	97	112	104	103
LCSD	98	91	115	101	95	86

	13C2-PFTeDA
Limits:	43-112
9265122	75
9265123	74
Blank	79
LCS	85
LCSD	80

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
Limits:	26-119					

Analysis Name: 14 PFCs
Batch number: 17298009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9265116	79	76	72	87	76	86
9265117	77	76	71	77	72	72
9265118	82	81	71	81	75	79
9265120	54	54*	55	56	66	57
9265121	76	79	69	78	80	85
Blank	85	84	79	106	93	94
LCS	82	85	77	85	78	82
MS	77	76	71	77	72	72
MSD	82	81	71	81	75	79
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9265116	85	91	80	83	95	81
9265117	86	76	89	82	76	71
9265118	86	84	82	94	83	82
9265120	65	66	57	56	55	54

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/07/2017 04:10

Group Number: 1863203

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9265121	91	94	84	81	82	69
Blank	92	94	94	94	92	85
LCS	82	84	84	103	109	95
MS	86	76	89	82	76	71
MSD	86	84	82	94	83	82
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9265116	78
9265117	64
9265118	73
9265120	48
9265121	69
Blank	80
LCS	94
MS	64
MSD	73
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 18632O3 / 9265116-23

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: № 47388

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Drive	Address: 50 Century Hill Dr, Latham, NY
Name: Michael Dupay	Name:
email: MDupaye Barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250mL plastic/FFC (14)	Water: 250mL plastic/Trivalent/FFC (14)	Soil: 250mL plastic/FFC (14)	Soil: 4oz Glass/FFC (14)	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
1. SG3-LTB75-171013	—	—	—	10/13/2017	AM	W	N	2	2							FFC(14), pH, moisture
2. SG3-LTB76-171013	—	—	—	10/13/2017	AM	W	N	2	2							TAL metals/cations excl.
3. SG3-MWBR2-108-109*	108	109	ft	10/13/2017	0900	S	Y	6			3	3				Mercury, TOC *MS/MSD Here
4. SG3-MWBR2-118-119	118	119	ft	10/13/2017	0925	S	N	2			1	1				
5. SG3-MWBR2-128-129	128	129	ft	10/13/2017	1015	S	N	2			1	1				
6. SG3-MWBR2-133-134*	133	134	ft	10/13/2017	1025	S	Y	6			3	3				*MS/MSD Here
7. SG3-FD513-171013	/	/	/	10/13/2017	/	S	N	2			1	1				
8. SG3-MWBR2-137-138	137	138	ft	10/13/2017	1045	S	N	2			1	1				
9. SG3-FB513-171013	—	—	—	10/13/2017	1120	W	N	2	2							
10.																

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	DA, RAK	Robert Kurlansky	Y	10-13-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: E Dodson	Date 10-14-17	Time 950
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C): 1.5-1.8			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location:	Lancaster							

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191/1863203/9265116-23

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47390

COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill DR
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 4502/004.02

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml plastic / Trizma	Analysis Requested: Soil	% Solids	Preservative Code	Field Filtered Y/N	
1. SG3:AfterPOET RKB-170113				10/13/2017	14:15	water	N	2	2					PFC's (19)
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY							
Sampled by: KAm	Relinquished by: MCoyp	On Ice? Y N	Date 10/13/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: E Bender	Date 10-14-17	Time 850
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 1.5-1.8			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location: Lancaster PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 197556

Group Number(s): 1863203

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/14/2017 9:50
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	6
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4-250 mL plastic bottles(Unpre), 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 11:19 on 10/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.5	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 18, 2017

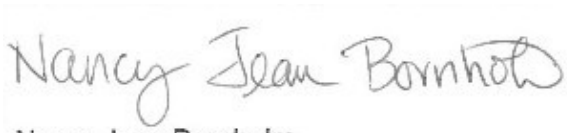
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1863600
SDG: SGB89
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FILTEREDTKB-171016 Water	10/16/2017 17:00	9266955
SG3-AFTERPOET-A-171016 Water	10/16/2017 16:55	9266956
TRIP BLANK Water	10/16/2017	9266957

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1863600

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9266955, 9266956, 9266957

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Batch #: 17290009 (Sample number(s): 9266955-9266957)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9266955, 9266956, 9266957, LCSD

Sample Description: SG3-FILTEREDTKB-171016 Water
SGPP - North Bennington

ELLE Sample # GW 9266955
ELLE Group # 1863600
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/16/2017 17:00 by RQM

Submitted: 10/17/2017 09:40
Reported: 10/18/2017 09:32

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SGPP3 SDG#: SGB89-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17290009	10/18/2017 04:24	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17290009	10/17/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-AFTERPOET-A-171016 Water
SGPP - North Bennington

ELLE Sample # GW 9266956
ELLE Group # 1863600
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/16/2017 16:55 by RQM

Submitted: 10/17/2017 09:40
Reported: 10/18/2017 09:32

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SGPPA SDG#: SGB89-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17290009	10/18/2017 04:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17290009	10/17/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: TRIP BLANK Water
SGPP - North Bennington

ELLE Sample # WW 9266957
ELLE Group # 1863600
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/16/2017

Submitted: 10/17/2017 09:40
Reported: 10/18/2017 09:32

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SGPPT SDG#: SGB89-03TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17290009	10/18/2017 05:05	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17290009	10/17/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1863600
Reported: 10/18/2017 09:32

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17290009	Sample number(s): 9266955-9266957			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17290009	Sample number(s): 9266955-9266957								
6:2 fluorotelomersulfonate	15.17	14.9	15.17	14.33	98	94	70-130	4	30
8:2 fluorotelomersulfonate	15.33	18.47	15.33	16.16	120	105	70-130	13	30
NEtFOSAA	5.44	5.34	5.44	5.43	98	100	70-130	2	30
NMeFOSAA	5.44	5.61	5.44	4.83	103	89	70-130	15	30
Perfluorobutanesulfonate	4.81	5.09	4.81	4.84	106	101	70-130	5	30
Perfluorobutanoic acid	5.44	5.78	5.44	5.43	106	100	70-130	6	30
Perfluorodecanoic acid	5.44	6.23	5.44	5.60	115	103	70-130	11	30
Perfluorododecanoic acid	5.44	6.30	5.44	5.31	116	98	70-130	17	30
Perfluoroheptanoic acid	5.44	6.30	5.44	5.97	116	110	70-130	5	30
Perfluorohexanesulfonate	5.14	6.45	5.14	5.34	125	104	70-130	19	30
Perfluorohexanoic acid	5.44	5.77	5.44	5.69	106	105	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/18/2017 09:32

Group Number: 1863600

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	6.34	5.44	5.42	117	100	70-130	16	30
Perfluorooctanesulfonamide	5.44	5.04	5.44	5.38	93	99	70-130	6	30
Perfluoro-octanesulfonate	5.20	6.70	5.20	5.39	129	104	70-130	22	30
Perfluorooctanoic acid	5.44	6.58	5.44	5.36	121	99	70-130	21	30
Perfluoropentanoic acid	5.44	5.39	5.44	5.71	99	105	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.51	5.44	5.06	101	93	70-130	9	30
Perfluorotridecanoic acid	5.44	5.91	5.44	5.26	109	97	70-130	12	30
Perfluoroundecanoic acid	5.44	6.61	5.44	5.67	122	104	70-130	15	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17290009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9266955	96	100	110	105	96	106
9266956	94	99	116	99	97	90
9266957	92	99	119	106	107	99
Blank	91	92	99	98	98	98
LCS	94	109	108	105	97	101
LCSD	95	97	117	95	94	97
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9266955	86	96	91	93	91	64
9266956	72	94	95	84	95	64
9266957	74	97	80	77	87	61
Blank	84	91	82	86	93	63
LCS	77	95	97	93	97	64
LCSD	72	99	98	86	100	73
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9266955	67	85	78	81	77	40*
9266956	75	87	90	83	87	48*
9266957	39	80	50	67	61	69*
Blank	57	83	68	83	73	70

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1863600
Reported: 10/18/2017 09:32

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17290009

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	64	94	78	72	85	85
LCSD	58	88	65	85	84	68*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

*RUSH ANALYSIS ASAP A-37191 G-1863600 S-926955-57

Barr Engineering Co. Chain of Custody

☐ Ann Arbor ☐ Duluth ☐ Jefferson City
☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47441
COC 3 of 3

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co	Company:	G Male Assoc
Address:	4300 MarketPointe Dr	Address:	50 Century Hill Rd
Name:	Michael Dupay	Name:	Latham NY
email:	mdupay@barr.com	email:	
Copy to: datamgt@barr.com		P.O.	
Project Name:	SGPP Bennington	Barr Project No:	45021004.00

Analysis Requested — Water: 250 mL plastic / trizma; 250 mL trizma trip blank; Soil; % Solids

Preservative Code / Field Filtered Y/N: N N

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 mL plastic / trizma	250 mL trizma trip blank
1. SG3-FILTEREDTKB-171016	—	—	—	10-16-17	1700	W	N	2	2	
2. SG3-AFTERPOST[redacted]A-171016	—	—	—	10-16-17	1655	W	N	2	2	
3. trip blank	—	—	—	—	Pm	W	N	2		2
4.										
5.										
6.										
7.										
8.										
9.										
10.										

PFCs (19)

RUSH ANALYSIS Results needed ASAP for SG3-FILTEREDTKB 171016

Matrix Code:
GW = Groundwater
SW = Surface Water
WW = Waste Water
DW = Drinking Water
S = Soil/Solid
SD = Sediment
O = Other

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
I = Ascorbic Acid
J = NH_4Cl
K = Zn Acetate
O = Other

BARR USE ONLY		Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	RQM DJZ	Derek Zander	Y	10-16-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	Y N			3	10.17.17	940
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE							
Lab Location:	Lancaster	Lab WO:						

Temperature on Receipt (°C): 2.1-3.2 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197685

Group Number(s): 1863600

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/17/2017 9:40
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL unpreserved plastic.

Unpacked by Timothy Cubberley (6520) at 10:43 on 10/17/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.2	DT	Wet	Y	Bagged	N
2	DT131	2.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 10, 2017 10:35

Project: SGPP - Bennington

Account #: 37191
Group Number: 1863767
SDG: SGB90
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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REVISED

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D09-0-0.5' Grab Soil	10/16/2017 11:20	9267650
SG3-D09-0.5-1' Grab Soil	10/16/2017 11:25	9267651
SG3-D09-1-1.5' Grab Soil	10/16/2017 11:30	9267652
SG3-D09-3-4' Grab Soil	10/16/2017 11:40	9267653
SG3-D09-8-9' Grab Soil	10/16/2017 11:50	9267654
SG3-D09-14-15' Grab Soil	10/16/2017 12:10	9267655
SG3-D09-28-29' Grab Soil	10/16/2017 13:50	9267656
SG3-D09-38-39' Grab Soil	10/16/2017 14:50	9267657
SG3-D09-48-49' Grab Soil	10/16/2017 15:10	9267658
SG3-LTB77-171016 Blank Water	10/16/2017	9267659
SG3-LTB78-171016 Blank Water	10/16/2017	9267660

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - Bennington
ELLE Group #: 1863767

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9267656, 9267657, 9267658, 9267659, 9267660

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17293003 (Sample number(s): 9267659-9267660)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

Batch #: 17298004 (Sample number(s): 9267650-9267658 UNSPK: 9267650)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluoro-octanesulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9267656, 9267657, 9267658

SW-846 6010C, Metals

Batch #: 172911063701 (Sample number(s): 9267650-9267658 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Zinc

SW-846 6020A, Metals

Batch #: 172911063701A (Sample number(s): 9267650-9267658 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Beryllium, Copper, Lead

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Silver, Thallium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Silver, Thallium

Batch #: 172911063701B (Sample number(s): 9267650-9267658 UNSPK: P265116 BKG: P265116)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Selenium

Batch #: 172911063701D (Sample number(s): 9267650-9267658 UNSPK: P265116 BKG: P265116)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9267658

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17306667631B (Sample number(s): 9267653 UNSPK: P265110 BKG: P265110)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17310667632A (Sample number(s): 9267652 UNSPK: 9267652 BKG: 9267652)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17310667632B (Sample number(s): 9267657 UNSPK: 9267657 BKG: 9267657)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9267650, 9267651

The pH was measured in water at 18.6 C.

Sample #s: 9267652

The pH was measured in water at 18.7 C.

Sample #s: 9267654

The pH was measured in water at 19.2 C.

Sample #s: 9267658

The pH was measured in water at 19.5 C.

Sample #s: 9267656

The pH was measured in water at 19.6 C.

Sample #s: 9267655

The pH was measured in water at 19.7 C.

Sample #s: 9267657

The pH was measured in water at 19.9 C.

Sample #s: 9267653

The pH was measured in water at 20.2 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17293820002A (Sample number(s): 9267650-9267658 BKG: 9267654)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: SG3-D09-0-0.5' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:20
SDG#: SGB90-01

C. T. Male Associates
ELLE Sample #: SW 9267650
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.32 J**	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,250**	7.91	35.4	1
01650	**Calcium**	7440-70-2	**84,200**	14.7	177	5
01654	**Iron**	7439-89-6	**13,200**	7.12	35.4	1
01657	**Magnesium**	7439-95-4	**33,200**	2.15	17.7	1
06958	**Manganese**	7439-96-5	**390**	0.0734	0.885	1
01662	**Potassium**	7440-09-7	**527**	14.8	88.5	1
01667	**Sodium**	7440-23-5	**41.5 J**	14.8	177	1
06972	**Zinc**	7440-66-6	**133**	0.212	3.54	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.417**	0.0825	0.354	2
06125	**Arsenic**	7440-38-2	**8.07**	0.113	0.708	2
06126	**Barium**	7440-39-3	**62.5**	0.161	0.708	2
06127	**Beryllium**	7440-41-7	**0.192**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.244**	0.0304	0.177	2
06131	**Chromium**	7440-47-3	**8.70**	0.154	0.708	2
06132	**Cobalt**	7440-48-4	**7.29**	0.0276	0.177	2
06133	**Copper**	7440-50-8	**21.0**	0.0948	0.708	2
06135	**Lead**	7439-92-1	**28.4**	0.0196	0.354	2
06139	**Nickel**	7440-02-0	**11.0**	0.176	0.708	2
06141	**Selenium**	7782-49-2	**0.219 J**	0.0885	0.708	2
06142	**Silver**	7440-22-4	**0.403**	0.0258	0.177	2
06145	**Thallium**	7440-28-0	**0.142 J**	0.0221	0.177	2
06148	**Vanadium**	7440-62-2	**8.42**	0.0377	0.177	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-0-0.5' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:20
SDG#: SGB90-01

C. T. Male Associates
ELLE Sample #: SW 9267650
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,200**	2,900	8,690	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.48**	0.0100	0.0100	1
	The pH was measured in water at 18.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 20:09	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:54	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:04	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:04	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:37	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:37	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-0-0.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:20
SDG#: SGB90-01

C. T. Male Associates
ELLE Sample #: SW 9267650
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:37	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631A	11/03/2017 17:16	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039401B	10/26/2017 17:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-0.5-1' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:25
SDG#: SGB90-02

C. T. Male Associates
ELLE Sample #: SW 9267651
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.94 J**	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,570**	7.86	35.2	1
01650	**Calcium**	7440-70-2	**26,200**	2.93	35.2	1
01654	**Iron**	7439-89-6	**19,900**	7.08	35.2	1
01657	**Magnesium**	7439-95-4	**13,200**	2.14	17.6	1
06958	**Manganese**	7439-96-5	**450**	0.0730	0.879	1
01662	**Potassium**	7440-09-7	**660**	14.7	87.9	1
01667	**Sodium**	7440-23-5	**35.9 J**	14.7	176	1
06972	**Zinc**	7440-66-6	**82.5**	0.211	3.52	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.275 J**	0.0819	0.352	2
06125	**Arsenic**	7440-38-2	**34.9**	0.113	0.703	2
06126	**Barium**	7440-39-3	**51.9**	0.160	0.703	2
06127	**Beryllium**	7440-41-7	**0.264**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**0.257**	0.0302	0.176	2
06131	**Chromium**	7440-47-3	**7.57**	0.153	0.703	2
06132	**Cobalt**	7440-48-4	**12.2**	0.0274	0.176	2
06133	**Copper**	7440-50-8	**27.7**	0.0942	0.703	2
06135	**Lead**	7439-92-1	**40.6**	0.0195	0.352	2
06139	**Nickel**	7440-02-0	**15.0**	0.175	0.703	2
06141	**Selenium**	7782-49-2	**0.249 J**	0.0879	0.703	2
06142	**Silver**	7440-22-4	**0.134 J**	0.0257	0.176	2
06145	**Thallium**	7440-28-0	**0.110 J**	0.0220	0.176	2
06148	**Vanadium**	7440-62-2	**12.0**	0.0374	0.176	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-0.5-1' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:25
SDG#: SGB90-02

C. T. Male Associates
ELLE Sample #: SW 9267651
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**8,740**	453	1,360	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.37**	0.0100	0.0100	1
	The pH was measured in water at 18.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 20:30	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:08	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:06	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:40	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:40	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-0.5-1' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:25
SDG#: SGB90-02

C. T. Male Associates
ELLE Sample #: SW 9267651
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:40	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667632B	11/04/2017 04:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039401B	10/26/2017 17:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-1-1.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:30
SDG#: SGB90-03

C. T. Male Associates
ELLE Sample #: SW 9267652
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	**Perfluorononanoic acid**	375-95-1	**0.26 J**	0.085	0.34	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**2.7**	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,560**	8.15	36.5	1
01650	**Calcium**	7440-70-2	**6,730**	3.03	36.5	1
01654	**Iron**	7439-89-6	**17,700**	7.34	36.5	1
01657	**Magnesium**	7439-95-4	**3,730**	2.21	18.2	1
06958	**Manganese**	7439-96-5	**644**	0.0756	0.911	1
01662	**Potassium**	7440-09-7	**827**	15.2	91.1	1
01667	**Sodium**	7440-23-5	**38.2 J**	15.2	182	1
06972	**Zinc**	7440-66-6	**96.2**	0.219	3.65	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.367**	0.0849	0.365	2
06125	**Arsenic**	7440-38-2	**7.34**	0.117	0.729	2
06126	**Barium**	7440-39-3	**62.0**	0.165	0.729	2
06127	**Beryllium**	7440-41-7	**0.266**	0.0096	0.182	2
06128	**Cadmium**	7440-43-9	**0.306**	0.0313	0.182	2
06131	**Chromium**	7440-47-3	**10.3**	0.159	0.729	2
06132	**Cobalt**	7440-48-4	**9.05**	0.0284	0.182	2
06133	**Copper**	7440-50-8	**24.4**	0.0977	0.729	2
06135	**Lead**	7439-92-1	**35.4**	0.0202	0.365	2
06139	**Nickel**	7440-02-0	**12.6**	0.182	0.729	2
06141	**Selenium**	7782-49-2	**0.357 J**	0.0911	0.729	2
06142	**Silver**	7440-22-4	**0.199**	0.0266	0.182	2
06145	**Thallium**	7440-28-0	**0.151 J**	0.0228	0.182	2
06148	**Vanadium**	7440-62-2	**13.1**	0.0388	0.182	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-1-1.5' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:30
SDG#: SGB90-03

C. T. Male Associates
ELLE Sample #: SW 9267652
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**10,600**	707	2,120	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.77**	0.0100	0.0100	1
	The pH was measured in water at 18.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 20:50	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:12	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:08	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:43	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:43	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-1-1.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:30
SDG#: SGB90-03

C. T. Male Associates
ELLE Sample #: SW 9267652
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:43	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17310667632A	11/06/2017 23:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039401B	10/26/2017 17:30	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:40
SDG#: SGB90-04

C. T. Male Associates
ELLE Sample #: SW 9267653
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.085 U	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.37 J**	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,490**	8.30	37.2	1
01650	**Calcium**	7440-70-2	**324**	3.09	37.2	1
01654	**Iron**	7439-89-6	**24,700**	7.48	37.2	1
01657	**Magnesium**	7439-95-4	**1,410**	2.26	18.6	1
06958	**Manganese**	7439-96-5	**528**	0.0771	0.929	1
01662	**Potassium**	7440-09-7	**714**	15.5	92.9	1
01667	**Sodium**	7440-23-5	**28.9 J**	15.5	186	1
06972	**Zinc**	7440-66-6	**38.2**	0.223	3.72	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.255 J**	0.0866	0.372	2
06125	**Arsenic**	7440-38-2	**9.48**	0.119	0.743	2
06126	**Barium**	7440-39-3	**79.9**	0.169	0.743	2
06127	**Beryllium**	7440-41-7	**0.386**	0.0097	0.186	2
06128	**Cadmium**	7440-43-9	**0.173 J**	0.0319	0.186	2
06131	**Chromium**	7440-47-3	**8.44**	0.162	0.743	2
06132	**Cobalt**	7440-48-4	**13.5**	0.0290	0.186	2
06133	**Copper**	7440-50-8	**29.5**	0.0996	0.743	2
06135	**Lead**	7439-92-1	**9.98**	0.0206	0.372	2
06139	**Nickel**	7440-02-0	**16.2**	0.185	0.743	2
06141	**Selenium**	7782-49-2	**0.517 J**	0.0929	0.743	2
06142	**Silver**	7440-22-4	**0.0418 J**	0.0271	0.186	2
06145	**Thallium**	7440-28-0	**0.132 J**	0.0232	0.186	2
06148	**Vanadium**	7440-62-2	**10.8**	0.0396	0.186	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:40
SDG#: SGB90-04

C. T. Male Associates
ELLE Sample #: SW 9267653
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,180**	136	408	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.51**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**3.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 21:11	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:15	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:10	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:46	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:46	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:40
SDG#: SGB90-04

C. T. Male Associates
ELLE Sample #: SW 9267653
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:46	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17306667631B	11/03/2017 01:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-8-9' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:50
SDG#: SGB90-05

C. T. Male Associates
ELLE Sample #: SW 9267654
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.47 J**	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,770**	6.90	30.9	1
01650	**Calcium**	7440-70-2	**60,000**	12.9	154	5
01654	**Iron**	7439-89-6	**12,700**	6.21	30.9	1
01657	**Magnesium**	7439-95-4	**23,400**	1.88	15.4	1
06958	**Manganese**	7439-96-5	**397**	0.0641	0.772	1
01662	**Potassium**	7440-09-7	**404**	12.9	77.2	1
01667	**Sodium**	7440-23-5	**26.4 J**	12.9	154	1
06972	**Zinc**	7440-66-6	**24.5**	0.185	3.09	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.125 J**	0.0719	0.309	2
06125	**Arsenic**	7440-38-2	**7.67**	0.0988	0.618	2
06126	**Barium**	7440-39-3	**38.4**	0.140	0.618	2
06127	**Beryllium**	7440-41-7	**0.190**	0.0081	0.154	2
06128	**Cadmium**	7440-43-9	**0.0909 J**	0.0266	0.154	2
06131	**Chromium**	7440-47-3	**4.25**	0.134	0.618	2
06132	**Cobalt**	7440-48-4	**14.0**	0.0241	0.154	2
06133	**Copper**	7440-50-8	**16.9**	0.0828	0.618	2
06135	**Lead**	7439-92-1	**7.23**	0.0171	0.309	2
06139	**Nickel**	7440-02-0	**9.38**	0.154	0.618	2
06141	**Selenium**	7782-49-2	**0.284 J**	0.0772	0.618	2
06142	**Silver**	7440-22-4	**0.0465 J**	0.0225	0.154	2
06145	**Thallium**	7440-28-0	**0.0943 J**	0.0193	0.154	2
06148	**Vanadium**	7440-62-2	**5.21**	0.0329	0.154	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-8-9' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:50
SDG#: SGB90-05

C. T. Male Associates
ELLE Sample #: SW 9267654
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**12,600**	1,000	3,010	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.55**	0.0100	0.0100	1
	The pH was measured in water at 19.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**2.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 22:12	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 04:57	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:19	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:11	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 14:59	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 14:59	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-8-9' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 11:50
SDG#: SGB90-05

C. T. Male Associates
ELLE Sample #: SW 9267654
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 14:59	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631A	11/03/2017 17:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-14-15' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 12:10
SDG#: SGB90-06

C. T. Male Associates
ELLE Sample #: SW 9267655
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.85	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.29 J**	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,180**	6.82	30.5	1
01650	**Calcium**	7440-70-2	**86,000**	12.7	153	5
01654	**Iron**	7439-89-6	**13,500**	6.14	30.5	1
01657	**Magnesium**	7439-95-4	**44,100**	9.27	76.3	5
06958	**Manganese**	7439-96-5	**409**	0.0633	0.763	1
01662	**Potassium**	7440-09-7	**711**	12.7	76.3	1
01667	**Sodium**	7440-23-5	**58.0 J**	12.7	153	1
06972	**Zinc**	7440-66-6	**25.5**	0.183	3.05	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.12**	0.0711	0.305	2
06125	**Arsenic**	7440-38-2	**5.47**	0.0977	0.610	2
06126	**Barium**	7440-39-3	**34.1**	0.139	0.610	2
06127	**Beryllium**	7440-41-7	**0.199**	0.0080	0.153	2
06128	**Cadmium**	7440-43-9	**0.0768 J**	0.0262	0.153	2
06131	**Chromium**	7440-47-3	**15.2**	0.133	0.610	2
06132	**Cobalt**	7440-48-4	**8.43**	0.0238	0.153	2
06133	**Copper**	7440-50-8	**11.8**	0.0818	0.610	2
06135	**Lead**	7439-92-1	**7.34**	0.0169	0.305	2
06139	**Nickel**	7440-02-0	**8.85**	0.152	0.610	2
06141	**Selenium**	7782-49-2	**0.165 J**	0.0763	0.610	2
06142	**Silver**	7440-22-4	**0.0395 J**	0.0223	0.153	2
06145	**Thallium**	7440-28-0	**0.0949 J**	0.0191	0.153	2
06148	**Vanadium**	7440-62-2	**6.14**	0.0325	0.153	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-14-15' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 12:10
SDG#: SGB90-06

C. T. Male Associates
ELLE Sample #: SW 9267655
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,400**	2,140	6,430	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.84**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**2.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 22:33	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/23/2017 05:00	Jonathan J Allen	5
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/23/2017 05:00	Jonathan J Allen	5
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:23	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:13	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 15:02	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 15:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-14-15' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 12:10
SDG#: SGB90-06

C. T. Male Associates
ELLE Sample #: SW 9267655
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 15:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631A	11/03/2017 18:07	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-28-29' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 13:50
SDG#: SGB90-07

C. T. Male Associates
ELLE Sample #: SW 9267656
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.15 U	0.15	0.46	1
14027	Perfluorobutanoic acid	375-22-4	0.15 U	0.15	0.46	1
14027	Perfluorodecanoic acid	335-76-2	0.15 U	0.15	0.46	1
14027	Perfluorododecanoic acid	307-55-1	0.15 U	0.15	0.46	1
14027	Perfluoroheptanoic acid	375-85-9	0.15 U	0.15	0.46	1
14027	Perfluorohexanesulfonate	355-46-4	0.15 U	0.15	0.46	1
14027	Perfluorohexanoic acid	307-24-4	0.076 U	0.076	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.076 U	0.076	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.23 U	0.23	0.68	1
14027	Perfluorooctanoic acid	335-67-1	0.15 U	0.15	0.46	1
14027	Perfluoropentanoic acid	2706-90-3	0.15 U	0.15	0.46	1
14027	Perfluorotetradecanoic acid	376-06-7	0.15 U	0.15	0.46	1
14027	Perfluorotridecanoic acid	72629-94-8	0.15 U	0.15	0.46	1
14027	Perfluoroundecanoic acid	2058-94-8	0.15 U	0.15	0.46	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**6,140**	8.26	37.0	1
01650	**Calcium**	7440-70-2	**36,100**	3.08	37.0	1
01654	**Iron**	7439-89-6	**21,800**	7.44	37.0	1
01657	**Magnesium**	7439-95-4	**16,500**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**687**	0.0767	0.924	1
01662	**Potassium**	7440-09-7	**870**	15.4	92.4	1
01667	**Sodium**	7440-23-5	**45.5 J**	15.4	185	1
06972	**Zinc**	7440-66-6	**28.9**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.141 J**	0.0861	0.370	2
06125	**Arsenic**	7440-38-2	**8.74**	0.118	0.739	2
06126	**Barium**	7440-39-3	**105**	0.168	0.739	2
06127	**Beryllium**	7440-41-7	**0.394**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.118 J**	0.0318	0.185	2
06131	**Chromium**	7440-47-3	**13.8**	0.161	0.739	2
06132	**Cobalt**	7440-48-4	**21.8**	0.0288	0.185	2
06133	**Copper**	7440-50-8	**14.0**	0.0991	0.739	2
06135	**Lead**	7439-92-1	**9.57**	0.0205	0.370	2
06139	**Nickel**	7440-02-0	**11.9**	0.184	0.739	2
06141	**Selenium**	7782-49-2	**0.155 J**	0.0924	0.739	2
06142	**Silver**	7440-22-4	**0.0501 J**	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.362**	0.0231	0.185	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-28-29' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 13:50
SDG#: SGB90-07

C. T. Male Associates
ELLE Sample #: SW 9267656
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.22**	0.0394	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,290**	540	1,620	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.69**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 22:53	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:35	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:15	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 15:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-28-29' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 13:50
SDG#: SGB90-07

C. T. Male Associates
ELLE Sample #: SW 9267656
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 15:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 15:05	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17307667631A	11/03/2017 18:20	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-38-39' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 14:50
SDG#: SGB90-08

C. T. Male Associates
ELLE Sample #: SW 9267657
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.090 U	0.090	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.090 U	0.090	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.81	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,600**	7.56	33.8	1
01650	**Calcium**	7440-70-2	**482**	2.82	33.8	1
01654	**Iron**	7439-89-6	**42,400**	34.0	169	5
01657	**Magnesium**	7439-95-4	**792**	2.05	16.9	1
06958	**Manganese**	7439-96-5	**1,400**	0.0702	0.845	1
01662	**Potassium**	7440-09-7	**1,140**	14.1	84.5	1
01667	**Sodium**	7440-23-5	**44.1 J**	14.1	169	1
06972	**Zinc**	7440-66-6	**62.6**	0.203	3.38	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.202 J**	0.0788	0.338	2
06125	**Arsenic**	7440-38-2	**21.9**	0.108	0.676	2
06126	**Barium**	7440-39-3	**179**	0.154	0.676	2
06127	**Beryllium**	7440-41-7	**0.817**	0.0089	0.169	2
06128	**Cadmium**	7440-43-9	**0.196**	0.0291	0.169	2
06131	**Chromium**	7440-47-3	**23.2**	0.147	0.676	2
06132	**Cobalt**	7440-48-4	**31.1**	0.0264	0.169	2
06133	**Copper**	7440-50-8	**31.9**	0.0906	0.676	2
06135	**Lead**	7439-92-1	**17.2**	0.0188	0.338	2
06139	**Nickel**	7440-02-0	**31.5**	0.168	0.676	2
06141	**Selenium**	7782-49-2	**0.313 J**	0.0845	0.676	2
06142	**Silver**	7440-22-4	**0.0357 J**	0.0247	0.169	2
06145	**Thallium**	7440-28-0	**0.398**	0.0211	0.169	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-38-39' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 14:50
SDG#: SGB90-08

C. T. Male Associates
ELLE Sample #: SW 9267657
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**19.3**	0.0360	0.169	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**376**	113	340	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 23:14	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/23/2017 05:04	Jonathan J Allen	5
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:39	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:21	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 15:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-38-39' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 14:50
SDG#: SGB90-08

C. T. Male Associates
ELLE Sample #: SW 9267657
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 15:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 15:08	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17310667632B	11/07/2017 02:46	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-48-49' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 15:10
SDG#: SGB90-09

C. T. Male Associates
ELLE Sample #: SW 9267658
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,750**	8.01	35.8	1
01650	**Calcium**	7440-70-2	**291**	2.98	35.8	1
01654	**Iron**	7439-89-6	**23,000**	7.21	35.8	1
01657	**Magnesium**	7439-95-4	**423**	2.18	17.9	1
06958	**Manganese**	7439-96-5	**1,030**	0.0744	0.896	1
01662	**Potassium**	7440-09-7	**918**	15.0	89.6	1
01667	**Sodium**	7440-23-5	**25.0 J**	15.0	179	1
06972	**Zinc**	7440-66-6	**43.5**	0.215	3.58	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.195 J**	0.0835	0.358	2
06125	**Arsenic**	7440-38-2	**14.0**	0.115	0.717	2
06126	**Barium**	7440-39-3	**134**	0.163	0.717	2
06127	**Beryllium**	7440-41-7	**0.645**	0.0094	0.179	2
06128	**Cadmium**	7440-43-9	**0.186**	0.0308	0.179	2
06131	**Chromium**	7440-47-3	**10.1**	0.156	0.717	2
06132	**Cobalt**	7440-48-4	**19.5**	0.0280	0.179	2
06133	**Copper**	7440-50-8	**22.8**	0.0961	0.717	2
06135	**Lead**	7439-92-1	**12.9**	0.0199	0.358	2
06139	**Nickel**	7440-02-0	**18.8**	0.178	0.717	2
06141	**Selenium**	7782-49-2	**0.266 J**	0.0896	0.717	2
06142	**Silver**	7440-22-4	**0.0478 J**	0.0262	0.179	2
06145	**Thallium**	7440-28-0	**0.539**	0.0224	0.179	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D09-48-49' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 15:10
SDG#: SGB90-09

C. T. Male Associates
ELLE Sample #: SW 9267658
ELLE Group #: 1863767
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**12.2**		0.0382	0.179	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**303**	**J**	114	342	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.82**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**7.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 23:34	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	172911063701	10/20/2017 13:43	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	172911063701A	10/24/2017 18:22	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172911063701D	10/22/2017 15:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-48-49' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017 15:10
SDG#: SGB90-09

C. T. Male Associates
ELLE Sample #: SW 9267658
ELLE Group #: 1863767
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172911063701B	10/22/2017 15:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172911063701A	10/22/2017 15:11	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172911063701	10/18/2017 16:15	JoElla L Rice	1
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 07:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	2	17299039402A	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820002A	10/20/2017 13:50	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB77-171016 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017
SDG#: SGB90-10TB

C. T. Male Associates
ELLE Sample #: WW 9267659
ELLE Group #: 1863767
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 00:01	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB78-171016 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/17/2017 09:40
Collection Date/Time: 10/16/2017
SDG#: SGB90-11TB

C. T. Male Associates
ELLE Sample #: WW 9267660
ELLE Group #: 1863767
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 00:22	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17298004	Sample number(s): 9267650-9267658		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17293003	Sample number(s): 9267659-9267660		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.7 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.8 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172911063701	Sample number(s): 9267650-9267658		
Aluminum	8.94 U	8.94	40.0
Calcium	13.9 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	8.02 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.504 J	0.240	4.00
Batch number: 172911063701A	Sample number(s): 9267650-9267658		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0244 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172911063701B	Sample number(s): 9267650-9267658		
Selenium	0.100 U	0.100	0.800
Batch number: 172911063701D	Sample number(s): 9267650-9267658		
Barium	0.182 U	0.182	0.800
Batch number: 17306667631B	Sample number(s): 9267653		
TOC	100 U	100	300
Batch number: 17307667631A	Sample number(s): 9267650,9267654-9267656		
TOC	100 U	100	300
Batch number: 17307667632B	Sample number(s): 9267651		
TOC	100 U	100	300
Batch number: 17310667632A	Sample number(s): 9267652		
TOC	100 U	100	300
Batch number: 17310667632B	Sample number(s): 9267657		
TOC	100 U	100	300
Batch number: 17310667633A	Sample number(s): 9267658		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9267650-9267658								
Perfluorobutanesulfonate	1.20	1.17	1.20	1.19	97	99	70-130	2	30
Perfluorobutanoic acid	1.36	1.49	1.36	1.52	109	112	70-130	2	30
Perfluorodecanoic acid	1.36	1.53	1.36	1.43	112	105	70-130	7	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.55	109	114	70-130	4	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.40	111	103	70-130	8	30
Perfluorohexanesulfonate	1.29	1.30	1.29	1.24	101	97	70-130	4	30
Perfluorohexanoic acid	1.36	1.54	1.36	1.34	113	98	70-130	14	30
Perfluorononanoic acid	1.36	1.49	1.36	1.35	109	99	70-130	10	30
Perfluoro-octanesulfonate	1.30	1.69	1.30	1.19	130	91	70-130	35*	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.18	97	87	70-130	11	30
Perfluoropentanoic acid	1.36	1.27	1.36	1.39	94	102	70-130	9	30
Perfluorotetradecanoic acid	1.36	1.40	1.36	1.47	103	108	70-130	5	30
Perfluorotridecanoic acid	1.36	1.56	1.36	1.52	115	112	70-130	3	30
Perfluoroundecanoic acid	1.36	1.40	1.36	1.38	103	101	70-130	1	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17293003	Sample number(s): 9267659-9267660								
Perfluorobutanesulfonate	4.81	5.15	4.81	4.75	107	99	70-130	8	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.10	112	112	70-130	0	30
Perfluorodecanoic acid	5.44	5.30	5.44	6.36	97	117	70-130	18	30
Perfluorododecanoic acid	5.44	5.84	5.44	5.66	107	104	70-130	3	30
Perfluoroheptanoic acid	5.44	6.44	5.44	6.13	118	113	70-130	5	30
Perfluorohexanesulfonate	5.14	5.70	5.14	5.58	111	109	70-130	2	30
Perfluorohexanoic acid	5.44	5.87	5.44	6.07	108	112	70-130	3	30
Perfluorononanoic acid	5.44	6.07	5.44	5.69	112	105	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.46	5.20	5.68	105	109	70-130	4	30
Perfluorooctanoic acid	5.44	5.61	5.44	7.16	103	132*	70-130	24	30
Perfluoropentanoic acid	5.44	5.57	5.44	6.32	102	116	70-130	13	30
Perfluorotetradecanoic acid	5.44	5.97	5.44	6.05	110	111	70-130	1	30
Perfluorotridecanoic acid	5.44	5.52	5.44	5.75	102	106	70-130	4	30
Perfluoroundecanoic acid	5.44	6.50	5.44	6.54	119	120	70-130	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172911063701	Sample number(s): 9267650-9267658								
Aluminum	200	194.18			97		80-120		
Calcium	400	387.78			97		80-120		
Iron	100	96.69			97		80-120		
Magnesium	200	193.46			97		80-120		
Manganese	50	53.43			107		80-120		
Potassium	1000	971.33			97		80-120		
Sodium	1000	950.79			95		80-120		
Zinc	50	48.9			98		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 172911063701A	Sample number(s): 9267650-9267658								
Antimony	0.600	0.540			90		80-120		
Arsenic	1.00	1.12			112		80-120		
Beryllium	0.400	0.411			103		80-120		
Cadmium	0.500	0.563			113		80-120		
Chromium	5.00	5.75			115		80-120		
Cobalt	25	26.54			106		80-120		
Copper	5.00	5.74			115		80-120		
Lead	1.50	1.55			103		80-120		
Nickel	5.00	5.09			102		80-120		
Silver	5.00	5.60			112		80-120		
Thallium	0.200	0.196			98		80-120		
Vanadium	5.00	5.08			102		80-120		
Batch number: 172911063701B	Sample number(s): 9267650-9267658								
Selenium	1.00	1.11			111		80-120		
Batch number: 172911063701D	Sample number(s): 9267650-9267658								
Barium	5.00	5.19			104		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17306667631B	Sample number(s): 9267653								
TOC	7150	7121.91			100		47-143		
Batch number: 17307667631A	Sample number(s): 9267650,9267654-9267656								
TOC	7150	7468.54			104		47-143		
Batch number: 17307667632B	Sample number(s): 9267651								
TOC	7150	7929.66			111		47-143		
Batch number: 17310667632A	Sample number(s): 9267652								
TOC	7150	6756.34			94		47-143		
Batch number: 17310667632B	Sample number(s): 9267657								
TOC	7150	6756.34			94		47-143		
Batch number: 17310667633A	Sample number(s): 9267658								
TOC	7150	6993.27			98		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17299039401B	Sample number(s): 9267650-9267652								
pH	7.00	7.00			100		95-105		
Batch number: 17299039402A	Sample number(s): 9267653-9267658								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

LCS/LCSD (continued)

Analysis Name	LCS Spike Added %	LCS Conc %	LCSD Spike Added %	LCSD Conc %	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293820002A	Sample number(s): 9267650-9267658								
Moisture	89.5	89.45			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9267650-9267658 UNSPK: 9267650									
Perfluorobutanesulfonate	0.19 U	1.07	1.12			104		70-130		
Perfluorobutanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorodecanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorododecanoic acid	0.19 U	1.21	1.34			110		70-130		
Perfluoroheptanoic acid	0.19 U	1.21	1.27			105		70-130		
Perfluorohexanesulfonate	0.19 U	1.15	1.22			106		70-130		
Perfluorohexanoic acid	0.093 U	1.21	1.34			111		70-130		
Perfluorononanoic acid	0.093 U	1.21	1.39			115		70-130		
Perfluoro-octanesulfonate	0.286	1.16	1.29			86		70-130		
Perfluorooctanoic acid	0.19 U	1.21	1.28			106		70-130		
Perfluoropentanoic acid	0.19 U	1.21	1.36			112		70-130		
Perfluorotetradecanoic acid	0.19 U	1.21	1.24			102		70-130		
Perfluorotridecanoic acid	0.19 U	1.21	1.26			104		70-130		
Perfluoroundecanoic acid	0.19 U	1.21	1.40			116		70-130		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172911063701	Sample number(s): 9267650-9267658 UNSPK: P265116									
Aluminum	2690.09	142.86	5787.85	185.19	5687.31	2168 (2)	1618 (2)	75-125	2	20
Calcium	206.85	285.71	487.62	370.37	556.83	98	94	75-125	13	20
Iron	7402.45	71.43	6783.34	92.59	6959.13	-867 (2)	-479 (2)	75-125	3	20
Magnesium	241.01	142.86	527.49	185.19	539.3	201*	161*	75-125	2	20
Manganese	116.99	35.71	161.33	46.3	176.55	124	129*	75-125	9	20
Potassium	172.51	714.29	1136.66	925.93	1265.91	135*	118	75-125	11	20
Sodium	83.5 U	714.29	719.13	925.93	913.94	101	99	75-125	24*	20
Zinc	39.68	35.71	76.82	46.3	87.06	104	102	75-125	13	20
Batch number: 172911063701A	Sample number(s): 9267650-9267658 UNSPK: P265116									
Antimony	0.130	0.857	0.941	1.11	1.19	95	95	75-125	23*	20
Arsenic	3.22	1.43	3.77	1.85	4.16	39*	51*	75-125	10	20
Beryllium	0.932	0.571	1.42	0.741	1.46	85	72*	75-125	3	20
Cadmium	0.135	0.714	0.798	0.926	0.955	93	89	75-125	18	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Chromium	2.32	7.14	10.23	9.26	11.22	111	96	75-125	9	20
Cobalt	5.98	35.71	42.13	46.3	50.83	101	97	75-125	19	20
Copper	12.15	7.14	18.05	9.26	18.2	83	65*	75-125	1	20
Lead	7.36	2.14	8.93	2.78	8.57	73*	43*	75-125	4	20
Nickel	13.36	7.14	20.9	9.26	20.5	105	77	75-125	2	20
Silver	0.0354	7.14	7.63	9.26	9.46	106	102	75-125	21*	20
Thallium	0.101	0.286	0.341	0.370	0.433	84	90	75-125	24*	20
Vanadium	3.85	7.14	11.17	9.26	12.93	103	98	75-125	15	20
Batch number: 172911063701B	Sample number(s): 9267650-9267658 UNSPK: P265116									
Selenium	0.181	1.43	1.58	1.85	2.04	98	100	75-125	25*	20
Batch number: 172911063701D	Sample number(s): 9267650-9267658 UNSPK: P265116									
Barium	6.85	7.14	17.87	9.26	16.18	154*	101	75-125	10	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17306667631B	Sample number(s): 9267653 UNSPK: P265110									
TOC	103.34	16920	18336.15			108		47-143		
Batch number: 17307667631A	Sample number(s): 9267650,9267654-9267656 UNSPK: 9267650									
TOC	28025.97	315780	361052.63			105		47-143		
Batch number: 17307667632B	Sample number(s): 9267651 UNSPK: 9267651									
TOC	8282.52	68190	76295.45			100		47-143		
Batch number: 17310667632A	Sample number(s): 9267652 UNSPK: 9267652									
TOC	10040.13	99330	131026.49			122		47-143		
Batch number: 17310667632B	Sample number(s): 9267657 UNSPK: 9267657									
TOC	344.61	10560	11413.5			105		47-143		
Batch number: 17310667633A	Sample number(s): 9267658 UNSPK: 9267658									
TOC	281.59	16260	17399.78			105		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172911063701	Sample number(s): 9267650-9267658 BKG: P265116			
Aluminum	2690.09	2650.04	1	20
Calcium	206.85	227.65	10 (1)	20
Iron	7402.45	8434.06	13	20
Magnesium	241.01	248.59	3 (1)	20
Manganese	116.99	97.32	18	20
Potassium	172.51	176.69	2 (1)	20
Sodium	83.5 U	73.9 U	0 (1)	20
Zinc	39.68	48.97	21* (1)	20
Batch number: 172911063701A	Sample number(s): 9267650-9267658 BKG: P265116			
Antimony	0.130	0.131	1 (1)	20
Arsenic	3.22	3.03	6 (1)	20
Beryllium	0.932	1.06	13 (1)	20
Cadmium	0.135	0.0906	39* (1)	20
Chromium	2.32	2.15	8 (1)	20
Cobalt	5.98	4.94	19	20
Copper	12.15	11.22	8	20
Lead	7.36	6.89	7	20
Nickel	13.36	13.33	0	20
Silver	0.0354	0.0258 U	200* (1)	20
Thallium	0.101	0.147	38* (1)	20
Vanadium	3.85	3.78	2	20
Batch number: 172911063701B	Sample number(s): 9267650-9267658 BKG: P265116			
Selenium	0.181	0.165	9 (1)	20
Batch number: 172911063701D	Sample number(s): 9267650-9267658 BKG: P265116			
Barium	6.85	4.33	45*	20
	mg/kg	mg/kg		
Batch number: 17306667631B	Sample number(s): 9267653 BKG: P265110			
TOC	103.34	122.4	17* (1)	7
Batch number: 17307667631A	Sample number(s): 9267650,9267654-9267656 BKG: 9267650			
TOC	28025.97	29694.92	6 (1)	7
Batch number: 17307667632B	Sample number(s): 9267651 BKG: 9267651			
TOC	8282.52	8284.46	0	7
Batch number: 17310667632A	Sample number(s): 9267652 BKG: 9267652			
TOC	10040.13	13448.28	29*	7
Batch number: 17310667632B	Sample number(s): 9267657 BKG: 9267657			
TOC	344.61	316.57	8* (1)	7

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17310667633A	Sample number(s): 9267658 BKG: 9267658			
TOC	281.59	298.91	6 (1)	7
	Std. Units	Std. Units		
Batch number: 17299039401B	Sample number(s): 9267650-9267652 BKG: P276863			
pH	6.35	6.30	1	3
Batch number: 17299039402A	Sample number(s): 9267653-9267658 BKG: 9267658			
pH	8.82	8.95	1	3
	%	%		
Batch number: 17293820002A	Sample number(s): 9267650-9267658 BKG: 9267654			
Moisture	2.60	2.33	11* (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9267659	87	96	85	94	83	91
9267660	82	87	82	85	70	78
Blank	78	87	79	97	78	88
LCS	84	89	79	82	71	78
LCSD	78	79	80	83	82	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9267659	88	102	86	91	83	85
9267660	86	74	102	92	92	82
Blank	93	65	78	88	73	77
LCS	87	78	89	94	79	81
LCSD	82	76	87	91	86	85
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C2-PFTeDA
9267659	74
9267660	74
Blank	64
LCS	69
LCSD	76
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17298004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9267650	81	89	77	80	71	78
9267651	82	87	82	77	70	71
9267652	72	77	73	77	73	80
9267653	78	86	84	78	72	79
9267654	85	89	77	84	82	87
9267655	81	84	79	75	68	70
9267656	63	65*	70	70	66	66
9267657	41	46*	64	46	70	45
9267658	52	55*	64	59	71	55
Blank	81	84	78	92	80	88
LCS	73	84	77	73	67	67
LCSD	87	94	89	86	81	88
MS	76	77	72	74	65	81
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9267650	88	90	105	86	79	75
9267651	84	99	95	92	92	88
9267652	85	82	79	90	79	77
9267653	87	94	88	92	89	87
9267654	84	85	80	98	96	91
9267655	76	80	81	97	96	92
9267656	75	80	73	71	73	64
9267657	53	65	54	46	47	48
9267658	63	82	59	53	53	57
Blank	90	80	85	94	88	91
LCS	81	70	84	80	77	72

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:35

Group Number: 1863767

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298004

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCSD	93	92	97	101	90	85
MS	78	82	86	81	78	68
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9267650	72
9267651	81
9267652	71
9267653	88
9267654	89
9267655	94
9267656	70
9267657	47
9267658	53
Blank	88
LCS	75
LCSD	91
MS	63
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1863797 / 9267650-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47456

COC 1 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: GT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.000

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/(N)	Total Number Of Containers	Water: 250 mL plastic-HNP blank	Soil: 250 mL Plastic (PFCs (14))	Soil: 4 oz glass / TOC, pH, moisture, metals	% Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D09-0-0.5'	0	0.5	ft	10/16/2017	1120	Soil	N	2		1	1				PFCs (14), pH, TOC,
2. SG3-D09-0.5-1'	0.5	1	ft	10-16-17	1125	S	N	2		1	1				moisture
3. SG3-D09-1-1.5'	1	1.5	ft	10-16-17	1130	S	N	2		1	1				TAL metals - Cations
4. SG3-D09-3-4'	3	4	ft	10-16-17	1140	S	N	2		1	1				excluding Hg
5. SG3-D09-8-9'	8	9	ft	10-16-17	1150	S	N	2		1	1				
6. SG3-D09-14-15'	14	15	ft	10-16-17	1210	S	N	2		1	1				Samples in 2 coolers
7. SG3-D09-28-29'	28	29	ft	10-16-17	1350	S	N	2		1	1				
8. SG3-D09-38-39'	38	39	ft	10-16-17	1450	S	N	2		1	1				
9. SG3-D09-48-49'	48	49	ft	10-16-17	1510	S	N	2		1	1				
10. SG3-LIB-171016	—	—	—	—	AM	W	N	2	2						→ water PFCs (19)

BARR USE ONLY		Relinquished by	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ RGM	[signature]	Y	10-16-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10.17.17	940
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): 1.1 - 3.1 Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191/1863797/9267650-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: № 47455
COC 2 of 3

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 2 250mL plastic trip blank	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-GTB78-171016	—	—	—	—	AM	Water	N	2					PFCs (19)
2.													
3.													
4.													
5.													
6.													Samples in 2 coolers
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: DJZ RQM
Barr Proj. Manager: JTC
Barr DQ Manager: MDD
Lab Name: ELLE
Lab Location: Lancaster

Relinquished by: [signature] Date 10-16-17 Time 1700 On Ice? Y N
Relinquished by: [signature] Date Time On Ice? Y N
Received by: Date Time
Received by: 3 Date 10.17.17 Time 9:46

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:
Air Bill Number:
Lab WO: Temperature on Receipt (°C): 2.1-3.2 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197685

Group Number(s): 1863767

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/17/2017 9:40
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250 mL unpreserved plastic.

Unpacked by Timothy Cubberley (6520) at 10:43 on 10/17/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.2	DT	Wet	Y	Bagged	N
2	DT131	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 06, 2017 12:46

Project: SGPP - Bennington

Account #: 37191
Group Number: 1864135
SDG: SGB91
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK1-171017 Water	10/17/2017 09:45	9268853
SG3-CITYWATERHOSE1-171017 Water	10/17/2017 09:50	9268854
SG3-CITYWATERTK1-171017 Water	10/17/2017 10:05	9268855
SG3-CITYWATERTRUCK2-171017 Water	10/17/2017 10:10	9268856
SG3-CITYWATERHOSE2-171017 Water	10/17/2017 10:15	9268857
SG3-CITYWATERTK2-171017 Water	10/17/2017 11:00	9268858
Trip Blanks Water	10/17/2017	9268859

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1864135

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9268859

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9268853, 9268854, 9268855, 9268856, 9268857, 9268858

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Batch #: 17293002 (Sample number(s): 9268859)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9268859, Blank, LCSD

Batch #: 17303007 (Sample number(s): 9268853-9268858)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9268853, 9268854, 9268855, 9268856, 9268857, 9268858, Blank, LCS, LCSD

Sample Description: **SG3-CITYWATERTRUCK1-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 09:45
SDG#: SGB91-01

C. T. Male Associates
ELLE Sample #: GW 9268853
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 04:01	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE1-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 09:50
SDG#: SGB91-02

C. T. Male Associates
ELLE Sample #: GW 9268854
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.7 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 04:21	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK1-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:05
SDG#: SGB91-03

C. T. Male Associates
ELLE Sample #: GW 9268855
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 04:42	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK2-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:10
SDG#: SGB91-04

C. T. Male Associates
ELLE Sample #: GW 9268856
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 05:03	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE2-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:15
SDG#: SGB91-05

C. T. Male Associates
ELLE Sample #: GW 9268857
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 05:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK2-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 11:00
SDG#: SGB91-06

C. T. Male Associates
ELLE Sample #: GW 9268858
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 05:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blanks Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017
SDG#: SGB91-07TB

C. T. Male Associates
ELLE Sample #: WW 9268859
ELLE Group #: 1864135
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293002	10/26/2017 16:37	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293002	10/23/2017 06:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 12:46

Group Number: 1864135

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17293002	Sample number(s): 9268859			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	4	J	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.9	J	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	1		0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	4		0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17303007	Sample number(s): 9268853-9268858			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 12:46

Group Number: 1864135

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293002	Sample number(s): 9268859								
6:2 fluorotelomersulfonate	15.17	17.03	15.17	16.93	112	112	70-130	1	30
8:2 fluorotelomersulfonate	15.33	19.85	15.33	23.12	129	151*	70-130	15	30
NEtFOSAA	5.44	5.80	5.44	6.24	107	115	70-130	7	30
NMeFOSAA	5.44	5.83	5.44	5.65	107	104	70-130	3	30
Perfluorobutanesulfonate	4.81	5.01	4.81	5.32	104	110	70-130	6	30
Perfluorobutanoic acid	5.44	8.16	5.44	6.55	150*	120	70-130	22	30
Perfluorodecanoic acid	5.44	5.50	5.44	6.05	101	111	70-130	9	30
Perfluorododecanoic acid	5.44	5.87	5.44	6.67	108	123	70-130	13	30
Perfluoroheptanoic acid	5.44	6.85	5.44	6.64	126	122	70-130	3	30
Perfluorohexanesulfonate	5.14	5.51	5.14	5.15	107	100	70-130	7	30
Perfluorohexanoic acid	5.44	6.41	5.44	5.86	118	108	70-130	9	30
Perfluorononanoic acid	5.44	5.36	5.44	5.64	99	104	70-130	5	30
Perfluorooctanesulfonamide	5.44	5.95	5.44	6.01	109	111	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.26	5.20	6.13	101	118	70-130	15	30
Perfluorooctanoic acid	5.44	6.28	5.44	6.45	115	119	70-130	3	30
Perfluoropentanoic acid	5.44	8.60	5.44	6.52	158*	120	70-130	28	30
Perfluorotetradecanoic acid	5.44	5.22	5.44	5.65	96	104	70-130	8	30
Perfluorotridecanoic acid	5.44	5.69	5.44	5.71	105	105	70-130	0	30
Perfluoroundecanoic acid	5.44	5.97	5.44	5.73	110	105	70-130	4	30
Batch number: 17303007	Sample number(s): 9268853-9268858								
6:2 fluorotelomersulfonate	15.17	18.91	15.17	18.06	125	119	70-130	5	30
8:2 fluorotelomersulfonate	15.33	16.64	15.33	15.75	109	103	70-130	5	30
NEtFOSAA	5.44	7.99	5.44	9.03	147*	166*	70-130	12	30
NMeFOSAA	5.44	10.03	5.44	8.86	184*	163*	70-130	12	30
Perfluorobutanesulfonate	4.81	5.30	4.81	5.71	110	119	70-130	7	30
Perfluorobutanoic acid	5.44	6.05	5.44	6.48	111	119	70-130	7	30
Perfluorodecanoic acid	5.44	6.62	5.44	6.25	122	115	70-130	6	30
Perfluorododecanoic acid	5.44	6.38	5.44	6.42	117	118	70-130	1	30
Perfluoroheptanoic acid	5.44	5.98	5.44	6.17	110	113	70-130	3	30
Perfluorohexanesulfonate	5.14	5.35	5.14	5.48	104	107	70-130	2	30
Perfluorohexanoic acid	5.44	6.04	5.44	5.93	111	109	70-130	2	30
Perfluorononanoic acid	5.44	5.50	5.44	5.53	101	102	70-130	1	30
Perfluorooctanesulfonamide	5.44	7.14	5.44	7.58	131*	139*	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 12:46

Group Number: 1864135

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.51	5.20	4.96	106	95	70-130	10	30
Perfluorooctanoic acid	5.44	6.32	5.44	6.11	116	112	70-130	3	30
Perfluoropentanoic acid	5.44	6.29	5.44	6.33	116	116	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.46	5.44	6.19	119	114	70-130	4	30
Perfluorotridecanoic acid	5.44	6.70	5.44	6.05	123	111	70-130	10	30
Perfluoroundecanoic acid	5.44	6.43	5.44	5.86	118	108	70-130	9	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9268859	98	99	95	113	90	110
Blank	99	104	93	114	92	117
LCS	96	96	87	97	80	91
LCSD	95	96	90	97	93	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9268859	106	99	96	112	98	90
Blank	105	100	100	120	106	89
LCS	108	94	87	101	100	86
LCSD	104	92	94	114	101	82
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9268859	65	108	82	91	90	53*
Blank	85	115	107	101	100	57*
LCS	85	99	101	93	86	70
LCSD	90	111	98	96	95	56*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 12:46

Group Number: 1864135

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9268853	79	93	104	75	86	81
9268854	87	106	126	82	85	88
9268855	80	103	118	70	81	86
9268856	82	103	120	77	85	81
9268857	86	108	125	84	86	82
9268858	81	101	112	64	75	73
Blank	82	77	72	90	91	83
LCS	75	71	67	75	79	74
LCSD	73	70	68	85	84	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9268853	73	71	79	77	68	61
9268854	90	84	87	79	77	59
9268855	84	77	75	86	73	64
9268856	85	84	80	78	71	69
9268857	92	85	78	75	74	68
9268858	89	75	79	82	71	72
Blank	79	86	80	82	85	73
LCS	59	73	74	65	70	58
LCSD	69	75	75	68	74	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9268853	70	64	77	58	48	39*
9268854	67	69	77	69	48	54*
9268855	74	71	77	70	66	39*
9268856	66	72	81	64	51	44*
9268857	72	77	87	73	58	45*
9268858	72	83	85	72	64	48*
Blank	100	87	111	89	96	59*
LCS	87	75	105	76	74	56*
LCSD	77	70	89	77	76	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-371911 G-1864135 S-926853-59 * SAMPLES IN TWO COOLERS *

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☒ MN ☐ SD

COC Number: № 47439

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGFF Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Trizma PFCs (19)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CITYWATERTRUCK1-171017	—	—		10-17-17	0945	W	N	2	2			
2. SG3-CITYWATERHOSE1-171017	—	—		10-17-17	0950	W	N	2	2			
3. SG3-CITYWATERTK1-171017	—	—		10-17-17	1005	W	N	2	2			
4. SG3-CITYWATERTRUCK2-171017	—	—		10-17-17	1010	W	N	2	2			
5. SG3-CITYWATERHOSE2-171017	—	—		10-17-17	1015	W	N	2	2			
6. SG3-CITYWATERTK2-171017	—	—		10-17-17	1100	W	N	2	2			
7. SG3-FilteredWaterTKA-171017	—	—		10-17-17	1300	W	N	2	2			
8. Trip Blanks	—	—		10-17-17	PM	W	N	2	2			
9.												
10.												

Need results * ASAP * this for sample

Others use Std. TAT

BARR USE ONLY							
Sampled by: RQM	Relinquished by: (RQM)	On Ice? Y N	Date 10/17/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10-18-17	Time 930
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:				Temperature on Receipt (°C): 0.9 - 1.3 Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 197848

Group Number(s): 1864135

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/18/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 10:55 on 10/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	0.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 19, 2017

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1864137
SDG: SGB92
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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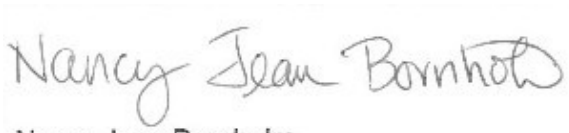
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FilteredWaterTKA-171017 Water	10/17/2017 13:00	9268861

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1864137

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9268861

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Batch #: 17291014 (Sample number(s): 9268861)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9268861, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterTKA-171017 Water
SGPP - North Bennington

ELLE Sample # GW 9268861
ELLE Group # 1864137
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 13:00 by RQM

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 12:08

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3-B SDG#: SGB92-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 03:21	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1864137
Reported: 10/19/2017 12:08

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17291014	Sample number(s): 9268861			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17291014	Sample number(s): 9268861								
6:2 fluorotelomersulfonate	15.17	17.91	15.17	18.89	118	125	70-130	5	30
8:2 fluorotelomersulfonate	15.33	17.78	15.33	18.8	116	123	70-130	6	30
NEtFOSAA	5.44	6.19	5.44	4.94	114	91	70-130	22	30
NMeFOSAA	5.44	6.36	5.44	6.46	117	119	70-130	1	30
Perfluorobutanesulfonate	4.81	5.09	4.81	5.39	106	112	70-130	6	30
Perfluorobutanoic acid	5.44	5.52	5.44	6.11	102	112	70-130	10	30
Perfluorodecanoic acid	5.44	6.38	5.44	5.98	117	110	70-130	7	30
Perfluorododecanoic acid	5.44	5.87	5.44	6.14	108	113	70-130	5	30
Perfluoroheptanoic acid	5.44	6.19	5.44	6.76	114	124	70-130	9	30
Perfluorohexanesulfonate	5.14	5.29	5.14	5.70	103	111	70-130	7	30
Perfluorohexanoic acid	5.44	5.73	5.44	6.32	105	116	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1864137
Reported: 10/19/2017 12:08

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.63	5.44	5.92	103	109	70-130	5	30
Perfluorooctanesulfonamide	5.44	6.17	5.44	6.26	113	115	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.79	5.20	6.49	111	125	70-130	11	30
Perfluorooctanoic acid	5.44	6.28	5.44	6.67	115	123	70-130	6	30
Perfluoropentanoic acid	5.44	6.11	5.44	6.13	112	113	70-130	0	30
Perfluorotetradecanoic acid	5.44	5.65	5.44	5.42	104	100	70-130	4	30
Perfluorotridecanoic acid	5.44	5.10	5.44	5.39	94	99	70-130	6	30
Perfluoroundecanoic acid	5.44	6.32	5.44	6.77	116	124	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9268861	77	80	95	86	81	81
Blank	80	81	97	93	82	90
LCS	80	84	96	86	79	84
LCSD	81	87	104	88	91	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9268861	63	75	67	71	84	63
Blank	61	83	74	70	89	59
LCS	68	77	73	79	80	63
LCSD	61	84	76	82	89	60
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9268861	31	61	39	53	47	46*
Blank	36	69	44	63	54	43*
LCS	33	68	39	62	51	66*
LCSD	32	66	43	58	46	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1864137 S-9266861 * SAMPLES IN TWO COOLERS *

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☒ MN ☐ SD

COC Number: № 47439

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointeDr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGFF Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 20 250ml Trizma PFCs (19)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CITYWATERTRUCK1-171017	—	—	—	10-17-17	0945	W	N	2	2			
2. SG3-CITYWATERHOSE1-171017	—	—	—	10-17-17	0950	W	N	2	2			
3. SG3-CITYWATERTK1-171017	—	—	—	10-17-17	1005	W	N	2	2			
4. SG3-CITYWATERTRUCK2-171017	—	—	—	10-17-17	1010	W	N	2	2			
5. SG3-CITYWATERHOSE2-171017	—	—	—	10-17-17	1015	W	N	2	2			
6. SG3-CITYWATERTK2-171017	—	—	—	10-17-17	1100	W	N	2	2			
7. SG3-FilteredWaterTKA-171017	—	—	—	10-17-17	1300	W	N	2	2			
8. Trip Blanks	—	—	—	10-17-17	PM	W	N	2	2			
9.												
10.												

Need results * ASAP * for this sample

Others use Std. TAT

BARR USE ONLY							
Sampled by: RQM	Relinquished by: (RQM)	On Ice? Y (N)	Date 10/17/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: 3	Date 10-18-17	Time 930
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:				Temperature on Receipt (°C): 0.9 - 1.3 Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197848

Group Number(s): 1864137

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/18/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 10:55 on 10/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	0.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 19, 2017

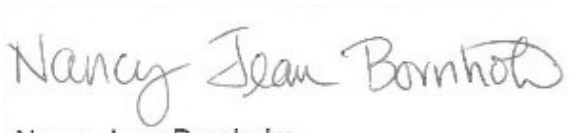
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1864164
SDG: SGB93
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-RB01A-171017 Grab Groundwater	10/17/2017 13:10	9268958
SG3-RB06A-171017 Grab Groundwater	10/17/2017 13:15	9268959
SG3-RB17-171017 Grab Groundwater	10/17/2017 14:35	9268960
SG3-RB18-171017 Grab Groundwater	10/17/2017 14:45	9268961
SG3-RB19-171017 Grab Groundwater	10/17/2017 15:00	9268962
SG3-FTB01-171017 Blank Water	10/17/2017 15:15	9268963
SG3-LTB01-171017 Water	10/17/2017	9268964

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1864164

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9268958, 9268959, 9268960, 9268963

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample #s: 9268964

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample #s: 9268961

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries of d5-NEtFOSAA and 13C2-PFDoDA were below acceptance criteria in this sample. The data quality is not impacted.

The recoveries of extraction standards 13C5-PFPeA and 13C3-PFBS are outside QC acceptance critieria as noted on the QC summary. Since the recoveries are high and no target analytes were detected,

the data is reported.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample #s: 9268962

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of 13C2-PFDoDA was below acceptance criteria in this sample. The data quality is not impacted.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Batch #: 17291014 (Sample number(s): 9268958-9268964)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9268961

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9268958, 9268959, 9268960, 9268961, 9268962, 9268964, Blank, LCS, LCSD

Sample Description: SG3-RB01A-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268958
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 13:10 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9301 SDG#: SGB93-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 03:42	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB06A-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268959
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 13:15 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9302 SDG#: SGB93-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 04:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB17-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268960
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 14:35 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9309 SDG#: SGB93-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3**	**J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 04:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB18-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268961
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 14:45 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9310 SDG#: SGB93-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.9**	**J**	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries of d5-NEtFOSAA and 13C2-PFDoDA were below acceptance criteria in this sample. The data quality is not impacted.

The recoveries of extraction standards 13C5-PFPeA and 13C3-PFBS are outside QC acceptance critieria as noted on the QC summary. Since the recoveries are high and no target analytes were detected, the data is reported.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 04:43	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB18-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268961
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 14:45 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9310 SDG#: SGB93-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB19-171017 Grab Groundwater
SGPP - North Bennington

ELLE Sample # GW 9268962
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 15:00 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9311 SDG#: SGB93-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of 13C2-PFDoDA was below acceptance criteria in this sample. The data quality is not impacted.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 05:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FTB01-171017 Blank Water
SGPP - North Bennington

ELLE Sample # WW 9268963
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017 15:15 by DA

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9312 SDG#: SGB93-06FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 05:24	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-171017 Water
SGPP - North Bennington

ELLE Sample # WW 9268964
ELLE Group # 1864164
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/17/2017

Submitted: 10/18/2017 09:30
Reported: 10/19/2017 15:26

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

B9313 SDG#: SGB93-07TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17291014	10/19/2017 08:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17291014	10/18/2017 15:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1864164
Reported: 10/19/2017 15:26

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17291014	Sample number(s): 9268958-9268964			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17291014	Sample number(s): 9268958-9268964								
6:2 fluorotelomersulfonate	15.17	17.91	15.17	18.89	118	125	70-130	5	30
8:2 fluorotelomersulfonate	15.33	17.78	15.33	18.8	116	123	70-130	6	30
NEtFOSAA	5.44	6.19	5.44	4.94	114	91	70-130	22	30
NMeFOSAA	5.44	6.36	5.44	6.46	117	119	70-130	1	30
Perfluorobutanesulfonate	4.81	5.09	4.81	5.39	106	112	70-130	6	30
Perfluorobutanoic acid	5.44	5.52	5.44	6.11	102	112	70-130	10	30
Perfluorodecanoic acid	5.44	6.38	5.44	5.98	117	110	70-130	7	30
Perfluorododecanoic acid	5.44	5.87	5.44	6.14	108	113	70-130	5	30
Perfluoroheptanoic acid	5.44	6.19	5.44	6.76	114	124	70-130	9	30
Perfluorohexanesulfonate	5.14	5.29	5.14	5.70	103	111	70-130	7	30
Perfluorohexanoic acid	5.44	5.73	5.44	6.32	105	116	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/19/2017 15:26

Group Number: 1864164

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.63	5.44	5.92	103	109	70-130	5	30
Perfluorooctanesulfonamide	5.44	6.17	5.44	6.26	113	115	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.79	5.20	6.49	111	125	70-130	11	30
Perfluorooctanoic acid	5.44	6.28	5.44	6.67	115	123	70-130	6	30
Perfluoropentanoic acid	5.44	6.11	5.44	6.13	112	113	70-130	0	30
Perfluorotetradecanoic acid	5.44	5.65	5.44	5.42	104	100	70-130	4	30
Perfluorotridecanoic acid	5.44	5.10	5.44	5.39	94	99	70-130	6	30
Perfluoroundecanoic acid	5.44	6.32	5.44	6.77	116	124	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291014

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9268958	80	80	98	96	89	86
9268959	79	83	106	89	84	85
9268960	79	89	81	90	67	84
9268961	81	147*	158*	83	80	86
9268962	75	100	105	82	74	78
9268963	87	89	100	90	87	91
9268964	80	84	98	90	86	89
Blank	80	81	97	93	82	90
LCS	80	84	96	86	79	84
LCSD	81	87	104	88	91	91
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9268958	67	79	80	81	87	59
9268959	62	81	81	66	86	58
9268960	104	81	85	117	83	97
9268961	83	83	75	79	91	111
9268962	75	79	72	82	75	81
9268963	70	89	84	78	97	76
9268964	69	85	83	82	88	66
Blank	61	83	74	70	89	59
LCS	68	77	73	79	80	63
LCSD	61	84	76	82	89	60

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1864164
Reported: 10/19/2017 15:26

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17291014

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9268958	35	95	56	75	58	65*
9268959	33	58	42	54	46	59*
9268960	34	52	35	46	59	35*
9268961	23	33	17*	15*	49	51*
9268962	28	31	21	15*	51	52*
9268963	43	79	55	68	63	79
9268964	41	69	45	61	56	63*
Blank	36	69	44	63	54	43*
LCS	33	68	39	62	51	66*
LCSD	32	66	43	58	46	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1864164 Sample # 926898-64

COC # 533995

Client Information — Barr Engineering — BARR

Client: C.T. Male Associates	Acct. #: Project # 45021004.00
Project Name/#: SGPP Bennington	PWSID #:
Project Manager: JTC / QA Manager MOD	P.O. #: 16.6131
Sampler: Dan Achtyl	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☑

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ | Other: Blank water

Analysis Requested — Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	14 PFCs (EPA 537 Mod)	Remarks
SR SG3-RB01A-171017	10/17/17	1310	X		2	X	
SG3-RB06A-171017		1315	X		2	X	
SG3-RB11A-171017		1320	X		2	X	HOLD ANALYSIS
SG3-RB12A-171017		1335	X		2	X	HOLD ANALYSIS
SG3-RB13A-171017		1345	X		2	X	HOLD ANALYSIS
SG3-RB14A-171017		1400	X		2	X	HOLD ANALYSIS
SG3-RB15A-171017		1410	X		2	X	HOLD ANALYSIS
SG3-RB16A-171017		1425	X		2	X	HOLD ANALYSIS
SG3-RB17-171017		1435	X		2	X	
SG3-RB18-171017	↓	1445	X		2	X	

For Lab Use Only: FSC: ____ SCR#: ____

Remarks: Transducer Transducer Cable ... Braided Mono-filament

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 24 Hour TAT

E-mail address: ____

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/17/17	1730			
			3	10/18/17	930

EDD Required? (Yes) No — If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.4 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1864164 Sample # 9268958-64

COC # 533239

Client Information

Burr Engineering BARR

Client: C.T. Male Associates

Acct. #: Project # 45021004.00

Project Name/#: SGPP Bennington

PWSID #:

Project Manager: JTC / QA Manager MDD

P.O. #: 16.6131

Sampler: Dan Achtyl

Quote #:

State where samples were collected: NY

For Compliance: Yes ☐ No ☑

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other: Equipment Rinsate Water

Analysis Requested

Preservation Codes

1a PFCs (EPA 537 mod)

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
SG3-RB1a-171017	10/17/17	1500	X		2
SG3-FTB01-171017		1515	X		2
SG3-LTB01-171017	↓	—	X		2

More Filmart

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 24 Hour TAT

E-mail address:

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/17/17	1730			
			3	10.18.17	930

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 2.4 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 197850

Group Number(s): 1864164

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/18/2017 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250 mL plastic

Unpacked by Timothy Cubberley (6520) at 11:07 on 10/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.4	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 08, 2017 05:51

Project: SGPP - Bennington

Account #: 37191
Group Number: 1864227
SDG: SGB94
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D09-58-59' Grab Soil	10/17/2017 10:30	9269204
SG3-D09-68-69' Grab Soil	10/17/2017 10:50	9269205
SG3-LTB79-171017 Blank Water	10/17/2017	9269206
SG3-LTB80-171017 Blank Water	10/17/2017	9269207

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1864227

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9269204, 9269205, 9269206, 9269207

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17293003 (Sample number(s): 9269206-9269207)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

Batch #: 17298004 (Sample number(s): 9269204-9269205 UNSPK: P267650)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluoro-octanesulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9269204, 9269205

SW-846 6010C, Metals

Batch #: 172961063701 (Sample number(s): 9269204-9269205 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

SW-846 6020A, Metals

Batch #: 172961063701A (Sample number(s): 9269204-9269205 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Thallium, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 172961063701D (Sample number(s): 9269204-9269205 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17310667632A (Sample number(s): 9269205 UNSPK: P267652 BKG: P267652)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9269204

The pH was measured in water at 20 C.

Sample #s: 9269205

The pH was measured in water at 20.1 C.

Sample Description: **SG3-D09-58-59' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:30
SDG#: SGB94-01

C. T. Male Associates
ELLE Sample #: SW 9269204
ELLE Group #: 1864227
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,590**	7.66	34.3	1
01650	**Calcium**	7440-70-2	**349**	2.85	34.3	1
01654	**Iron**	7439-89-6	**46,700**	34.5	171	5
01657	**Magnesium**	7439-95-4	**554**	2.08	17.1	1
06958	**Manganese**	7439-96-5	**1,130**	0.0711	0.857	1
01662	**Potassium**	7440-09-7	**1,030**	14.3	85.7	1
01667	**Sodium**	7440-23-5	**22.9 J**	14.3	171	1
06972	**Zinc**	7440-66-6	**75.1**	0.206	3.43	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.227 J**	0.0798	0.343	2
06125	**Arsenic**	7440-38-2	**32.9**	0.110	0.685	2
06126	**Barium**	7440-39-3	**160**	0.156	0.685	2
06127	**Beryllium**	7440-41-7	**1.11**	0.0090	0.171	2
06128	**Cadmium**	7440-43-9	**0.303**	0.0295	0.171	2
06131	**Chromium**	7440-47-3	**12.3**	0.149	0.685	2
06132	**Cobalt**	7440-48-4	**25.5**	0.0267	0.171	2
06133	**Copper**	7440-50-8	**35.4**	0.0918	0.685	2
06135	**Lead**	7439-92-1	**12.4**	0.0190	0.343	2
06139	**Nickel**	7440-02-0	**19.6**	0.171	0.685	2
06141	**Selenium**	7782-49-2	**0.252 J**	0.0857	0.685	2
06142	**Silver**	7440-22-4	**0.0617 J**	0.0250	0.171	2
06145	**Thallium**	7440-28-0	**0.501**	0.0214	0.171	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-58-59' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:30
SDG#: SGB94-01

C. T. Male Associates
ELLE Sample #: SW 9269204
ELLE Group #: 1864227
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.3**	0.0365	0.171	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**346**	114	341	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/26/2017 23:55	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:16	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:11	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172961063701	10/26/2017 08:34	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172961063701	10/26/2017 19:11	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:16	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:16	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:16	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:16	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:10	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D09-58-59' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:30
SDG#: SGB94-01

C. T. Male Associates
ELLE Sample #: SW 9269204
ELLE Group #: 1864227
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:10	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:10	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667633B	11/07/2017 10:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17295039403A	10/22/2017 13:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820003B	10/20/2017 15:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-68-69' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:50
SDG#: SGB94-02

C. T. Male Associates
ELLE Sample #: SW 9269205
ELLE Group #: 1864227
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,200**	8.54	38.2	1
01650	**Calcium**	7440-70-2	**3,750**	3.18	38.2	1
01654	**Iron**	7439-89-6	**32,400**	38.5	191	5
01657	**Magnesium**	7439-95-4	**2,830**	2.32	19.1	1
06958	**Manganese**	7439-96-5	**835**	0.0793	0.956	1
01662	**Potassium**	7440-09-7	**1,340**	16.0	95.6	1
01667	**Sodium**	7440-23-5	**36.3 J**	16.0	191	1
06972	**Zinc**	7440-66-6	**64.9**	0.229	3.82	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0891	0.382	2
06125	**Arsenic**	7440-38-2	**14.0**	0.122	0.764	2
06126	**Barium**	7440-39-3	**110**	0.174	0.764	2
06127	**Beryllium**	7440-41-7	**0.893**	0.0100	0.191	2
06128	**Cadmium**	7440-43-9	**0.249**	0.0329	0.191	2
06131	**Chromium**	7440-47-3	**8.93**	0.166	0.764	2
06132	**Cobalt**	7440-48-4	**20.1**	0.0298	0.191	2
06133	**Copper**	7440-50-8	**25.3**	0.102	0.764	2
06135	**Lead**	7439-92-1	**17.4**	0.0212	0.382	2
06139	**Nickel**	7440-02-0	**25.6**	0.190	0.764	2
06141	**Selenium**	7782-49-2	**0.283 J**	0.0956	0.764	2
06142	**Silver**	7440-22-4	**0.0382 J**	0.0279	0.191	2
06145	**Thallium**	7440-28-0	**0.445**	0.0239	0.191	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-68-69' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:50
SDG#: SGB94-02

C. T. Male Associates
ELLE Sample #: SW 9269205
ELLE Group #: 1864227
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.4**	0.0407	0.191	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,270**	113	340	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 00:16	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172961063701	10/26/2017 08:38	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:28	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:19	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-68-69' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 10:50
SDG#: SGB94-02

C. T. Male Associates
ELLE Sample #: SW 9269205
ELLE Group #: 1864227
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:19	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:19	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667632A	11/07/2017 00:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17295039403A	10/22/2017 13:10	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17293820003B	10/20/2017 15:04	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB79-171017 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017
SDG#: SGB94-03TB

C. T. Male Associates
ELLE Sample #: WW 9269206
ELLE Group #: 1864227
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 00:42	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB80-171017 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017
SDG#: SGB94-04TB

C. T. Male Associates
ELLE Sample #: WW 9269207
ELLE Group #: 1864227
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 01:03	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17298004	Sample number(s): 9269204-9269205		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17293003	Sample number(s): 9269206-9269207		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.7 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.8 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 172961063701	Sample number(s): 9269204-9269205		
Aluminum	12.3 J	8.94	40.0
Calcium	10.1 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.69 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172961063701A	Sample number(s): 9269204-9269205		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172961063701B	Sample number(s): 9269204-9269205		
Selenium	0.100 U	0.100	0.800
Batch number: 172961063701D	Sample number(s): 9269204-9269205		
Barium	0.182 U	0.182	0.800
Batch number: 17310667632A	Sample number(s): 9269205		
TOC	100 U	100	300
Batch number: 17310667633B	Sample number(s): 9269204		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9269204-9269205								
Perfluorobutanesulfonate	1.20	1.17	1.20	1.19	97	99	70-130	2	30
Perfluorobutanoic acid	1.36	1.49	1.36	1.52	109	112	70-130	2	30
Perfluorodecanoic acid	1.36	1.53	1.36	1.43	112	105	70-130	7	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.55	109	114	70-130	4	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.40	111	103	70-130	8	30
Perfluorohexanesulfonate	1.29	1.30	1.29	1.24	101	97	70-130	4	30
Perfluorohexanoic acid	1.36	1.54	1.36	1.34	113	98	70-130	14	30
Perfluorononanoic acid	1.36	1.49	1.36	1.35	109	99	70-130	10	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.69	1.30	1.19	130	91	70-130	35*	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.18	97	87	70-130	11	30
Perfluoropentanoic acid	1.36	1.27	1.36	1.39	94	102	70-130	9	30
Perfluorotetradecanoic acid	1.36	1.40	1.36	1.47	103	108	70-130	5	30
Perfluorotridecanoic acid	1.36	1.56	1.36	1.52	115	112	70-130	3	30
Perfluoroundecanoic acid	1.36	1.40	1.36	1.38	103	101	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17293003	Sample number(s): 9269206-9269207								
Perfluorobutanesulfonate	4.81	5.15	4.81	4.75	107	99	70-130	8	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.10	112	112	70-130	0	30
Perfluorodecanoic acid	5.44	5.30	5.44	6.36	97	117	70-130	18	30
Perfluorododecanoic acid	5.44	5.84	5.44	5.66	107	104	70-130	3	30
Perfluoroheptanoic acid	5.44	6.44	5.44	6.13	118	113	70-130	5	30
Perfluorohexanesulfonate	5.14	5.70	5.14	5.58	111	109	70-130	2	30
Perfluorohexanoic acid	5.44	5.87	5.44	6.07	108	112	70-130	3	30
Perfluorononanoic acid	5.44	6.07	5.44	5.69	112	105	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.46	5.20	5.68	105	109	70-130	4	30
Perfluorooctanoic acid	5.44	5.61	5.44	7.16	103	132*	70-130	24	30
Perfluoropentanoic acid	5.44	5.57	5.44	6.32	102	116	70-130	13	30
Perfluorotetradecanoic acid	5.44	5.97	5.44	6.05	110	111	70-130	1	30
Perfluorotridecanoic acid	5.44	5.52	5.44	5.75	102	106	70-130	4	30
Perfluoroundecanoic acid	5.44	6.50	5.44	6.54	119	120	70-130	1	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172961063701	Sample number(s): 9269204-9269205								
Aluminum	200	222.61			111		80-120		
Calcium	400	421.37			105		80-120		
Iron	100	100.77			101		80-120		
Magnesium	200	212.27			106		80-120		
Manganese	50	50.33			101		80-120		
Potassium	1000	1033.32			103		80-120		
Sodium	1000	1006.14			101		80-120		
Zinc	50	50.57			101		80-120		
Batch number: 172961063701A	Sample number(s): 9269204-9269205								
Antimony	0.600	0.562			94		80-120		
Arsenic	1.00	0.989			99		80-120		
Beryllium	0.400	0.408			102		80-120		
Cadmium	0.500	0.485			97		80-120		
Chromium	5.00	4.78			96		80-120		
Cobalt	25	24.25			97		80-120		
Copper	5.00	5.13			103		80-120		
Lead	1.50	1.45			97		80-120		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	4.88			98		80-120		
Silver	5.00	4.80			96		80-120		
Thallium	0.200	0.193			97		80-120		
Vanadium	5.00	4.74			95		80-120		
Batch number: 172961063701B	Sample number(s): 9269204-9269205								
Selenium	1.00	1.04			104		80-120		
Batch number: 172961063701D	Sample number(s): 9269204-9269205								
Barium	5.00	5.04			101		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17310667632A	Sample number(s): 9269205								
TOC	7150	6756.34			94		47-143		
Batch number: 17310667633B	Sample number(s): 9269204								
TOC	7150	6993.27			98		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17295039403A	Sample number(s): 9269204-9269205								
pH	7.00	7.00			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17293820003B	Sample number(s): 9269204-9269205								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9269204-9269205 UNSPK: P267650									
Perfluorobutanesulfonate	0.19 U	1.07	1.12			104		70-130		
Perfluorobutanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorodecanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorododecanoic acid	0.19 U	1.21	1.34			110		70-130		
Perfluoroheptanoic acid	0.19 U	1.21	1.27			105		70-130		
Perfluorohexanesulfonate	0.19 U	1.15	1.22			106		70-130		
Perfluorohexanoic acid	0.093 U	1.21	1.34			111		70-130		
Perfluorononanoic acid	0.093 U	1.21	1.39			115		70-130		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	0.286	1.16	1.29			86		70-130		
Perfluorooctanoic acid	0.19 U	1.21	1.28			106		70-130		
Perfluoropentanoic acid	0.19 U	1.21	1.36			112		70-130		
Perfluorotetradecanoic acid	0.19 U	1.21	1.24			102		70-130		
Perfluorotridecanoic acid	0.19 U	1.21	1.26			104		70-130		
Perfluoroundecanoic acid	0.19 U	1.21	1.40			116		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172961063701	Sample number(s): 9269204-9269205 UNSPK: P272435									
Aluminum	9978.56	162.6	13095.54	188.68	13603.01	1917 (2)	1921 (2)	75-125	4	20
Calcium	2004.23	325.2	2247.99	377.36	2381.83	75 (2)	100 (2)	75-125	6	20
Iron	16381.64	81.3	17418.85	94.34	16702.75	1276 (2)	340 (2)	75-125	4	20
Magnesium	2355.91	162.6	2833.18	188.68	2862.45	294 (2)	268 (2)	75-125	1	20
Manganese	358.9	40.65	391.13	47.17	488.91	79 (2)	276 (2)	75-125	22*	20
Potassium	1095.27	813.01	3032.51	943.4	3392.37	238*	243*	75-125	11	20
Sodium	59.29	813.01	883.18	943.4	1010.37	101	101	75-125	13	20
Zinc	41.46	40.65	81.01	47.17	87.61	97	98	75-125	8	20
Batch number: 172961063701A	Sample number(s): 9269204-9269205 UNSPK: P272435									
Antimony	0.122	0.976	0.821	1.13	0.929	72*	71*	75-125	12	20
Arsenic	7.74	1.63	9.27	1.89	10.03	94 (2)	121 (2)	75-125	8	20
Beryllium	0.375	0.650	1.01	0.755	1.15	98	102	75-125	13	20
Cadmium	0.143	0.813	1.00	0.943	0.985	106	89	75-125	2	20
Chromium	9.22	8.13	16.8	9.43	19.83	93	112	75-125	17	20
Cobalt	6.38	40.65	47.31	47.17	54.71	101	102	75-125	15	20
Copper	10.53	8.13	18.2	9.43	20.87	94	110	75-125	14	20
Lead	12.83	2.44	14.27	2.83	15.96	59 (2)	110 (2)	75-125	11	20
Nickel	11.79	8.13	20.06	9.43	22.86	102	117	75-125	13	20
Silver	0.0395	8.13	8.07	9.43	9.53	99	101	75-125	17	20
Thallium	0.178	0.325	0.381	0.377	0.450	62*	72*	75-125	17	20
Vanadium	13.26	8.13	21.42	9.43	24.54	100	120	75-125	14	20
Batch number: 172961063701B	Sample number(s): 9269204-9269205 UNSPK: P272435									
Selenium	0.279	1.63	1.95	1.89	2.31	103	108	75-125	17	20
Batch number: 172961063701D	Sample number(s): 9269204-9269205 UNSPK: P272435									
Barium	47.45	8.13	58.3	9.43	67.01	133 (2)	207 (2)	75-125	14	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17310667632A	Sample number(s): 9269205 UNSPK: P267652									
TOC	10040.13	99330	131026.49			122		47-143		
Batch number: 17310667633B	Sample number(s): 9269204 UNSPK: 9269204									

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
TOC	310.34	8010	8784.4			106		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172961063701	Sample number(s): 9269204-9269205 BKG: P272435			
Aluminum	9978.56	9295.56	7	20
Calcium	2004.23	2045.12	2	20
Iron	16381.64	15639.88	5	20
Magnesium	2355.91	2255.87	4	20
Manganese	358.9	397.72	10	20
Potassium	1095.27	960.56	13	20
Sodium	59.29	55.4	7 (1)	20
Zinc	41.46	40.59	2	20
Batch number: 172961063701A	Sample number(s): 9269204-9269205 BKG: P272435			
Antimony	0.122	0.105	14 (1)	20
Arsenic	7.74	7.56	2	20
Beryllium	0.375	0.368	2 (1)	20
Cadmium	0.143	0.149	4 (1)	20
Chromium	9.22	9.29	1	20
Cobalt	6.38	6.48	2	20
Copper	10.53	9.89	6	20
Lead	12.83	12.74	1	20
Nickel	11.79	11.8	0	20
Silver	0.0395	0.0464	16 (1)	20
Thallium	0.178	0.143	22* (1)	20
Vanadium	13.26	12.63	5	20
Batch number: 172961063701B	Sample number(s): 9269204-9269205 BKG: P272435			
Selenium	0.279	0.288	3 (1)	20
Batch number: 172961063701D	Sample number(s): 9269204-9269205 BKG: P272435			
Barium	47.45	46.33	2	20
	mg/kg	mg/kg		
Batch number: 17310667632A	Sample number(s): 9269205 BKG: P267652			
TOC	10040.13	13448.28	29*	7

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17310667633B	Sample number(s): 9269204 BKG: 9269204			
TOC	310.34	313.75	1 (1)	7
	Std. Units	Std. Units		
Batch number: 17295039403A	Sample number(s): 9269204-9269205 BKG: P265116			
pH	8.18	8.22	0	3
	%	%		
Batch number: 17293820003B	Sample number(s): 9269204-9269205 BKG: P265457			
Moisture	35.66	35.1	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9269206	80	83	77	85	64	80
9269207	86	90	85	90	74	74
Blank	78	87	79	97	78	88
LCS	84	89	79	82	71	78
LCSD	78	79	80	83	82	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9269206	86	53	87	88	74	69
9269207	87	82	96	90	94	90
Blank	93	65	78	88	73	77
LCS	87	78	89	94	79	81
LCSD	82	76	87	91	86	85
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 05:51

Group Number: 1864227

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C2-PFTeDA
9269206	36
9269207	77
Blank	64
LCS	69
LCSD	76
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17298004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9269204	55	57*	70	57	72	61
9269205	54	53*	68	50	62	56
Blank	81	84	78	92	80	88
LCS	73	84	77	73	67	67
LCSD	87	94	89	86	81	88
MS	76	77	72	74	65	81
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9269204	61	66	52	61	63	58
9269205	61	79	58	66	55	56
Blank	90	80	85	94	88	91
LCS	81	70	84	80	77	72
LCSD	93	92	97	101	90	85
MS	78	82	86	81	78	68
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9269204	61
9269205	57
Blank	88
LCS	75
LCSD	91
MS	63
Limits:	20-127

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1864227
Reported: 11/08/2017 05:51

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/186422/9269204-07

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47440

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.02

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic top blank	Soil: 250 mL plastic PFCs (14)	Soil: 4oz glass TOC, pH, moist	Soil: metals	% Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D09-58-59'	58	59	ft	10-17-17	1030	Soil	N	2		1	1			A	N	PFCs (14), TOC, pH, moisture
2. SG3-D09-68-69'	68	69	ft	10-17-17	1050	S	N	2		1	1			A	N	TAL metals - cations excluding Hg
3. SG3-LTB79-171017	—	—	—	—	AM	W	N	2	2					A	N	
4. SG3-LTB80-171017	—	—	—	—	AM	W	N	2	2					A	N	
5.																Samples in 2 coolers
6.																
7.																
8.																
9.																
10.																

BARR USE ONLY

Sampled by: DJE RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] On Ice? Y N Date 10/17/17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: 3 Date 10.18.17 Time 9:20

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 0.1-1.3 Custody Seal Intact? ☑ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 197848

Group Number(s): 1864227

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/18/2017 9:30
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 10:55 on 10/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	0.9	DT	Wet	Y	Bagged	N

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 10, 2017 10:41

Project: SGPP - Bennington

Account #: 37191
Group Number: 1864953
SDG: SGB95
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AfterPOETC-171017 Water	10/17/2017 20:00	9272432
SG3-AfterPOETD-171017 Water	10/17/2017 20:10	9272433
SG3-FDS14-171018 Soil	10/18/2017	9272434
SG3-D15-0-0.5' Soil	10/18/2017 09:50	9272435
SG3-D15-0.5-1' Soil	10/18/2017 09:55	9272436
SG3-D15-1-1.5' Soil	10/18/2017 10:00	9272437
SG3-D15-3-4' Soil	10/18/2017 10:05	9272438
SG3-D15-8-9' Soil	10/18/2017 10:20	9272439
SG3-D15-18-19' Soil	10/18/2017 11:05	9272440
SG3-FBS14-171018 Blank Water	10/18/2017 11:00	9272441
SG3-D15-28-29' Soil	10/18/2017 12:40	9272442
SG3-D15-38-39' Soil	10/18/2017 13:10	9272443
SG3-LTB81-171018 Blank Water	10/18/2017	9272444
SG3-LTB82-171018 Blank Water	10/18/2017	9272445

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - Bennington
ELLE Group #: 1864953

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9272432, 9272433, 9272439, 9272441, 9272444, 9272445

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17293002 (Sample number(s): 9272432-9272433)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9272432, 9272433, Blank, LCSD

Batch #: 17293003 (Sample number(s): 9272441, 9272444-9272445)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

Batch #: 17298004 (Sample number(s): 9272434-9272438, 9272440, 9272442-9272443 UNSPK: P267650)

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluoro-octanesulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

Batch #: 17303009 (Sample number(s): 9272439 UNSPK: P279984)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance

windows: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9272439, MSD

SW-846 6010C, Metals

Batch #: 172961063701 (Sample number(s): 9272434-9272440, 9272442-9272443 UNSPK: 9272435 BKG: 9272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

SW-846 6020A, Metals

Batch #: 172961063701A (Sample number(s): 9272434-9272440, 9272442-9272443 UNSPK: 9272435 BKG: 9272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Thallium, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 172961063701D (Sample number(s): 9272434-9272440, 9272442-9272443 UNSPK: 9272435 BKG: 9272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17310667632B (Sample number(s): 9272436-9272438 UNSPK: P267657 BKG: P267657)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9272434

The pH was measured in water at 18 C.

Sample #s: 9272438, 9272442

The pH was measured in water at 18.1 C.

Sample #s: 9272439, 9272443

The pH was measured in water at 18.3 C.

Sample #s: 9272440

The pH was measured in water at 18.4 C.

Sample #s: 9272436, 9272437

The pH was measured in water at 18.5 C.

Sample #s: 9272435

The pH was measured in water at 19.9 C.

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SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17297820012B (Sample number(s): 9272434-9272440, 9272442-9272443 BKG: 9272437)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

REVISED

Sample Description: **SG3-AfterPOETC-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/17/2017 20:00
SDG#: SGB95-01

C. T. Male Associates
ELLE Sample #: GW 9272432
ELLE Group #: 1864953
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293002	10/26/2017 17:39	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293002	10/23/2017 06:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-AfterPOETD-171017 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/17/2017 20:10
SDG#: SGB95-02

C. T. Male Associates
ELLE Sample #: GW 9272433
ELLE Group #: 1864953
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293002	10/26/2017 17:59	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293002	10/23/2017 06:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS14-171018 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017
SDG#: SGB95-03FD

C. T. Male Associates
ELLE Sample #: SW 9272434
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,410**	6.83	30.6	1
01650	**Calcium**	7440-70-2	**88,600**	12.7	153	5
01654	**Iron**	7439-89-6	**17,100**	6.15	30.6	1
01657	**Magnesium**	7439-95-4	**29,500**	1.86	15.3	1
06958	**Manganese**	7439-96-5	**426**	0.0635	0.765	1
01662	**Potassium**	7440-09-7	**2,110**	12.8	76.5	1
01667	**Sodium**	7440-23-5	**98.0 J**	12.8	153	1
06972	**Zinc**	7440-66-6	**40.6**	0.183	3.06	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0927 J**	0.0713	0.306	2
06125	**Arsenic**	7440-38-2	**6.27**	0.0979	0.612	2
06126	**Barium**	7440-39-3	**53.6**	0.139	0.612	2
06127	**Beryllium**	7440-41-7	**0.394**	0.0080	0.153	2
06128	**Cadmium**	7440-43-9	**0.106 J**	0.0263	0.153	2
06131	**Chromium**	7440-47-3	**9.30**	0.133	0.612	2
06132	**Cobalt**	7440-48-4	**7.47**	0.0239	0.153	2
06133	**Copper**	7440-50-8	**11.9**	0.0820	0.612	2
06135	**Lead**	7439-92-1	**8.00**	0.0170	0.306	2
06139	**Nickel**	7440-02-0	**14.2**	0.152	0.612	2
06141	**Selenium**	7782-49-2	**0.136 J**	0.0765	0.612	2
06142	**Silver**	7440-22-4	**0.0274 J**	0.0223	0.153	2
06145	**Thallium**	7440-28-0	**0.113 J**	0.0191	0.153	2
06148	**Vanadium**	7440-62-2	**11.0**	0.0326	0.153	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS14-171018 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017
SDG#: SGB95-03FD

C. T. Male Associates
ELLE Sample #: SW 9272434
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**11,600**	356	1,070	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**	0.0100	0.0100	1
	The pH was measured in water at 18 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**5.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 00:36	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:14	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:35	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:25	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:25	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FDS14-171018 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017
SDG#: SGB95-03FD

C. T. Male Associates
ELLE Sample #: SW 9272434
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:25	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17307667632B	11/04/2017 04:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039401B	10/25/2017 14:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:50
SDG#: SGB95-04

C. T. Male Associates
ELLE Sample #: SW 9272435
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.27 J**	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**0.18 J**	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.44 J**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**3.8**	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,100**	9.35	41.8	1
01650	**Calcium**	7440-70-2	**2,640**	3.48	41.8	1
01654	**Iron**	7439-89-6	**21,600**	8.42	41.8	1
01657	**Magnesium**	7439-95-4	**3,100**	2.54	20.9	1
06958	**Manganese**	7439-96-5	**473**	0.0868	1.05	1
01662	**Potassium**	7440-09-7	**1,440**	17.5	105	1
01667	**Sodium**	7440-23-5	**78.1 J**	17.5	209	1
06972	**Zinc**	7440-66-6	**54.6**	0.251	4.18	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.160 J**	0.0975	0.418	2
06125	**Arsenic**	7440-38-2	**10.2**	0.134	0.837	2
06126	**Barium**	7440-39-3	**62.5**	0.190	0.837	2
06127	**Beryllium**	7440-41-7	**0.495**	0.0110	0.209	2
06128	**Cadmium**	7440-43-9	**0.189 J**	0.0360	0.209	2
06131	**Chromium**	7440-47-3	**12.2**	0.182	0.837	2
06132	**Cobalt**	7440-48-4	**8.40**	0.0326	0.209	2
06133	**Copper**	7440-50-8	**13.9**	0.112	0.837	2
06135	**Lead**	7439-92-1	**16.9**	0.0232	0.418	2
06139	**Nickel**	7440-02-0	**15.5**	0.208	0.837	2
06141	**Selenium**	7782-49-2	**0.368 J**	0.105	0.837	2
06142	**Silver**	7440-22-4	**0.0521 J**	0.0305	0.209	2
06145	**Thallium**	7440-28-0	**0.234**	0.0261	0.209	2
06148	**Vanadium**	7440-62-2	**17.5**	0.0445	0.209	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:50
SDG#: SGB95-04

C. T. Male Associates
ELLE Sample #: SW 9272435
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**22,900**	2,150	6,460	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.50**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**24.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 00:57	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 15:51	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 21:48	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 21:48	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:50
SDG#: SGB95-04

C. T. Male Associates
ELLE Sample #: SW 9272435
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 21:48	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17307667632B	11/04/2017 04:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039403A	10/25/2017 20:45	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:55
SDG#: SGB95-05

C. T. Male Associates
ELLE Sample #: SW 9272436
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	**Perfluorooctanoic acid**	335-67-1	**4.2**	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,200**	10.8	48.3	1
01650	**Calcium**	7440-70-2	**1,700**	4.02	48.3	1
01654	**Iron**	7439-89-6	**21,600**	9.71	48.3	1
01657	**Magnesium**	7439-95-4	**3,400**	2.93	24.1	1
06958	**Manganese**	7439-96-5	**613**	0.100	1.21	1
01662	**Potassium**	7440-09-7	**1,360**	20.1	121	1
01667	**Sodium**	7440-23-5	**86.8 J**	20.1	241	1
06972	**Zinc**	7440-66-6	**51.5**	0.290	4.83	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.159 J**	0.112	0.483	2
06125	**Arsenic**	7440-38-2	**9.30**	0.154	0.965	2
06126	**Barium**	7440-39-3	**60.4**	0.219	0.965	2
06127	**Beryllium**	7440-41-7	**0.456**	0.0126	0.241	2
06128	**Cadmium**	7440-43-9	**0.191 J**	0.0415	0.241	2
06131	**Chromium**	7440-47-3	**11.9**	0.210	0.965	2
06132	**Cobalt**	7440-48-4	**11.3**	0.0376	0.241	2
06133	**Copper**	7440-50-8	**12.3**	0.129	0.965	2
06135	**Lead**	7439-92-1	**15.5**	0.0268	0.483	2
06139	**Nickel**	7440-02-0	**15.1**	0.240	0.965	2
06141	**Selenium**	7782-49-2	**0.316 J**	0.121	0.965	2
06142	**Silver**	7440-22-4	**0.0468 J**	0.0352	0.241	2
06145	**Thallium**	7440-28-0	**0.171 J**	0.0302	0.241	2
06148	**Vanadium**	7440-62-2	**16.3**	0.0514	0.241	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:55
SDG#: SGB95-05

C. T. Male Associates
ELLE Sample #: SW 9272436
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,400**	1,960	5,870	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.21**	0.0100	0.0100	1
	The pH was measured in water at 18.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**20.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 01:17	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:18	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:39	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:28	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:28	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 09:55
SDG#: SGB95-05

C. T. Male Associates
ELLE Sample #: SW 9272436
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:28	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667632B	11/07/2017 05:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039401B	10/25/2017 14:20	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:00
SDG#: SGB95-06

C. T. Male Associates
ELLE Sample #: SW 9272437
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.50	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.50	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.50	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.50	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.50	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.50	1
14027	Perfluorohexanoic acid	307-24-4	0.083 U	0.083	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.083 U	0.083	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.75	1
14027	**Perfluorooctanoic acid**	335-67-1	**2.3**	0.17	0.50	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.50	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.50	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.50	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.50	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,800**	10.2	45.8	1
01650	**Calcium**	7440-70-2	**2,170**	3.81	45.8	1
01654	**Iron**	7439-89-6	**23,300**	9.21	45.8	1
01657	**Magnesium**	7439-95-4	**3,910**	2.78	22.9	1
06958	**Manganese**	7439-96-5	**457**	0.0950	1.14	1
01662	**Potassium**	7440-09-7	**1,580**	19.1	114	1
01667	**Sodium**	7440-23-5	**74.9 J**	19.1	229	1
06972	**Zinc**	7440-66-6	**48.4**	0.275	4.58	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.107 U	0.107	0.458	2
06125	**Arsenic**	7440-38-2	**10.1**	0.147	0.916	2
06126	**Barium**	7440-39-3	**63.4**	0.208	0.916	2
06127	**Beryllium**	7440-41-7	**0.486**	0.0120	0.229	2
06128	**Cadmium**	7440-43-9	**0.107 J**	0.0394	0.229	2
06131	**Chromium**	7440-47-3	**12.5**	0.199	0.916	2
06132	**Cobalt**	7440-48-4	**9.69**	0.0357	0.229	2
06133	**Copper**	7440-50-8	**12.4**	0.123	0.916	2
06135	**Lead**	7439-92-1	**11.6**	0.0254	0.458	2
06139	**Nickel**	7440-02-0	**17.9**	0.228	0.916	2
06141	**Selenium**	7782-49-2	**0.292 J**	0.114	0.916	2
06142	Silver	7440-22-4	0.0334 U	0.0334	0.229	2
06145	**Thallium**	7440-28-0	**0.167 J**	0.0286	0.229	2
06148	**Vanadium**	7440-62-2	**16.9**	0.0488	0.229	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:00
SDG#: SGB95-06

C. T. Male Associates
ELLE Sample #: SW 9272437
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,560**	779	2,340	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.56**	0.0100	0.0100	1
	The pH was measured in water at 18.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 02:19	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:21	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:43	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:06	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:31	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:00
SDG#: SGB95-06

C. T. Male Associates
ELLE Sample #: SW 9272437
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:31	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667632B	11/07/2017 05:34	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:05
SDG#: SGB95-07

C. T. Male Associates
ELLE Sample #: SW 9272438
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,540**	8.27	37.0	1
01650	**Calcium**	7440-70-2	**51,300**	15.4	185	5
01654	**Iron**	7439-89-6	**17,400**	7.45	37.0	1
01657	**Magnesium**	7439-95-4	**23,600**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**497**	0.0768	0.925	1
01662	**Potassium**	7440-09-7	**1,940**	15.4	92.5	1
01667	**Sodium**	7440-23-5	**86.5 J**	15.4	185	1
06972	**Zinc**	7440-66-6	**39.7**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0973 J**	0.0862	0.370	2
06125	**Arsenic**	7440-38-2	**6.90**	0.118	0.740	2
06126	**Barium**	7440-39-3	**56.1**	0.168	0.740	2
06127	**Beryllium**	7440-41-7	**0.385**	0.0097	0.185	2
06128	**Cadmium**	7440-43-9	**0.123 J**	0.0318	0.185	2
06131	**Chromium**	7440-47-3	**9.08**	0.161	0.740	2
06132	**Cobalt**	7440-48-4	**8.06**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**12.8**	0.0992	0.740	2
06135	**Lead**	7439-92-1	**8.57**	0.0205	0.370	2
06139	**Nickel**	7440-02-0	**15.0**	0.184	0.740	2
06141	Selenium	7782-49-2	0.0925 U	0.0925	0.740	2
06142	Silver	7440-22-4	0.0270 U	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.105 J**	0.0231	0.185	2
06148	**Vanadium**	7440-62-2	**11.0**	0.0394	0.185	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:05
SDG#: SGB95-07

C. T. Male Associates
ELLE Sample #: SW 9272438
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,010**	418	1,250	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.54**	0.0100	0.0100	1
	The pH was measured in water at 18.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 02:39	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:24	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:46	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:34	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:34	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:05
SDG#: SGB95-07

C. T. Male Associates
ELLE Sample #: SW 9272438
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:34	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667632B	11/07/2017 06:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:20
SDG#: SGB95-08

C. T. Male Associates
ELLE Sample #: SW 9272439
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.085 U	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,610**	8.15	36.4	1
01650	**Calcium**	7440-70-2	**50,300**	15.2	182	5
01654	**Iron**	7439-89-6	**17,800**	7.34	36.4	1
01657	**Magnesium**	7439-95-4	**21,200**	2.21	18.2	1
06958	**Manganese**	7439-96-5	**430**	0.0756	0.911	1
01662	**Potassium**	7440-09-7	**1,710**	15.2	91.1	1
01667	**Sodium**	7440-23-5	**79.3 J**	15.2	182	1
06972	**Zinc**	7440-66-6	**37.8**	0.219	3.64	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.118 J**	0.0849	0.364	2
06125	**Arsenic**	7440-38-2	**7.02**	0.117	0.729	2
06126	**Barium**	7440-39-3	**48.8**	0.165	0.729	2
06127	**Beryllium**	7440-41-7	**0.362**	0.0095	0.182	2
06128	**Cadmium**	7440-43-9	**0.108 J**	0.0313	0.182	2
06131	**Chromium**	7440-47-3	**7.86**	0.159	0.729	2
06132	**Cobalt**	7440-48-4	**7.42**	0.0284	0.182	2
06133	**Copper**	7440-50-8	**12.3**	0.0977	0.729	2
06135	**Lead**	7439-92-1	**7.07**	0.0202	0.364	2
06139	**Nickel**	7440-02-0	**13.5**	0.182	0.729	2
06141	**Selenium**	7782-49-2	**0.0995 J**	0.0911	0.729	2
06142	**Silver**	7440-22-4	**0.0361 J**	0.0266	0.182	2
06145	**Thallium**	7440-28-0	**0.117 J**	0.0228	0.182	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:20
SDG#: SGB95-08

C. T. Male Associates
ELLE Sample #: SW 9272439
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.70**	0.0388	0.182	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,630**	426	1,280	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.56**	0.0100	0.0100	1
	The pH was measured in water at 18.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 13:01	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	2	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:27	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:50	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:37	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 10:20
SDG#: SGB95-08

C. T. Male Associates
ELLE Sample #: SW 9272439
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:37	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:37	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 07:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 11:05
SDG#: SGB95-09

C. T. Male Associates
ELLE Sample #: SW 9272440
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.83	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,000**	8.77	39.2	1
01650	**Calcium**	7440-70-2	**64,400**	16.3	196	5
01654	**Iron**	7439-89-6	**19,200**	7.89	39.2	1
01657	**Magnesium**	7439-95-4	**24,500**	2.38	19.6	1
06958	**Manganese**	7439-96-5	**493**	0.0814	0.981	1
01662	**Potassium**	7440-09-7	**2,430**	16.4	98.1	1
01667	**Sodium**	7440-23-5	**103 J**	16.4	196	1
06972	**Zinc**	7440-66-6	**46.6**	0.235	3.92	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.108 J**	0.0914	0.392	2
06125	**Arsenic**	7440-38-2	**6.51**	0.126	0.785	2
06126	**Barium**	7440-39-3	**65.4**	0.178	0.785	2
06127	**Beryllium**	7440-41-7	**0.450**	0.0103	0.196	2
06128	**Cadmium**	7440-43-9	**0.198**	0.0337	0.196	2
06131	**Chromium**	7440-47-3	**11.4**	0.171	0.785	2
06132	**Cobalt**	7440-48-4	**9.79**	0.0306	0.196	2
06133	**Copper**	7440-50-8	**14.7**	0.105	0.785	2
06135	**Lead**	7439-92-1	**8.57**	0.0218	0.392	2
06139	**Nickel**	7440-02-0	**17.9**	0.195	0.785	2
06141	**Selenium**	7782-49-2	**0.206 J**	0.0981	0.785	2
06142	**Silver**	7440-22-4	**0.0430 J**	0.0286	0.196	2
06145	**Thallium**	7440-28-0	**0.119 J**	0.0245	0.196	2
06148	**Vanadium**	7440-62-2	**13.7**	0.0418	0.196	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 11:05
SDG#: SGB95-09

C. T. Male Associates
ELLE Sample #: SW 9272440
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,260**	791	2,370	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.74**	0.0100	0.0100	1
	The pH was measured in water at 18.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**7.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 03:20	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:37	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:54	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:40	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:40	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 11:05
SDG#: SGB95-09

C. T. Male Associates
ELLE Sample #: SW 9272440
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:40	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 07:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS14-171018 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 11:00
SDG#: SGB95-10FB

C. T. Male Associates
ELLE Sample #: WW 9272441
ELLE Group #: 1864953
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 01:23	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 12:40
SDG#: SGB95-11

C. T. Male Associates
ELLE Sample #: SW 9272442
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,150**	9.13	40.8	1
01650	**Calcium**	7440-70-2	**63,200**	17.0	204	5
01654	**Iron**	7439-89-6	**17,700**	8.22	40.8	1
01657	**Magnesium**	7439-95-4	**23,000**	2.48	20.4	1
06958	**Manganese**	7439-96-5	**442**	0.0847	1.02	1
01662	**Potassium**	7440-09-7	**1,980**	17.0	102	1
01667	**Sodium**	7440-23-5	**79.8 J**	17.0	204	1
06972	**Zinc**	7440-66-6	**42.1**	0.245	4.08	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0951	0.408	2
06125	**Arsenic**	7440-38-2	**10.9**	0.131	0.817	2
06126	**Barium**	7440-39-3	**56.9**	0.185	0.817	2
06127	**Beryllium**	7440-41-7	**0.365**	0.0107	0.204	2
06128	**Cadmium**	7440-43-9	**0.133 J**	0.0351	0.204	2
06131	**Chromium**	7440-47-3	**8.63**	0.178	0.817	2
06132	**Cobalt**	7440-48-4	**7.87**	0.0319	0.204	2
06133	**Copper**	7440-50-8	**13.1**	0.109	0.817	2
06135	**Lead**	7439-92-1	**8.16**	0.0227	0.408	2
06139	**Nickel**	7440-02-0	**15.0**	0.203	0.817	2
06141	**Selenium**	7782-49-2	**0.138 J**	0.102	0.817	2
06142	**Silver**	7440-22-4	**0.0402 J**	0.0298	0.204	2
06145	**Thallium**	7440-28-0	**0.0890 J**	0.0255	0.204	2
06148	**Vanadium**	7440-62-2	**10.5**	0.0435	0.204	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 12:40
SDG#: SGB95-11

C. T. Male Associates
ELLE Sample #: SW 9272442
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,430**	417	1,250	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.65**	0.0100	0.0100	1
	The pH was measured in water at 18.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 03:41	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:40	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 16:59	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:43	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:43	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 12:40
SDG#: SGB95-11

C. T. Male Associates
ELLE Sample #: SW 9272442
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:43	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 08:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-D15-38-39' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 13:10
SDG#: SGB95-12

C. T. Male Associates
ELLE Sample #: SW 9272443
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.091 U	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**10,200**	7.52	33.6	1
01650	**Calcium**	7440-70-2	**62,800**	14.0	168	5
01654	**Iron**	7439-89-6	**18,300**	6.77	33.6	1
01657	**Magnesium**	7439-95-4	**26,200**	2.04	16.8	1
06958	**Manganese**	7439-96-5	**509**	0.0698	0.841	1
01662	**Potassium**	7440-09-7	**2,440**	14.0	84.1	1
01667	**Sodium**	7440-23-5	**99.1 J**	14.0	168	1
06972	**Zinc**	7440-66-6	**39.1**	0.202	3.36	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.133 J**	0.0784	0.336	2
06125	**Arsenic**	7440-38-2	**5.78**	0.108	0.673	2
06126	**Barium**	7440-39-3	**61.9**	0.153	0.673	2
06127	**Beryllium**	7440-41-7	**0.368**	0.0088	0.168	2
06128	**Cadmium**	7440-43-9	**0.0824 J**	0.0289	0.168	2
06131	**Chromium**	7440-47-3	**11.2**	0.146	0.673	2
06132	**Cobalt**	7440-48-4	**8.54**	0.0262	0.168	2
06133	**Copper**	7440-50-8	**13.8**	0.0901	0.673	2
06135	**Lead**	7439-92-1	**8.11**	0.0187	0.336	2
06139	**Nickel**	7440-02-0	**15.6**	0.167	0.673	2
06141	**Selenium**	7782-49-2	**0.142 J**	0.0841	0.673	2
06142	**Silver**	7440-22-4	**0.0325 J**	0.0245	0.168	2
06145	**Thallium**	7440-28-0	**0.0772 J**	0.0210	0.168	2
06148	**Vanadium**	7440-62-2	**11.9**	0.0358	0.168	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 13:10
SDG#: SGB95-12

C. T. Male Associates
ELLE Sample #: SW 9272443
ELLE Group #: 1864953
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,300**	403	1,210	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.67**	0.0100	0.0100	1
	The pH was measured in water at 18.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298004	10/27/2017 04:01	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298004	10/25/2017 10:15	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:44	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:03	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 22:46	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:46	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D15-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017 13:10
SDG#: SGB95-12

C. T. Male Associates
ELLE Sample #: SW 9272443
ELLE Group #: 1864953
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:46	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 09:01	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039402A	10/25/2017 15:25	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17297820012B	10/25/2017 11:32	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB81-171018 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017
SDG#: SGB95-13TB

C. T. Male Associates
ELLE Sample #: WW 9272444
ELLE Group #: 1864953
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 01:44	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB82-171018 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/19/2017 09:40
Collection Date/Time: 10/18/2017
SDG#: SGB95-14TB

C. T. Male Associates
ELLE Sample #: WW 9272445
ELLE Group #: 1864953
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293003	10/24/2017 02:05	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293003	10/21/2017 09:00	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17298004	Sample number(s): 9272434-9272438,9272440,9272442-9272443		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17303009	Sample number(s): 9272439		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17293002	Sample number(s): 9272432-9272433		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	4 J	2	5

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.9 J	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	1	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	4	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17293003	Sample number(s): 9272441,9272444-9272445		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.7 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.8 J	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172961063701	Sample number(s): 9272434-9272440,9272442-9272443		
Aluminum	12.3 J	8.94	40.0
Calcium	10.1 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.69 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172961063701A	Sample number(s): 9272434-9272440,9272442-9272443		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172961063701B	Sample number(s): 9272434-9272440,9272442-9272443		
Selenium	0.100 U	0.100	0.800
Batch number: 172961063701D	Sample number(s): 9272434-9272440,9272442-9272443		
Barium	0.182 U	0.182	0.800
Batch number: 17307667632B	Sample number(s): 9272434-9272435		
TOC	100 U	100	300
Batch number: 17310667632B	Sample number(s): 9272436-9272438		
TOC	100 U	100	300
Batch number: 17310667633A	Sample number(s): 9272439-9272440,9272442-9272443		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9272434-9272438,9272440,9272442-9272443								
Perfluorobutanesulfonate	1.20	1.17	1.20	1.19	97	99	70-130	2	30
Perfluorobutanoic acid	1.36	1.49	1.36	1.52	109	112	70-130	2	30
Perfluorodecanoic acid	1.36	1.53	1.36	1.43	112	105	70-130	7	30
Perfluorododecanoic acid	1.36	1.49	1.36	1.55	109	114	70-130	4	30
Perfluoroheptanoic acid	1.36	1.51	1.36	1.40	111	103	70-130	8	30
Perfluorohexanesulfonate	1.29	1.30	1.29	1.24	101	97	70-130	4	30
Perfluorohexanoic acid	1.36	1.54	1.36	1.34	113	98	70-130	14	30
Perfluorononanoic acid	1.36	1.49	1.36	1.35	109	99	70-130	10	30
Perfluoro-octanesulfonate	1.30	1.69	1.30	1.19	130	91	70-130	35*	30
Perfluorooctanoic acid	1.36	1.31	1.36	1.18	97	87	70-130	11	30
Perfluoropentanoic acid	1.36	1.27	1.36	1.39	94	102	70-130	9	30
Perfluorotetradecanoic acid	1.36	1.40	1.36	1.47	103	108	70-130	5	30
Perfluorotridecanoic acid	1.36	1.56	1.36	1.52	115	112	70-130	3	30
Perfluoroundecanoic acid	1.36	1.40	1.36	1.38	103	101	70-130	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17303009	Sample number(s): 9272439								
Perfluorobutanesulfonate	1.20	1.20			99		70-130		
Perfluorobutanoic acid	1.36	1.54			113		70-130		
Perfluorodecanoic acid	1.36	1.33			98		70-130		
Perfluorododecanoic acid	1.36	1.54			113		70-130		
Perfluoroheptanoic acid	1.36	1.53			113		70-130		
Perfluorohexanesulfonate	1.29	1.39			108		70-130		
Perfluorohexanoic acid	1.36	1.33			98		70-130		
Perfluorononanoic acid	1.36	1.28			94		70-130		
Perfluoro-octanesulfonate	1.30	1.48			114		70-130		
Perfluorooctanoic acid	1.36	1.63			120		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.43			105		70-130		
Perfluorotridecanoic acid	1.36	1.81			133*		70-130		
Perfluoroundecanoic acid	1.36	1.37			101		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17293002	Sample number(s): 9272432-9272433								
6:2 fluorotelomersulfonate	15.17	17.03	15.17	16.93	112	112	70-130	1	30
8:2 fluorotelomersulfonate	15.33	19.85	15.33	23.12	129	151*	70-130	15	30
NEtFOSAA	5.44	5.80	5.44	6.24	107	115	70-130	7	30
NMeFOSAA	5.44	5.83	5.44	5.65	107	104	70-130	3	30
Perfluorobutanesulfonate	4.81	5.01	4.81	5.32	104	110	70-130	6	30
Perfluorobutanoic acid	5.44	8.16	5.44	6.55	150*	120	70-130	22	30
Perfluorodecanoic acid	5.44	5.50	5.44	6.05	101	111	70-130	9	30
Perfluorododecanoic acid	5.44	5.87	5.44	6.67	108	123	70-130	13	30
Perfluoroheptanoic acid	5.44	6.85	5.44	6.64	126	122	70-130	3	30
Perfluorohexanesulfonate	5.14	5.51	5.14	5.15	107	100	70-130	7	30
Perfluorohexanoic acid	5.44	6.41	5.44	5.86	118	108	70-130	9	30
Perfluorononanoic acid	5.44	5.36	5.44	5.64	99	104	70-130	5	30
Perfluorooctanesulfonamide	5.44	5.95	5.44	6.01	109	111	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.26	5.20	6.13	101	118	70-130	15	30
Perfluorooctanoic acid	5.44	6.28	5.44	6.45	115	119	70-130	3	30
Perfluoropentanoic acid	5.44	8.60	5.44	6.52	158*	120	70-130	28	30
Perfluorotetradecanoic acid	5.44	5.22	5.44	5.65	96	104	70-130	8	30
Perfluorotridecanoic acid	5.44	5.69	5.44	5.71	105	105	70-130	0	30
Perfluoroundecanoic acid	5.44	5.97	5.44	5.73	110	105	70-130	4	30
Batch number: 17293003	Sample number(s): 9272441,9272444-9272445								
Perfluorobutanesulfonate	4.81	5.15	4.81	4.75	107	99	70-130	8	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.10	112	112	70-130	0	30
Perfluorodecanoic acid	5.44	5.30	5.44	6.36	97	117	70-130	18	30
Perfluorododecanoic acid	5.44	5.84	5.44	5.66	107	104	70-130	3	30
Perfluoroheptanoic acid	5.44	6.44	5.44	6.13	118	113	70-130	5	30

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanesulfonate	5.14	5.70	5.14	5.58	111	109	70-130	2	30
Perfluorohexanoic acid	5.44	5.87	5.44	6.07	108	112	70-130	3	30
Perfluorononanoic acid	5.44	6.07	5.44	5.69	112	105	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.46	5.20	5.68	105	109	70-130	4	30
Perfluorooctanoic acid	5.44	5.61	5.44	7.16	103	132*	70-130	24	30
Perfluoropentanoic acid	5.44	5.57	5.44	6.32	102	116	70-130	13	30
Perfluorotetradecanoic acid	5.44	5.97	5.44	6.05	110	111	70-130	1	30
Perfluorotridecanoic acid	5.44	5.52	5.44	5.75	102	106	70-130	4	30
Perfluoroundecanoic acid	5.44	6.50	5.44	6.54	119	120	70-130	1	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172961063701	Sample number(s): 9272434-9272440,9272442-9272443								
Aluminum	200	222.61			111		80-120		
Calcium	400	421.37			105		80-120		
Iron	100	100.77			101		80-120		
Magnesium	200	212.27			106		80-120		
Manganese	50	50.33			101		80-120		
Potassium	1000	1033.32			103		80-120		
Sodium	1000	1006.14			101		80-120		
Zinc	50	50.57			101		80-120		
Batch number: 172961063701A	Sample number(s): 9272434-9272440,9272442-9272443								
Antimony	0.600	0.562			94		80-120		
Arsenic	1.00	0.989			99		80-120		
Beryllium	0.400	0.408			102		80-120		
Cadmium	0.500	0.485			97		80-120		
Chromium	5.00	4.78			96		80-120		
Cobalt	25	24.25			97		80-120		
Copper	5.00	5.13			103		80-120		
Lead	1.50	1.45			97		80-120		
Nickel	5.00	4.88			98		80-120		
Silver	5.00	4.80			96		80-120		
Thallium	0.200	0.193			97		80-120		
Vanadium	5.00	4.74			95		80-120		
Batch number: 172961063701B	Sample number(s): 9272434-9272440,9272442-9272443								
Selenium	1.00	1.04			104		80-120		
Batch number: 172961063701D	Sample number(s): 9272434-9272440,9272442-9272443								
Barium	5.00	5.04			101		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17307667632B	Sample number(s): 9272434-9272435								
TOC	7150	7929.66			111		47-143		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17310667632B	Sample number(s): 9272436-9272438								
TOC	7150	6756.34			94		47-143		
Batch number: 17310667633A	Sample number(s): 9272439-9272440,9272442-9272443								
TOC	7150	6993.27			98		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17298039401B	Sample number(s): 9272434,9272436								
pH	7.00	6.95			99		95-105		
Batch number: 17298039402A	Sample number(s): 9272437-9272440,9272442-9272443								
pH	7.00	6.96			99		95-105		
Batch number: 17298039403A	Sample number(s): 9272435								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17297820012B	Sample number(s): 9272434-9272440,9272442-9272443								
Moisture	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298004	Sample number(s): 9272434-9272438,9272440,9272442-9272443 UNSPK: P267650									
Perfluorobutanesulfonate	0.19 U	1.07	1.12			104		70-130		
Perfluorobutanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorodecanoic acid	0.19 U	1.21	1.32			109		70-130		
Perfluorododecanoic acid	0.19 U	1.21	1.34			110		70-130		
Perfluoroheptanoic acid	0.19 U	1.21	1.27			105		70-130		
Perfluorohexanesulfonate	0.19 U	1.15	1.22			106		70-130		
Perfluorohexanoic acid	0.093 U	1.21	1.34			111		70-130		
Perfluorononanoic acid	0.093 U	1.21	1.39			115		70-130		
Perfluoro-octanesulfonate	0.286	1.16	1.29			86		70-130		
Perfluorooctanoic acid	0.19 U	1.21	1.28			106		70-130		
Perfluoropentanoic acid	0.19 U	1.21	1.36			112		70-130		
Perfluorotetradecanoic acid	0.19 U	1.21	1.24			102		70-130		
Perfluorotridecanoic acid	0.19 U	1.21	1.26			104		70-130		
Perfluoroundecanoic acid	0.19 U	1.21	1.40			116		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17303009	Sample number(s): 9272439 UNSPK: P279984									
Perfluorobutanesulfonate	0.15 U	1.00	0.946	1.05	1.09	94	104	70-130	14	30
Perfluorobutanoic acid	0.15 U	1.13	1.30	1.19	1.42	115	119	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.13	1.41	1.19	1.29	124	108	70-130	9	30
Perfluorododecanoic acid	0.15 U	1.13	1.27	1.19	1.19	112	100	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.13	1.24	1.19	1.23	109	103	70-130	0	30
Perfluorohexanesulfonate	0.15 U	1.07	1.26	1.13	1.32	118	117	70-130	4	30
Perfluorohexanoic acid	0.076 U	1.13	1.14	1.19	1.24	101	104	70-130	8	30
Perfluorononanoic acid	0.076 U	1.13	0.965	1.19	1.59	85	133*	70-130	49*	30
Perfluoro-octanesulfonate	0.23 U	1.08	1.06	1.14	1.37	98	120	70-130	25	30
Perfluorooctanoic acid	0.15 U	1.13	1.16	1.19	1.07	102	90	70-130	8	30
Perfluoropentanoic acid	0.15 U	1.13	1.11	1.19	1.27	98	107	70-130	13	30
Perfluorotetradecanoic acid	0.15 U	1.13	1.18	1.19	1.23	104	103	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.13	1.39	1.19	1.47	123	123	70-130	5	30
Perfluoroundecanoic acid	0.15 U	1.13	1.13	1.19	1.41	100	118	70-130	22	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172961063701	Sample number(s): 9272434-9272440,9272442-9272443 UNSPK: 9272435									
Aluminum	9978.56	162.6	13095.54	188.68	13603.01	1917 (2)	1921 (2)	75-125	4	20
Calcium	2004.23	325.2	2247.99	377.36	2381.83	75 (2)	100 (2)	75-125	6	20
Iron	16381.64	81.3	17418.85	94.34	16702.75	1276 (2)	340 (2)	75-125	4	20
Magnesium	2355.91	162.6	2833.18	188.68	2862.45	294 (2)	268 (2)	75-125	1	20
Manganese	358.9	40.65	391.13	47.17	488.91	79 (2)	276 (2)	75-125	22*	20
Potassium	1095.27	813.01	3032.51	943.4	3392.37	238*	243*	75-125	11	20
Sodium	59.29	813.01	883.18	943.4	1010.37	101	101	75-125	13	20
Zinc	41.46	40.65	81.01	47.17	87.61	97	98	75-125	8	20
Batch number: 172961063701A	Sample number(s): 9272434-9272440,9272442-9272443 UNSPK: 9272435									
Antimony	0.122	0.976	0.821	1.13	0.929	72*	71*	75-125	12	20
Arsenic	7.74	1.63	9.27	1.89	10.03	94 (2)	121 (2)	75-125	8	20
Beryllium	0.375	0.650	1.01	0.755	1.15	98	102	75-125	13	20
Cadmium	0.143	0.813	1.00	0.943	0.985	106	89	75-125	2	20
Chromium	9.22	8.13	16.8	9.43	19.83	93	112	75-125	17	20
Cobalt	6.38	40.65	47.31	47.17	54.71	101	102	75-125	15	20
Copper	10.53	8.13	18.2	9.43	20.87	94	110	75-125	14	20
Lead	12.83	2.44	14.27	2.83	15.96	59 (2)	110 (2)	75-125	11	20
Nickel	11.79	8.13	20.06	9.43	22.86	102	117	75-125	13	20
Silver	0.0395	8.13	8.07	9.43	9.53	99	101	75-125	17	20
Thallium	0.178	0.325	0.381	0.377	0.450	62*	72*	75-125	17	20
Vanadium	13.26	8.13	21.42	9.43	24.54	100	120	75-125	14	20
Batch number: 172961063701B	Sample number(s): 9272434-9272440,9272442-9272443 UNSPK: 9272435									
Selenium	0.279	1.63	1.95	1.89	2.31	103	108	75-125	17	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172961063701D	Sample number(s): 9272434-9272440,9272442-9272443 UNSPK: 9272435									
Barium	47.45	8.13	58.3	9.43	67.01	133 (2)	207 (2)	75-125	14	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17307667632B	Sample number(s): 9272434-9272435 UNSPK: P267651									
TOC	8282.52	68190	76295.45			100		47-143		
Batch number: 17310667632B	Sample number(s): 9272436-9272438 UNSPK: P267657									
TOC	344.61	10560	11413.5			105		47-143		
Batch number: 17310667633A	Sample number(s): 9272439-9272440,9272442-9272443 UNSPK: P267658									
TOC	281.59	16260	17399.78			105		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172961063701	Sample number(s): 9272434-9272440,9272442-9272443 BKG: 9272435			
Aluminum	9978.56	9295.56	7	20
Calcium	2004.23	2045.12	2	20
Iron	16381.64	15639.88	5	20
Magnesium	2355.91	2255.87	4	20
Manganese	358.9	397.72	10	20
Potassium	1095.27	960.56	13	20
Sodium	59.29	55.4	7 (1)	20
Zinc	41.46	40.59	2	20
Batch number: 172961063701A	Sample number(s): 9272434-9272440,9272442-9272443 BKG: 9272435			
Antimony	0.122	0.105	14 (1)	20
Arsenic	7.74	7.56	2	20
Beryllium	0.375	0.368	2 (1)	20
Cadmium	0.143	0.149	4 (1)	20
Chromium	9.22	9.29	1	20
Cobalt	6.38	6.48	2	20
Copper	10.53	9.89	6	20
Lead	12.83	12.74	1	20
Nickel	11.79	11.8	0	20
Silver	0.0395	0.0464	16 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Thallium	0.178	0.143	22* (1)	20
Vanadium	13.26	12.63	5	20
Batch number: 172961063701B	Sample number(s): 9272434-9272440,9272442-9272443 BKG: 9272435			
Selenium	0.279	0.288	3 (1)	20
Batch number: 172961063701D	Sample number(s): 9272434-9272440,9272442-9272443 BKG: 9272435			
Barium	47.45	46.33	2	20
	mg/kg	mg/kg		
Batch number: 17307667632B	Sample number(s): 9272434-9272435 BKG: P267651			
TOC	8282.52	8284.46	0	7
Batch number: 17310667632B	Sample number(s): 9272436-9272438 BKG: P267657			
TOC	344.61	316.57	8* (1)	7
Batch number: 17310667633A	Sample number(s): 9272439-9272440,9272442-9272443 BKG: P267658			
TOC	281.59	298.91	6 (1)	7
	Std. Units	Std. Units		
Batch number: 17298039401B	Sample number(s): 9272434,9272436 BKG: P265983			
pH	8.68	8.85	2	3
Batch number: 17298039402A	Sample number(s): 9272437-9272440,9272442-9272443 BKG: P276703			
pH	9.20	9.44	3	3
Batch number: 17298039403A	Sample number(s): 9272435 BKG: P272591			
pH	8.13	8.17	0	3
	%	%		
Batch number: 17297820012B	Sample number(s): 9272434-9272440,9272442-9272443 BKG: 9272437			
Moisture	16.83	15.43	9*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293002

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272432	86	90	83	105	90	91
9272433	89	93	80	86	74	88
Blank	99	104	93	114	92	117
LCS	96	96	87	97	80	91
LCSD	95	96	90	97	93	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9272432	108	95	87	101	92	74
9272433	81	92	88	83	97	84
Blank	105	100	100	120	106	89
LCS	108	94	87	101	100	86
LCSD	104	92	94	114	101	82
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9272432	74	99	89	84	82	36*
9272433	70	95	98	91	87	42*
Blank	85	115	107	101	100	57*
LCS	85	99	101	93	86	70
LCSD	90	111	98	96	95	56*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272441	85	86	78	92	79	91
9272444	83	86	87	82	79	88
9272445	81	89	77	107	95	103
Blank	78	87	79	97	78	88
LCS	84	89	79	82	71	78
LCSD	78	79	80	83	82	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17293003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9272441	95	78	85	102	91	97
9272444	94	75	87	84	70	75
9272445	99	84	78	95	90	83
Blank	93	65	78	88	73	77
LCS	87	78	89	94	79	81
LCSD	82	76	87	91	86	85
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9272441	83
9272444	64
9272445	75
Blank	64
LCS	69
LCSD	76
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17298004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272434	71	78	67	79	64	73
9272435	89	92	83	92	83	95
9272436	79	80	72	80	77	83
9272437	81	87	80	73	70	84
9272438	69	71	66	64	69	64
9272440	74	73	75	72	69	74
9272442	83	83	80	85	78	87
9272443	75	83	74	81	70	71
Blank	81	84	78	92	80	88
LCS	73	84	77	73	67	67
LCSD	87	94	89	86	81	88
MS	76	77	72	74	65	81
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298004

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9272434	80	73	70	85	79	78
9272435	106	83	96	93	90	88
9272436	94	83	82	83	85	77
9272437	90	90	89	89	87	86
9272438	74	77	69	82	75	80
9272440	82	84	84	86	79	72
9272442	93	88	84	97	100	91
9272443	79	79	79	100	91	82
Blank	90	80	85	94	88	91
LCS	81	70	84	80	77	72
LCSD	93	92	97	101	90	85
MS	78	82	86	81	78	68
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9272434	78
9272435	84
9272436	77
9272437	86
9272438	76
9272440	75
9272442	92
9272443	82
Blank	88
LCS	75
LCSD	91
MS	63
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17303009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272439	63	57*	61	68	76	69
Blank	91	88	84	87	86	82
LCS	83	77	78	86	76	87
MS	73	72	73	74	65	70
MSD	69	67*	75	74	75	82

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 10:41

Group Number: 1864953

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17303009

Limits:	37-107	70-130	34-118	43-115	32-125	45-114
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9272439	70	60	68	69	77	71
Blank	91	99	100	102	105	98
LCS	91	85	96	95	96	86
MS	79	70	73	68	86	73
MSD	80	77	65	69	70	69
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9272439	66
Blank	100
LCS	89
MS	73
MSD	69
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1864953/9272432-45 * SAMPLES SPLIT INTO TWO COOLERS *

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47393

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Tr.Blnk FB PFCs (19)	Water: 250ml Field Blank	Soil: 250ml poly PFCs (14)	Soil: 8oz. gls - TOC, pH, Metals, Moist.	Soil: % Solids
									O	A			
							N	N					
1. SG3-AfterPOETC-171017				10/17/2017	20:00	W	N	2	2				
2. SG3-AfterPOETD-171017				10/17/2017	20:10	W	N	2	2				
3. SG3-FDS14-171018				10/18/2017		S	N	2			1	1	
4. SG3-DIS-0-0.5'	0	0.5	ft.	10/18/2017	09:50	S	N	2			1	1	
5. SG3-DIS-0.5-1'	0.5	1	ft.	10/18/2017	09:55	S	N	2			1	1	
6. SG3-DIS-1-1.5'	1	1.5	ft.	10/18/2017	10:00	S	N	2			1	1	
7. SG3-DIS-3-4'	3	4	ft.	10/18/2017	10:05	S	N	2			1	1	
8. SG3-DIS-8-9'	8	9	ft.	10/18/2017	10:20	S	N	2			1	1	
9. SG3-DIS-18-19'	18	19	ft.	10/18/2017	11:05	S	N	2			1	1	
10. SG3-FBS14-171018				10/18/2017	11:00	W	N	2		2			

Preservative Code

Field Filtered Y/N

BARR USE ONLY

Sampled by: DJZ/RAK/RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: (RQM) On Ice? (Y) N Date 10/18/2017 Time 17:00

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: Date 10/19/17 Time 940

Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 2.3/4.0 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191/1864953/9272432-45

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: № 47442

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	250 mL plastic / trip blank	250 mL plastic trip blank trizma	250 mL plastic / PFCs (14)	4 oz soil glass / TOC, pH, Moist	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
									Water		Soil					
									A	O	A	A				
									N	N	N	N				
1. SG3-D15-28-29'	28	29	ft	10-18-17	1240	Soil	N	2			1	1				PFCs (14), pH, TOC, moisture
2. SG3-D15-38-39'	38	39	ft	10-18-17	1310	S	N	2			1	1				
3. SG3-LTB81-171018	—	—	—	—	AM	W	N	2	2							
4. SG3-LTB82-171018	—	—	—	—	AM	W	N	2	2							
5.																
6.																
7.																Samples in 2 Coolers
8.																
9.																
10.																

BARR USE ONLY							
Sampled by: DJZ RAK	Relinquished by: Dirk Zander	On Ice? Y N	Date 10-18-17	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/19/17	Time 940
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 2.3/4.0	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198082

Group Number(s): 1864953

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/19/2017 9:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 13:23 on 10/19/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.3	DT	Wet	Y	Bagged	N
2	DT131	4.0	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 08, 2017 09:54

Project: SGPP - Bennington

Account #: 37191
Group Number: 1864971
SDG: SGB96
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB11A-171017 Grab Rinse Water	10/17/2017 13:20	9272540
SG3-RB12A-171017 Grab Rinse Water	10/17/2017 13:35	9272541
SG3-RB13A-171017 Grab Rinse Water	10/17/2017 13:45	9272542
SG3-RB14A-171017 Grab Rinse Water	10/17/2017 14:00	9272543
SG3-RB15A-171017 Grab Rinse Water	10/17/2017 14:10	9272544
SG3-RB16A-171017 Grab Rinse Water	10/17/2017 14:25	9272545

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1864971

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9272545

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9272540

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample #s: 9272541, 9272542, 9272543, 9272544

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

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Batch #: 17293002 (Sample number(s): 9272545)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9272545, Blank, LCSD

Batch #: 17303007 (Sample number(s): 9272540-9272544)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9272540, 9272541, 9272542, 9272543, 9272544, Blank, LCS, LCSD

REVISED

Sample Description: **SG3-RB11A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 13:20
SDG#: SGB96-01

C. T. Male Associates
ELLE Sample #: GW 9272540
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB11A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 13:20
SDG#: SGB96-01

C. T. Male Associates
ELLE Sample #: GW 9272540
ELLE Group #: 1864971
Matrix: Rinse Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 06:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB12A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 13:35
SDG#: SGB96-02

C. T. Male Associates
ELLE Sample #: GW 9272541
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 07:06	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB13A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 13:45
SDG#: SGB96-03

C. T. Male Associates
ELLE Sample #: GW 9272542
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.9 J**	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 07:26	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB14A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 14:00
SDG#: SGB96-04

C. T. Male Associates
ELLE Sample #: GW 9272543
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.9 J**	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 07:47	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB15A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 14:10
SDG#: SGB96-05

C. T. Male Associates
ELLE Sample #: GW 9272544
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards is again outside of QC acceptance limits. Comparable results were observed between the two extractions and both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 08:07	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB16A-171017 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/18/2017 09:30
Collection Date/Time: 10/17/2017 14:25
SDG#: SGB96-06

C. T. Male Associates
ELLE Sample #: GW 9272545
ELLE Group #: 1864971
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293002	10/26/2017 20:03	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293002	10/23/2017 06:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 09:54

Group Number: 1864971

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17293002	Sample number(s): 9272545			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	4	J	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.9	J	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	1		0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	4		0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17303007	Sample number(s): 9272540-9272544			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 09:54

Group Number: 1864971

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293002	Sample number(s): 9272545								
6:2 fluorotelomersulfonate	15.17	17.03	15.17	16.93	112	112	70-130	1	30
8:2 fluorotelomersulfonate	15.33	19.85	15.33	23.12	129	151*	70-130	15	30
NEtFOSAA	5.44	5.80	5.44	6.24	107	115	70-130	7	30
NMeFOSAA	5.44	5.83	5.44	5.65	107	104	70-130	3	30
Perfluorobutanesulfonate	4.81	5.01	4.81	5.32	104	110	70-130	6	30
Perfluorobutanoic acid	5.44	8.16	5.44	6.55	150*	120	70-130	22	30
Perfluorodecanoic acid	5.44	5.50	5.44	6.05	101	111	70-130	9	30
Perfluorododecanoic acid	5.44	5.87	5.44	6.67	108	123	70-130	13	30
Perfluoroheptanoic acid	5.44	6.85	5.44	6.64	126	122	70-130	3	30
Perfluorohexanesulfonate	5.14	5.51	5.14	5.15	107	100	70-130	7	30
Perfluorohexanoic acid	5.44	6.41	5.44	5.86	118	108	70-130	9	30
Perfluorononanoic acid	5.44	5.36	5.44	5.64	99	104	70-130	5	30
Perfluorooctanesulfonamide	5.44	5.95	5.44	6.01	109	111	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.26	5.20	6.13	101	118	70-130	15	30
Perfluorooctanoic acid	5.44	6.28	5.44	6.45	115	119	70-130	3	30
Perfluoropentanoic acid	5.44	8.60	5.44	6.52	158*	120	70-130	28	30
Perfluorotetradecanoic acid	5.44	5.22	5.44	5.65	96	104	70-130	8	30
Perfluorotridecanoic acid	5.44	5.69	5.44	5.71	105	105	70-130	0	30
Perfluoroundecanoic acid	5.44	5.97	5.44	5.73	110	105	70-130	4	30
Batch number: 17303007	Sample number(s): 9272540-9272544								
6:2 fluorotelomersulfonate	15.17	18.91	15.17	18.06	125	119	70-130	5	30
8:2 fluorotelomersulfonate	15.33	16.64	15.33	15.75	109	103	70-130	5	30
NEtFOSAA	5.44	7.99	5.44	9.03	147*	166*	70-130	12	30
NMeFOSAA	5.44	10.03	5.44	8.86	184*	163*	70-130	12	30
Perfluorobutanesulfonate	4.81	5.30	4.81	5.71	110	119	70-130	7	30
Perfluorobutanoic acid	5.44	6.05	5.44	6.48	111	119	70-130	7	30
Perfluorodecanoic acid	5.44	6.62	5.44	6.25	122	115	70-130	6	30
Perfluorododecanoic acid	5.44	6.38	5.44	6.42	117	118	70-130	1	30
Perfluoroheptanoic acid	5.44	5.98	5.44	6.17	110	113	70-130	3	30
Perfluorohexanesulfonate	5.14	5.35	5.14	5.48	104	107	70-130	2	30
Perfluorohexanoic acid	5.44	6.04	5.44	5.93	111	109	70-130	2	30
Perfluorononanoic acid	5.44	5.50	5.44	5.53	101	102	70-130	1	30
Perfluorooctanesulfonamide	5.44	7.14	5.44	7.58	131*	139*	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 09:54

Group Number: 1864971

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.51	5.20	4.96	106	95	70-130	10	30
Perfluorooctanoic acid	5.44	6.32	5.44	6.11	116	112	70-130	3	30
Perfluoropentanoic acid	5.44	6.29	5.44	6.33	116	116	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.46	5.44	6.19	119	114	70-130	4	30
Perfluorotridecanoic acid	5.44	6.70	5.44	6.05	123	111	70-130	10	30
Perfluoroundecanoic acid	5.44	6.43	5.44	5.86	118	108	70-130	9	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272545	89	86	83	99	80	104
Blank	99	104	93	114	92	117
LCS	96	96	87	97	80	91
LCSD	95	96	90	97	93	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9272545	111	90	91	121	97	97
Blank	105	100	100	120	106	89
LCS	108	94	87	101	100	86
LCSD	104	92	94	114	101	82
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9272545	91	90	81	66	78	63*
Blank	85	115	107	101	100	57*
LCS	85	99	101	93	86	70
LCSD	90	111	98	96	95	56*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 09:54

Group Number: 1864971

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9272540	64	71	71	87	82	82
9272541	82	78	79	71	75	75
9272542	48	67	63	80	74	69
9272543	74	71	69	75	73	82
9272544	81	72	71	63	69	73
Blank	82	77	72	90	91	83
LCS	75	71	67	75	79	74
LCSD	73	70	68	85	84	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9272540	129	71	80	81	63	89
9272541	119	81	82	98	72	112
9272542	118	64	71	84	59	77
9272543	108	77	80	86	73	118
9272544	102	67	87	100	72	125
Blank	79	86	80	82	85	73
LCS	59	73	74	65	70	58
LCSD	69	75	75	68	74	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9272540	6*	25*	11*	15*	31	7*
9272541	17	31	15*	15*	49	42*
9272542	6*	24*	12*	17*	46	4*
9272543	8*	25*	11*	14*	44	23*
9272544	52	38	27	19*	58	56*
Blank	100	87	111	89	96	59*
LCS	87	75	105	76	74	56*
LCSD	77	70	89	77	76	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 37191 Group # 1864971 Sample # 92725540-45

COC # 533995

Client Information — Barr Engineering — BARR

Client: G.T. Mole Associates	Acct. #: Project # 45021004.00
Project Name/#: SGPP Bennington	PWSID #:
Project Manager: JTC / QA Manager MOD	P.O. #: 16.6131
Sampler: Dan Achty	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☑

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Tissue	Water: Potable	Ground	NPDES	Surface	Other: Blank Water	Total # of Containers	Analysis Requested: 1,4 PFCs (EPA 537 Mod)	Remarks
SG3-RB01A-171017	10/17/17	1310	X									X	2	X	Transducer Cable
SG3-RB06A-171017		1315	X									X	2	X	
SG3-RB11A-171017		1320	X									X	2	X	HOLD ANALYSIS
SG3-RB12A-171017		1335	X									X	2	X	HOLD ANALYSIS
SG3-RB13A-171017		1345	X									X	2	X	HOLD ANALYSIS
SG3-RB14A-171017		1400	X									X	2	X	HOLD ANALYSIS
SG3-RB15A-171017		1410	X									X	2	X	HOLD ANALYSIS
SG3-RB16A-171017		1425	X									X	2	X	HOLD ANALYSIS
SG3-RB17-171017		1435	X									X	2	X	
SG3-RB18-171017		1445	X									X	2	X	Bromide Monofilament

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Turnaround Time (TAT) Requested (please circle)
Standard (Rush)
(Rush TAT is subject to laboratory approval and surcharge.)
Date results are needed: 24 Hour TAT
E-mail address:

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) — Type VI (Raw Data Only)
Type III (Reduced non-CLP) — NJ DKQP — TX TRRP-13
NYSDEC Category A or B — MA MCP — CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/17/17	1730			
			3	10.18.17	930

EDD Required? Yes No
If yes, format: EQuIS
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____
Temperature upon receipt 2.4 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 197850

Group Number(s): 1864971

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/18/2017 9:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250 mL plastic

Unpacked by Timothy Cubberley (6520) at 11:07 on 10/18/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 26, 2017 16:14

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1865368
SDG: SGB97
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-171019 Blank Water	10/19/2017	9274404
SG3-FTB01-171019 Blank Water	10/19/2017 13:40	9274405
SG3-RB01-171019 Rinse Water	10/19/2017 13:45	9274406
SG3-RB02-171019 Rinse Water	10/19/2017 13:55	9274407
SG3-RB03-171019 Rinse Water	10/19/2017 14:15	9274408
SG3-RB04-171019 Rinse Water	10/19/2017 14:30	9274409
SG3-RB05-171019 Rinse Water	10/19/2017 14:40	9274410
SG3-RB06-171019 Rinse Water	10/19/2017 14:45	9274411
SG3-RB07-171019 Rinse Water	10/19/2017 14:50	9274412
SG3-RB08-171019 Rinse Water	10/19/2017 14:55	9274413
SG3-RB09-171019 Rinse Water	10/19/2017 15:00	9274414

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1865368

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9274404, 9274405, 9274406, 9274407, 9274408, 9274409, 9274410, 9274411, 9274412, 9274413

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9274414

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 8:2-FTS is not detected, the data is reported.

Batch #: 17293009 (Sample number(s): 9274404-9274414)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorohexanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanoic acid. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9274414

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9274404, 9274405, 9274406, 9274407, 9274408, 9274409, 9274410, 9274411, 9274412, 9274413, 9274414, Blank, LCS, LCSD

REVISED

Sample Description: **SG3-LTB01-171019 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017
SDG#: SGB97-01TB

C. T. Male Associates
ELLE Sample #: GW 9274404
ELLE Group #: 1865368
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 19:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171019 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 13:40
SDG#: SGB97-02TB

C. T. Male Associates
ELLE Sample #: WW 9274405
ELLE Group #: 1865368
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 20:06	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB01-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 13:45
SDG#: SGB97-03RB

C. T. Male Associates
ELLE Sample #: WW 9274406
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 20:27	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB02-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 13:55
SDG#: SGB97-04RB

C. T. Male Associates
ELLE Sample #: WW 9274407
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 20:47	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB03-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:15
SDG#: SGB97-05RB

C. T. Male Associates
ELLE Sample #: WW 9274408
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 21:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB04-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:30
SDG#: SGB97-06RB

C. T. Male Associates
ELLE Sample #: WW 9274409
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 21:28	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB05-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:40
SDG#: SGB97-07RB

C. T. Male Associates
ELLE Sample #: WW 9274410
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 21:49	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB06-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:45
SDG#: SGB97-08RB

C. T. Male Associates
ELLE Sample #: WW 9274411
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 22:09	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB07-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:50
SDG#: SGB97-09RB

C. T. Male Associates
ELLE Sample #: WW 9274412
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 22:30	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB08-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 14:55
SDG#: SGB97-10RB

C. T. Male Associates
ELLE Sample #: WW 9274413
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 22:50	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-RB09-171019 Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 15:00
SDG#: SGB97-11RB

C. T. Male Associates
ELLE Sample #: WW 9274414
ELLE Group #: 1865368
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 8:2-FTS is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/21/2017 00:13	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/26/2017 16:14

Group Number: 1865368

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17293009	Sample number(s): 9274404-9274414		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293009	Sample number(s): 9274404-9274414								
6:2 fluorotelomersulfonate	15.17	13.87	15.17	15.28	91	101	70-130	10	30
8:2 fluorotelomersulfonate	15.33	16.48	15.33	16.91	108	110	70-130	3	30
NEtFOSAA	5.44	5.48	5.44	6.28	101	115	70-130	14	30
NMeFOSAA	5.44	5.13	5.44	5.26	94	97	70-130	2	30
Perfluorobutanesulfonate	4.81	5.54	4.81	5.21	115	108	70-130	6	30
Perfluorobutanoic acid	5.44	5.94	5.44	6.01	109	110	70-130	1	30
Perfluorodecanoic acid	5.44	5.56	5.44	5.76	102	106	70-130	3	30
Perfluorododecanoic acid	5.44	5.88	5.44	5.50	108	101	70-130	7	30
Perfluoroheptanoic acid	5.44	6.29	5.44	6.87	116	126	70-130	9	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.15	110	100	70-130	10	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/26/2017 16:14

Group Number: 1865368

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	13.2	5.44	5.81	243*	107	70-130	78*	30
Perfluorononanoic acid	5.44	5.47	5.44	6.38	101	117	70-130	15	30
Perfluorooctanesulfonamide	5.44	5.50	5.44	5.90	101	109	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.64	5.20	5.05	108	97	70-130	11	30
Perfluorooctanoic acid	5.44	6.03	5.44	6.19	111	114	70-130	3	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.76	104	106	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.64	5.44	5.46	104	100	70-130	3	30
Perfluorotridecanoic acid	5.44	5.39	5.44	5.37	99	99	70-130	0	30
Perfluoroundecanoic acid	5.44	5.65	5.44	5.79	104	106	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9274404	88	91	88	94	87	90
9274405	85	89	81	95	89	89
9274406	82	79	78	97	88	88
9274407	84	84	82	81	81	77
9274408	88	106	105	96	98	97
9274409	80	81	84	93	89	90
9274410	78	82	81	90	82	77
9274411	82	86	82	91	86	86
9274412	79	79	78	84	78	76
9274413	78	78	81	97	79	94
9274414	81	76	76	98	71	77
Blank	95	93	87	107	97	103
LCS	92	92	87	101	87	98
LCSD	90	88	87	101	99	89
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9274404	82	91	83	94	93	69
9274405	91	92	79	85	93	68
9274406	69	88	77	84	90	67

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/26/2017 16:14

Group Number: 1865368

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293009

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9274407	67	78	86	85	88	56
9274408	88	90	93	88	96	74
9274409	70	88	80	76	86	64
9274410	66	82	75	70	86	55
9274411	66	88	81	88	99	69
9274412	66	76	79	77	83	52
9274413	76	88	74	79	94	75
9274414	98	79	73	98	86	150*
Blank	93	101	91	98	98	88
LCS	82	93	86	91	98	68
LCSD	78	92	84	80	86	66
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9274404	75	86	91	78	76	42*
9274405	75	88	82	86	70	46*
9274406	74	87	86	84	71	43*
9274407	61	82	79	77	71	39*
9274408	75	113	108	101	81	25*
9274409	62	89	74	84	68	48*
9274410	60	96	82	87	86	40*
9274411	67	85	75	89	76	14*
9274412	55	83	64	75	74	48*
9274413	65	108	98	85	85	52*
9274414	74	75	85	68	63	49*
Blank	77	99	94	86	84	51*
LCS	71	91	81	81	74	40*
LCSD	74	82	73	80	70	43*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1865366 Sample # 9274404-414

COC # 555838

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - North Bennington	PWSID #:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: Dan King, Cliff Bondi	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

1 of 2

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐	Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐	Other: Rinse Water	Total # of Containers	Analysis Requested: 19 PFAS
SG3-LTB01-171019	10/19/17	—	✓				✓	2	✓
SG3-FTB01-171019		13:40	✓				✓	2	✓
SG3-RB01-171019		13:45	✓				✓	2	✓
SG3-RB02-171019		13:55	✓				✓	2	✓
SG3-RB03-171019		14:15	✓				✓	2	✓
SG3-RB04-171019		14:30	✓				✓	2	✓
SG3-RB05-171019		14:40	✓				✓	2	✓
SG3-RB06-171019		14:45	✓				✓	2	✓
SG3-RB07-171019		14:50	✓				✓	2	✓
SG3-RB08-171019		14:55	✓				✓	2	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 10/23/17 24h TAT

E-mail address: K.Moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/19/17	15:15			

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt 1.0 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1865366 Sample # 9274404-414

COC # 555840

Client Information

Client: C.T. Male Associates

Acct. #:

Project Name/#: SGPP-North Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 16.6131

Sampler: Dan King, Cliff Bondi

Quote #:

State where samples were collected: NY

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Rinse water

Analysis Requested

Preservation and Filtration Codes

19 PFAS

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

2 of 2

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
SG3-RB09-171019	10/19/17	15:00	✓		2

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 10/23/17 24h TAT

E-mail address: K.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/19/17	15:15			
				10-20-17	0940

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.6 °C

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Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 198204

Group Number(s): 1865368

Client: C.T. MALE ASSOCIATES

SGPP-NORTH BENNINGTON

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/20/2017 9:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): UNPRESERVED

Unpacked by Nicole Reiff (25684) at 11:07 on 10/20/2017

Samples Chilled Details: SGPP-NORTH BENNINGTON

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 21, 2017

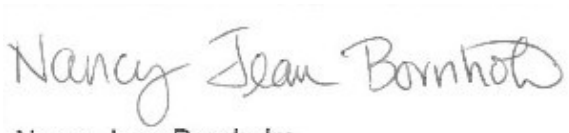
Project: SGPP - North Bennington

Account #: 37191
Group Number: 1865383
SDG: SGB98
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

SAMPLE INFORMATION

Client Sample Description	Collection Information	ELLE#
SG3-FilteredWaterTKC-171019 Water	10/19/2017 11:00	9274540
SG3-FilteredWaterTKD-171019 Water	10/19/2017 11:05	9274541
Trip Blank Water	10/19/2017	9274542

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - North Bennington
LL Group #: 1865383

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9274540, 9274541, 9274542

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17293009 (Sample number(s): 9274540-9274542)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorohexanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorohexanoic acid. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9274540, 9274541, 9274542, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterTKC-171019 Water
SGPP - North Bennington

ELLE Sample # GW 9274540
ELLE Group # 1865383
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/19/2017 11:00 by RQM

Submitted: 10/20/2017 09:40
Reported: 10/21/2017 08:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3TK SDG#: SGB98-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8	U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**		0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/21/2017 00:33	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FilteredWaterTKD-171019 Water
SGPP - North Bennington

ELLE Sample # GW 9274541
ELLE Group # 1865383
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/19/2017 11:05 by RQM

Submitted: 10/20/2017 09:40
Reported: 10/21/2017 08:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3KD SDG#: SGB98-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8	U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/21/2017 00:54	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
SGPP - North Bennington

ELLE Sample # WW 9274542
ELLE Group # 1865383
Account # 37191

Project Name: SGPP - North Bennington

Collected: 10/19/2017

Submitted: 10/20/2017 09:40
Reported: 10/21/2017 08:13

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

SG3TB SDG#: SGB98-03TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2	U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4	U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	NMeFOSAA	2355-31-9	0.4	U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	Perfluorobutanesulfonate	375-73-5	0.3	U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2	U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4	U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3	U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3	U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4	U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3	U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3	U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3	U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7	U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3	U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3	U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3	U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3	U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4	U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17293009	10/21/2017 01:14	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17293009	10/20/2017 11:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/21/2017 08:13

Group Number: 1865383

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l		MDL** ng/l	LOQ ng/l
Batch number: 17293009	Sample number(s): 9274540-9274542			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17293009	Sample number(s): 9274540-9274542								
6:2 fluorotelomersulfonate	15.17	13.87	15.17	15.28	91	101	70-130	10	30
8:2 fluorotelomersulfonate	15.33	16.48	15.33	16.91	108	110	70-130	3	30
NEtFOSAA	5.44	5.48	5.44	6.28	101	115	70-130	14	30
NMeFOSAA	5.44	5.13	5.44	5.26	94	97	70-130	2	30
Perfluorobutanesulfonate	4.81	5.54	4.81	5.21	115	108	70-130	6	30
Perfluorobutanoic acid	5.44	5.94	5.44	6.01	109	110	70-130	1	30
Perfluorodecanoic acid	5.44	5.56	5.44	5.76	102	106	70-130	3	30
Perfluorododecanoic acid	5.44	5.88	5.44	5.50	108	101	70-130	7	30
Perfluoroheptanoic acid	5.44	6.29	5.44	6.87	116	126	70-130	9	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.15	110	100	70-130	10	30
Perfluorohexanoic acid	5.44	13.2	5.44	5.81	243*	107	70-130	78*	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1865383
Reported: 10/21/2017 08:13

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorononanoic acid	5.44	5.47	5.44	6.38	101	117	70-130	15	30
Perfluorooctanesulfonamide	5.44	5.50	5.44	5.90	101	109	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.64	5.20	5.05	108	97	70-130	11	30
Perfluorooctanoic acid	5.44	6.03	5.44	6.19	111	114	70-130	3	30
Perfluoropentanoic acid	5.44	5.68	5.44	5.76	104	106	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.64	5.44	5.46	104	100	70-130	3	30
Perfluorotridecanoic acid	5.44	5.39	5.44	5.37	99	99	70-130	0	30
Perfluoroundecanoic acid	5.44	5.65	5.44	5.79	104	106	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9274540	79	80	79	79	84	80
9274541	80	85	84	86	83	88
9274542	85	88	88	100	89	89
Blank	95	93	87	107	97	103
LCS	92	92	87	101	87	98
LCSD	90	88	87	101	99	89
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9274540	72	78	72	82	80	63
9274541	59	82	82	77	90	57
9274542	79	83	82	88	91	73
Blank	93	101	91	98	98	88
LCS	82	93	86	91	98	68
LCSD	78	92	84	80	86	66
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9274540	66	77	83	73	71	39*
9274541	63	79	82	74	70	36*
9274542	61	81	79	84	72	20*
Blank	77	99	94	86	84	51*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1865383
Reported: 10/21/2017 08:13

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17293009

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	71	91	81	81	74	40*
LCSD	74	82	73	80	70	43*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

NEED RESULTS ASAP A-137191 G-1865383 S-927454O-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52331

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O. 45021004.00
Project Name: SGPP Bennington	Barr Project No: ~~32421001.03~~

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trizma FB PFCs (19)	Soil: 250ml plastic, PFCs (14)	Soil: 4 oz. glass jars, TOC, pH, metals, moisture	Soil: % Solids
							N	O	2	A	A	
							N	Z	2	1	1	
1. SG3-FilteredWaterTKC-171019				10/19/2017	11:00	W	N	2	2			
2. SG3-FilteredWaterTKD-171019				10/19/2017	11:05	W	N	2	2			
3. Trip Blanks				10/19/2017	AM	W	N	2	2			
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Preservative Code

Field Filtered Y/N

Need* results ASAP*

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM/RAK	(RQM)	Y N	10/19/2017	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: 3	Date 10.20.17	Time 0940
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ~~☐~~ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): (.9-4.4	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198206

Group Number(s): 1865383

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/20/2017 9:40
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 11:12 on 10/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.9	DT	Wet	Y	Bagged	N
2	DT131	4.4	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-D15-73-74'	10/19/2017 14:45	Time on CoC marked at 11:45. Only soil jar marked wrong.

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 08, 2017 07:15

Project: SGPP - Bennington

Account #: 37191
Group Number: 1865403
SDG: SGB99
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D15-48-49' Grab Soil	10/19/2017 08:40	9274642
SG3-D15-73-74' Grab Soil	10/19/2017 11:45	9274643
SG3-LTB83-171019 Water	10/19/2017	9274644
SG3-LTB84-171019 Water	10/19/2017	9274645

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1865403

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 17299009 (Sample number(s): 9274644-9274645)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

SW-846 9045D modified, Wet Chemistry

Sample #s: 9274642, 9274643

The pH was measured in water at 19.7 C.

Sample Description: **SG3-D15-48-49' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 08:40
SDG#: SGB99-01

C. T. Male Associates
ELLE Sample #: SW 9274642
ELLE Group #: 1865403
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,600**	493	1,480	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.35**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 21:29	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D15-48-49' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 08:40
SDG#: SGB99-01

C. T. Male Associates
ELLE Sample #: SW 9274642
ELLE Group #: 1865403
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17310667633A	11/07/2017 10:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039403B	10/25/2017 20:45	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17298820005B	10/25/2017 11:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-73-74' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 11:45
SDG#: SGB99-02

C. T. Male Associates
ELLE Sample #: SW 9274643
ELLE Group #: 1865403
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**21,600**	539	1,620	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.83**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 21:50	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-73-74' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017 11:45
SDG#: SGB99-02

C. T. Male Associates
ELLE Sample #: SW 9274643
ELLE Group #: 1865403
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC	SM 5310 B modified-2000	1	17310667633B	11/07/2017 11:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17298820005B	10/25/2017 11:58	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB83-171019 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017
SDG#: SGB99-03TB

C. T. Male Associates
ELLE Sample #: WW 9274644
ELLE Group #: 1865403
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 15:59	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB84-171019 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/20/2017 09:40
Collection Date/Time: 10/19/2017
SDG#: SGB99-04TB

C. T. Male Associates
ELLE Sample #: WW 9274645
ELLE Group #: 1865403
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 16:19	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17298009	Sample number(s): 9274642-9274643		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17299009	Sample number(s): 9274644-9274645		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 17310667633A	Sample number(s): 9274642		
TOC	100 U	100	300
Batch number: 17310667633B	Sample number(s): 9274643		
TOC	100 U	100	300

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9274642-9274643								
Perfluorobutanesulfonate	1.20	1.24			103		70-130		
Perfluorobutanoic acid	1.36	1.46			107		70-130		
Perfluorodecanoic acid	1.36	1.28			94		70-130		
Perfluorododecanoic acid	1.36	1.31			96		70-130		
Perfluoroheptanoic acid	1.36	1.41			103		70-130		
Perfluorohexanesulfonate	1.29	1.05			82		70-130		
Perfluorohexanoic acid	1.36	1.35			99		70-130		
Perfluorononanoic acid	1.36	1.50			110		70-130		
Perfluoro-octanesulfonate	1.30	1.53			118		70-130		
Perfluorooctanoic acid	1.36	1.35			100		70-130		
Perfluoropentanoic acid	1.36	1.39			102		70-130		
Perfluorotetradecanoic acid	1.36	1.45			106		70-130		
Perfluorotridecanoic acid	1.36	1.35			99		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299009	Sample number(s): 9274644-9274645								
Perfluorobutanesulfonate	4.81	5.09	4.81	4.94	106	103	70-130	3	30
Perfluorobutanoic acid	5.44	5.65	5.44	5.36	104	98	70-130	5	30
Perfluorodecanoic acid	5.44	5.77	5.44	5.26	106	97	70-130	9	30
Perfluorododecanoic acid	5.44	5.70	5.44	4.98	105	91	70-130	14	30
Perfluoroheptanoic acid	5.44	5.62	5.44	5.71	103	105	70-130	2	30
Perfluorohexanesulfonate	5.14	4.79	5.14	4.31	93	84	70-130	10	30
Perfluorohexanoic acid	5.44	5.19	5.44	5.32	95	98	70-130	2	30
Perfluorononanoic acid	5.44	5.71	5.44	5.43	105	100	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.82	5.20	4.56	93	88	70-130	6	30
Perfluorooctanoic acid	5.44	5.20	5.44	4.37	96	80	70-130	17	30
Perfluoropentanoic acid	5.44	5.43	5.44	5.13	100	94	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.41	5.44	4.95	99	91	70-130	9	30
Perfluorotridecanoic acid	5.44	5.04	5.44	4.33	93	80	70-130	15	30
Perfluoroundecanoic acid	5.44	5.50	5.44	5.76	101	106	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17310667633A	Sample number(s): 9274642								
TOC	7150	6993.27			98		47-143		
Batch number: 17310667633B	Sample number(s): 9274643								
TOC	7150	6993.27			98		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17298039403B	Sample number(s): 9274642								
pH	7.00	6.97			100		95-105		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

LCS/LCSD (continued)

Analysis Name	LCS Spike Added Std. Units	LCS Conc Std. Units	LCSD Spike Added Std. Units	LCSD Conc Std. Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17299039402B	Sample number(s): 9274643								
pH	7.00	6.97			100		95-105		
	%	%	%	%					
Batch number: 17298820005B	Sample number(s): 9274642-9274643								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9274642-9274643 UNSPK: P265116									
Perfluorobutanesulfonate	0.15 U	1.09	1.01	1.15	1.28	93	112	70-130	23	30
Perfluorobutanoic acid	0.15 U	1.24	1.36	1.30	1.38	110	107	70-130	2	30
Perfluorodecanoic acid	0.15 U	1.24	1.26	1.30	1.27	102	98	70-130	1	30
Perfluorododecanoic acid	0.15 U	1.24	1.25	1.30	1.34	101	103	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.24	1.57	1.30	1.41	127	109	70-130	11	30
Perfluorohexanesulfonate	0.15 U	1.17	1.05	1.23	1.18	90	96	70-130	12	30
Perfluorohexanoic acid	0.075 U	1.24	1.23	1.30	1.24	100	96	70-130	1	30
Perfluorononanoic acid	0.075 U	1.24	1.51	1.30	1.30	122	100	70-130	15	30
Perfluoro-octanesulfonate	0.23 U	1.18	1.15	1.24	0.934	97	75	70-130	21	30
Perfluorooctanoic acid	0.15 U	1.24	1.16	1.30	1.20	94	92	70-130	3	30
Perfluoropentanoic acid	0.15 U	1.24	1.26	1.30	1.29	102	100	70-130	3	30
Perfluorotetradecanoic acid	0.15 U	1.24	1.28	1.30	1.25	104	97	70-130	2	30
Perfluorotridecanoic acid	0.15 U	1.24	1.21	1.30	1.20	98	92	70-130	1	30
Perfluoroundecanoic acid	0.15 U	1.24	1.25	1.30	1.48	101	114	70-130	17	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17310667633A	Sample number(s): 9274642 UNSPK: P267658									
TOC	281.59	16260	17399.78			105		47-143		
Batch number: 17310667633B	Sample number(s): 9274643 UNSPK: P269204									
TOC	310.34	8010	8784.4			106		47-143		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17310667633A	Sample number(s): 9274642 BKG: P267658			
TOC	281.59	298.91	6 (1)	7
Batch number: 17310667633B	Sample number(s): 9274643 BKG: P269204			
TOC	310.34	313.75	1 (1)	7
	Std. Units	Std. Units		
Batch number: 17298039403B	Sample number(s): 9274642 BKG: P273647			
pH	7.23	7.27	1	3
Batch number: 17299039402B	Sample number(s): 9274643 BKG: P276819			
pH	8.27	8.29	0	3
	%	%		
Batch number: 17298820005B	Sample number(s): 9274642-9274643 BKG: P273367			
Moisture	19.83	20.6	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9274642	82	85	77	86	77	82
9274643	76	79	74	83	73	78
Blank	85	84	79	106	93	94
LCS	82	85	77	85	78	82
MS	77	76	71	77	72	72
MSD	82	81	71	81	75	79
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9274642	84	85	75	89	80	78
9274643	76	90	87	85	76	76
Blank	92	94	94	94	92	85
LCS	82	84	84	103	109	95

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
MS	86	76	89	82	76	71
MSD	86	84	82	94	83	82
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9274642	73
9274643	73
Blank	80
LCS	94
MS	64
MSD	73
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9274644	90	94	79	89	83	80
9274645	82	90	75	91	83	86
Blank	91	95	84	98	86	92
LCS	87	90	75	98	76	96
LCSD	93	100	79	108	90	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9274644	99	100	109	105	107	92
9274645	107	94	117	95	95	93
Blank	103	86	100	97	92	90
LCS	103	83	103	90	87	78
LCSD	114*	97	114	101	93	93
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9274644	90
9274645	88
Blank	77

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/08/2017 07:15

Group Number: 1865403

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C2-PFTeDA
LCS	73
LCSD	78
Limits:	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

403 ③KH 10/20/17 642-45

A-37191 G-186538 S-92745~~40~~-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47443

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd Latham NY
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic trip blank PFC (1)	Soil: 250 mL plastic / PFCs (14)	Soil: 4 oz glass / TOC, pH, moist	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A		A	N	
										N	N		N	N	
1. SG3-D15-48-49'	48	49	ft	10-19-2017	0840	Soil	Y	6		3	3				PFCs (14), pH, TOC, moisture
2. SG3-D15-73-74'	73	74	ft	10-19-17	1145	S	N	2		1	1				
3. SG3-LTB83-171019	—	—	—	—	AM	W	N	2	2						
4. SG3-LTB84-171019	—	—	—	—	AM	W	N	2	2						
5.															
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ RAK							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10-20-17	940
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 1.9-4.4			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Document; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198206

Group Number(s):

Client: Barr

186403

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/20/2017 9:40
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL unpreserved plastic

Unpacked by Timothy Cubberley (6520) at 11:12 on 10/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.9	DT	Wet	Y	Bagged	N
2	DT131	4.4	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
SG3-D15-73-74'	10/19/2017 14:45	Time on CoC marked at 11:45. Only soil jar marked wrong.

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Lancaster, PA 17605-2425

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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 11, 2017 10:03

Project: SGPP - Bennington

Account #: 37191
Group Number: 1884508
SDG: SGL82
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-Hammer-171207 Water	12/07/2017 09:00	9357418

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1884508

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9357418

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Batch #: 17342005 (Sample number(s): 9357418)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide, Perfluorononanoic acid, Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9357418

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9357418, Blank, LCS, LCSD

Sample Description: **SG3-Hammer-171207 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/07/2017 09:00
SDG#: SGL82-01

C. T. Male Associates
ELLE Sample #: GW 9357418
ELLE Group #: 1884508
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	5 U	5	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	10	1
14473	NEtFOSAA	2991-50-6	0.7 U	0.7	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.7 U	0.7	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.5 U	0.5	2	1
14473	Perfluorobutanoic acid	375-22-4	3 U	3	8	1
14473	Perfluorodecanoic acid	335-76-2	0.7 U	0.7	3	1
14473	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
14473	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
14473	Perfluorohexanesulfonate	355-46-4	0.7 U	0.7	3	1
14473	Perfluorohexanoic acid	307-24-4	0.5 U	0.5	2	1
14473	Perfluorononanoic acid	375-95-1	0.5 U	0.5	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.5 U	0.5	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	5	1
14473	Perfluorooctanoic acid	335-67-1	0.5 U	0.5	2	1
14473	Perfluoropentanoic acid	2706-90-3	0.5 U	0.5	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
14473	Perfluoroundecanoic acid	2058-94-8	0.7 U	0.7	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17342005	12/09/2017 06:37	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17342005	12/08/2017 13:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1884508
Reported: 12/11/2017 10:03

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17342005	Sample number(s): 9357418		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17342005	Sample number(s): 9357418								
6:2 fluorotelomersulfonate	15.17	20.11	15.17	17.52	133*	116	70-130	14	30
8:2 fluorotelomersulfonate	15.33	18.05	15.33	19.34	118	126	70-130	7	30
NEtFOSAA	5.44	8.79	5.44	9.56	162*	176*	70-130	8	30
NMeFOSAA	5.44	8.11	5.44	8.67	149*	159*	70-130	7	30
Perfluorobutanesulfonate	4.81	5.78	4.81	5.24	120	109	70-130	10	30
Perfluorobutanoic acid	5.44	6.97	5.44	6.57	128	121	70-130	6	30
Perfluorodecanoic acid	5.44	7.17	5.44	6.49	132*	119	70-130	10	30
Perfluorododecanoic acid	5.44	7.25	5.44	6.71	133*	123	70-130	8	30
Perfluoroheptanoic acid	5.44	7.07	5.44	7.05	130	130	70-130	0	30
Perfluorohexanesulfonate	5.14	5.83	5.14	6.10	113	119	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 10:03

Group Number: 1884508

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.85	5.44	6.16	126	113	70-130	11	30
Perfluorononanoic acid	5.44	7.52	5.44	6.59	138*	121	70-130	13	30
Perfluorooctanesulfonamide	5.44	8.82	5.44	9.24	162*	170*	70-130	5	30
Perfluoro-octanesulfonate	5.20	5.97	5.20	5.72	115	110	70-130	4	30
Perfluorooctanoic acid	5.44	7.15	5.44	7.11	131*	131*	70-130	1	30
Perfluoropentanoic acid	5.44	6.79	5.44	6.56	125	121	70-130	3	30
Perfluorotetradecanoic acid	5.44	6.83	5.44	6.36	125	117	70-130	7	30
Perfluorotridecanoic acid	5.44	7.55	5.44	6.77	139*	124	70-130	11	30
Perfluoroundecanoic acid	5.44	7.51	5.44	6.69	138*	123	70-130	11	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17342005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9357418	78	82	84	75	65	76
Blank	93	98	95	88	84	91
LCS	75	76	80	83	74	77
LCSD	81	85	84	83	76	85
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9357418	245*	77	75	97	69	201*
Blank	100	91	87	85	91	98
LCS	88	74	71	74	73	86
LCSD	97	83	80	86	79	83
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9357418	81	74	96	65	62	48*
Blank	82	84	85	88	81	53*
LCS	66	73	69	70	64	62*
LCSD	68	79	77	77	71	55*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 10:03

Group Number: 1884508

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17342005

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Rush - 24 Hour T.A.T.
A-37191 G-1884508 S-9357418

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53513
COC 2 of 4

REPORT TO	INVOICE TO
Company: Barr Eng Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: Sapp Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water — 250 ml plastic - unpres	Soil — % Solids	Preservative Code	Field Filtered Y/N
1. SG3-Hammer-171207				12/07/2017	09:00	W		2	2			PFC's (19)
2.												
3.												
4.												★ Rush ★
5.												24 HR T.A.T.
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RAK		O N	12/7	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						12/8/17	1000
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.4, 0.5			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 Hour (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLGSTDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/08/2017 10:00
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:48 on 12/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.4	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 11, 2017 10:40

Project: SGPP - Bennington

Account #: 37191
Group Number: 1884521
SDG: SGL83
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-Bentonite-171206 Solid	12/06/2017 11:00	9357460

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1884521

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-Bentonite-171206 Solid**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 11:00
SDG#: SGL83-01

C. T. Male Associates
ELLE Sample #: SW 9357460
ELLE Group #: 1884521
Matrix: Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22 J**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17342006	12/09/2017 10:12	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17342006	12/08/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 10:40

Group Number: 1884521

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/g	MDL** ng/g	LOQ ng/g
Batch number: 17342006	Sample number(s): 9357460		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17342006	Sample number(s): 9357460								
Perfluorobutanesulfonate	1.20	1.30	1.20	1.41	108	117	70-130	8	30
Perfluorobutanoic acid	1.36	1.60	1.36	1.62	118	119	70-130	2	30
Perfluorodecanoic acid	1.36	1.49	1.36	1.70	110	125	70-130	13	30
Perfluorododecanoic acid	1.36	1.64	1.36	1.59	121	117	70-130	3	30
Perfluoroheptanoic acid	1.36	1.55	1.36	1.63	114	120	70-130	5	30
Perfluorohexanesulfonate	1.29	1.43	1.29	1.50	111	116	70-130	4	30
Perfluorohexanoic acid	1.36	1.43	1.36	1.42	105	104	70-130	1	30
Perfluorononanoic acid	1.36	1.68	1.36	1.55	123	114	70-130	8	30
Perfluoro-octanesulfonate	1.30	1.57	1.30	1.39	121	107	70-130	12	30
Perfluorooctanoic acid	1.36	1.49	1.36	1.59	110	117	70-130	6	30
Perfluoropentanoic acid	1.36	1.48	1.36	1.52	109	112	70-130	2	30
Perfluorotetradecanoic acid	1.36	1.62	1.36	1.64	119	121	70-130	1	30
Perfluorotridecanoic acid	1.36	1.51	1.36	1.52	111	111	70-130	0	30
Perfluoroundecanoic acid	1.36	1.58	1.36	1.44	116	106	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 10:40

Group Number: 1884521

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17342006

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9357460	94	95	82	102	98	103
Blank	90	94	83	94	86	93
LCS	79	87	77	83	69	83
LCSD	87	93	79	92	87	89
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9357460	97	89	100	99	101	110
Blank	98	92	99	90	83	93
LCS	81	81	91	82	86	86
LCSD	92	88	101	85	87	85
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9357460	121
Blank	105
LCS	98
LCSD	96
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1884521 Rush - 24 Hour T.A.T. S-935741B A-37191 G-1884508 21

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53514 (3) KH 12/18/17

COC 3 of 4 S-935746O

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Analysis Requested: Soil (250 ml plastic)	Analysis Requested: % Solids	Preservative Code	Field Filtered Y/N
1. SG3 - Bentonite - 171206				12/06/2017	11:00	S	W	1		1		A	PFC's (14)
2.													
3.													
4.													★ Rush ★
5.													24 Hour T.A.T
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: — On Ice? (Y) N — Date 12/7 — Time 1700

Received by: — Date — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: — Date 12/8/17 — Time 1000

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.4 0.5 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 Hour (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 203365

Group Number(s): 1884521

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/08/2017 10:00
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:48 on 12/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.4	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 13:15

Project: St. Gobain - Bennington

Account #: 37191
Group Number: 1859097
SDG: SGN01
PO Number: 16.6131
State of Sample Origin: CO

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
RAS-EQPIECE#9-In Situ Cable Grab Blank Water	10/03/2017 16:30	9246956
RAS-EQPIECE#9-Tip Grab Blank Water	10/03/2017 16:35	9246957
RAS-EQPIECE#9-Cap Grab Blank Water	10/03/2017 16:40	9246958

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: St. Gobain - Bennington
ELLE Group #: 1859097

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 17278012 (Sample number(s): 9246956-9246958 UNSPK: P245655)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) MS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) MS

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Analysis Report

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Sample Description: **RAS-EQPIECE#9-In Situ Cable Grab Blank Water**
St. Gobain - Bennington

Project Name: **St. Gobain - Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/03/2017 16:30
SDG#: SGN01-01BL

C. T. Male Associates
ELLE Sample #: WW 9246956
ELLE Group #: 1859097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**34**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17278012	10/06/2017 00:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17278012	10/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **RAS-EQPIECE#9-Tip Grab Blank Water**
St. Gobain - Bennington

Project Name: **St. Gobain - Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/03/2017 16:35
SDG#: SGN01-02BL

C. T. Male Associates
ELLE Sample #: WW 9246957
ELLE Group #: 1859097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**21**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17278012	10/06/2017 01:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17278012	10/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **RAS-EQPIECE#9-Cap Grab Blank Water**
St. Gobain - Bennington

Project Name: **St. Gobain - Bennington**

Submittal Date/Time: 10/05/2017 09:40
Collection Date/Time: 10/03/2017 16:40
SDG#: SGN01-03BL

C. T. Male Associates
ELLE Sample #: WW 9246958
ELLE Group #: 1859097
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
10954	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	10	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4 U	4	10	1
10954	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	Perfluorobutanesulfonate	375-73-5	0.8 U	0.8	3	1
10954	Perfluorobutanoic Acid	375-22-4	3 U	3	10	1
10954	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
10954	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
10954	Perfluorohexanesulfonate	355-46-4	1 U	1	3	1
10954	Perfluorohexanoic acid	307-24-4	0.6 U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6 U	0.6	2	1
10954	Perfluoro-octanesulfonate	1763-23-1	2 U	2	6	1
10954	**Perfluorooctanoic acid**	335-67-1	**4**	0.6	2	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5 U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1 U	1	3	1
10954	PFOSA	754-91-6	3 U	3	9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Version 1.1 Modified	1	17278012	10/06/2017 01:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17278012	10/05/2017 16:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:15

Group Number: 1859097

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17278012	Sample number(s): 9246956-9246958		
6:2 fluorotelomersulfonate	3 U	3	10
8:2 fluorotelomersulfonate	4 U	4	10
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.8 U	0.8	3
Perfluorobutanoic Acid	3 U	3	10
Perfluorodecanoic acid	0.5 U	0.5	2
Perfluorododecanoic acid	0.5 U	0.5	2
Perfluoroheptanoic acid	0.5 U	0.5	2
Perfluorohexanesulfonate	1 U	1	3
Perfluorohexanoic acid	0.6 U	0.6	2
Perfluorononanoic acid	0.6 U	0.6	2
Perfluoro-octanesulfonate	2 U	2	6
Perfluorooctanoic acid	0.6 U	0.6	2
Perfluoropentanoic Acid	0.5 U	0.5	2
Perfluorotetradecanoic acid	0.5 U	0.5	2
Perfluorotridecanoic acid	0.5 U	0.5	2
Perfluoroundecanoic acid	1 U	1	3
PFOSA	3 U	3	9

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17278012	Sample number(s): 9246956-9246958								
6:2 fluorotelomersulfonate	40.01	44.61	40.01	39.63	111	99	70-130	12	30
8:2 fluorotelomersulfonate	40.43	38.22	40.43	43.25	95	107	70-130	12	30
NEtFOSAA	4.80	5.78	4.80	5.33	120	111	70-130	8	30
NMeFOSAA	4.80	4.91	4.80	5.86	102	122	70-130	18	30
Perfluorobutanesulfonate	12.03	12.12	12.03	11.49	101	96	70-130	5	30
Perfluorobutanoic Acid	13.6	13.78	13.6	13.41	101	99	70-130	3	30
Perfluorodecanoic acid	13.6	13.26	13.6	14.27	98	105	70-130	7	30
Perfluorododecanoic acid	13.6	14.54	13.6	14.07	107	103	70-130	3	30
Perfluoroheptanoic acid	13.6	13.52	13.6	13.41	99	99	70-130	1	30
Perfluorohexanesulfonate	12.86	14	12.86	11.97	109	93	70-130	16	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:15

Group Number: 1859097

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	13.6	14.37	13.6	13.56	106	100	70-130	6	30
Perfluorononanoic acid	13.6	15.58	13.6	12.36	115	91	70-130	23	30
Perfluoro-octanesulfonate	13	13.25	13	12.3	102	95	70-130	7	30
Perfluorooctanoic acid	13.6	14.73	13.6	12.99	108	96	70-130	13	30
Perfluoropentanoic Acid	13.6	13.65	13.6	13.86	100	102	70-130	2	30
Perfluorotetradecanoic acid	13.6	14.06	13.6	13.99	103	103	70-130	1	30
Perfluorotridecanoic acid	13.6	14.22	13.6	12.52	105	92	70-130	13	30
Perfluoroundecanoic acid	13.6	13.72	13.6	12.52	101	92	70-130	9	30
PFOSA	13.6	13.77	13.6	12.78	101	94	70-130	7	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17278012	Sample number(s): 9246956-9246958 UNSPK: P245655									
6:2 fluorotelomersulfonate	3 U	39.86	38.46			96		70-130		
8:2 fluorotelomersulfonate	4 U	40.28	38.56			96		70-130		
NEtFOSAA	1 U	4.78	5.37			112		70-130		
NMeFOSAA	1 U	4.78	4.93			103		70-130		
Perfluorobutanesulfonate	0.871	11.98	11.44			88		70-130		
Perfluorobutanoic Acid	3 U	13.55	12.78			94		70-130		
Perfluorodecanoic acid	0.5 U	13.55	12.55			93		70-130		
Perfluorododecanoic acid	0.5 U	13.55	13.88			102		70-130		
Perfluoroheptanoic acid	0.5 U	13.55	11.95			88		70-130		
Perfluorohexanesulfonate	1 U	12.81	11.6			91		70-130		
Perfluorohexanoic acid	0.6 U	13.55	14.4			106		70-130		
Perfluorononanoic acid	0.6 U	13.55	12.94			95		70-130		
Perfluoro-octanesulfonate	2 U	12.95	11.61			90		70-130		
Perfluorooctanoic acid	0.6 U	13.55	13.43			99		70-130		
Perfluoropentanoic Acid	0.5 U	13.55	12.54			93		70-130		
Perfluorotetradecanoic acid	0.5 U	13.55	12.87			95		70-130		
Perfluorotridecanoic acid	0.5 U	13.55	13.86			102		70-130		
Perfluoroundecanoic acid	1 U	13.55	13.03			96		70-130		
PFOSA	3 U	13.55	13.54			100		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:15

Group Number: 1859097

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFCs
Batch number: 17278012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9246956	91	95	94	94	86	84
9246957	88	94	92	97	94	80
9246958	89	87	94	86	92	87
Blank	91	96	96	97	101	93
LCS	97	98	96	98	95	99
LCSD	92	95	91	92	96	93
MS	92	100	94	94	98	93
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9246956	84	87	84	80	104	94
9246957	80	94	89	83	91	84
9246958	85	89	90	86	91	89
Blank	86	88	81	82	101	91
LCS	95	102	87	89	88	94
LCSD	87	91	91	94	101	97
MS	101	101	103	88	90	177*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9246956	94	97	91	89	87	99
9246957	87	91	84	85	79	90
9246958	79	79	80	93	82	95
Blank	102	104	114	102	95	91
LCS	88	90	83	86	82	90
LCSD	95	110	109	107	96	95
MS	81	98	117	95	89	60*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Amended COC

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 859097 Sample # 9246956-59

COC # 564820

Client Information

Client: CT Male

Acct. #:

Project Name/#: St. Gobain - Bennington

PWSID #: MD 11/15/17

Project Manager:

P.O. #:

Sampler: Marta Nelson-Barr Eng.

Quote #:

State where samples were collected: CO

For Compliance: Yes ☐ No ☒

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐

Other: BLANK-PFAS 1/17

Total # of Containers

Analysis Requested

Preservation and Filtration Codes

PFAS

For Lab Use Only

FSC:

SCR#: 213167

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 P=H_3PO_4

F=Field Filtered O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix	Other	Total # of Containers	PFAS
RAS-EQPIECE#9-InSituCable	10/3/17	4:30	X			X	2	✓
RAS-EQPIECE#9-Tip	10/3/17	4:35	X			X	2	✓
RAS-EQPIECE#9-Cap	10/3/17	4:40	X			X	2	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ASAP

E-mail address:

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[illegible]	10/4/17	13:20			
MMNelson	10/4/2017	9:00am			

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 4.3 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1859097 Sample # 9246956-59

COC # 564820

Client Information

Client: CT Male	Acct. #:
Project Name/#: St. Gobain	PWSID #:
Project Manager:	P.O. #:
Sampler: Marta Nelson-BarrEng	Quote #:
State where samples were collected: CO	For Compliance: Yes ☐ No ☒

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: BLANK-PFAS 17

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC:

SCR#: 213167

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS
RAS-EQPIECE#9-InSituCable	10/3/17	4:30	X		2	✓
RAS-EQPIECE#9-Tip	10/3/17	4:35	X		2	✓
RAS-EQPIECE#9-Cap	10/3/17	4:40	X		2	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ASAP

E-mail address:

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[illegible]	9/28/17	13:20			
MMNelson	10/4/2017	9:00am			

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt 4.3 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 196406

Group Number(s): 1859097

Client: CT MALE ASSOCIATES

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/05/2017 9:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	CO		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): PFC FREE BLANK WATER

Unpacked by Wendy Wakeley (1669) at 10:14 on 10/05/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	4.3	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 29, 2017 11:00

Project: SGPP - Bennington

Account #: 37191
Group Number: 1865808
SDG: SNB01
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D06-171020 Grab Groundwater	10/20/2017 13:35	9276680
SG3-LTB87-171020 Blank Water	10/20/2017 15:30	9276681
SG3-FTB88-171020 Blank Water	10/20/2017 15:35	9276682

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1865808

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5172982AA (Sample number(s): 9276680 UNSPK: P276656)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Carbon Tetrachloride

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9276680

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17296WAI026 (Sample number(s): 9276680 UNSPK: P270468)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9276680, Blank, LCS, MS, MSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9276680

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample #s: 9276682

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample #s: 9276681

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Batch #: 17298002 (Sample number(s): 9276680-9276682)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9276680, 9276681, 9276682, LCSD

SW-846 6010C, Metals

Batch #: 172961063501 (Sample number(s): 9276680 UNSPK: P275098 BKG: P275098)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium, Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum

SW-846 6020A, Metals

Batch #: 172961063901A (Sample number(s): 9276680 UNSPK: P275098 BKG: P275098)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony

Batch #: 172961063901B (Sample number(s): 9276680 UNSPK: P275098 BKG: P275098)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

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EPA 300.0, Wet Chemistry

Batch #: 17294987117A (Sample number(s): 9276680 UNSPK: P276622 BKG: P276622)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Bromide, Nitrite Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17297006104A (Sample number(s): 9276680 UNSPK: P268920 BKG: P268920, P276692)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Batch #: 17295022601A (Sample number(s): 9276680 BKG: 9276680)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Ortho-Phosphate as P

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Sample Description: **SG3-D06-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:35
SDG#: SNB01-01

C. T. Male Associates
ELLE Sample #: GW 9276680
ELLE Group #: 1865808
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**2**	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**1 J**	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:35
SDG#: SNB01-01

C. T. Male Associates
ELLE Sample #: GW 9276680
ELLE Group #: 1865808
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**1.2**	0.051	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	5 U	5	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	10	1
14473	NEtFOSAA	2991-50-6	0.7 U	0.7	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.7 U	0.7	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**1 J**	0.5	2	1
14473	**Perfluorobutanoic acid**	375-22-4	**11**	3	8	1
14473	Perfluorodecanoic acid	335-76-2	0.7 U	0.7	3	1
14473	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**12**	0.5	2	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2 J**	0.7	3	1
14473	**Perfluorohexanoic acid**	307-24-4	**15**	0.5	2	1
14473	**Perfluorononanoic acid**	375-95-1	**1 J**	0.5	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.5 U	0.5	2	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**7**	1	5	1
14473	**Perfluorooctanoic acid**	335-67-1	**160**	0.5	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**8**	0.5	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
14473	Perfluoroundecanoic acid	2058-94-8	0.7 U	0.7	3	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:35
SDG#: SNB01-01

C. T. Male Associates
ELLE Sample #: GW 9276680
ELLE Group #: 1865808
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.128**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**218**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**11.2**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**33.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.32**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**11.2**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**8.85**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0066**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.850**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0129**	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0053**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00018 J**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**12.5**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**15.7**	1.5	5.0	5
		EPA 350.1	**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.68**	0.050	0.10	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:35
SDG#: SNB01-01

C. T. Male Associates
ELLE Sample #: GW 9276680
ELLE Group #: 1865808
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 351.2**		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**4.5**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**642**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**642**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.055 J**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5172982AA	10/26/2017 06:40	Patrick T Herres	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5172982AA	10/26/2017 06:40	Patrick T Herres	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17296WAI026	10/30/2017 08:52	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17296WAI026	10/24/2017 08:00	Kayla A Yuditsky	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 13:01	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	172961063501	10/25/2017 04:48	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172961063901D	10/26/2017 11:56	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D06-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:35
SDG#: SNB01-01

C. T. Male Associates
ELLE Sample #: GW 9276680
ELLE Group #: 1865808
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06031	Chromium	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172961063901B	10/26/2017 11:56	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172961063901A	10/26/2017 11:56	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172960571302	10/28/2017 10:49	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172961063501	10/24/2017 17:40	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172961063901	10/24/2017 16:35	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172960571302	10/24/2017 17:20	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17294987117A	10/21/2017 17:05	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17294987117A	10/21/2017 17:05	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17294987117A	10/21/2017 17:05	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17294987117A	10/21/2017 17:05	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17294987117A	10/21/2017 17:05	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17309107102B	11/05/2017 19:27	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17299108101B	11/03/2017 03:25	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17303117101A	10/31/2017 04:25	Joseph E McKenzie	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17299108101B	10/26/2017 15:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17303117101A	10/30/2017 16:30	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17297006104A	10/25/2017 02:09	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17297006104A	10/25/2017 02:09	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17297006104A	10/25/2017 02:09	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17295022601A	10/22/2017 04:10	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB87-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:30
SDG#: SNB01-02TB

C. T. Male Associates
ELLE Sample #: WW 9276681
ELLE Group #: 1865808
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 JB**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB87-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:30
SDG#: SNB01-02TB

C. T. Male Associates
ELLE Sample #: WW 9276681
ELLE Group #: 1865808
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 13:22	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB88-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:35
SDG#: SNB01-03TB

C. T. Male Associates
ELLE Sample #: WW 9276682
ELLE Group #: 1865808
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 B**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB88-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:35
SDG#: SNB01-03TB

C. T. Male Associates
ELLE Sample #: WW 9276682
ELLE Group #: 1865808
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 13:43	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5172982AA	Sample number(s): 9276680		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17296WAI026	Sample number(s): 9276680		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17298002	Sample number(s): 9276680-9276682		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	1 J	0.3	1
Perfluoropentanoic acid	0.5 J	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 172960571302	Sample number(s): 9276680		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 172961063501	Sample number(s): 9276680		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172961063901A	Sample number(s): 9276680		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172961063901B	Sample number(s): 9276680		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172961063901D	Sample number(s): 9276680		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17294987117A	Sample number(s): 9276680		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17299108101B	Sample number(s): 9276680		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17303117101A	Sample number(s): 9276680		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17309107102B	Sample number(s): 9276680		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17295022601A	Sample number(s): 9276680		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17297006104A	Sample number(s): 9276680		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5172982AA	Sample number(s): 9276680								
Acetone	150	151.35			101		44-177		
Benzene	20	21.54			108		78-120		
Bromochloromethane	20	20.45			102		80-125		
Bromodichloromethane	20	21.6			108		71-120		
Bromoform	20	17.64			88		59-120		
Bromomethane	20	24.58			123		44-139		
2-Butanone	150	176.69			118		53-140		
Carbon Disulfide	20	21.76			109		65-128		
Carbon Tetrachloride	20	24.97			125		68-128		
Chlorobenzene	20	21.09			105		80-120		
Chloroethane	20	21.78			109		52-127		
Chloroform	20	21.21			106		80-120		
Chloromethane	20	21.96			110		57-120		
Cyclohexane	20	18.44			92		67-121		
1,2-Dibromo-3-chloropropane	20	23.98			120		64-120		
Dibromochloromethane	20	21.19			106		71-120		
1,2-Dibromoethane	20	22.66			113		75-120		
1,2-Dichlorobenzene	20	21.29			106		80-120		
1,3-Dichlorobenzene	20	20.6			103		80-120		
1,4-Dichlorobenzene	20	20.84			104		80-120		
Dichlorodifluoromethane	20	17.73			89		47-124		
1,1-Dichloroethane	20	21.76			109		80-120		
1,2-Dichloroethane	20	21.25			106		73-124		
1,1-Dichloroethene	20	21.73			109		76-124		
cis-1,2-Dichloroethene	20	22.07			110		80-120		
trans-1,2-Dichloroethene	20	22.14			111		80-120		
1,2-Dichloropropane	20	22.96			115		80-120		
cis-1,3-Dichloropropene	20	20.49			102		75-120		
trans-1,3-Dichloropropene	20	21.71			109		76-120		
Ethylbenzene	20	21.71			109		78-120		
Freon 113	20	18.91			95		68-137		
2-Hexanone	100	116.69			117		60-134		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	21.45			107		80-120		
Methyl Acetate	20	24.79			124		61-137		
Methyl Tertiary Butyl Ether	20	22.07			110		75-120		
4-Methyl-2-pentanone	100	114.33			114		67-128		
Methylcyclohexane	20	17.49			87		66-126		
Methylene Chloride	20	22.57			113		80-120		
Styrene	20	21.89			109		80-120		
1,1,2,2-Tetrachloroethane	20	24.04			120		72-120		
Tetrachloroethene	20	19.38			97		80-129		
Toluene	20	21.46			107		80-120		
1,2,3-Trichlorobenzene	20	19.43			97		66-120		
1,2,4-Trichlorobenzene	20	18.51			93		70-120		
1,1,1-Trichloroethane	20	19.84			99		67-120		
1,1,2-Trichloroethane	20	23.35			117		80-120		
Trichloroethene	20	19.67			98		80-120		
Trichlorofluoromethane	20	21.65			108		52-143		
Vinyl Chloride	20	22.06			110		63-121		
m+p-Xylene	40	42.44			106		80-120		
o-Xylene	20	21.14			106		80-120		
Xylene (Total)	60	63.58			106		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17296WAI026	Sample number(s): 9276680								
1,4-Dioxane	1.00	1.12			112		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17298002	Sample number(s): 9276680-9276682								
6:2 fluorotelomersulfonate	15.17	17.24	15.17	18.25	114	120	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.75	15.33	16.53	109	108	70-130	1	30
NEtFOSAA	5.44	8.12	5.44	7.49	149*	138*	70-130	8	30
NMeFOSAA	5.44	9.03	5.44	8.14	166*	150*	70-130	10	30
Perfluorobutanesulfonate	4.81	4.98	4.81	5.05	103	105	70-130	1	30
Perfluorobutanoic acid	5.44	6.13	5.44	6.44	113	118	70-130	5	30
Perfluorodecanoic acid	5.44	5.87	5.44	6.59	108	121	70-130	11	30
Perfluorododecanoic acid	5.44	6.09	5.44	5.96	112	110	70-130	2	30
Perfluoroheptanoic acid	5.44	5.92	5.44	5.79	109	106	70-130	2	30
Perfluorohexanesulfonate	5.14	5.37	5.14	4.97	104	97	70-130	8	30
Perfluorohexanoic acid	5.44	5.76	5.44	5.61	106	103	70-130	3	30
Perfluorononanoic acid	5.44	5.38	5.44	4.99	99	92	70-130	7	30
Perfluorooctanesulfonamide	5.44	7.04	5.44	7.17	129	132*	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.19	5.20	4.67	100	90	70-130	11	30
Perfluorooctanoic acid	5.44	6.99	5.44	5.44	128	100	70-130	25	30
Perfluoropentanoic acid	5.44	6.13	5.44	6.26	113	115	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.71	5.44	5.95	105	109	70-130	4	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.89	5.44	6.06	108	111	70-130	3	30
Perfluoroundecanoic acid	5.44	5.41	5.44	6.28	99	115	70-130	15	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172960571302	Sample number(s): 9276680								
Mercury	0.00100	0.00104			104		80-120		
Batch number: 172961063501	Sample number(s): 9276680								
Aluminum	2.00	2.26			113		80-120		
Boron	2.00	1.82			91		80-120		
Calcium	4.00	3.97			99		80-120		
Iron	1.00	1.01			101		80-120		
Magnesium	2.00	2.03			101		80-120		
Manganese	0.500	0.503			101		80-120		
Potassium	10	10.09			101		80-120		
Sodium	10	10.01			100		80-120		
Zinc	0.500	0.486			97		80-120		
Batch number: 172961063901A	Sample number(s): 9276680								
Antimony	0.00600	0.00531			89		80-120		
Arsenic	0.0100	0.0102			102		80-120		
Beryllium	0.00400	0.00403			101		80-120		
Cadmium	0.00500	0.00524			105		80-120		
Chromium	0.0500	0.0517			103		80-120		
Cobalt	0.250	0.245			98		80-120		
Copper	0.0500	0.0506			101		80-120		
Lead	0.0150	0.0160			107		80-120		
Nickel	0.0500	0.0500			100		80-120		
Silver	0.0500	0.0488			98		80-120		
Thallium	0.00200	0.00211			105		80-120		
Vanadium	0.0500	0.0523			105		80-120		
Batch number: 172961063901B	Sample number(s): 9276680								
Selenium	0.0100	0.0104			104		80-120		
Batch number: 172961063901D	Sample number(s): 9276680								
Barium	0.0500	0.0515			103		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17294987117A	Sample number(s): 9276680								
Bromide	7.50	7.56			101		90-110		
Chloride	3.00	3.05			102		90-110		
Nitrate Nitrogen	0.750	0.765			102		90-110		
Nitrite Nitrogen	0.750	0.753			100		90-110		
Sulfate	7.50	7.56			101		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17299108101B	Sample number(s): 9276680								
Kjeldahl Nitrogen	5.00	5.14			103		90-110		
Batch number: 17303117101A	Sample number(s): 9276680								
Total Cyanide	0.200	0.198			99		90-110		
Batch number: 17309107102B	Sample number(s): 9276680								
Ammonia Nitrogen	1.50	1.39			92		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17295022601A	Sample number(s): 9276680								
Ortho-Phosphate as P	0.400	0.400	0.400	0.407	100	102	95-105	2	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17297006104A	Sample number(s): 9276680								
Total Alkalinity to pH 4.5	188	167.05			89		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5172982AA	Sample number(s): 9276680 UNSPK: P276656									
Acetone	6 U	150	150.17	150	150.67	100	100	44-177	0	30
Benzene	0.5 U	20	22.12	20	22.73	111	114	78-120	3	30
Bromochloromethane	1 U	20	20.54	20	20.29	103	101	80-125	1	30
Bromodichloromethane	0.5 U	20	21.99	20	22.14	110	111	71-120	1	30
Bromoform	0.5 U	20	17.49	20	17.34	87	87	59-120	1	30
Bromomethane	0.5 U	20	22.98	20	23.43	115	117	44-139	2	30
2-Butanone	3 U	150	172.81	150	175.49	115	117	53-140	2	30
Carbon Disulfide	1 U	20	21.53	20	22.87	108	114	65-128	6	30
Carbon Tetrachloride	0.5 U	20	27.71	20	28.5	139*	142*	68-128	3	30
Chlorobenzene	0.5 U	20	21.41	20	22.13	107	111	80-120	3	30
Chloroethane	0.5 U	20	20.14	20	20.4	101	102	52-127	1	30
Chloroform	0.5 U	20	21.99	20	22.12	110	111	80-120	1	30
Chloromethane	0.5 U	20	20.18	20	21.39	101	107	57-120	6	30
Cyclohexane	2 U	20	21.81	20	22.07	109	110	67-121	1	30
1,2-Dibromo-3-chloropropane	2 U	20	22.54	20	23.31	113	117	64-120	3	30
Dibromochloromethane	0.5 U	20	20.74	20	21.08	104	105	71-120	2	30
1,2-Dibromoethane	0.5 U	20	22.2	20	22.18	111	111	75-120	0	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	21.2	20	21.69	106	108	80-120	2	30
1,3-Dichlorobenzene	1 U	20	20.27	20	21.01	101	105	80-120	4	30
1,4-Dichlorobenzene	1 U	20	20.76	20	21.46	104	107	80-120	3	30
Dichlorodifluoromethane	0.5 U	20	19.42	20	18.66	97	93	47-124	4	30
1,1-Dichloroethane	0.5 U	20	22.69	20	23.13	113	116	80-120	2	30
1,2-Dichloroethane	0.5 U	20	22.6	20	22.12	113	111	73-124	2	30
1,1-Dichloroethene	0.5 U	20	22.02	20	23.28	110	116	76-124	6	30
cis-1,2-Dichloroethene	0.5 U	20	22	20	22.38	110	112	80-120	2	30
trans-1,2-Dichloroethene	0.5 U	20	22.44	20	23.03	112	115	80-120	3	30
1,2-Dichloropropane	0.5 U	20	23.28	20	23.75	116	119	80-120	2	30
cis-1,3-Dichloropropene	0.5 U	20	20.43	20	20.77	102	104	75-120	2	30
trans-1,3-Dichloropropene	0.5 U	20	21.67	20	21.99	108	110	76-120	1	30
Ethylbenzene	0.5 U	20	22.47	20	23.23	112	116	78-120	3	30
Freon 113	2 U	20	22.7	20	22.2	114	111	68-137	2	30
2-Hexanone	3 U	100	114.54	100	117.68	115	118	60-134	3	30
Isopropylbenzene	1 U	20	22.42	20	23.16	112	116	80-120	3	30
Methyl Acetate	1 U	20	23.6	20	24.63	118	123	61-137	4	30
Methyl Tertiary Butyl Ether	0.5 U	20	21.94	20	22.31	110	112	75-120	2	30
4-Methyl-2-pentanone	3 U	100	114.36	100	114.9	114	115	67-128	0	30
Methylcyclohexane	1 U	20	20.32	20	20.78	102	104	66-126	2	30
Methylene Chloride	0.5 U	20	22.63	20	22.76	113	114	80-120	1	30
Styrene	1 U	20	22.44	20	22.8	112	114	80-120	2	30
1,1,2,2-Tetrachloroethane	0.5 U	20	23.2	20	23.76	116	119	72-120	2	30
Tetrachloroethene	0.5 U	20	20.18	20	20.75	101	104	80-129	3	30
Toluene	0.5 U	20	21.84	20	22.63	109	113	80-120	4	30
1,2,3-Trichlorobenzene	1 U	20	18.78	20	18.82	94	94	66-120	0	30
1,2,4-Trichlorobenzene	1 U	20	18.04	20	18.61	90	93	70-120	3	30
1,1,1-Trichloroethane	0.5 U	20	22.98	20	22.98	115	115	67-120	0	30
1,1,2-Trichloroethane	0.5 U	20	23.29	20	23.55	116	118	80-120	1	30
Trichloroethene	0.5 U	20	20.65	20	21.06	103	105	80-120	2	30
Trichlorofluoromethane	0.5 U	20	23.45	20	23.72	117	119	52-143	1	30
Vinyl Chloride	0.5 U	20	20.62	20	21.86	103	109	63-121	6	30
m+p-Xylene	0.5 U	40	43.91	40	45.06	110	113	80-120	3	30
o-Xylene	0.5 U	20	21.26	20	22.32	106	112	80-120	5	30
Xylene (Total)	0.5 U	60	65.17	60	67.38	109	112	80-120	3	30
	ug/l	**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17296WAI026	Sample number(s): 9276680 UNSPK: P270468									
1,4-Dioxane	22.25	1.15	27.76	1.09	26.57	480 (2)	395 (2)	70-130	4	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172960571302	Sample number(s): 9276680 UNSPK: P275098									

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Mercury	0.000050 U	0.00100	0.00110	0.00100	0.00109	110	109	80-120	1	20
Batch number: 172961063501	Sample number(s): 9276680 UNSPK: P275098									
Aluminum	0.406	2.00	2.88	2.00	2.94	124	127*	75-125	2	20
Boron	1.77	2.00	3.60	2.00	3.61	91	92	75-125	0	20
Calcium	244.35	4.00	246.5	4.00	245.78	54 (2)	36 (2)	75-125	0	20
Iron	0.632	1.00	1.69	1.00	1.69	106	106	75-125	0	20
Magnesium	402.08	2.00	397.35	2.00	398.35	-236 (2)	-186 (2)	75-125	0	20
Manganese	0.577	0.500	1.05	0.500	1.06	95	96	75-125	0	20
Potassium	143.53	10	151.89	10	152.36	84 (2)	88 (2)	75-125	0	20
Sodium	3839.97	10	3752.67	10	3755.71	-873 (2)	-843 (2)	75-125	0	20
Zinc	0.0065 U	0.500	0.491	0.500	0.492	98	98	75-125	0	20
Batch number: 172961063901A	Sample number(s): 9276680 UNSPK: P275098									
Antimony	0.000478	0.00600	0.00653	0.00600	0.00567	101	87	75-125	14	20
Arsenic	0.00739	0.0100	0.0188	0.0100	0.0178	115	104	75-125	6	20
Beryllium	0.000071 U	0.00400	0.00386	0.00400	0.00389	96	97	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00478	0.00500	0.00443	96	89	75-125	8	20
Chromium	0.00438	0.0500	0.0517	0.0500	0.0490	95	89	75-125	5	20
Cobalt	0.000672	0.250	0.262	0.250	0.250	104	100	75-125	5	20
Copper	0.00403	0.0500	0.0560	0.0500	0.0540	104	100	75-125	4	20
Lead	0.00775	0.0150	0.0214	0.0150	0.0211	91	89	75-125	1	20
Nickel	0.00164	0.0500	0.0528	0.0500	0.0525	102	102	75-125	1	20
Silver	0.00015 U	0.0500	0.0453	0.0500	0.0439	91	88	75-125	3	20
Thallium	0.00012 U	0.00200	0.00198	0.00200	0.00178	99	89	75-125	11	20
Vanadium	0.00830	0.0500	0.0587	0.0500	0.0572	101	98	75-125	2	20
Batch number: 172961063901B	Sample number(s): 9276680 UNSPK: P275098									
Selenium	0.000513	0.0100	0.00834	0.0100	0.00814	78	76	75-125	2	20
Batch number: 172961063901D	Sample number(s): 9276680 UNSPK: P275098									
Barium	0.630	0.0500	0.685	0.0500	0.674	109 (2)	87 (2)	75-125	2	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17294987117A	Sample number(s): 9276680 UNSPK: P276622									
Bromide	1.3 U	25	31.53			126*		90-110		
Chloride	59.7	40	117.82			145*		90-110		
Nitrate Nitrogen	0.270	2.50	3.41			126*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.95			118*		90-110		
Sulfate	24.29	25	58.14			135*		90-110		
Batch number: 17299108101B	Sample number(s): 9276680 UNSPK: P274084									

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Kjeldahl Nitrogen	0.644	5.00	6.07			108		90-110		
Batch number: 17303117101A	Sample number(s): 9276680 UNSPK: P275799									
Total Cyanide	0.0050 U	0.200	0.163			81		72-114		
Batch number: 17309107102B	Sample number(s): 9276680 UNSPK: P283539									
Ammonia Nitrogen	0.168	1.00	1.09			93		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17297006104A	Sample number(s): 9276680 UNSPK: P268920									
Total Alkalinity to pH 4.5	215.49	188	306.9			49*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172960571302	Sample number(s): 9276680 BKG: P275098			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 172961063501	Sample number(s): 9276680 BKG: P275098			
Aluminum	0.406	0.506	22* (1)	20
Boron	1.77	1.76	1	20
Calcium	244.35	244.41	0	20
Iron	0.632	0.681	8 (1)	20
Magnesium	402.08	399.28	1	20
Manganese	0.577	0.578	0	20
Potassium	143.53	142.42	1	20
Sodium	3839.97	3725.62	3	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172961063901A	Sample number(s): 9276680 BKG: P275098			
Antimony	0.000478	0.00045 U	200* (1)	20
Arsenic	0.00739	0.00776	5 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00438	0.00431	1 (1)	20
Cobalt	0.000672	0.000695	3 (1)	20
Copper	0.00403	0.00409	2 (1)	20

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Lead	0.00775	0.00828	7 (1)	20
Nickel	0.00164	0.00181	10 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00830	0.00867	4	20
Batch number: 172961063901B	Sample number(s): 9276680 BKG: P275098			
Selenium	0.000513	0.00050 U	200* (1)	20
Batch number: 172961063901D	Sample number(s): 9276680 BKG: P275098			
Barium	0.630	0.665	5	20
	mg/l	mg/l		
Batch number: 17294987117A	Sample number(s): 9276680 BKG: P276622			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	59.7	59.49	0	15
Nitrate Nitrogen	0.270	0.251	7 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	24.29	24.09	1 (1)	15
Batch number: 17299108101B	Sample number(s): 9276680 BKG: P274084			
Kjeldahl Nitrogen	0.644	0.698	8 (1)	20
Batch number: 17303117101A	Sample number(s): 9276680 BKG: P275799			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17309107102B	Sample number(s): 9276680 BKG: P283539			
Ammonia Nitrogen	0.168	0.173	3 (1)	20
	mg/l	mg/l		
Batch number: 17295022601A	Sample number(s): 9276680 BKG: 9276680			
Ortho-Phosphate as P	0.0549	0.0493	11* (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17297006104A	Sample number(s): 9276680 BKG: P268920			
Total Alkalinity to pH 4.5	215.49	216.93	1	5

Surrogate Quality Control

*- Outside of specification
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5172982AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9276680	104	106	104	104
Blank	97	104	104	100
LCS	101	104	104	105
MS	102	106	104	109
MSD	100	102	105	108
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17296WAI026

	1,4-Dioxane-d8
9276680	46*
Blank	42*
LCS	50*
MS	39*
MSD	41*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9276680	88	104	117	74	77	82
9276681	79	77	79	89	84	85
9276682	81	83	78	79	69	68
Blank	89	88	86	93	98	96
LCS	112	101	105	113	105	113
LCSD	93	85	82	96	94	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9276680	109	84	93	106	91	90
9276681	70	80	82	78	74	63
9276682	63	74	77	67	74	61
Blank	91	95	88	89	90	75
LCS	91	107	103	99	102	82
LCSD	75	101	99	87	85	76
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:00

Group Number: 1865808

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9276680	87	88	92	84	82	22*
9276681	67	74	75	79	78	46*
9276682	63	78	77	81	68	53*
Blank	83	100	91	100	94	75
LCS	105	108	118	115	110	79
LCSD	88	86	100	94	85	59*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1865808 Sample # 9276680-82

COC # 555841

Client Information

Client: Barr Engineering Co

Acct. #:

Project Name/#: SGPP-North Bennington

PWSID #:

Project Manager: JTC

P.O. #: 3242100603

Sampler: Dan King

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ | Other: Rinse water

Analysis Requested

Preservation and Filtration Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	O	N			S	F	H	B		
						250 mL w/Trizma	250 mL – HNO_3	40mL glass – unpres.	250mL	500 mL – H_2SO_4	250mL	40mL Glass–HCl	500mL Plastic–NaOH/ascorbic	250mL Glass	
SG3-DUP-171020	10/20/17	13:35	✓		15	2	2	2	1	1	1	3	1	2	(19) PFCs, Metals/cations (including CrVI+Hg), anions, ammonia, TKN, orthophosphate, 1,4-Dioxane, SOM02, 2 VOCs, Alkalinity (carb, bicarb), Nitrogen (nitrate/nitrite), bromide, chloride, sulfate
SG3-LTB87-171020	↓	15:30			2	2									
SG3-FTB88-171020		15:35			2	2									

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Analyses:

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: mdupay@barr.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/20/17	15:50			
				10/21/17	1000

EDD Required? Yes No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx ✓ Other

Temperature upon receipt 0.0/2.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 198397

Group Number(s): 186508

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/21/2017 10:00
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 12:02 on 10/21/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.6	DT	Wet	Y	Bagged	N
2	32170023	2.6	IR	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 24, 2017 10:46

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1865809
SDG: SNB02
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB01-171020 Grab Rinse Water	10/20/2017 15:30	9276683
SG3-RB02-171020 Grab Rinse Water	10/20/2017 15:35	9276684

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1865809

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9276683, 9276684

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17295001 (Sample number(s): 9276683-9276684)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9276683, 9276684, Blank, LCS, LCSD

Sample Description: **SG3-RB01-171020 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:30
SDG#: SNB02-01RB

C. T. Male Associates
ELLE Sample #: WW 9276683
ELLE Group #: 1865809
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17295001	10/22/2017 20:03	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17295001	10/22/2017 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RB02-171020 Grab Rinse Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 15:35
SDG#: SNB02-02RB

C. T. Male Associates
ELLE Sample #: WW 9276684
ELLE Group #: 1865809
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17295001	10/22/2017 20:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17295001	10/22/2017 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/24/2017 10:46

Group Number: 1865809

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17295001	Sample number(s): 9276683-9276684		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17295001	Sample number(s): 9276683-9276684								
6:2 fluorotelomersulfonate	15.17	16.54	15.17	14.53	109	96	70-130	13	30
8:2 fluorotelomersulfonate	15.33	18.92	15.33	18.88	123	123	70-130	0	30
NEtFOSAA	5.44	5.78	5.44	5.90	106	108	70-130	2	30
NMeFOSAA	5.44	6.65	5.44	5.80	122	107	70-130	14	30
Perfluorobutanesulfonate	4.81	4.93	4.81	5.28	102	110	70-130	7	30
Perfluorobutanoic acid	5.44	6.00	5.44	5.76	110	106	70-130	4	30
Perfluorodecanoic acid	5.44	6.28	5.44	5.91	115	109	70-130	6	30
Perfluorododecanoic acid	5.44	5.46	5.44	6.05	100	111	70-130	10	30
Perfluoroheptanoic acid	5.44	6.42	5.44	6.46	118	119	70-130	1	30
Perfluorohexanesulfonate	5.14	5.85	5.14	4.86	114	95	70-130	19	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/24/2017 10:46

Group Number: 1865809

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.42	5.44	5.91	118	109	70-130	8	30
Perfluorononanoic acid	5.44	5.91	5.44	5.73	109	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.96	5.44	5.33	110	98	70-130	11	30
Perfluoro-octanesulfonate	5.20	5.56	5.20	5.75	107	111	70-130	3	30
Perfluorooctanoic acid	5.44	6.55	5.44	6.40	120	118	70-130	2	30
Perfluoropentanoic acid	5.44	6.21	5.44	5.35	114	98	70-130	15	30
Perfluorotetradecanoic acid	5.44	5.81	5.44	5.92	107	109	70-130	2	30
Perfluorotridecanoic acid	5.44	6.35	5.44	6.22	117	114	70-130	2	30
Perfluoroundecanoic acid	5.44	6.43	5.44	6.02	118	111	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17295001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9276683	85	78	75	81	79	80
9276684	89	87	91	103	92	94
Blank	79	76	77	82	74	83
LCS	87	84	88	94	86	82
LCSD	85	94	81	81	78	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9276683	80	88	84	88	81	62
9276684	75	91	92	90	88	70
Blank	60	81	65	69	74	59
LCS	74	85	83	86	90	66
LCSD	87	81	79	80	85	68
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9276683	58	81	85	77	75	50*
9276684	72	95	81	79	79	65*
Blank	59	76	75	72	68	54*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1865809
Reported: 10/24/2017 10:46

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17295001

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	69	86	82	86	80	69*
LCSD	71	86	72	75	76	65*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 37191 Group # 1865809 Sample # 9276683-84

COC # 555842

Client Information

Client: CT Male Associates / Barr Engineering Co.

Acct. #:

Project Name/#: SGPP – North Bennington

PWSID #:

Project Manager: Kirk Moline

P.O. #: 166131

Sampler: Dan King

Quote #:

State where samples were collected: VT

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other: Rinse Water

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	19 PFAS	Remarks
SG3-RB01-171020	10/20/17	15:30	✓		2	✓	Rope
SG3-RB02-171020	10/20/17	15:35	✓		2	✓	DTW Meter

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 24h TAT 10/24/17

E-mail address: k.moline@ctmale.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type III (Reduced non-CLP)

Type VI (Raw Data Only)

NJ DKQP

TX TRRP-13

(NYSDEC Category A or B)

MA MCP

CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10/20/17	15:50			
				10/21/17	1000

EDD Required? (Yes) No

If yes, format: EQuIS

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.6/2.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 198397

Group Number(s): 1865809

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/21/2017 10:00
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 12:13 on 10/21/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.6	DT	Wet	Y	Bagged	N
2	32170023	2.6	IR	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 10, 2017 12:07

Project: SGPP - Bennington

Account #: 37191
Group Number: 1865830
SDG: SNB03
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR4-0-0.5' Grab Soil	10/20/2017 12:10	9276816
SG3-MW-BR4-0.5-1' Grab Soil	10/20/2017 12:15	9276817
SG3-MW-BR4-1-1.5' Grab Soil	10/20/2017 12:20	9276818
SG3-MW-BR4-3-4' Grab Soil	10/20/2017 12:30	9276819
SG3-LTB85-171020 Blank Water	10/20/2017	9276820
SG3-LTB86-171020 Blank Water	10/20/2017	9276821
SG3-MW-BR4-8-9' Grab Soil	10/20/2017 12:35	9276822
SG3-MW-BR4-19-20' Grab Soil	10/20/2017 12:45	9276823

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1865830

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9276820

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Batch #: 17299009 (Sample number(s): 9276820-9276821)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9276820, LCSD

SW-846 6010C, Metals

Batch #: 172961063701 (Sample number(s): 9276816-9276819, 9276822-9276823 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Magnesium, Potassium, Manganese

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Manganese

SW-846 6020A, Metals

Batch #: 172961063701A (Sample number(s): 9276816-9276819, 9276822-9276823 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Thallium, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

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Batch #: 172961063701D (Sample number(s): 9276816-9276819, 9276822-9276823 UNSPK: P272435 BKG: P272435)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9276823

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17311667633A (Sample number(s): 9276816-9276819, 9276822-9276823 UNSPK: 9276823 BKG: 9276823)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9276818, 9276822

The pH was measured in water at 19.4 C.

Sample #s: 9276817, 9276823

The pH was measured in water at 19.5 C.

Sample #s: 9276819

The pH was measured in water at 19.6 C.

Sample #s: 9276816

The pH was measured in water at 19.9 C.

Sample Description: **SG3-MW-BR4-0-0.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:10
SDG#: SNB03-01

C. T. Male Associates
ELLE Sample #: SW 9276816
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.35 J**	0.19	0.58	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.30 J**	0.19	0.58	1
14027	**Perfluorododecanoic acid**	307-55-1	**0.35 J**	0.19	0.58	1
14027	**Perfluoroheptanoic acid**	375-85-9	**0.20 J**	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.20 J**	0.097	0.39	1
14027	**Perfluorononanoic acid**	375-95-1	**0.27 J**	0.097	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.0**	0.29	0.87	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.30 J**	0.19	0.58	1
14027	**Perfluoropentanoic acid**	2706-90-3	**0.20 J**	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**0.20 J**	0.19	0.58	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.48 J**	0.19	0.58	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,280**	9.20	41.2	1
01650	**Calcium**	7440-70-2	**45,800**	3.43	41.2	1
01654	**Iron**	7439-89-6	**11,600**	8.28	41.2	1
01657	**Magnesium**	7439-95-4	**22,800**	2.50	20.6	1
06958	**Manganese**	7439-96-5	**453**	0.0854	1.03	1
01662	**Potassium**	7440-09-7	**663**	17.2	103	1
01667	**Sodium**	7440-23-5	**35.5 J**	17.2	206	1
06972	**Zinc**	7440-66-6	**46.8**	0.247	4.12	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.144 J**	0.0959	0.412	2
06125	**Arsenic**	7440-38-2	**4.25**	0.132	0.823	2
06126	**Barium**	7440-39-3	**40.2**	0.187	0.823	2
06127	**Beryllium**	7440-41-7	**0.181 J**	0.0108	0.206	2
06128	**Cadmium**	7440-43-9	**0.126 J**	0.0354	0.206	2
06131	**Chromium**	7440-47-3	**5.58**	0.179	0.823	2
06132	**Cobalt**	7440-48-4	**11.6**	0.0321	0.206	2
06133	**Copper**	7440-50-8	**11.7**	0.110	0.823	2
06135	**Lead**	7439-92-1	**8.83**	0.0228	0.412	2
06139	**Nickel**	7440-02-0	**10.6**	0.205	0.823	2
06141	**Selenium**	7782-49-2	**0.207 J**	0.103	0.823	2
06142	Silver	7440-22-4	0.0300 U	0.0300	0.206	2
06145	**Thallium**	7440-28-0	**0.0805 J**	0.0257	0.206	2
06148	**Vanadium**	7440-62-2	**21.4**	0.0438	0.206	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-0-0.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:10
SDG#: SNB03-01

C. T. Male Associates
ELLE Sample #: SW 9276816
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**62,000**	1,660	4,990	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.76**	0.0100	0.0100	1
	The pH was measured in water at 19.9 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**15.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 22:10	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:14	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:08	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:56	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-0-0.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:10
SDG#: SNB03-01

C. T. Male Associates
ELLE Sample #: SW 9276816
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:56	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 12:49	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-0.5-1' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:15
SDG#: SNB03-02

C. T. Male Associates
ELLE Sample #: SW 9276817
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.64	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.64	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.64	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.64	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.64	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.64	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.43	1
14027	**Perfluorononanoic acid**	375-95-1	**0.12 J**	0.11	0.43	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.55 J**	0.32	0.96	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.64	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.64	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.64	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.64	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**0.30 J**	0.21	0.64	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,610**	7.83	35.0	1
01650	**Calcium**	7440-70-2	**55,500**	14.6	175	5
01654	**Iron**	7439-89-6	**10,100**	7.05	35.0	1
01657	**Magnesium**	7439-95-4	**28,000**	2.13	17.5	1
06958	**Manganese**	7439-96-5	**229**	0.0727	0.876	1
01662	**Potassium**	7440-09-7	**513**	14.6	87.6	1
01667	**Sodium**	7440-23-5	**38.8 J**	14.6	175	1
06972	**Zinc**	7440-66-6	**29.5**	0.210	3.50	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0990 J**	0.0816	0.350	2
06125	**Arsenic**	7440-38-2	**4.46**	0.112	0.701	2
06126	**Barium**	7440-39-3	**22.4**	0.159	0.701	2
06127	**Beryllium**	7440-41-7	**0.149 J**	0.0092	0.175	2
06128	**Cadmium**	7440-43-9	**0.0932 J**	0.0301	0.175	2
06131	**Chromium**	7440-47-3	**5.19**	0.152	0.701	2
06132	**Cobalt**	7440-48-4	**4.75**	0.0273	0.175	2
06133	**Copper**	7440-50-8	**6.89**	0.0939	0.701	2
06135	**Lead**	7439-92-1	**8.01**	0.0194	0.350	2
06139	**Nickel**	7440-02-0	**7.46**	0.174	0.701	2
06141	**Selenium**	7782-49-2	**0.192 J**	0.0876	0.701	2
06142	**Silver**	7440-22-4	**0.0263 J**	0.0256	0.175	2
06145	**Thallium**	7440-28-0	**0.0524 J**	0.0219	0.175	2
06148	**Vanadium**	7440-62-2	**12.6**	0.0373	0.175	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-0.5-1' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:15
SDG#: SNB03-02

C. T. Male Associates
ELLE Sample #: SW 9276817
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**34,500**	1,580	4,750	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.04**	0.0100	0.0100	1
	The pH was measured in water at 19.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 23:12	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:47	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:18	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:09	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 22:59	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-0.5-1' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:15
SDG#: SNB03-02

C. T. Male Associates
ELLE Sample #: SW 9276817
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 22:59	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 13:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-1-1.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:20
SDG#: SNB03-03

C. T. Male Associates
ELLE Sample #: SW 9276818
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.28 J**	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,650**	8.76	39.2	1
01650	**Calcium**	7440-70-2	**73,800**	16.3	196	5
01654	**Iron**	7439-89-6	**18,000**	7.89	39.2	1
01657	**Magnesium**	7439-95-4	**30,700**	2.38	19.6	1
06958	**Manganese**	7439-96-5	**229**	0.0814	0.980	1
01662	**Potassium**	7440-09-7	**555**	16.4	98.0	1
01667	**Sodium**	7440-23-5	**41.6 J**	16.4	196	1
06972	**Zinc**	7440-66-6	**31.0**	0.235	3.92	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0914 U	0.0914	0.392	2
06125	**Arsenic**	7440-38-2	**4.80**	0.125	0.784	2
06126	**Barium**	7440-39-3	**19.3**	0.178	0.784	2
06127	**Beryllium**	7440-41-7	**0.184 J**	0.0103	0.196	2
06128	**Cadmium**	7440-43-9	**0.0698 J**	0.0337	0.196	2
06131	**Chromium**	7440-47-3	**6.91**	0.171	0.784	2
06132	**Cobalt**	7440-48-4	**7.91**	0.0306	0.196	2
06133	**Copper**	7440-50-8	**11.0**	0.105	0.784	2
06135	**Lead**	7439-92-1	**5.09**	0.0218	0.392	2
06139	**Nickel**	7440-02-0	**9.45**	0.195	0.784	2
06141	**Selenium**	7782-49-2	**0.161 J**	0.0980	0.784	2
06142	Silver	7440-22-4	0.0286 U	0.0286	0.196	2
06145	**Thallium**	7440-28-0	**0.0359 J**	0.0245	0.196	2
06148	**Vanadium**	7440-62-2	**7.10**	0.0418	0.196	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-1-1.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:20
SDG#: SNB03-03

C. T. Male Associates
ELLE Sample #: SW 9276818
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,100**	1,420	4,250	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.64**	0.0100	0.0100	1
	The pH was measured in water at 19.4 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**6.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 23:33	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:50	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:22	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 23:02	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-1-1.5' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:20
SDG#: SNB03-03

C. T. Male Associates
ELLE Sample #: SW 9276818
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 23:02	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 21:42	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:30
SDG#: SNB03-04

C. T. Male Associates
ELLE Sample #: SW 9276819
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	Perfluorobutanoic acid	375-22-4	0.17 U	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.085 U	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.77	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,900**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**63,200**	13.9	167	5
01654	**Iron**	7439-89-6	**46,600**	33.5	167	5
01657	**Magnesium**	7439-95-4	**29,400**	2.02	16.7	1
06958	**Manganese**	7439-96-5	**4,480**	0.345	4.16	5
01662	**Potassium**	7440-09-7	**577**	13.9	83.3	1
01667	**Sodium**	7440-23-5	**32.6 J**	13.9	167	1
06972	**Zinc**	7440-66-6	**66.5**	0.200	3.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.142 J**	0.0776	0.333	2
06125	**Arsenic**	7440-38-2	**6.03**	0.107	0.666	2
06126	**Barium**	7440-39-3	**192**	0.151	0.666	2
06127	**Beryllium**	7440-41-7	**0.192**	0.0087	0.167	2
06128	**Cadmium**	7440-43-9	**0.162 J**	0.0286	0.167	2
06131	**Chromium**	7440-47-3	**4.14**	0.145	0.666	2
06132	**Cobalt**	7440-48-4	**7.94**	0.0260	0.167	2
06133	**Copper**	7440-50-8	**9.33**	0.0892	0.666	2
06135	**Lead**	7439-92-1	**6.47**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**27.7**	0.166	0.666	2
06141	**Selenium**	7782-49-2	**0.157 J**	0.0833	0.666	2
06142	**Silver**	7440-22-4	**0.0353 J**	0.0243	0.167	2
06145	**Thallium**	7440-28-0	**0.168**	0.0208	0.167	2
06148	**Vanadium**	7440-62-2	**5.30**	0.0355	0.167	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:30
SDG#: SNB03-04

C. T. Male Associates
ELLE Sample #: SW 9276819
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**20,400**	1,330	3,990	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**7.6**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/27/2017 23:53	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:26	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:53	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/26/2017 09:31	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172961063701	10/24/2017 17:26	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	172961063701	10/26/2017 09:31	Patrick J Engle	5
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:26	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:26	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:26	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/24/2017 23:05	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 23:05	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-3-4' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:30
SDG#: SNB03-04

C. T. Male Associates
ELLE Sample #: SW 9276819
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 23:05	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 21:55	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB85-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017
SDG#: SNB03-05TB

C. T. Male Associates
ELLE Sample #: WW 9276820
ELLE Group #: 1865830
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 16:40	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB86-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017
SDG#: SNB03-06TB

C. T. Male Associates
ELLE Sample #: WW 9276821
ELLE Group #: 1865830
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 17:41	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-8-9' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:35
SDG#: SNB03-07

C. T. Male Associates
ELLE Sample #: SW 9276822
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.094 U	0.094	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.094 U	0.094	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,060**	8.09	36.2	1
01650	**Calcium**	7440-70-2	**99,700**	15.1	181	5
01654	**Iron**	7439-89-6	**34,800**	36.4	181	5
01657	**Magnesium**	7439-95-4	**52,100**	11.0	90.5	5
06958	**Manganese**	7439-96-5	**440**	0.0751	0.905	1
01662	**Potassium**	7440-09-7	**507**	15.1	90.5	1
01667	**Sodium**	7440-23-5	**44.5 J**	15.1	181	1
06972	**Zinc**	7440-66-6	**38.0**	0.217	3.62	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.131 J**	0.0844	0.362	2
06125	**Arsenic**	7440-38-2	**16.0**	0.116	0.724	2
06126	**Barium**	7440-39-3	**48.3**	0.164	0.724	2
06127	**Beryllium**	7440-41-7	**0.240**	0.0095	0.181	2
06128	**Cadmium**	7440-43-9	**0.124 J**	0.0311	0.181	2
06131	**Chromium**	7440-47-3	**6.34**	0.158	0.724	2
06132	**Cobalt**	7440-48-4	**16.5**	0.0282	0.181	2
06133	**Copper**	7440-50-8	**15.2**	0.0970	0.724	2
06135	**Lead**	7439-92-1	**7.79**	0.0201	0.362	2
06139	**Nickel**	7440-02-0	**14.1**	0.180	0.724	2
06141	**Selenium**	7782-49-2	**0.187 J**	0.0905	0.724	2
06142	**Silver**	7440-22-4	**0.0387 J**	0.0264	0.181	2
06145	**Thallium**	7440-28-0	**0.0936 J**	0.0226	0.181	2
06148	**Vanadium**	7440-62-2	**5.67**	0.0386	0.181	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-8-9' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:35
SDG#: SNB03-07

C. T. Male Associates
ELLE Sample #: SW 9276822
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,700**	1,680	5,040	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.71**	0.0100	0.0100	1
	The pH was measured in water at 19.4 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**8.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/28/2017 00:14	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:30	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/26/2017 19:57	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172961063701	10/26/2017 09:35	Patrick J Engle	5
01657	Magnesium	SW-846 6010C	1	172961063701	10/26/2017 19:57	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:30	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:30	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:30	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:30	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:13	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 23:08	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-8-9' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:35
SDG#: SNB03-07

C. T. Male Associates
ELLE Sample #: SW 9276822
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 23:08	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 22:08	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-19-20' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:45
SDG#: SNB03-08

C. T. Male Associates
ELLE Sample #: SW 9276823
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.088 U	0.088	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.088 U	0.088	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.79	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,410**	9.51	42.5	1
01650	**Calcium**	7440-70-2	**3,500**	3.54	42.5	1
01654	**Iron**	7439-89-6	**4,980**	8.56	42.5	1
01657	**Magnesium**	7439-95-4	**1,670**	2.58	21.3	1
06958	**Manganese**	7439-96-5	**113**	0.0882	1.06	1
01662	**Potassium**	7440-09-7	**678**	17.8	106	1
01667	**Sodium**	7440-23-5	**20.4 J**	17.8	213	1
06972	**Zinc**	7440-66-6	**15.3**	0.255	4.25	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0991 U	0.0991	0.425	2
06125	**Arsenic**	7440-38-2	**2.31**	0.136	0.851	2
06126	**Barium**	7440-39-3	**17.4**	0.193	0.851	2
06127	**Beryllium**	7440-41-7	**0.187 J**	0.0111	0.213	2
06128	**Cadmium**	7440-43-9	**0.0534 J**	0.0366	0.213	2
06131	**Chromium**	7440-47-3	**3.11**	0.185	0.851	2
06132	**Cobalt**	7440-48-4	**4.44**	0.0332	0.213	2
06133	**Copper**	7440-50-8	**3.81**	0.114	0.851	2
06135	**Lead**	7439-92-1	**4.48**	0.0236	0.425	2
06139	**Nickel**	7440-02-0	**3.52**	0.212	0.851	2
06141	Selenium	7782-49-2	0.106 U	0.106	0.851	2
06142	Silver	7440-22-4	0.0310 U	0.0310	0.213	2
06145	**Thallium**	7440-28-0	**0.0751 J**	0.0266	0.213	2
06148	**Vanadium**	7440-62-2	**3.98**	0.0453	0.213	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-19-20' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:45
SDG#: SNB03-08

C. T. Male Associates
ELLE Sample #: SW 9276823
ELLE Group #: 1865830
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**275**	**J**	117	352	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.78**		0.0100	0.0100	1
	The pH was measured in water at 19.5 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17298009	10/28/2017 00:34	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17298009	10/25/2017 19:10	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
01654	Iron	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	172961063701	10/26/2017 20:00	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	172961063701	10/24/2017 17:34	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	172961063701D	10/26/2017 10:15	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-19-20' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 12:45
SDG#: SNB03-08

C. T. Male Associates
ELLE Sample #: SW 9276823
ELLE Group #: 1865830
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	172961063701B	10/24/2017 23:11	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	172961063701A	10/24/2017 23:11	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172961063701	10/23/2017 21:48	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17311667633A	11/08/2017 17:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17299039402B	10/26/2017 19:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820004A	10/26/2017 14:14	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17298009	Sample number(s): 9276816-9276819,9276822-9276823		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17299009	Sample number(s): 9276820-9276821		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 172961063701	Sample number(s): 9276816-9276819,9276822-9276823		
Aluminum	12.3 J	8.94	40.0
Calcium	10.1 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.69 J	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172961063701A	Sample number(s): 9276816-9276819,9276822-9276823		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172961063701B	Sample number(s): 9276816-9276819,9276822-9276823		
Selenium	0.100 U	0.100	0.800
Batch number: 172961063701D	Sample number(s): 9276816-9276819,9276822-9276823		
Barium	0.182 U	0.182	0.800
Batch number: 17311667633A	Sample number(s): 9276816-9276819,9276822-9276823		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9276816-9276819,9276822-9276823								
Perfluorobutanesulfonate	1.20	1.24			103		70-130		
Perfluorobutanoic acid	1.36	1.46			107		70-130		
Perfluorodecanoic acid	1.36	1.28			94		70-130		
Perfluorododecanoic acid	1.36	1.31			96		70-130		
Perfluoroheptanoic acid	1.36	1.41			103		70-130		
Perfluorohexanesulfonate	1.29	1.05			82		70-130		
Perfluorohexanoic acid	1.36	1.35			99		70-130		
Perfluorononanoic acid	1.36	1.50			110		70-130		
Perfluoro-octanesulfonate	1.30	1.53			118		70-130		
Perfluorooctanoic acid	1.36	1.35			100		70-130		
Perfluoropentanoic acid	1.36	1.39			102		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	1.36	1.45			106		70-130		
Perfluorotridecanoic acid	1.36	1.35			99		70-130		
Perfluoroundecanoic acid	1.36	1.38			102		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299009	Sample number(s): 9276820-9276821								
Perfluorobutanesulfonate	4.81	5.09	4.81	4.94	106	103	70-130	3	30
Perfluorobutanoic acid	5.44	5.65	5.44	5.36	104	98	70-130	5	30
Perfluorodecanoic acid	5.44	5.77	5.44	5.26	106	97	70-130	9	30
Perfluorododecanoic acid	5.44	5.70	5.44	4.98	105	91	70-130	14	30
Perfluoroheptanoic acid	5.44	5.62	5.44	5.71	103	105	70-130	2	30
Perfluorohexanesulfonate	5.14	4.79	5.14	4.31	93	84	70-130	10	30
Perfluorohexanoic acid	5.44	5.19	5.44	5.32	95	98	70-130	2	30
Perfluorononanoic acid	5.44	5.71	5.44	5.43	105	100	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.82	5.20	4.56	93	88	70-130	6	30
Perfluorooctanoic acid	5.44	5.20	5.44	4.37	96	80	70-130	17	30
Perfluoropentanoic acid	5.44	5.43	5.44	5.13	100	94	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.41	5.44	4.95	99	91	70-130	9	30
Perfluorotridecanoic acid	5.44	5.04	5.44	4.33	93	80	70-130	15	30
Perfluoroundecanoic acid	5.44	5.50	5.44	5.76	101	106	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172961063701	Sample number(s): 9276816-9276819,9276822-9276823								
Aluminum	200	222.61			111		80-120		
Calcium	400	421.37			105		80-120		
Iron	100	100.77			101		80-120		
Magnesium	200	212.27			106		80-120		
Manganese	50	50.33			101		80-120		
Potassium	1000	1033.32			103		80-120		
Sodium	1000	1006.14			101		80-120		
Zinc	50	50.57			101		80-120		
Batch number: 172961063701A	Sample number(s): 9276816-9276819,9276822-9276823								
Antimony	0.600	0.562			94		80-120		
Arsenic	1.00	0.989			99		80-120		
Beryllium	0.400	0.408			102		80-120		
Cadmium	0.500	0.485			97		80-120		
Chromium	5.00	4.78			96		80-120		
Cobalt	25	24.25			97		80-120		
Copper	5.00	5.13			103		80-120		
Lead	1.50	1.45			97		80-120		
Nickel	5.00	4.88			98		80-120		
Silver	5.00	4.80			96		80-120		
Thallium	0.200	0.193			97		80-120		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Vanadium	5.00	4.74			95		80-120		
Batch number: 172961063701B	Sample number(s): 9276816-9276819,9276822-9276823								
Selenium	1.00	1.04			104		80-120		
Batch number: 172961063701D	Sample number(s): 9276816-9276819,9276822-9276823								
Barium	5.00	5.04			101		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17311667633A	Sample number(s): 9276816-9276819,9276822-9276823								
TOC	7150	6365.71			89		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17299039402B	Sample number(s): 9276816-9276819,9276822-9276823								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17299820004A	Sample number(s): 9276816-9276819,9276822-9276823								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17298009	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: P265116									
Perfluorobutanesulfonate	0.15 U	1.09	1.01	1.15	1.28	93	112	70-130	23	30
Perfluorobutanoic acid	0.15 U	1.24	1.36	1.30	1.38	110	107	70-130	2	30
Perfluorodecanoic acid	0.15 U	1.24	1.26	1.30	1.27	102	98	70-130	1	30
Perfluorododecanoic acid	0.15 U	1.24	1.25	1.30	1.34	101	103	70-130	7	30
Perfluoroheptanoic acid	0.15 U	1.24	1.57	1.30	1.41	127	109	70-130	11	30
Perfluorohexanesulfonate	0.15 U	1.17	1.05	1.23	1.18	90	96	70-130	12	30
Perfluorohexanoic acid	0.075 U	1.24	1.23	1.30	1.24	100	96	70-130	1	30
Perfluorononanoic acid	0.075 U	1.24	1.51	1.30	1.30	122	100	70-130	15	30
Perfluoro-octanesulfonate	0.23 U	1.18	1.15	1.24	0.934	97	75	70-130	21	30
Perfluorooctanoic acid	0.15 U	1.24	1.16	1.30	1.20	94	92	70-130	3	30
Perfluoropentanoic acid	0.15 U	1.24	1.26	1.30	1.29	102	100	70-130	3	30
Perfluorotetradecanoic acid	0.15 U	1.24	1.28	1.30	1.25	104	97	70-130	2	30
Perfluorotridecanoic acid	0.15 U	1.24	1.21	1.30	1.20	98	92	70-130	1	30
Perfluoroundecanoic acid	0.15 U	1.24	1.25	1.30	1.48	101	114	70-130	17	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172961063701	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: P272435									
Aluminum	9978.56	162.6	13095.54	188.68	13603.01	1917 (2)	1921 (2)	75-125	4	20
Calcium	2004.23	325.2	2247.99	377.36	2381.83	75 (2)	100 (2)	75-125	6	20
Iron	16381.64	81.3	17418.85	94.34	16702.75	1276 (2)	340 (2)	75-125	4	20
Magnesium	2355.91	162.6	2833.18	188.68	2862.45	294 (2)	268 (2)	75-125	1	20
Manganese	358.9	40.65	391.13	47.17	488.91	79 (2)	276 (2)	75-125	22*	20
Potassium	1095.27	813.01	3032.51	943.4	3392.37	238*	243*	75-125	11	20
Sodium	59.29	813.01	883.18	943.4	1010.37	101	101	75-125	13	20
Zinc	41.46	40.65	81.01	47.17	87.61	97	98	75-125	8	20
Batch number: 172961063701A	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: P272435									
Antimony	0.122	0.976	0.821	1.13	0.929	72*	71*	75-125	12	20
Arsenic	7.74	1.63	9.27	1.89	10.03	94 (2)	121 (2)	75-125	8	20
Beryllium	0.375	0.650	1.01	0.755	1.15	98	102	75-125	13	20
Cadmium	0.143	0.813	1.00	0.943	0.985	106	89	75-125	2	20
Chromium	9.22	8.13	16.8	9.43	19.83	93	112	75-125	17	20
Cobalt	6.38	40.65	47.31	47.17	54.71	101	102	75-125	15	20
Copper	10.53	8.13	18.2	9.43	20.87	94	110	75-125	14	20
Lead	12.83	2.44	14.27	2.83	15.96	59 (2)	110 (2)	75-125	11	20
Nickel	11.79	8.13	20.06	9.43	22.86	102	117	75-125	13	20
Silver	0.0395	8.13	8.07	9.43	9.53	99	101	75-125	17	20
Thallium	0.178	0.325	0.381	0.377	0.450	62*	72*	75-125	17	20
Vanadium	13.26	8.13	21.42	9.43	24.54	100	120	75-125	14	20
Batch number: 172961063701B	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: P272435									
Selenium	0.279	1.63	1.95	1.89	2.31	103	108	75-125	17	20
Batch number: 172961063701D	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: P272435									
Barium	47.45	8.13	58.3	9.43	67.01	133 (2)	207 (2)	75-125	14	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17311667633A	Sample number(s): 9276816-9276819,9276822-9276823 UNSPK: 9276823									
TOC	241.31	14400	17240.88			118		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172961063701	Sample number(s): 9276816-9276819,9276822-9276823 BKG: P272435			
Aluminum	9978.56	9295.56	7	20
Calcium	2004.23	2045.12	2	20
Iron	16381.64	15639.88	5	20
Magnesium	2355.91	2255.87	4	20
Manganese	358.9	397.72	10	20
Potassium	1095.27	960.56	13	20
Sodium	59.29	55.4	7 (1)	20
Zinc	41.46	40.59	2	20
Batch number: 172961063701A	Sample number(s): 9276816-9276819,9276822-9276823 BKG: P272435			
Antimony	0.122	0.105	14 (1)	20
Arsenic	7.74	7.56	2	20
Beryllium	0.375	0.368	2 (1)	20
Cadmium	0.143	0.149	4 (1)	20
Chromium	9.22	9.29	1	20
Cobalt	6.38	6.48	2	20
Copper	10.53	9.89	6	20
Lead	12.83	12.74	1	20
Nickel	11.79	11.8	0	20
Silver	0.0395	0.0464	16 (1)	20
Thallium	0.178	0.143	22* (1)	20
Vanadium	13.26	12.63	5	20
Batch number: 172961063701B	Sample number(s): 9276816-9276819,9276822-9276823 BKG: P272435			
Selenium	0.279	0.288	3 (1)	20
Batch number: 172961063701D	Sample number(s): 9276816-9276819,9276822-9276823 BKG: P272435			
Barium	47.45	46.33	2	20
	mg/kg	mg/kg		
Batch number: 17311667633A	Sample number(s): 9276816-9276819,9276822-9276823 BKG: 9276823			
TOC	241.31	449.69	60* (1)	7
	Std. Units	Std. Units		
Batch number: 17299039402B	Sample number(s): 9276816-9276819,9276822-9276823 BKG: 9276819			
pH	8.27	8.29	0	3
	%	%		
Batch number: 17299820004A	Sample number(s): 9276816-9276819,9276822-9276823 BKG: P278031			
Moisture	16.79	16.01	5	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9276816	74	75	67	78	64	71
9276817	72	75	68	79	78	83
9276818	76	76	74	85	70	77
9276819	83	85	78	83	75	83
9276822	76	75	66	77	66	81
9276823	72	70	67	72	66	76
Blank	85	84	79	106	93	94
LCS	82	85	77	85	78	82
MS	77	76	71	77	72	72
MSD	82	81	71	81	75	79
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9276816	67	81	81	69	68	55
9276817	85	86	87	80	77	67
9276818	90	86	94	86	92	78
9276819	92	87	79	97	93	92
9276822	82	69	80	83	73	73
9276823	83	78	65	79	76	70
Blank	92	94	94	94	92	85
LCS	82	84	84	103	109	95
MS	86	76	89	82	76	71
MSD	86	84	82	94	83	82
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9276816	65
9276817	67
9276818	74
9276819	83
9276822	71
9276823	74
Blank	80
LCS	94
MS	64
MSD	73

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:07

Group Number: 1865830

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17298009

Limits: 20-127

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9276820	92	91	84	92	76	87
9276821	90	97	88	97	80	86
Blank	91	95	84	98	86	92
LCS	87	90	75	98	76	96
LCSD	93	100	79	108	90	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9276820	104	88	110	116*	96	93
9276821	95	100	117	109	93	86
Blank	103	86	100	97	92	90
LCS	103	83	103	90	87	78
LCSD	114*	97	114	101	93	93
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9276820	92
9276821	69
Blank	77
LCS	73
LCSD	78
Limits:	26-119

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

SAMPLES SPLIT INTO TWO COOLERS 971911/185830/927681G-23

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52708

COC 1 of 2

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blank	Soil: 250ml poly - PFCs (14)	Soil: 4oz. glass - TOC, pH, Metals, Moist.	% Solids
							N	2	2	A	A	
							N	2	2	1	1	
1. SG3-MW-BR4-0-0.5'	0	0.5	ft.	10/20/2017	12:10	S	N	2		1	1	
2. SG3-MW-BR4-0.5-1'	0.5	1	ft	10/20/2017	12:15	S	N	2		1	1	
3. SG3-MW-BR4-1-1.5'	1	1.5	ft.	10/20/2017	12:20	S	N	2		1	1	
4. SG3-MW-BR4-3-4'	3	4	ft	10/20/2017	12:30	S	N	2		1	1	
5. SG3-LTB85-171020	/	/	/	10/20/2017	PM	Water	N	2	2			
6. SG3-LTB86-171020	/	/	/	10/20/2017	PM	Water	N	2	2			
7. SG3-MW-BR4-8-9'	8	9	ft.	10/20/2017	12:35	S	N	2		1	1	
8. SG3-MW-BR4-19-20'	19	20	ft.	10/20/2017	12:45	S	N	2		1	1	
9.												
10.												

Preservative Code

Field Filtered Y/N

7 DAY * TAT * NEEDED

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM	(RQM)	Y	10/20/2017	17.00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						10/24/17	1008
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.7 / 1.6			Custody Seal Intact? ☐ Y ☑ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 198389

Group Number(s): 1865830

Client: BARR Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/21/2017 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	6
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 6-250 mL plastic bottle (Unpre)

Unpacked by Melvin Sanchez (8943) at 11:27 on 10/21/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.7	DT	Wet	Y	Bagged	N
2	DT131	4.6	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FBS15-171020	2	10/20/2017 13:00	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 13:06

Project: SGPP - Bennington

Account #: 37191
Group Number: 1865832
SDG: SNB04
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK1-171020 Grab Groundwater	10/20/2017 13:45	9276833
SG3-CITYWATERHOSE1-171020 Grab Groundwater	10/20/2017 13:50	9276834
Trip Blank Water	NA	9276835
SG3-CITYWATERTKB-171020 Grab Groundwater	10/20/2017 14:25	9276836
SG3-FBS15-171020 Blank Water	10/20/2017 13:00	9276837

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1865832

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9276835

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample #s: 9276834, 9276836

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results

were observed. Both sets of data are included in the data package.

Sample #s: 9276833

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. This sample was not re-extracted.

Sample #s: 9276837

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Batch #: 17298002 (Sample number(s): 9276833-9276837)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9276833, 9276834, 9276835, 9276836, 9276837, LCSD

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Sample Description: **SG3-CITYWATERTRUCK1-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:45
SDG#: SNB04-01

C. T. Male Associates
ELLE Sample #: GW 9276833
ELLE Group #: 1865832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.8 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.3 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. This sample was not re-extracted.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 14:03	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERTRUCK1-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:45
SDG#: SNB04-01

C. T. Male Associates
ELLE Sample #: GW 9276833
ELLE Group #: 1865832
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERHOSE1-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:50
SDG#: SNB04-02

C. T. Male Associates
ELLE Sample #: GW 9276834
ELLE Group #: 1865832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.8 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.3 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-CITYWATERHOSE1-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:50
SDG#: SNB04-02

C. T. Male Associates
ELLE Sample #: GW 9276834
ELLE Group #: 1865832
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 14:24	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: n.a.
SDG#: SNB04-03TB

C. T. Male Associates
ELLE Sample #: WW 9276835
ELLE Group #: 1865832
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 B**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: n.a.
SDG#: SNB04-03TB

C. T. Male Associates
ELLE Sample #: WW 9276835
ELLE Group #: 1865832
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 14:44	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-CITYWATERTKB-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 14:25
SDG#: SNB04-04

C. T. Male Associates
ELLE Sample #: GW 9276836
ELLE Group #: 1865832
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3 B**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERTKB-171020 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 14:25
SDG#: SNB04-04

C. T. Male Associates
ELLE Sample #: GW 9276836
ELLE Group #: 1865832
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 15:05	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS15-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:00
SDG#: SNB04-05FB

C. T. Male Associates
ELLE Sample #: WW 9276837
ELLE Group #: 1865832
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1 B**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FBS15-171020 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/21/2017 10:00
Collection Date/Time: 10/20/2017 13:00
SDG#: SNB04-05FB

C. T. Male Associates
ELLE Sample #: WW 9276837
ELLE Group #: 1865832
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 16:06	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:06

Group Number: 1865832

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17298002	Sample number(s): 9276833-9276837		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	1 J	0.3	1
Perfluoropentanoic acid	0.5 J	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298002	Sample number(s): 9276833-9276837								
6:2 fluorotelomersulfonate	15.17	17.24	15.17	18.25	114	120	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.75	15.33	16.53	109	108	70-130	1	30
NEtFOSAA	5.44	8.12	5.44	7.49	149*	138*	70-130	8	30
NMeFOSAA	5.44	9.03	5.44	8.14	166*	150*	70-130	10	30
Perfluorobutanesulfonate	4.81	4.98	4.81	5.05	103	105	70-130	1	30
Perfluorobutanoic acid	5.44	6.13	5.44	6.44	113	118	70-130	5	30
Perfluorodecanoic acid	5.44	5.87	5.44	6.59	108	121	70-130	11	30
Perfluorododecanoic acid	5.44	6.09	5.44	5.96	112	110	70-130	2	30
Perfluoroheptanoic acid	5.44	5.92	5.44	5.79	109	106	70-130	2	30
Perfluorohexanesulfonate	5.14	5.37	5.14	4.97	104	97	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:06

Group Number: 1865832

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.76	5.44	5.61	106	103	70-130	3	30
Perfluorononanoic acid	5.44	5.38	5.44	4.99	99	92	70-130	7	30
Perfluorooctanesulfonamide	5.44	7.04	5.44	7.17	129	132*	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.19	5.20	4.67	100	90	70-130	11	30
Perfluorooctanoic acid	5.44	6.99	5.44	5.44	128	100	70-130	25	30
Perfluoropentanoic acid	5.44	6.13	5.44	6.26	113	115	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.71	5.44	5.95	105	109	70-130	4	30
Perfluorotridecanoic acid	5.44	5.89	5.44	6.06	108	111	70-130	3	30
Perfluoroundecanoic acid	5.44	5.41	5.44	6.28	99	115	70-130	15	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9276833	84	104	124	80	81	83
9276834	80	92	112	81	79	75
9276835	85	85	90	94	91	87
9276836	89	113	136	72	72	79
9276837	83	84	86	87	87	90
Blank	89	88	86	93	98	96
LCS	112	101	105	113	105	113
LCSD	93	85	82	96	94	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9276833	80	94	86	83	76	67
9276834	79	80	73	91	74	70
9276835	80	88	86	89	80	72
9276836	121	79	83	89	80	83
9276837	75	85	84	89	81	66
Blank	91	95	88	89	90	75
LCS	91	107	103	99	102	82
LCSD	75	101	99	87	85	76

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:06

Group Number: 1865832

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9276833	67	79	80	69	35	44*
9276834	65	72	82	72	69	32*
9276835	71	85	91	85	86	50*
9276836	80	105	92	88	84	31*
9276837	91	78	97	90	94	31*
Blank	83	100	91	100	94	75
LCS	105	108	118	115	110	79
LCSD	88	86	100	94	85	59*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

871911 1865832 9272877-7

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47444

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Marketpointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic trizma	Water: 250 mL plastic trizma	Water: 40 mL amber HCl	Soil	% Solids	Preservative Code	Field Filtered Y/N	Comments
									2	2	2					
1. SG3-CITYWATERTRUCK1-171020	—	—	—	10-20-17	1345	W	N	2	2							PFCs (19)
2. SG3-CITYWATERTRUCKHOSE1-171020	—	—	—	10-20-17	1350	W	N	2	2							
3. trip blank	—	—	—	—	PM	W	N	2		2						
4. SG3-CITYWATERTRB-171020	—	—	—	10-20-17	1425	W	N	2	2							
5.																
6.																
7.																
8.																
9.																
10.																

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	DJZ	Derek Sanden	Y	10-20-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10-24-17	1000
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:				Temperature on Receipt (°C): 1.7-1.6 Custody Seal Intact? ☐ Y ☒ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198389

Group Number(s): 1865832

Client: BARR Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/21/2017 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	6
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 6-250 mL plastic bottle (Unpre)

Unpacked by Melvin Sanchez (8943) at 11:27 on 10/21/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.7	DT	Wet	Y	Bagged	N
2	DT131	4.6	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FBS15-171020	2	10/20/2017 13:00	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 25, 2017 10:39

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1866362
SDG: SNB05
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDWATERTKB-171023 Grab Water	10/23/2017 15:45	9278741

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1866362

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9278741

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for native compound 8:2-FTS is outside of QC acceptance limits in the LCS/LCSD associated with this sample. Since the recovery is high and native compound 8:2-FTS is not deteced, the data is reported.

Batch #: 17297016 (Sample number(s): 9278741)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9278741, Blank, LCS, LCSD

Sample Description: SG3-FILTEREDWATERTKB-171023 Grab Water
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 15:45
SDG#: SNB05-01

C. T. Male Associates
ELLE Sample #: GW 9278741
ELLE Group #: 1866362
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for native compound 8:2-FTS is outside of QC acceptance limits in the LCS/LCSD associated with this sample. Since the recovery is high and native compound 8:2-FTS is not deteced, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17297016	10/25/2017 04:40	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17297016	10/24/2017 15:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:39

Group Number: 1866362

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17297016	Sample number(s): 9278741		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17297016	Sample number(s): 9278741								
6:2 fluorotelomersulfonate	15.17	15.44	15.17	19.19	102	127	70-130	22	30
8:2 fluorotelomersulfonate	15.33	23.54	15.33	22.53	154*	147*	70-130	4	30
NEtFOSAA	5.44	5.63	5.44	6.50	103	120	70-130	14	30
NMeFOSAA	5.44	6.20	5.44	6.98	114	128	70-130	12	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.48	106	114	70-130	7	30
Perfluorobutanoic acid	5.44	6.13	5.44	6.18	113	114	70-130	1	30
Perfluorodecanoic acid	5.44	6.33	5.44	6.15	116	113	70-130	3	30
Perfluorododecanoic acid	5.44	5.59	5.44	5.82	103	107	70-130	4	30
Perfluoroheptanoic acid	5.44	6.99	5.44	6.97	129	128	70-130	0	30
Perfluorohexanesulfonate	5.14	5.60	5.14	5.54	109	108	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:39

Group Number: 1866362

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.24	5.44	5.58	96	103	70-130	6	30
Perfluorononanoic acid	5.44	5.73	5.44	6.37	105	117	70-130	11	30
Perfluorooctanesulfonamide	5.44	5.66	5.44	5.72	104	105	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.63	5.20	6.00	108	115	70-130	6	30
Perfluorooctanoic acid	5.44	6.39	5.44	6.35	117	117	70-130	1	30
Perfluoropentanoic acid	5.44	6.47	5.44	6.59	119	121	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.83	5.44	5.59	107	103	70-130	4	30
Perfluorotridecanoic acid	5.44	5.58	5.44	5.52	103	101	70-130	1	30
Perfluoroundecanoic acid	5.44	6.10	5.44	5.63	112	103	70-130	8	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17297016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9278741	74	76	75	81	78	80
Blank	95	98	96	105	98	108
LCS	74	76	72	86	74	75
LCSD	75	76	72	82	71	78
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9278741	83	78	78	82	74	68
Blank	105	90	97	107	99	86
LCS	74	75	77	82	76	64
LCSD	68	76	76	81	90	83
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9278741	52	72	62	70	67	9*
Blank	68	95	86	94	85	19*
LCS	55	82	72	82	71	16*
LCSD	58	97	76	86	72	12*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/25/2017 10:39

Group Number: 1866362

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17297016

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

RUSH RESULTS NEEDED ASAP

A-37191
G-1806362
S-97-78741-45

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: № 47447

COC 5 of 6

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 250mL plastic / PFC (19) Trizma	Water	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-FILTERED WATER TKB-171023	—	—	—	10-23-17	1545	W	N	2	2				PFC (19)	
2. SG3-TAPEWWTP	—	—	—	10/23/2017	1430		N	2	2					
3. SG3-TAPE01	—	—	—	10/23/2017	1239		N	2	2					
4. SG3-SLUG4WWTP	—	—	—	10/23/2017	1430		N	2	2					
5. SG3-TROLLWWTP	—	—	—	10/23/2017	1430		N	2	2				*RUSH RESULTS TAT ASAP*	
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY		Relinquished by	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	DJE/AKJ	Relinquished by:	Y N	10-23-17	1700			
Barr Proj. Manager:	JTC		On Ice? Y N	Date	Time	Received by:	Date 10/24/17	Time 935
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name:	ELLE							
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198539

Group Number(s): 1866362

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	10
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:44 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.8	DT	Wet	Y	Bagged	N
2	DT42-01	2.5	DT	Wet	Y	Bagged	N
3	DT42-01	1.2	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 15:33

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866410
SDG: SNB06
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D18-171023 Grab Groundwater	10/23/2017 13:30	9279024
SG3-FTB01-171023 Blank Water	10/23/2017 16:40	9279025
SG3-LTB01-171023 Blank Water	10/23/2017	9279026

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866410

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9279025

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9279026

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Batch #: 17299005 (Sample number(s): 9279024-9279025)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9279024, 9279025, Blank, LCS, LCSD

Batch #: 17306003 (Sample number(s): 9279026)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9279026, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 172981063503 (Sample number(s): 9279024 UNSPK: P281270 BKG: P281270)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Sodium, Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172981063902A (Sample number(s): 9279024 UNSPK: P278013 BKG: P278013)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

EPA 300.0, Wet Chemistry

Batch #: 17297249109B (Sample number(s): 9279024 UNSPK: P278599 BKG: P278599)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Sulfate

REVISED

Sample Description: **SG3-D18-171023 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:30
SDG#: SNB06-01

C. T. Male Associates
ELLE Sample #: GW 9279024
ELLE Group #: 1866410
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**4**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**5**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**120**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**70.5**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**25.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.155**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**0.902 J**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**5.78**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0020 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0480**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00023 J**	0.00016	0.0010	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D18-171023 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:30
SDG#: SNB06-01

C. T. Male Associates
ELLE Sample #: GW 9279024
ELLE Group #: 1866410
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00032 J**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**11.8**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**34.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**242**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**242**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 19:39	Jason W Knight	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D18-171023 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:30
SDG#: SNB06-01

C. T. Male Associates
ELLE Sample #: GW 9279024
ELLE Group #: 1866410
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172981063503	10/27/2017 17:02	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172981063902D	10/31/2017 22:14	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172981063902B	10/28/2017 09:57	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172981063902A	10/28/2017 09:57	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172981063902A	10/31/2017 22:14	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172981063503	10/26/2017 16:30	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172981063902	10/26/2017 16:10	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17297249109B	10/25/2017 02:04	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17297249109B	10/25/2017 02:04	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17297249109B	10/25/2017 02:04	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17297249109B	10/25/2017 02:04	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17297249109B	10/25/2017 02:04	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17310107101B	11/06/2017 11:17	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17303108101B	11/04/2017 02:35	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17303108101B	10/30/2017 17:20	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17298005102A	10/25/2017 19:28	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17298005102A	10/25/2017 19:28	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17298005102A	10/25/2017 19:28	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17298022601A	10/25/2017 00:05	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171023 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:40
SDG#: SNB06-02TB

C. T. Male Associates
ELLE Sample #: WW 9279025
ELLE Group #: 1866410
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 20:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171023 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017
SDG#: SNB06-03TB

C. T. Male Associates
ELLE Sample #: WW 9279026
ELLE Group #: 1866410
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 UZ	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171023 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017
SDG#: SNB06-03TB

C. T. Male Associates
ELLE Sample #: WW 9279026
ELLE Group #: 1866410
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17306003	11/03/2017 20:54	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17306003	11/02/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17299005	Sample number(s): 9279024-9279025		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17306003	Sample number(s): 9279026		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 172981063503	Sample number(s): 9279024		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172981063902A	Sample number(s): 9279024		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172981063902B	Sample number(s): 9279024		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172981063902D	Sample number(s): 9279024		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17297249109B	Sample number(s): 9279024		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17303108101B	Sample number(s): 9279024		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17310107101B	Sample number(s): 9279024		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17298022601A	Sample number(s): 9279024		
Ortho-Phosphate as P	0.030 U	0.030	0.090

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17298005102A	Sample number(s): 9279024		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17299005	Sample number(s): 9279024-9279025								
6:2 fluorotelomersulfonate	15.17	18.7	15.17	16.47	123	109	70-130	13	30
8:2 fluorotelomersulfonate	15.33	13.23	15.33	15.3	86	100	70-130	15	30
NEtFOSAA	5.44	7.87	5.44	8.15	145*	150*	70-130	3	30
NMeFOSAA	5.44	8.14	5.44	8.22	150*	151*	70-130	1	30
Perfluorobutanesulfonate	4.81	5.19	4.81	4.97	108	103	70-130	4	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.26	112	115	70-130	3	30
Perfluorodecanoic acid	5.44	6.66	5.44	5.83	122	107	70-130	13	30
Perfluorododecanoic acid	5.44	5.66	5.44	5.44	104	100	70-130	4	30
Perfluoroheptanoic acid	5.44	6.29	5.44	6.10	116	112	70-130	3	30
Perfluorohexanesulfonate	5.14	5.19	5.14	4.64	101	90	70-130	11	30
Perfluorohexanoic acid	5.44	5.87	5.44	5.78	108	106	70-130	2	30
Perfluorononanoic acid	5.44	5.43	5.44	5.03	100	92	70-130	8	30
Perfluorooctanesulfonamide	5.44	6.98	5.44	6.71	128	123	70-130	4	30
Perfluoro-octanesulfonate	5.20	4.85	5.20	5.56	93	107	70-130	14	30
Perfluorooctanoic acid	5.44	6.59	5.44	6.03	121	111	70-130	9	30
Perfluoropentanoic acid	5.44	5.94	5.44	6.13	109	113	70-130	3	30
Perfluorotetradecanoic acid	5.44	6.49	5.44	5.60	119	103	70-130	15	30
Perfluorotridecanoic acid	5.44	6.02	5.44	5.66	111	104	70-130	6	30
Perfluoroundecanoic acid	5.44	5.71	5.44	5.65	105	104	70-130	1	30
Batch number: 17306003	Sample number(s): 9279026								
6:2 fluorotelomersulfonate	15.17	16.82	15.17	16.77	111	111	70-130	0	30
8:2 fluorotelomersulfonate	15.33	15.5	15.33	15.64	101	102	70-130	1	30
NEtFOSAA	5.44	7.23	5.44	6.49	133*	119	70-130	11	30
NMeFOSAA	5.44	7.92	5.44	6.35	146*	117	70-130	22	30
Perfluorobutanesulfonate	4.81	5.41	4.81	5.33	112	111	70-130	2	30
Perfluorobutanoic acid	5.44	6.08	5.44	5.94	112	109	70-130	2	30
Perfluorodecanoic acid	5.44	6.36	5.44	6.34	117	117	70-130	0	30
Perfluorododecanoic acid	5.44	6.49	5.44	6.78	119	125	70-130	4	30
Perfluoroheptanoic acid	5.44	6.19	5.44	5.87	114	108	70-130	5	30
Perfluorohexanesulfonate	5.14	5.45	5.14	5.63	106	109	70-130	3	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.55	5.44	5.66	102	104	70-130	2	30
Perfluorononanoic acid	5.44	5.35	5.44	5.49	98	101	70-130	3	30
Perfluorooctanesulfonamide	5.44	6.32	5.44	5.73	116	105	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.00	5.20	5.31	96	102	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.42	109	118	70-130	8	30
Perfluoropentanoic acid	5.44	5.79	5.44	6.07	106	112	70-130	5	30
Perfluorotetradecanoic acid	5.44	6.22	5.44	5.97	114	110	70-130	4	30
Perfluorotridecanoic acid	5.44	6.14	5.44	6.00	113	110	70-130	2	30
Perfluoroundecanoic acid	5.44	5.50	5.44	6.27	101	115	70-130	13	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172981063503	Sample number(s): 9279024								
Aluminum	2.00	1.85			92		80-120		
Boron	2.00	1.87			93		80-120		
Calcium	4.00	3.70			93		80-120		
Iron	1.00	0.950			95		80-120		
Magnesium	2.00	1.84			92		80-120		
Manganese	0.500	0.505			101		80-120		
Potassium	10	9.67			97		80-120		
Sodium	10	9.47			95		80-120		
Zinc	0.500	0.495			99		80-120		
Batch number: 172981063902A	Sample number(s): 9279024								
Antimony	0.00600	0.00527			88		80-120		
Arsenic	0.0100	0.00981			98		80-120		
Beryllium	0.00400	0.00397			99		80-120		
Cadmium	0.00500	0.00499			100		80-120		
Chromium	0.0500	0.0497			99		80-120		
Cobalt	0.250	0.241			96		80-120		
Copper	0.0500	0.0496			99		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0490			98		80-120		
Silver	0.0500	0.0494			99		80-120		
Thallium	0.00200	0.00202			101		80-120		
Vanadium	0.0500	0.0514			103		80-120		
Batch number: 172981063902B	Sample number(s): 9279024								
Selenium	0.0100	0.00979			98		80-120		
Batch number: 172981063902D	Sample number(s): 9279024								
Barium	0.0500	0.0480			96		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17297249109B	Sample number(s): 9279024								
Bromide	7.50	7.48			100		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloride	3.00	2.95			98		90-110		
Nitrate Nitrogen	0.750	0.763			102		90-110		
Nitrite Nitrogen	0.750	0.744			99		90-110		
Sulfate	7.50	7.49			100		90-110		
Batch number: 17303108101B	Sample number(s): 9279024								
Kjeldahl Nitrogen	5.00	5.41			108		90-110		
Batch number: 17310107101B	Sample number(s): 9279024								
Ammonia Nitrogen	1.50	1.44			96		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17298022601A	Sample number(s): 9279024								
Ortho-Phosphate as P	0.400	0.396			99		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17298005102A	Sample number(s): 9279024								
Total Alkalinity to pH 4.5	188	169.82			90		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172981063503	Sample number(s): 9279024 UNSPK: P281270									
Aluminum	0.0894 U	2.00	1.96	2.00	1.91	98	96	75-125	3	20
Boron	0.268	2.00	2.24	2.00	2.22	98	97	75-125	1	20
Calcium	174.57	4.00	183.58	4.00	179.14	225 (2)	114 (2)	75-125	2	20
Iron	7.91	1.00	9.00	1.00	8.91	110 (2)	100 (2)	75-125	1	20
Magnesium	30.12	2.00	32.63	2.00	32.03	126 (2)	96 (2)	75-125	2	20
Manganese	1.66	0.500	2.16	0.500	2.15	100	98	75-125	0	20
Potassium	6.38	10	16.59	10	16.38	102	100	75-125	1	20
Sodium	323.5	10	342.95	10	337.76	194 (2)	143 (2)	75-125	2	20
Zinc	0.0065 U	0.500	0.499	0.500	0.498	100	100	75-125	0	20
Batch number: 172981063902A	Sample number(s): 9279024 UNSPK: P278013									
Antimony	0.00045 U	0.00600	0.00504	0.00600	0.00670	84	112	75-125	28*	20
Arsenic	0.00072 U	0.0100	0.0103	0.0100	0.0119	103	119	75-125	14	20
Beryllium	0.000071 U	0.00400	0.00409	0.00400	0.00407	102	102	75-125	0	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Cadmium	0.00015 U	0.00500	0.00460	0.00500	0.00510	92	102	75-125	10	20
Chromium	0.0139	0.0500	0.0613	0.0500	0.0674	95	107	75-125	9	20
Cobalt	0.000623	0.250	0.243	0.250	0.252	97	100	75-125	4	20
Copper	0.0471	0.0500	0.0925	0.0500	0.0986	91	103	75-125	6	20
Lead	0.000283	0.0150	0.0148	0.0150	0.0152	97	100	75-125	3	20
Nickel	0.0105	0.0500	0.0593	0.0500	0.0622	98	103	75-125	5	20
Silver	0.00015 U	0.0500	0.0480	0.0500	0.0516	96	103	75-125	7	20
Thallium	0.00012 U	0.00200	0.00184	0.00200	0.00175	92	88	75-125	5	20
Vanadium	0.00146	0.0500	0.0526	0.0500	0.0532	102	103	75-125	1	20
Batch number: 172981063902B	Sample number(s): 9279024 UNSPK: P278013									
Selenium	0.00050 U	0.0100	0.00977	0.0100	0.0106	98	106	75-125	9	20
Batch number: 172981063902D	Sample number(s): 9279024 UNSPK: P278013									
Barium	0.0659	0.0500	0.117	0.0500	0.116	103	101	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17297249109B	Sample number(s): 9279024 UNSPK: P278599									
Bromide	1.3 U	25	26.26			105		90-110		
Chloride	8.71	10	19.36			107		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.67			107		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.57			103		90-110		
Sulfate	45.77	25	74.52			115*		90-110		
Batch number: 17303108101B	Sample number(s): 9279024 UNSPK: P275369									
Kjeldahl Nitrogen	0.50 U	5.00	4.51			90		90-110		
Batch number: 17310107101B	Sample number(s): 9279024 UNSPK: P276594									
Ammonia Nitrogen	0.050 U	1.00	0.972			97		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17298022601A	Sample number(s): 9279024 UNSPK: P278291									
Ortho-Phosphate as P	2.72	2.00	4.26	2.00	4.33	77	81	69-131	2	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17298005102A	Sample number(s): 9279024 UNSPK: P279760									
Total Alkalinity to pH 4.5	91.86	188	260.88			90		77-114		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172981063503	Sample number(s): 9279024 BKG: P281270			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.268	0.262	2 (1)	20
Calcium	174.57	176.49	1	20
Iron	7.91	7.93	0	20
Magnesium	30.12	30.21	0	20
Manganese	1.66	1.64	1	20
Potassium	6.38	6.46	1	20
Sodium	323.5	331.75	3	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 172981063902A	Sample number(s): 9279024 BKG: P278013			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.0139	0.0153	9 (1)	20
Cobalt	0.000623	0.000579	7 (1)	20
Copper	0.0471	0.0443	6	20
Lead	0.000283	0.000288	2 (1)	20
Nickel	0.0105	0.0113	7 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00146	0.00149	2 (1)	20
Batch number: 172981063902B	Sample number(s): 9279024 BKG: P278013			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172981063902D	Sample number(s): 9279024 BKG: P278013			
Barium	0.0659	0.0697	6	20
	mg/l	mg/l		
Batch number: 17297249109B	Sample number(s): 9279024 BKG: P278599			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	8.71	8.76	1 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	45.77	46.11	1	15
Batch number: 17303108101B	Sample number(s): 9279024 BKG: P275369			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17310107101B	Sample number(s): 9279024 BKG: P276594			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17298022601A	Sample number(s): 9279024 BKG: P278291			
Ortho-Phosphate as P	2.72	2.68	1	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17298005102A	Sample number(s): 9279024 BKG: P279760			
Total Alkalinity to pH 4.5	91.86	95.32	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9279024	88	86	81	95	101	93
9279025	81	78	80	95	91	80
Blank	88	85	85	101	99	97
LCS	77	79	77	75	84	75
LCSD	81	81	84	92	106	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9279024	76	90	84	83	81	61
9279025	96	86	81	75	75	56
Blank	88	89	80	71	81	58
LCS	64	80	77	72	74	79
LCSD	83	89	84	82	82	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9279024	82	90	87	91	80	30*
9279025	51	73	51	72	59	26*
Blank	59	76	71	75	80	60*
LCS	66	76	74	77	71	57*
LCSD	58	74	63	74	75	51*

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 15:33

Group Number: 1866410

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17306003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9279026	73	68	70	91	82	79
Blank	78	70	67	92	87	82
LCS	80	74	67	86	81	76
LCSD	80	73	70	81	77	74
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9279026	66	75	73	67	67	49
Blank	59	82	69	63	78	46
LCS	65	83	80	73	82	55
LCSD	56	79	79	72	74	55
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9279026	58	78	63	78	74	38*
Blank	68	80	81	92	86	37*
LCS	64	82	68	75	69	31*
LCSD	71	70	76	75	75	43*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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A-37191 G-1866410 S-9279024-26

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: № 47382
COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Pl.	Address: 50 Century Hill Blvd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/Trizma	250 mL – HNO_3	40 mL glass unpres.	Soil: 250 mL – H_2SO_4	500 mL	250 mL	40 mL glass HCl	250 mL plastic – NaOH	250 mL glass	% Solids	Preservative Code	Field Filtered Y/N	Comments
									G	C	A	A	O	A	B	E	A				
									N	N	N	N	N	Y	N	N	N				
1. SG3-D18-171023	—	—	—	10/23/17	13:30	GW	MS														(19 PFCs, metals/cations (including CR+Hg), anions, ammonia, TKN, ortho phosphate, 1-4 Dioxane, SOM02, 2 VOCs, Alkalinity (carb, bicarb.), Nitrogen (Nitrate/Nitrite), Bromide, Chloride, sulfate
2. SG3-FTB01-171023	—	—	—	10/23/17	16:40	GW	N	2													
3. SG3-LTB01-171023	—	—	—	10/23/17	—	GW	N	2													
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

* Verify w/ M. Dupay
* Sample is not from Landfill

BARR USE ONLY	Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by: Dan King, Nicole C.		Y N	10-23-17	17:15			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/24/17	Time 935
Barr DQ Manager: MDD							
Lab Name: ELLE	Samples Shipped VIA: ☑ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 24/3.3	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198543

Group Number(s): 1866410

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (2, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 11:01 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.3	DT	Wet	Y	Bagged	N
2	DT42-02	2.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 14, 2017 07:56

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866547
SDG: SNB07
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D12-0-7.5' Soil	10/03/2017	9279528
SG3-D12-7.5-12' Soil	10/03/2017	9279529
SG3-D12-12-30' Soil	10/03/2017	9279530
SG3-D12-30-37' Soil	10/04/2017	9279531
SG3-D21-0-3.5' Soil	10/05/2017	9279532
SG3-D21-3.5-17' Soil	10/05/2017	9279533
SG3-D17-0-9' Soil	10/06/2017	9279534
SG3-D17-9-10' Soil	10/06/2017	9279535
SG3-D22-0-1' Soil	10/06/2017	9279536
SG3-D22-1-11' Soil	10/06/2017	9279537
SG3-D22-12.5-15' Soil	10/06/2017	9279538
SG3-D10-0-20' Soil	10/08/2017	9279539
SG3-D10-20-30' Soil	10/08/2017	9279540
SG3-D10-30-60' Soil	10/08/2017	9279541
SG3-D10-60-90' Soil	10/10/2017	9279542
SG3-D10-90-93' Soil	10/10/2017	9279543
SG3-D10-93-101' Soil	10/10/2017	9279544
SG3-D10-101-105' Soil	10/10/2017	9279545
SG3-D10-105-107' Soil	10/10/2017	9279546

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866547

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D12-0-7.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/03/2017
SDG#: SNB07-01

C. T. Male Associates
ELLE Sample #: SW 9279528
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**65.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**60.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**55.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**50.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**46.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**36.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**31.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-7.5-12' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/03/2017
SDG#: SNB07-02

C. T. Male Associates
ELLE Sample #: SW 9279529
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**79.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**72.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**64.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**58.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**53.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**45.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**33.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-12-30' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/03/2017
SDG#: SNB07-03

C. T. Male Associates
ELLE Sample #: SW 9279530
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**72.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**67.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**62.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**56.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**52.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**47.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**43.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**34.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D12-30-37' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/04/2017
SDG#: SNB07-04

C. T. Male Associates
ELLE Sample #: SW 9279531
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**99.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**79.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**74.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**65.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**59.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**54.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**46.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**40.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-0-3.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/05/2017
SDG#: SNB07-05

C. T. Male Associates
ELLE Sample #: SW 9279532
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**79.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**74.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**70.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**65.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**59.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**54.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**47.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**45.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**39.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D21-3.5-17' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/05/2017
SDG#: SNB07-06

C. T. Male Associates
ELLE Sample #: SW 9279533
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**89.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**80.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**71.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**68.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**64.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**59.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**49.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**45.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.5**	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-0-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/06/2017
SDG#: SNB07-07

C. T. Male Associates
ELLE Sample #: SW 9279534
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**71.2**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**63.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**54.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**42.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**33.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**27.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**22.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**18.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D17-9-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/06/2017
SDG#: SNB07-08

C. T. Male Associates
ELLE Sample #: SW 9279535
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**93.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**89.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**84.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**66.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**56.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**47.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**40.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**37.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**28.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-0-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/06/2017
SDG#: SNB07-09

C. T. Male Associates
ELLE Sample #: SW 9279536
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**99.3**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**89.3**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**85.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**80.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**70.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**64.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**59.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**51.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**42.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**26.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-1-11' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/06/2017
SDG#: SNB07-10

C. T. Male Associates
ELLE Sample #: SW 9279537
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**82.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**70.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**65.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**61.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**58.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**54.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**49.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**44.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D22-12.5-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/06/2017
SDG#: SNB07-11

C. T. Male Associates
ELLE Sample #: SW 9279538
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.9**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**87.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**80.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**75.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**69.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**64.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**59.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**53.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**51.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-0-20' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/08/2017
SDG#: SNB07-12

C. T. Male Associates
ELLE Sample #: SW 9279539
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**93.1**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**74.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**70.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**65.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**60.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**55.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**44.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-20-30' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/08/2017
SDG#: SNB07-13

C. T. Male Associates
ELLE Sample #: SW 9279540
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**96.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**91.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**89.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**88.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**85.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**79.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**74.6**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**62.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**61.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-30-60' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/08/2017
SDG#: SNB07-14

C. T. Male Associates
ELLE Sample #: SW 9279541
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**93.8**	0.50	0.50	1
07103	**19 mm**		n.a.	**89.5**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**81.0**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**77.7**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**73.4**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**69.9**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**66.3**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**61.6**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**57.3**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**51.7**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**49.5**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**44.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**32.5**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**17.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**10.5**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**6.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-60-90' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB07-15

C. T. Male Associates
ELLE Sample #: SW 9279542
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**85.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**83.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**82.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**78.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**73.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**63.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**57.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**18.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-90-93' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB07-16

C. T. Male Associates
ELLE Sample #: SW 9279543
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**98.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**97.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**93.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**83.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**77.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**69.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**67.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**61.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**44.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**12.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-93-101' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB07-17

C. T. Male Associates
ELLE Sample #: SW 9279544
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**98.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**93.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**91.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**85.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**84.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**76.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**63.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**53.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**41.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**38.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**32.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-101-105' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB07-18

C. T. Male Associates
ELLE Sample #: SW 9279545
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**98.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**97.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**96.6**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**91.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**68.9**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**36.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**33.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**3.0**	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D10-105-107' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB07-19

C. T. Male Associates
ELLE Sample #: SW 9279546
ELLE Group #: 1866547
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**99.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**97.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**96.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**95.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**94.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**89.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**79.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**62.4**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**45.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**35.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**17.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**4.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710301A	11/03/2017 13:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1866547
Reported: 11/14/2017 07:56

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1866547 9279528-46

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47369

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name:
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Soil: Sediment Grain Size	Analysis Requested: Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D12-0-7.5'	0	7.5	ft	10-3-17		Soil	N	1	1		A	N	Sediment grain size analysis
2. SG3-D12-7.5-12'	7.5	12	ft	10-3-17		S	N	1	1				
3. SG3-D12-12-30'	12	30	ft	10-3-17		S	N	1	1				
4. SG3-D12-30-37'	30	37	ft	10-4-17		S	N	1	1				
5. SG3-D21-0-3.5'	0	3.5	ft	10-5-17		S	N	1	1				
6. SG3-D21-3.5-17'	3.5	17	ft	10-5-17		S	N	1	1				
7. SG3-D17-0-9'	0	9	ft	10-6-17		S	N	1	1				
8. SG3-D17-9-10'	9	10	ft	10-6-17		S	N	1	1				
9. SG3-D22-0-1'	0	1	ft	10-6-17		S	N	1	1				
10. SG3-D22-1-11'	1	11	ft	10-6-17		S	N	1	1				

BARR USE ONLY	
Sampled by:	DJZ
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster

	On Ice?	Date	Time		Date	Time
Relinquished by: Daniel Zander	Y (N)	10-23-17	1700	Received by:		
Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/24/17	Time 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☒ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1866547 9279528-46

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47370

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

№	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: 2A Sediment grain size	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1.	SG3-D22-12.5-15'	12.5	15	ft	10-6-17		Soil	N	1		1				sediment grain size analysis
2.	SG3-D10-0-20'	0	20	ft	10-8-17		S	N	1		1				
3.	SG3-D10-20-30'	20	30	ft	10-8-17		S	N	1		1				
4.	SG3-D10-30-60'	30	60	ft	10-8-17		S	N	1		1				
5.	SG3-D10-60-90'	60	90	ft	10-10-17		S	N	1		1				
6.	SG3-D10-90-93'	90	93	ft	10-10-17		S	N	1		1				
7.	SG3-D10-93-101'	93	101	ft	10-10-17		S	N	1		1				
8.	SG3-D10-101-105	101	105	ft	10-10-17		S	N	1		1				
9.	SG3-D10-105-107	105	107	ft	10-10-17		S	N	1		1				
10.															

BARR USE ONLY

Sampled by: DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] On Ice? Y (N) Date 10/23/17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 10/24/17 Time 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☑ None

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198562

Group Number(s): 1866547

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 12:10 on 10/24/2017

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 14, 2017 07:58

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866549
SDG: SNB08
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D15-0.5-15' Soil	10/18/2017	9279549
SG3-D15-15-75' Soil	10/18/2017	9279550
SG3-D09-0-15' Soil	10/16/2017	9279551
SG3-D09-15-26' Soil	10/16/2017	9279552
SG3-D09-26-34' Soil	10/16/2017	9279553
SG3-D09-34-70' Soil	10/16/2017	9279554
SG3-MW-BR1-260-285' Soil	10/09/2017	9279559
SG3-MW-BR1-290-299' Soil	10/09/2017	9279560
SG3-MW-BR1-170-180' Soil	10/09/2017	9279561
SG3-MW-BR1-193-195' Soil	10/09/2017	9279562
SG3-MW-BR1-223-260' Soil	10/09/2017	9279563
SG3-D26-0-3.5' Soil	10/10/2017	9279564
SG3-D26-3.5-10' Soil	10/10/2017	9279565
SG3-D26-10-40' Soil	10/11/2017	9279566
SG3-MWBR2-134-135' Soil	10/12/2017	9279567

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866549

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D15-0.5-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/18/2017
SDG#: SNB08-01

C. T. Male Associates
ELLE Sample #: SW 9279549
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.2**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**89.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**70.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**65.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**60.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**56.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**21.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**2.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-15-75' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/18/2017
SDG#: SNB08-02

C. T. Male Associates
ELLE Sample #: SW 9279550
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**85.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**81.1**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**71.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**67.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**63.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**59.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**52.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-0-15' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/16/2017
SDG#: SNB08-03

C. T. Male Associates
ELLE Sample #: SW 9279551
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**75.5**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**55.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**51.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**48.7**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**40.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**15.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**12.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**11.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**4.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**0.50**	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-15-26' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/16/2017
SDG#: SNB08-04

C. T. Male Associates
ELLE Sample #: SW 9279552
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**81.7**	0.50	0.50	1
07103	**19 mm**	n.a.	**51.8**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**29.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**27.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**25.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**18.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**15.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**13.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**10.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**10.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**2.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-26-34' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/16/2017
SDG#: SNB08-05

C. T. Male Associates
ELLE Sample #: SW 9279553
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**93.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**91.2**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**87.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**83.1**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**70.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**61.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**52.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**43.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**28.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**8.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D09-34-70' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/16/2017
SDG#: SNB08-06

C. T. Male Associates
ELLE Sample #: SW 9279554
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**97.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**90.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**87.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**83.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**79.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**75.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**68.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**62.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**54.1**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**52.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**31.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**18.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.5**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-260-285' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SNB08-11

C. T. Male Associates
ELLE Sample #: SW 9279559
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**94.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**80.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**67.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**60.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**54.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**50.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**47.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**47.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**46.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**20.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**10.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-290-299' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SNB08-12

C. T. Male Associates
ELLE Sample #: SW 9279560
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**98.1**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**96.8**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**92.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**89.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**85.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**84.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**80.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**66.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**37.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**19.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**10.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-170-180' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SNB08-13

C. T. Male Associates
ELLE Sample #: SW 9279561
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**97.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**95.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**92.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**88.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**84.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**78.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**70.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**70.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**67.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**54.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-193-195' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SNB08-14

C. T. Male Associates
ELLE Sample #: SW 9279562
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**98.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**96.7**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**94.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**89.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**81.4**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**73.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**66.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**60.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**59.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**54.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**42.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**16.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**2.5**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR1-223-260' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/09/2017
SDG#: SNB08-15

C. T. Male Associates
ELLE Sample #: SW 9279563
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**96.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**95.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**92.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**88.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**84.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**80.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**76.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**70.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**69.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**66.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**55.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**26.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**12.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-0-3.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB08-16

C. T. Male Associates
ELLE Sample #: SW 9279564
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**85.7**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**67.0**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**63.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**59.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**56.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**53.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.5**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**45.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**39.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**37.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**33.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**21.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-3.5-10' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/10/2017
SDG#: SNB08-17

C. T. Male Associates
ELLE Sample #: SW 9279565
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**84.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**80.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**75.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**70.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**65.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**60.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**55.7**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**50.9**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**49.5**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**46.5**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**32.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**14.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D26-10-40' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/11/2017
SDG#: SNB08-18

C. T. Male Associates
ELLE Sample #: SW 9279566
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**83.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**77.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**70.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**63.3**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**59.7**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**54.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**49.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**42.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**41.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**38.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**9.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**8.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-134-135' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/12/2017
SDG#: SNB08-19

C. T. Male Associates
ELLE Sample #: SW 9279567
ELLE Group #: 1866549
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**96.1**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**81.4**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**79.3**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**77.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**70.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**55.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**36.4**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**25.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**18.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**6.5**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**1.5**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17308710302A	11/03/2017 14:00	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1866549
Reported: 11/14/2017 07:58

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1866549 9279549-67

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47394

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Lathram NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Sediment grain size analysis	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-D15-0.5-15'	0.5	15	ft	10-18-17		Soil	N	1		1		A	N	Sediment grain size analysis
2. SG3-D15-15-75'	15	75	ft	10-18-17		S	N	1		1		A	N	
3. SG3-D09-0-15'	0	15	ft	10-16-17		S	N	1		1		A	N	
4. SG3-D09-15-26'	15	26	ft	10-16-17		S	N	1		1		A	N	
5. SG3-D09-26-34'	26	34	ft	10-16-17		S	N	1		1		A	N	
6. SG3-D09-34-70'	34	70	ft	10-16-17		S	N	1		1		A	N	
7. SG3-MWBR2-4-5'	4	5	ft	10-12-17		S	N	1		1		A	N	
8. SG3-MWBR2-45-46'	45	46	ft	10-12-17		S	N	1		1		A	N	
9. SG3-MWBR2-50-51'	50	51	ft	10-12-17		S	N	1		1		A	N	
10. SG3-MWBR2-90-91'	90	91	ft	10-12-17		S	N	1		1		A	N	

BARR USE ONLY

Sampled by: DJZ / KAM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] On Ice? Y ☒ N ☐ Date 10-23-17 Time 1700

Relinquished by: On Ice? Y ☐ N ☐ Date Time

Received by: Date Time

Received by: [signature] Date 10/24/17 Time 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☒ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

37191 1866549 927549-67

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47372

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: Grain Size Analysis (PSD)	Soil: % Solids	Preservative Code	Field Filtered Y/N	
											A		1		
1.	SG3-MW-BR1-260-285'	260	285	ft	10/09/2017		S	N	1		1				Sediment grain size analysis
2.	~~SG3-MW-BR1-285-290'~~	~~285~~	~~290~~	~~ft~~	~~10/09/2017~~		~~S~~	~~N~~	~~1~~		1				
3.	SG3-MW-BR1-290-299	290	299	ft	10/09/2017		S	N	1		1				
4.	SG3-MW-BR1-170-180'	170	180	ft	10/09/2017		S	N	1		1				
5.	SG3-MW-BR1-193-195'	193	195	ft	10/09/2017		S	N	1		1				
6.	SG3-MW-BR1-223-260	223	260	ft	10/09/2017		S	N	1		1				
7.	SG3-D26-0-3.5'	0	3.5	ft	10-10-17		S	N	1		1				
8.	SG3-D26-3.5-10'	3.5	10	ft	10-10-17		S	N	1		1				
9.	SG3-D26-10-40	10	40	ft	10-11-17		S	N	1		1				
10.	~~SG3-B~~MW BR2-134-135	134	135	ft	10-12-17		S	N	1		1				

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	KAM / DJZ	Dirk Zander	Y (N)	10-23-17	1700			
Barr Proj. Manager:	JTC	Relinquished by	On Ice? Y N	Date	Time	Received by	Date 10/24/17	Time 935
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): N/A			Custody Seal Intact? ☐ Y ☐ N ☑ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198562

Group Number(s): 1866549

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 12:10 on 10/24/2017

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 13, 2017 15:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866657
SDG: SNB09
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FDS15-171021 Soil	10/21/2017	9279983
SG3-MW-BR4-28-29' Soil	10/21/2017 10:00	9279984
SG3-MW-BR4-28-29' MS Soil	10/21/2017 10:00	9279985
SG3-MW-BR4-28-29' MSD Soil	10/21/2017 10:00	9279986
SG3-MW-BR4-28-29' Dupl Soil	10/21/2017 10:00	9279987
SG3-MW-BR4-38-39' Soil	10/21/2017 10:10	9279988
SG3-MW-BR4-48-49' Soil	10/21/2017 11:15	9279989
SG3-MW-BR4-58-59' Soil	10/21/2017 11:40	9279990
SG3-MW-BR4-68-69' Soil	10/21/2017 12:20	9279991
SG3-MW-BR4-78-79' Soil	10/21/2017 13:30	9279992
SG3-MW-BR4-88-89' Soil	10/21/2017 14:10	9279993
SG3-LTB89-171021 Blank Water	10/21/2017	9279994
SG3-LTB90-171021 Blank Water	10/21/2017	9279995

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866657

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9279994

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample #s: 9279983, 9279984, 9279985, 9279986, 9279988, 9279989, 9279991, 9279992, 9279993

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9279990

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards are again outside of QC acceptance limits. The data reported is from the initial trial and comparable results were observed with the exception of native compound PFBA. Native compound PFBA was not detected in the re-extract. Both sets of data are included in the data package.

Batch #: 17299009 (Sample number(s): 9279994-9279995)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9279994, LCSD

Batch #: 17303009 (Sample number(s): 9279983-9279986, 9279988-9279993 UNSPK: 9279984)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorononanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9279986, 9279989, 9279990, MSD

SW-846 6010C, Metals

Batch #: 172981063703 (Sample number(s): 9279983-9279993 UNSPK: 9279984 BKG: 9279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Calcium, Magnesium, Zinc

SW-846 6020A, Metals

Batch #: 172981063703A (Sample number(s): 9279983-9279993 UNSPK: 9279984 BKG: 9279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Chromium, Lead, Nickel, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Chromium, Copper, Lead, Nickel, Vanadium

Batch #: 172981063703D (Sample number(s): 9279983-9279993 UNSPK: 9279984 BKG: 9279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9279991, 9279992, 9279993

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17312667631B (Sample number(s): 9279984-9279985, 9279987-9279988, 9279990-9279993 UNSPK: 9279984 BKG: 9279984)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9279988

The pH was measured in water at 19.8 C.

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Sample #s: 9279993

The pH was measured in water at 20.2 C.

Sample #s: 9279983, 9279989

The pH was measured in water at 20.4 C.

Sample #s: 9279984, 9279987, 9279992

The pH was measured in water at 20.5 C.

Sample #s: 9279990, 9279991

The pH was measured in water at 20.7 C.

Sample Description: **SG3-FDS15-171021 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017
SDG#: SNB09-01FD

C. T. Male Associates
ELLE Sample #: SW 9279983
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,250**	9.41	42.1	1
01650	**Calcium**	7440-70-2	**41,000**	3.51	42.1	1
01654	**Iron**	7439-89-6	**22,100**	8.48	42.1	1
01657	**Magnesium**	7439-95-4	**21,800**	2.56	21.1	1
06958	**Manganese**	7439-96-5	**672**	0.0874	1.05	1
01662	**Potassium**	7440-09-7	**1,240**	17.6	105	1
01667	**Sodium**	7440-23-5	**45.6 J**	17.6	211	1
06972	**Zinc**	7440-66-6	**46.5**	0.253	4.21	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.139 J**	0.0981	0.421	2
06125	**Arsenic**	7440-38-2	**8.74**	0.135	0.842	2
06126	**Barium**	7440-39-3	**52.0**	0.191	0.842	2
06127	**Beryllium**	7440-41-7	**0.491**	0.0110	0.211	2
06128	**Cadmium**	7440-43-9	**0.212**	0.0362	0.211	2
06131	**Chromium**	7440-47-3	**10.5**	0.183	0.842	2
06132	**Cobalt**	7440-48-4	**14.4**	0.0329	0.211	2
06133	**Copper**	7440-50-8	**13.5**	0.113	0.842	2
06135	**Lead**	7439-92-1	**12.7**	0.0234	0.421	2
06139	**Nickel**	7440-02-0	**17.7**	0.210	0.842	2
06141	**Selenium**	7782-49-2	**0.164 J**	0.105	0.842	2
06142	**Silver**	7440-22-4	**0.0318 J**	0.0307	0.211	2
06145	**Thallium**	7440-28-0	**0.209 J**	0.0263	0.211	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS15-171021 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017
SDG#: SNB09-01FD

C. T. Male Associates
ELLE Sample #: SW 9279983
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**10.9**	0.0449	0.211	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**3,720**	364	1,090	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.68**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 14:03	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:30	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:36	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:51	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:36	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS15-171021 Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017
SDG#: SNB09-01FD

C. T. Male Associates
ELLE Sample #: SW 9279983
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:51	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:51	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/10/2017 23:14	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02BKG

C. T. Male Associates
ELLE Sample #: SW 9279984
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.088 U	0.088	0.35	1
14027	Perfluorononanoic acid	375-95-1	0.088 U	0.088	0.35	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.26 U	0.26	0.79	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,480**	9.64	43.1	1
01650	**Calcium**	7440-70-2	**52,300**	3.59	43.1	1
01654	**Iron**	7439-89-6	**15,900**	8.68	43.1	1
01657	**Magnesium**	7439-95-4	**31,400**	2.62	21.6	1
06958	**Manganese**	7439-96-5	**452**	0.0895	1.08	1
01662	**Potassium**	7440-09-7	**1,470**	18.0	108	1
01667	**Sodium**	7440-23-5	**36.9 J**	18.0	216	1
06972	**Zinc**	7440-66-6	**26.8**	0.259	4.31	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.100 U	0.100	0.431	2
06125	**Arsenic**	7440-38-2	**3.45**	0.138	0.862	2
06126	**Barium**	7440-39-3	**41.8**	0.196	0.862	2
06127	**Beryllium**	7440-41-7	**0.424**	0.0113	0.216	2
06128	**Cadmium**	7440-43-9	**0.113 J**	0.0371	0.216	2
06131	**Chromium**	7440-47-3	**5.66**	0.188	0.862	2
06132	**Cobalt**	7440-48-4	**8.30**	0.0336	0.216	2
06133	**Copper**	7440-50-8	**8.50**	0.116	0.862	2
06135	**Lead**	7439-92-1	**10.2**	0.0239	0.431	2
06139	**Nickel**	7440-02-0	**11.3**	0.215	0.862	2
06141	**Selenium**	7782-49-2	**0.142 J**	0.108	0.862	2
06142	Silver	7440-22-4	0.0315 U	0.0315	0.216	2
06145	**Thallium**	7440-28-0	**0.202 J**	0.0269	0.216	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02BKG

C. T. Male Associates
ELLE Sample #: SW 9279984
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.29**	0.0459	0.216	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,620**	118	353	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.67**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 14:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:08	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:26	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:32	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:26	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02BKG

C. T. Male Associates
ELLE Sample #: SW 9279984
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:32	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:32	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 02:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02MS

C. T. Male Associates
ELLE Sample #: SW 9279985
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.5**	0.19	0.58	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.6**	0.19	0.58	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.5**	0.19	0.58	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.4**	0.19	0.58	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.19	0.58	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.3**	0.096	0.38	1
14027	**Perfluorononanoic acid**	375-95-1	**1.1**	0.096	0.38	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.2**	0.29	0.87	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.3**	0.19	0.58	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.3**	0.19	0.58	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.4**	0.19	0.58	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.6**	0.19	0.58	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.3**	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**19,100**	8.52	38.1	1
01650	**Calcium**	7440-70-2	**19,500**	3.17	38.1	1
01654	**Iron**	7439-89-6	**17,700**	7.67	38.1	1
01657	**Magnesium**	7439-95-4	**12,400**	2.32	19.1	1
06958	**Manganese**	7439-96-5	**499**	0.0791	0.953	1
01662	**Potassium**	7440-09-7	**3,490**	15.9	95.3	1
01667	**Sodium**	7440-23-5	**938**	15.9	191	1
06972	**Zinc**	7440-66-6	**75.8**	0.229	3.81	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.978**	0.0888	0.381	2
06125	**Arsenic**	7440-38-2	**5.04**	0.122	0.763	2
06126	**Barium**	7440-39-3	**61.3**	0.173	0.763	2
06127	**Beryllium**	7440-41-7	**1.31**	0.010	0.191	2
06128	**Cadmium**	7440-43-9	**1.10**	0.0328	0.191	2
06131	**Chromium**	7440-47-3	**16.5**	0.166	0.763	2
06132	**Cobalt**	7440-48-4	**60.7**	0.0297	0.191	2
06133	**Copper**	7440-50-8	**20.5**	0.102	0.763	2
06135	**Lead**	7439-92-1	**15.7**	0.0212	0.381	2
06139	**Nickel**	7440-02-0	**24.2**	0.190	0.763	2
06141	**Selenium**	7782-49-2	**2.19**	0.0953	0.763	2
06142	**Silver**	7440-22-4	**10.6**	0.0278	0.191	2
06145	**Thallium**	7440-28-0	**0.606**	0.0238	0.191	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02MS

C. T. Male Associates
ELLE Sample #: SW 9279985
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.3**	0.0406	0.191	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**24,000**	647	1,940	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 10:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:19	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:31	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:42	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:31	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:42	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:42	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 03:05	Drew M Gerhart	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02MS

C. T. Male Associates
ELLE Sample #: SW 9279985
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR4-28-29' MSD Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02MSD

C. T. Male Associates
ELLE Sample #: SW 9279986
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.20	0.61	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.5**	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.20	0.61	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.4**	0.20	0.61	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.20	0.61	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.10	0.40	1
14027	**Perfluorononanoic acid**	375-95-1	**1.8**	0.10	0.40	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.30	0.91	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**	0.20	0.61	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.4**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**21,800**	10.0	44.8	1
01650	**Calcium**	7440-70-2	**18,300**	3.73	44.8	1
01654	**Iron**	7439-89-6	**19,100**	9.01	44.8	1
01657	**Magnesium**	7439-95-4	**11,900**	2.72	22.4	1
06958	**Manganese**	7439-96-5	**522**	0.0929	1.12	1
01662	**Potassium**	7440-09-7	**4,060**	18.7	112	1
01667	**Sodium**	7440-23-5	**1,120**	18.7	224	1
06972	**Zinc**	7440-66-6	**88.3**	0.269	4.48	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.21**	0.104	0.448	2
06125	**Arsenic**	7440-38-2	**5.70**	0.143	0.896	2
06126	**Barium**	7440-39-3	**66.0**	0.203	0.896	2
06127	**Beryllium**	7440-41-7	**1.45**	0.0117	0.224	2
06128	**Cadmium**	7440-43-9	**1.28**	0.0385	0.224	2
06131	**Chromium**	7440-47-3	**20.0**	0.195	0.896	2
06132	**Cobalt**	7440-48-4	**67.6**	0.0349	0.224	2
06133	**Copper**	7440-50-8	**22.3**	0.120	0.896	2
06135	**Lead**	7439-92-1	**16.5**	0.0249	0.448	2
06139	**Nickel**	7440-02-0	**25.6**	0.223	0.896	2
06141	**Selenium**	7782-49-2	**2.45**	0.112	0.896	2
06142	**Silver**	7440-22-4	**12.2**	0.0327	0.224	2
06145	**Thallium**	7440-28-0	**0.615**	0.0280	0.224	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02MSD

C. T. Male Associates
ELLE Sample #: SW 9279986
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**24.8**	0.0477	0.224	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 10:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:23	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:45	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:33	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:45	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:45	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3-MW-BR4-28-29' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02DUP

C. T. Male Associates
ELLE Sample #: SW 9279987
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,500**	10.0	44.8	1
01650	**Calcium**	7440-70-2	**17,800**	3.73	44.8	1
01654	**Iron**	7439-89-6	**19,400**	9.01	44.8	1
01657	**Magnesium**	7439-95-4	**11,400**	2.72	22.4	1
06958	**Manganese**	7439-96-5	**545**	0.0929	1.12	1
01662	**Potassium**	7440-09-7	**1,700**	18.7	112	1
01667	**Sodium**	7440-23-5	**41.2 J**	18.7	224	1
06972	**Zinc**	7440-66-6	**34.7**	0.269	4.48	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.110 J**	0.104	0.448	2
06125	**Arsenic**	7440-38-2	**3.59**	0.143	0.896	2
06126	**Barium**	7440-39-3	**52.9**	0.203	0.896	2
06127	**Beryllium**	7440-41-7	**0.516**	0.0117	0.224	2
06128	**Cadmium**	7440-43-9	**0.0954 J**	0.0385	0.224	2
06131	**Chromium**	7440-47-3	**7.43**	0.195	0.896	2
06132	**Cobalt**	7440-48-4	**10.0**	0.0349	0.224	2
06133	**Copper**	7440-50-8	**11.4**	0.120	0.896	2
06135	**Lead**	7439-92-1	**13.2**	0.0249	0.448	2
06139	**Nickel**	7440-02-0	**14.9**	0.223	0.896	2
06141	**Selenium**	7782-49-2	**0.172 J**	0.112	0.896	2
06142	Silver	7440-22-4	0.0327 U	0.0327	0.224	2
06145	**Thallium**	7440-28-0	**0.165 J**	0.0280	0.224	2
06148	**Vanadium**	7440-62-2	**10.8**	0.0477	0.224	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,140**	120	360	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.65**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**13.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**13.8**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-28-29' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:00
SDG#: SNB09-02DUP

C. T. Male Associates
ELLE Sample #: SW 9279987
ELLE Group #: 1866657
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:16	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:39	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:39	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:39	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 03:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:10
SDG#: SNB09-03

C. T. Male Associates
ELLE Sample #: SW 9279988
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,030**	9.00	40.3	1
01650	**Calcium**	7440-70-2	**27,100**	3.35	40.3	1
01654	**Iron**	7439-89-6	**21,600**	8.10	40.3	1
01657	**Magnesium**	7439-95-4	**13,900**	2.45	20.1	1
06958	**Manganese**	7439-96-5	**679**	0.0835	1.01	1
01662	**Potassium**	7440-09-7	**1,250**	16.8	101	1
01667	**Sodium**	7440-23-5	**45.9 J**	16.8	201	1
06972	**Zinc**	7440-66-6	**43.2**	0.242	4.03	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0938 U	0.0938	0.403	2
06125	**Arsenic**	7440-38-2	**9.03**	0.129	0.805	2
06126	**Barium**	7440-39-3	**54.9**	0.183	0.805	2
06127	**Beryllium**	7440-41-7	**0.464**	0.0105	0.201	2
06128	**Cadmium**	7440-43-9	**0.186 J**	0.0346	0.201	2
06131	**Chromium**	7440-47-3	**9.19**	0.175	0.805	2
06132	**Cobalt**	7440-48-4	**15.8**	0.0314	0.201	2
06133	**Copper**	7440-50-8	**14.6**	0.108	0.805	2
06135	**Lead**	7439-92-1	**13.8**	0.0223	0.403	2
06139	**Nickel**	7440-02-0	**17.5**	0.201	0.805	2
06141	**Selenium**	7782-49-2	**0.166 J**	0.101	0.805	2
06142	**Silver**	7440-22-4	**0.0423 J**	0.0294	0.201	2
06145	**Thallium**	7440-28-0	**0.187 J**	0.0252	0.201	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:10
SDG#: SNB09-03

C. T. Male Associates
ELLE Sample #: SW 9279988
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**11.0**	0.0429	0.201	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**5,750**	151	453	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.27**	0.0100	0.0100	1
	The pH was measured in water at 19.8 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 14:44	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:34	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:42	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 11:55	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:42	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 10:10
SDG#: SNB09-03

C. T. Male Associates
ELLE Sample #: SW 9279988
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 11:55	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 11:55	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 03:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17298039403B	10/25/2017 20:45	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:15
SDG#: SNB09-04

C. T. Male Associates
ELLE Sample #: SW 9279989
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,690**	9.50	42.5	1
01650	**Calcium**	7440-70-2	**35,000**	3.54	42.5	1
01654	**Iron**	7439-89-6	**24,100**	8.55	42.5	1
01657	**Magnesium**	7439-95-4	**17,500**	2.58	21.2	1
06958	**Manganese**	7439-96-5	**689**	0.0882	1.06	1
01662	**Potassium**	7440-09-7	**1,410**	17.7	106	1
01667	**Sodium**	7440-23-5	**51.5 J**	17.7	212	1
06972	**Zinc**	7440-66-6	**50.9**	0.255	4.25	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.144 J**	0.0990	0.425	2
06125	**Arsenic**	7440-38-2	**11.7**	0.136	0.850	2
06126	**Barium**	7440-39-3	**55.3**	0.193	0.850	2
06127	**Beryllium**	7440-41-7	**0.535**	0.0111	0.212	2
06128	**Cadmium**	7440-43-9	**0.205 J**	0.0365	0.212	2
06131	**Chromium**	7440-47-3	**9.85**	0.185	0.850	2
06132	**Cobalt**	7440-48-4	**14.9**	0.0331	0.212	2
06133	**Copper**	7440-50-8	**15.8**	0.114	0.850	2
06135	**Lead**	7439-92-1	**12.6**	0.0236	0.425	2
06139	**Nickel**	7440-02-0	**17.7**	0.212	0.850	2
06141	**Selenium**	7782-49-2	**0.184 J**	0.106	0.850	2
06142	**Silver**	7440-22-4	**0.0351 J**	0.0310	0.212	2
06145	**Thallium**	7440-28-0	**0.187 J**	0.0266	0.212	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:15
SDG#: SNB09-04

C. T. Male Associates
ELLE Sample #: SW 9279989
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**12.3**	0.0453	0.212	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**7,920**	554	1,660	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.83**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 15:04	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:46	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:43	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:04	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:43	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:15
SDG#: SNB09-04

C. T. Male Associates
ELLE Sample #: SW 9279989
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:04	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:04	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/10/2017 23:27	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:40
SDG#: SNB09-05

C. T. Male Associates
ELLE Sample #: SW 9279990
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.30 J**	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits. The sample was re-extracted and the recovery of labeled compounds used as extraction standards are again outside of QC acceptance limits. The data reported is from the initial trial and comparable results were observed with the exception of native compound PFBA. Native compound PFBA was not detected in the re-extract. Both sets of data are included in the data package.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,000**	9.61	43.0	1
01650	**Calcium**	7440-70-2	**276**	3.58	43.0	1
01654	**Iron**	7439-89-6	**22,500**	8.65	43.0	1
01657	**Magnesium**	7439-95-4	**653**	2.61	21.5	1
06958	**Manganese**	7439-96-5	**123**	0.0892	1.08	1
01662	**Potassium**	7440-09-7	**1,700**	18.0	108	1
01667	**Sodium**	7440-23-5	**25.0 J**	18.0	215	1
06972	**Zinc**	7440-66-6	**48.2**	0.258	4.30	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.204 J**	0.100	0.430	2
06125	**Arsenic**	7440-38-2	**8.03**	0.138	0.860	2
06126	**Barium**	7440-39-3	**47.7**	0.195	0.860	2
06127	**Beryllium**	7440-41-7	**0.896**	0.0113	0.215	2
06128	**Cadmium**	7440-43-9	**0.110 J**	0.0370	0.215	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:40
SDG#: SNB09-05

C. T. Male Associates
ELLE Sample #: SW 9279990
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06131	**Chromium**		7440-47-3	**11.5**	0.187	0.860	2
06132	**Cobalt**		7440-48-4	**8.57**	0.0335	0.215	2
06133	**Copper**		7440-50-8	**25.6**	0.115	0.860	2
06135	**Lead**		7439-92-1	**19.1**	0.0239	0.430	2
06139	**Nickel**		7440-02-0	**15.1**	0.214	0.860	2
06141	**Selenium**		7782-49-2	**0.260 J**	0.108	0.860	2
06142	**Silver**		7440-22-4	**0.0325 J**	0.0314	0.215	2
06145	**Thallium**		7440-28-0	**0.224**	0.0269	0.215	2
06148	**Vanadium**		7440-62-2	**15.4**	0.0458	0.215	2
Wet Chemistry		**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**		n.a.	**399**	109	326	1
		SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**		n.a.	**8.40**	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.						
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**		n.a.	**7.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 15:25	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:49	Patrick J Engle	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 11:40
SDG#: SNB09-05

C. T. Male Associates
ELLE Sample #: SW 9279990
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:45	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:07	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:45	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:07	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:07	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 03:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 12:20
SDG#: SNB09-06

C. T. Male Associates
ELLE Sample #: SW 9279991
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,680**	8.27	37.0	1
01650	**Calcium**	7440-70-2	**74.2**	3.08	37.0	1
01654	**Iron**	7439-89-6	**2,270**	7.44	37.0	1
01657	**Magnesium**	7439-95-4	**166**	2.25	18.5	1
06958	**Manganese**	7439-96-5	**15.5**	0.0768	0.925	1
01662	**Potassium**	7440-09-7	**1,160**	15.4	92.5	1
01667	Sodium	7440-23-5	15.4 U	15.4	185	1
06972	**Zinc**	7440-66-6	**5.54**	0.222	3.70	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0862 U	0.0862	0.370	2
06125	**Arsenic**	7440-38-2	**1.47**	0.118	0.740	2
06126	**Barium**	7440-39-3	**22.3**	0.168	0.740	2
06127	**Beryllium**	7440-41-7	**0.257**	0.0097	0.185	2
06128	Cadmium	7440-43-9	0.0318 U	0.0318	0.185	2
06131	**Chromium**	7440-47-3	**1.99**	0.161	0.740	2
06132	**Cobalt**	7440-48-4	**0.829**	0.0289	0.185	2
06133	**Copper**	7440-50-8	**2.66**	0.0991	0.740	2
06135	**Lead**	7439-92-1	**4.16**	0.0205	0.370	2
06139	**Nickel**	7440-02-0	**1.60**	0.184	0.740	2
06141	**Selenium**	7782-49-2	**0.114 J**	0.0925	0.740	2
06142	Silver	7440-22-4	0.0270 U	0.0270	0.185	2
06145	**Thallium**	7440-28-0	**0.0616 J**	0.0231	0.185	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 12:20
SDG#: SNB09-06

C. T. Male Associates
ELLE Sample #: SW 9279991
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**2.12**		0.0394	0.185	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**159**	**J**	128	384	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.51**		0.0100	0.0100	1
	The pH was measured in water at 20.7 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 15:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/31/2017 12:19	Eric L Eby	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	11/01/2017 22:32	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:53	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:47	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:10	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:47	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 12:20
SDG#: SNB09-06

C. T. Male Associates
ELLE Sample #: SW 9279991
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	11/01/2017 09:47	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:10	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:10	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 04:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 13:30
SDG#: SNB09-07

C. T. Male Associates
ELLE Sample #: SW 9279992
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.082 U	0.082	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.082 U	0.082	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,590**	11.0	49.4	1
01650	**Calcium**	7440-70-2	**340**	4.11	49.4	1
01654	**Iron**	7439-89-6	**4,440**	9.94	49.4	1
01657	**Magnesium**	7439-95-4	**312**	3.00	24.7	1
06958	**Manganese**	7439-96-5	**38.5**	0.102	1.23	1
01662	**Potassium**	7440-09-7	**862**	20.6	123	1
01667	Sodium	7440-23-5	20.6 U	20.6	247	1
06972	**Zinc**	7440-66-6	**10.1**	0.296	4.94	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.115 U	0.115	0.494	2
06125	**Arsenic**	7440-38-2	**2.22**	0.158	0.988	2
06126	**Barium**	7440-39-3	**15.9**	0.224	0.988	2
06127	**Beryllium**	7440-41-7	**0.307**	0.0129	0.247	2
06128	**Cadmium**	7440-43-9	**0.0590 J**	0.0425	0.247	2
06131	**Chromium**	7440-47-3	**4.60**	0.215	0.988	2
06132	**Cobalt**	7440-48-4	**2.23**	0.0385	0.247	2
06133	**Copper**	7440-50-8	**5.07**	0.132	0.988	2
06135	**Lead**	7439-92-1	**4.94**	0.0274	0.494	2
06139	**Nickel**	7440-02-0	**2.70**	0.246	0.988	2
06141	**Selenium**	7782-49-2	**0.160 J**	0.123	0.988	2
06142	Silver	7440-22-4	0.0360 U	0.0360	0.247	2
06145	**Thallium**	7440-28-0	**0.0815 J**	0.0309	0.247	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 13:30
SDG#: SNB09-07

C. T. Male Associates
ELLE Sample #: SW 9279992
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**3.11**		0.0526	0.247	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**176**	**J**	127	381	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.50**		0.0100	0.0100	1
	The pH was measured in water at 20.5 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**19.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 16:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	11/01/2017 22:35	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 11:57	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:49	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:49	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 13:30
SDG#: SNB09-07

C. T. Male Associates
ELLE Sample #: SW 9279992
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	11/01/2017 09:49	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:14	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 04:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 14:10
SDG#: SNB09-08

C. T. Male Associates
ELLE Sample #: SW 9279993
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,090**	9.96	44.6	1
01650	**Calcium**	7440-70-2	**171**	3.71	44.6	1
01654	**Iron**	7439-89-6	**11,900**	8.97	44.6	1
01657	**Magnesium**	7439-95-4	**261**	2.71	22.3	1
06958	**Manganese**	7439-96-5	**566**	0.0924	1.11	1
01662	**Potassium**	7440-09-7	**819**	18.6	111	1
01667	Sodium	7440-23-5	18.6 U	18.6	223	1
06972	**Zinc**	7440-66-6	**17.2**	0.267	4.46	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.104 U	0.104	0.446	2
06125	**Arsenic**	7440-38-2	**2.92**	0.143	0.891	2
06126	**Barium**	7440-39-3	**107**	0.202	0.891	2
06127	**Beryllium**	7440-41-7	**0.221 J**	0.0117	0.223	2
06128	**Cadmium**	7440-43-9	**0.0682 J**	0.0383	0.223	2
06131	**Chromium**	7440-47-3	**6.84**	0.194	0.891	2
06132	**Cobalt**	7440-48-4	**3.21**	0.0348	0.223	2
06133	**Copper**	7440-50-8	**4.20**	0.119	0.891	2
06135	**Lead**	7439-92-1	**3.61**	0.0247	0.446	2
06139	**Nickel**	7440-02-0	**3.61**	0.222	0.891	2
06141	Selenium	7782-49-2	0.111 U	0.111	0.891	2
06142	Silver	7440-22-4	0.0325 U	0.0325	0.223	2
06145	**Thallium**	7440-28-0	**0.331**	0.0278	0.223	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 14:10
SDG#: SNB09-08

C. T. Male Associates
ELLE Sample #: SW 9279993
ELLE Group #: 1866657
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**5.50**		0.0474	0.223	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**212**	**J**	122	365	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.49**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17303009	11/02/2017 16:26	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17303009	11/01/2017 09:20	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:00	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:50	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:50	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 14:10
SDG#: SNB09-08

C. T. Male Associates
ELLE Sample #: SW 9279993
ELLE Group #: 1866657
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	11/01/2017 09:50	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:17	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/09/2017 04:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820011B	10/27/2017 11:57	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB89-171021 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017
SDG#: SNB09-09TB

C. T. Male Associates
ELLE Sample #: WW 9279994
ELLE Group #: 1866657
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 18:02	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB90-171021 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017
SDG#: SNB09-10TB

C. T. Male Associates
ELLE Sample #: WW 9279995
ELLE Group #: 1866657
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 18:23	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17303009	Sample number(s): 9279983-9279986,9279988-9279993		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17299009	Sample number(s): 9279994-9279995		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172981063703	Sample number(s): 9279983-9279993		
Aluminum	11.3 J	8.94	40.0
Calcium	19.0 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.249 J	0.240	4.00
Batch number: 172981063703A	Sample number(s): 9279983-9279993		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.128 J	0.107	0.800
Lead	0.0246 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172981063703B	Sample number(s): 9279983-9279993		
Selenium	0.100 U	0.100	0.800
Batch number: 172981063703D	Sample number(s): 9279983-9279993		
Barium	0.182 U	0.182	0.800
Batch number: 17312667631B	Sample number(s): 9279984-9279985,9279987-9279988,9279990-9279993		
TOC	100 U	100	300
Batch number: 17312667633A	Sample number(s): 9279983,9279989		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17303009	Sample number(s): 9279983-9279986,9279988-9279993								
Perfluorobutanesulfonate	1.20	1.20			99		70-130		
Perfluorobutanoic acid	1.36	1.54			113		70-130		
Perfluorodecanoic acid	1.36	1.33			98		70-130		
Perfluorododecanoic acid	1.36	1.54			113		70-130		
Perfluoroheptanoic acid	1.36	1.53			113		70-130		
Perfluorohexanesulfonate	1.29	1.39			108		70-130		
Perfluorohexanoic acid	1.36	1.33			98		70-130		
Perfluorononanoic acid	1.36	1.28			94		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.48			114		70-130		
Perfluorooctanoic acid	1.36	1.63			120		70-130		
Perfluoropentanoic acid	1.36	1.42			105		70-130		
Perfluorotetradecanoic acid	1.36	1.43			105		70-130		
Perfluorotridecanoic acid	1.36	1.81			133*		70-130		
Perfluoroundecanoic acid	1.36	1.37			101		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299009	Sample number(s): 9279994-9279995								
Perfluorobutanesulfonate	4.81	5.09	4.81	4.94	106	103	70-130	3	30
Perfluorobutanoic acid	5.44	5.65	5.44	5.36	104	98	70-130	5	30
Perfluorodecanoic acid	5.44	5.77	5.44	5.26	106	97	70-130	9	30
Perfluorododecanoic acid	5.44	5.70	5.44	4.98	105	91	70-130	14	30
Perfluoroheptanoic acid	5.44	5.62	5.44	5.71	103	105	70-130	2	30
Perfluorohexanesulfonate	5.14	4.79	5.14	4.31	93	84	70-130	10	30
Perfluorohexanoic acid	5.44	5.19	5.44	5.32	95	98	70-130	2	30
Perfluorononanoic acid	5.44	5.71	5.44	5.43	105	100	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.82	5.20	4.56	93	88	70-130	6	30
Perfluorooctanoic acid	5.44	5.20	5.44	4.37	96	80	70-130	17	30
Perfluoropentanoic acid	5.44	5.43	5.44	5.13	100	94	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.41	5.44	4.95	99	91	70-130	9	30
Perfluorotridecanoic acid	5.44	5.04	5.44	4.33	93	80	70-130	15	30
Perfluoroundecanoic acid	5.44	5.50	5.44	5.76	101	106	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172981063703	Sample number(s): 9279983-9279993								
Aluminum	200	215.37			108		80-120		
Calcium	400	420.8			105		80-120		
Iron	100	103.57			104		80-120		
Magnesium	200	204.52			102		80-120		
Manganese	50	51.19			102		80-120		
Potassium	1000	1023.84			102		80-120		
Sodium	1000	992.74			99		80-120		
Zinc	50	50.44			101		80-120		
Batch number: 172981063703A	Sample number(s): 9279983-9279993								
Antimony	0.600	0.618			103		80-120		
Arsenic	1.00	1.13			113		80-120		
Beryllium	0.400	0.398			100		80-120		
Cadmium	0.500	0.529			106		80-120		
Chromium	5.00	5.42			108		80-120		
Cobalt	25	25.46			102		80-120		
Copper	5.00	5.36			107		80-120		
Lead	1.50	1.57			105		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	4.79			96		80-120		
Silver	5.00	5.05			101		80-120		
Thallium	0.200	0.227			114		80-120		
Vanadium	5.00	5.58			112		80-120		
Batch number: 172981063703B	Sample number(s): 9279983-9279993								
Selenium	1.00	1.09			109		80-120		
Batch number: 172981063703D	Sample number(s): 9279983-9279993								
Barium	5.00	5.38			108		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17312667631B	Sample number(s): 9279984-9279985,9279987-9279988,9279990-9279993								
TOC	7150	7774.57			109		47-143		
Batch number: 17312667633A	Sample number(s): 9279983,9279989								
TOC	7150	7637.56			107		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17298039403B	Sample number(s): 9279988								
pH	7.00	6.97			100		95-105		
Batch number: 17301039401A	Sample number(s): 9279983-9279984,9279987,9279989-9279993								
pH	7.00	6.98			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17299820011B	Sample number(s): 9279983-9279993								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17303009	Sample number(s): 9279983-9279986,9279988-9279993 UNSPK: 9279984									
Perfluorobutanesulfonate	0.15 U	1.00	0.946	1.05	1.09	94	104	70-130	14	30
Perfluorobutanoic acid	0.15 U	1.13	1.30	1.19	1.42	115	119	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.13	1.41	1.19	1.29	124	108	70-130	9	30
Perfluorododecanoic acid	0.15 U	1.13	1.27	1.19	1.19	112	100	70-130	7	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	0.15 U	1.13	1.24	1.19	1.23	109	103	70-130	0	30
Perfluorohexanesulfonate	0.15 U	1.07	1.26	1.13	1.32	118	117	70-130	4	30
Perfluorohexanoic acid	0.076 U	1.13	1.14	1.19	1.24	101	104	70-130	8	30
Perfluorononanoic acid	0.076 U	1.13	0.965	1.19	1.59	85	133*	70-130	49*	30
Perfluoro-octanesulfonate	0.23 U	1.08	1.06	1.14	1.37	98	120	70-130	25	30
Perfluorooctanoic acid	0.15 U	1.13	1.16	1.19	1.07	102	90	70-130	8	30
Perfluoropentanoic acid	0.15 U	1.13	1.11	1.19	1.27	98	107	70-130	13	30
Perfluorotetradecanoic acid	0.15 U	1.13	1.18	1.19	1.23	104	103	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.13	1.39	1.19	1.47	123	123	70-130	5	30
Perfluoroundecanoic acid	0.15 U	1.13	1.13	1.19	1.41	100	118	70-130	22	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172981063703	Sample number(s): 9279983-9279993 UNSPK: 9279984									
Aluminum	7349.21	165.29	16539.34	194.17	18926.69	5560 (2)	5962 (2)	75-125	13	20
Calcium	45375.82	330.58	16921.46	388.35	15867.32	-8607 (2)	-7598 (2)	75-125	6	20
Iron	13774.06	82.64	15313.93	97.09	16537.25	1863 (2)	2846 (2)	75-125	8	20
Magnesium	27262.45	165.29	10757.53	194.17	10303.47	-9985 (2)	-8734 (2)	75-125	4	20
Manganese	391.77	41.32	432.92	48.54	452.21	100 (2)	125 (2)	75-125	4	20
Potassium	1278.46	826.45	3023.46	970.87	3517.63	211*	231*	75-125	15	20
Sodium	31.98	826.45	813.48	970.87	974.43	95	97	75-125	18	20
Zinc	23.25	41.32	65.74	48.54	76.52	103	110	75-125	15	20
Batch number: 172981063703A	Sample number(s): 9279983-9279993 UNSPK: 9279984									
Antimony	0.0871 U	0.992	0.848	1.17	1.05	86	90	75-125	21*	20
Arsenic	2.99	1.65	4.37	1.94	4.94	84	101	75-125	12	20
Beryllium	0.368	0.661	1.14	0.777	1.25	117	114	75-125	10	20
Cadmium	0.0978	0.826	0.957	0.971	1.11	104	104	75-125	15	20
Chromium	4.91	8.26	14.34	9.71	17.31	114	128*	75-125	19	20
Cobalt	7.19	41.32	52.61	48.54	58.58	110	106	75-125	11	20
Copper	7.37	8.26	17.74	9.71	19.3	125	123	75-125	8	20
Lead	8.86	2.48	13.65	2.91	14.27	193*	186*	75-125	4	20
Nickel	9.76	8.26	20.95	9.71	22.16	135*	128*	75-125	6	20
Silver	0.0273 U	8.26	9.16	9.71	10.56	111	109	75-125	14	20
Thallium	0.175	0.331	0.525	0.388	0.533	106	92	75-125	1	20
Vanadium	7.19	8.26	17.58	9.71	21.49	126*	147*	75-125	20	20
Batch number: 172981063703B	Sample number(s): 9279983-9279993 UNSPK: 9279984									
Selenium	0.123	1.65	1.90	1.94	2.13	107	103	75-125	11	20
Batch number: 172981063703D	Sample number(s): 9279983-9279993 UNSPK: 9279984									
Barium	36.26	8.26	53.15	9.71	57.24	204 (2)	216*	75-125	7	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17312667631B	Sample number(s): 9279984-9279985,9279987-9279988,9279990-9279993 UNSPK: 9279984									
TOC	4870.09	16830	20801.57			95		47-143		
Batch number: 17312667633A	Sample number(s): 9279983,9279989 UNSPK: P281821									
TOC	811.15	19860	22748.34			110		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172981063703	Sample number(s): 9279983-9279993 BKG: 9279984			
Aluminum	7349.21	9979.57	30*	20
Calcium	45375.82	15406.45	99*	20
Iron	13774.06	16802.08	20	20
Magnesium	27262.45	9899.96	93*	20
Manganese	391.77	472.53	19	20
Potassium	1278.46	1473.34	14	20
Sodium	31.98	35.69	11 (1)	20
Zinc	23.25	30.11	26*	20
Batch number: 172981063703A	Sample number(s): 9279983-9279993 BKG: 9279984			
Antimony	0.0871 U	0.0955	200* (1)	20
Arsenic	2.99	3.11	4 (1)	20
Beryllium	0.368	0.447	19 (1)	20
Cadmium	0.0978	0.0827	17 (1)	20
Chromium	4.91	6.44	27*	20
Cobalt	7.19	8.69	19	20
Copper	7.37	9.90	29*	20
Lead	8.86	11.43	25*	20
Nickel	9.76	12.93	28*	20
Silver	0.0273 U	0.0283 U	0 (1)	20
Thallium	0.175	0.143	20 (1)	20
Vanadium	7.19	9.35	26*	20
Batch number: 172981063703B	Sample number(s): 9279983-9279993 BKG: 9279984			
Selenium	0.123	0.149	19 (1)	20
Batch number: 172981063703D	Sample number(s): 9279983-9279993 BKG: 9279984			
Barium	36.26	45.9	23*	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 17312667631B	Sample number(s): 9279984-9279985,9279987-9279988,9279990-9279993 BKG: 9279984			
TOC	4870.09	4460.13	9*	7
Batch number: 17312667633A	Sample number(s): 9279983,9279989 BKG: P281821			
TOC	811.15	774.24	5 (1)	7
	Std. Units	Std. Units		
Batch number: 17298039403B	Sample number(s): 9279988 BKG: P273647			
pH	7.23	7.27	1	3
Batch number: 17301039401A	Sample number(s): 9279983-9279984,9279987,9279989-9279993 BKG: 9279984			
pH	8.67	8.65	0	3
	%	%		
Batch number: 17299820011B	Sample number(s): 9279983-9279993 BKG: 9279984, P279984			
Moisture	13.29	13.79	4	5
Moisture	13.29	13.79	4	5
Moisture Duplicate	13.29	13.79	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9279994	104	110	97	113	98	107
9279995	85	84	73	87	75	89
Blank	91	95	84	98	86	92
LCS	87	90	75	98	76	96
LCSD	93	100	79	108	90	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9279994	126*	120*	133	121*	110	110
9279995	98	82	88	93	95	87
Blank	103	86	100	97	92	90

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
LCS	103	83	103	90	87	78
LCSD	114*	97	114	101	93	93
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9279994	107
9279995	83
Blank	77
LCS	73
LCSD	78
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17303009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9279983	80	83	77	79	86	83
9279984	75	73	70	81	85	73
9279985	73	72	73	74	65	70
9279986	69	67*	75	74	75	82
9279988	75	75	72	78	78	76
9279989	63	61*	62	61	65	60
9279990	40	38*	60	38*	63	45
9279991	71	73	67	80	76	70
9279992	80	77	70	75	73	72
9279993	79	79	72	87	91	84
Blank	91	88	84	87	86	82
LCS	83	77	78	86	76	87
MS	73	72	73	74	65	70
MSD	69	67*	75	74	75	82
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9279983	89	102	99	84	82	83
9279984	83	74	76	75	78	82
9279985	79	70	73	68	86	73
9279986	80	77	65	69	70	69

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:17

Group Number: 1866657

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17303009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9279988	80	78	70	89	83	85
9279989	65	62	52	61	71	65
9279990	44	56	40	44	46	45
9279991	78	86	79	84	79	81
9279992	79	77	76	86	89	79
9279993	86	86	82	79	79	79
Blank	91	99	100	102	105	98
LCS	91	85	96	95	96	86
MS	79	70	73	68	86	73
MSD	80	77	65	69	70	69
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9279983	72
9279984	68
9279985	73
9279986	69
9279988	75
9279989	63
9279990	44
9279991	75
9279992	77
9279993	70
Blank	100
LCS	89
MS	73
MSD	69
Limits:	20-127

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SAMPLES SPLIT INTO ~~FOUR~~ THREE COOLERS - 3719 1/1866057/9279983-95

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52703

COC 1 of 6

REPORT TO	INVOICE TO
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email: MDP@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blanks	Soil: 250ml poly PFCs (4)	Soil: 4oz 4s - TOC, Metals, pH, moist	Soil: % Solids
Preservative Code										A	A	
Field Filtered Y/N										N	N	
1. SG3-FD515-171021				10/21/2017		S	N	2		1	1	
2. SG3-MW-BR4-28-29'	28	29	ft.	10/21/2017	1000	S	Y	6		3	3	
3. SG3-MW-BR4-38-39'	38	39	ft	10/21/2017	1010	S	N	2		1	1	
4. SG3-MW-BR4-48-49'	48	49	ft.	10/21/2017	1115	S	N	2		1	1	
5. SG3-MW-BR4-58-59'	58	59	ft	10/21/2017	1140	S	N	2		1	1	
6. SG3-MW-BR4-68-69'	68	69	ft.	10/21/2017	1220	S	N	2		1	1	
7. SG3-MW-BR4-78-79'	78	79	ft.	10/21/2017	1330	S	N	2		1	1	
8. SG3-MW-BR4-88-89'	88	89	ft.	10/21/2017	1410	S	N	2		1	1	
9. SG3-LTB89-171021				10/21/2017	AM	Water	N	2	2			
10. SG3-LTB90-171021				10/21/2017	AM	Water	N	2	2			

7-DAY TAT *

BARR USE ONLY							
Sampled by: RGM/DJZ	Relinquished by: (RGM)	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/24/17	Time 935
Barr DQ Manager: MDP	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198539

Group Number(s): 1866657

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	10
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:44 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.0	DT	Wet	Y	Bagged	N
2	DT42-01	2.5	DT	Wet	Y	Bagged	N
3	DT42-01	1.7	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-LTB91-171023	2	10/23/2017 --	
SG3-LTB92-171023	2	10/23/2017 --	

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LTB89-171021	SG3-LTB80-171021	

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 11, 2017 07:14

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866658
SDG: SNB10
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK2-171020 Water	10/20/2017 16:00	9279996
SG3-CITYWATERTRUCKHOSE2-171020 Water	10/20/2017 16:10	9279997
SG3-CITYWATERTANK1-171021 Water	10/21/2017 14:00	9279998
Trip Blank Water	10/20/2017	9279999
SG3-AFTERPOETTANKB-171022 Water	10/22/2017 14:10	9280000

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866658

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9279999

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample #s: 9280000

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample #s: 9279996, 9279997, 9279998

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard

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d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank. The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Batch #: 17298002 (Sample number(s): 9279996-9280000)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9279996, 9279997, 9279998, 9279999, 9280000, LCSD

Sample Description: **SG3-CITYWATERTRUCK2-171020 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/20/2017 16:00
SDG#: SNB10-01

C. T. Male Associates
ELLE Sample #: GW 9279996
ELLE Group #: 1866658
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**4 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK2-171020 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/20/2017 16:00
SDG#: SNB10-01

C. T. Male Associates
ELLE Sample #: GW 9279996
ELLE Group #: 1866658
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 16:27	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCKHOSE2-171020 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/20/2017 16:10
SDG#: SNB10-02

C. T. Male Associates
ELLE Sample #: GW 9279997
ELLE Group #: 1866658
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCKHOSE2-171020 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/20/2017 16:10
SDG#: SNB10-02

C. T. Male Associates
ELLE Sample #: GW 9279997
ELLE Group #: 1866658
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 16:47	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTANK1-171021 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 14:00
SDG#: SNB10-03

C. T. Male Associates
ELLE Sample #: GW 9279998
ELLE Group #: 1866658
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**4 B**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 B**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTANK1-171021 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 14:00
SDG#: SNB10-03

C. T. Male Associates
ELLE Sample #: GW 9279998
ELLE Group #: 1866658
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 17:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/20/2017
SDG#: SNB10-04TB

C. T. Male Associates
ELLE Sample #: WW 9279999
ELLE Group #: 1866658
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 17:28	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETTANKB-171022 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 14:10
SDG#: SNB10-05

C. T. Male Associates
ELLE Sample #: GW 9280000
ELLE Group #: 1866658
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 JB**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the opening calibration verification standard (CCV).

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted outside of the method holding time and again target analytes were detected in the method blank.
The data reported is from the initial trial and comparable results were not observed. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETTANKB-171022 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 14:10
SDG#: SNB10-05

C. T. Male Associates
ELLE Sample #: GW 9280000
ELLE Group #: 1866658
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17298002	11/03/2017 17:49	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17298002	10/25/2017 07:50	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:14

Group Number: 1866658

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17298002	Sample number(s): 9279996-9280000		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	1 J	0.3	1
Perfluoropentanoic acid	0.5 J	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17298002	Sample number(s): 9279996-9280000								
6:2 fluorotelomersulfonate	15.17	17.24	15.17	18.25	114	120	70-130	6	30
8:2 fluorotelomersulfonate	15.33	16.75	15.33	16.53	109	108	70-130	1	30
NEtFOSAA	5.44	8.12	5.44	7.49	149*	138*	70-130	8	30
NMeFOSAA	5.44	9.03	5.44	8.14	166*	150*	70-130	10	30
Perfluorobutanesulfonate	4.81	4.98	4.81	5.05	103	105	70-130	1	30
Perfluorobutanoic acid	5.44	6.13	5.44	6.44	113	118	70-130	5	30
Perfluorodecanoic acid	5.44	5.87	5.44	6.59	108	121	70-130	11	30
Perfluorododecanoic acid	5.44	6.09	5.44	5.96	112	110	70-130	2	30
Perfluoroheptanoic acid	5.44	5.92	5.44	5.79	109	106	70-130	2	30
Perfluorohexanesulfonate	5.14	5.37	5.14	4.97	104	97	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:14

Group Number: 1866658

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.76	5.44	5.61	106	103	70-130	3	30
Perfluorononanoic acid	5.44	5.38	5.44	4.99	99	92	70-130	7	30
Perfluorooctanesulfonamide	5.44	7.04	5.44	7.17	129	132*	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.19	5.20	4.67	100	90	70-130	11	30
Perfluorooctanoic acid	5.44	6.99	5.44	5.44	128	100	70-130	25	30
Perfluoropentanoic acid	5.44	6.13	5.44	6.26	113	115	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.71	5.44	5.95	105	109	70-130	4	30
Perfluorotridecanoic acid	5.44	5.89	5.44	6.06	108	111	70-130	3	30
Perfluoroundecanoic acid	5.44	5.41	5.44	6.28	99	115	70-130	15	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9279996	82	104	127	77	78	77
9279997	78	96	112	77	74	80
9279998	84	110	129	84	90	82
9279999	72	66	70	78	73	73
9280000	78	75	76	80	80	72
Blank	89	88	86	93	98	96
LCS	112	101	105	113	105	113
LCSD	93	85	82	96	94	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9279996	73	77	80	81	75	79
9279997	95	75	75	81	71	68
9279998	92	77	80	89	74	77
9279999	68	72	68	63	71	64
9280000	55	82	73	65	78	61
Blank	91	95	88	89	90	75
LCS	91	107	103	99	102	82
LCSD	75	101	99	87	85	76

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:14

Group Number: 1866658

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17298002

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9279996	74	76	90	81	76	22*
9279997	67	73	80	72	73	41*
9279998	67	80	78	72	69	37*
9279999	64	74	74	79	76	33*
9280000	73	87	78	91	87	31*
Blank	83	100	91	100	94	75
LCS	105	108	118	115	110	79
LCSD	88	86	100	94	85	59*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1866658/927996-80000

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47445

COC 2 of 6

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: GT Malk Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.100

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 250 mL Plastic Trizma / PFC (19)	250 mL Plastic Trizma Trip Blank	Water	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-CITYWATERTRUCK2-171020	—	—	—	10-20-17	1600	W	N	2	2						PFCs (19)
2. SG3-CITYWATERTRUCKHOSE2-171020	—	—	—	10-20-17	1610	W	N	2	2						
3. SG3-CITYWATERTANK1-171021	—	—	—	10-21-17	1400	W	N	2	2						
4. trip blank	—	—	—	—	AM	W	N	2		2					
5. SG3-AFTERPOETTANK8-171022	—	—	—	10-22-17	1410	W	N	2	2						
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY

Sampled by: DJZ

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] On Ice? (Y) N Date 10-23-17 Time 1700

Received by:

Relinquished by: On Ice? Y N Date Time

Received by: Date 10/24/17 Time 935

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198539

Group Number(s): 1866658

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	10
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:44 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.8	DT	Wet	Y	Bagged	N
2	DT42-01	2.5	DT	Wet	Y	Bagged	N
3	DT42-01	1.2	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 17, 2017 09:45

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866660
SDG: SNB11
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR4-98-99' Soil	10/21/2017 15:30	9280004
SG3-MW-BR4-108-109' Soil	10/22/2017 12:00	9280005
SG3-MW-BR4-108-109' MS Soil	10/22/2017 12:00	9280006
SG3-MW-BR4-108-109' MSD Soil	10/22/2017 12:00	9280007
SG3-MW-BR4-108-109' Dupl Soil	10/22/2017 12:00	9280008
SG3-MW-BR4-118-119' Soil	10/22/2017 13:40	9280009
SG3-MW-BR4-128-129' Soil	10/22/2017 15:15	9280010
SG3-MW-BR4-138-139' Soil	10/22/2017 15:45	9280011
SG3-MW-BR4-148-149' Soil	10/22/2017 16:25	9280012
SG3-MW-BR4-158-159' Soil	10/23/2017 10:40	9280013
SG3-MW-BR4-168-169' Soil	10/23/2017 10:45	9280014
SG3-MW-BR4-178-179' Soil	10/23/2017 11:05	9280015
SG3-MW-BR4-188-189' Soil	10/23/2017 12:00	9280016
SG3-MW-BR4-208-209' Soil	10/23/2017 13:45	9280017
SG3-MW-BR4-198-199' Soil	10/23/2017 13:00	9280018
SG3-MW-BR4-216.5-217' Soil	10/23/2017 14:25	9280019
SG3-MW-BR4-225-226' Soil	10/23/2017 15:30	9280020
SG3-MW-BR4-235-236' Soil	10/23/2017 16:50	9280021
SG3-MW-BR3-58-59' Soil	10/23/2017 16:45	9280022
SG3-LTB91-171023 Blank Water	10/23/2017	9280023
SG3-LTB92-171023 Blank Water	10/23/2017	9280024

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866660

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9280005

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. Recoveries were also outside the QC acceptance limits in both the MS and MSD, indicating a matrix effect.

Sample #s: 9280004, 9280009, 9280010, 9280011, 9280012, 9280013, 9280016, 9280017, 9280018

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Sample #s: 9280021

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

The injection standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample #s: 9280014, 9280015, 9280019, 9280020, 9280022

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17299009 (Sample number(s): 9280023-9280024)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

Batch #: 17305004 (Sample number(s): 9280004-9280007, 9280009-9280022 UNSPK: 9280005)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9280004, 9280005, 9280006, 9280007, 9280009, 9280010, 9280011, 9280012, 9280013, 9280014, 9280015, 9280016, 9280017, 9280018, 9280019, 9280020, 9280021, 9280022, MS, MSD

SW-846 6010C, Metals

Sample #s: 9280013, 9280014, 9280016, 9280017, 9280018, 9280019, 9280020, 9280021

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 172981063704 (Sample number(s): 9280004-9280022 UNSPK: 9280005 BKG: 9280005)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Iron, Manganese

SW-846 6020A, Metals

Batch #: 172981063704A (Sample number(s): 9280004-9280022 UNSPK: 9280005 BKG: 9280005)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Lead

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Lead, Thallium, Vanadium

Batch #: 172981063704D (Sample number(s): 9280004-9280022 UNSPK: 9280005 BKG: 9280005)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9280004, 9280005, 9280008, 9280009, 9280010, 9280015, 9280016, 9280018, 9280019

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17312667632B (Sample number(s): 9280017-9280022 UNSPK: 9280018 BKG: 9280018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9280013, 9280014, 9280016

The pH was measured in water at 20.1 C.

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Sample #s: 9280005, 9280015, 9280017, 9280022

The pH was measured in water at 20.2 C.

Sample #s: 9280010, 9280019, 9280020, 9280021

The pH was measured in water at 20.3 C.

Sample #s: 9280008

The pH was measured in water at 20.4 C.

Sample #s: 9280009, 9280011

The pH was measured in water at 20.5 C.

Sample #s: 9280004, 9280012, 9280018

The pH was measured in water at 20.6 C.

REVISED

Sample Description: **SG3-MW-BR4-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 15:30
SDG#: SNB11-01

C. T. Male Associates
ELLE Sample #: SW 9280004
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.70	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.70	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.70	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.70	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.70	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.70	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.70	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.70	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.70	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.70	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.70	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**29,100**	11.1	49.5	1
01650	**Calcium**	7440-70-2	**612**	4.12	49.5	1
01654	**Iron**	7439-89-6	**4,300**	9.96	49.5	1
01657	**Magnesium**	7439-95-4	**509**	3.01	24.8	1
06958	**Manganese**	7439-96-5	**14.3**	0.103	1.24	1
01662	**Potassium**	7440-09-7	**1,020**	20.7	124	1
01667	**Sodium**	7440-23-5	**40.2 J**	20.7	248	1
06972	**Zinc**	7440-66-6	**3.03 J**	0.297	4.95	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.189 J**	0.115	0.495	2
06125	**Arsenic**	7440-38-2	**3.08**	0.158	0.990	2
06126	**Barium**	7440-39-3	**11.2**	0.225	0.990	2
06127	**Beryllium**	7440-41-7	**0.836**	0.0130	0.248	2
06128	Cadmium	7440-43-9	0.0426 U	0.0426	0.248	2
06131	**Chromium**	7440-47-3	**4.83**	0.215	0.990	2
06132	**Cobalt**	7440-48-4	**0.742**	0.0386	0.248	2
06133	**Copper**	7440-50-8	**2.83**	0.133	0.990	2
06135	**Lead**	7439-92-1	**6.37**	0.0275	0.495	2
06139	**Nickel**	7440-02-0	**2.67**	0.247	0.990	2
06141	**Selenium**	7782-49-2	**0.204 J**	0.124	0.990	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-98-99' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 15:30
SDG#: SNB11-01

C. T. Male Associates
ELLE Sample #: SW 9280004
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0361 U		0.0361	0.248	2
06145	Thallium	7440-28-0	0.0309 U		0.0309	0.248	2
06148	**Vanadium**	7440-62-2	**10.6**		0.0527	0.248	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**248**	**J**	136	409	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.36**		0.0100	0.0100	1
	The pH was measured in water at 20.6 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**25.2**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 16:00	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 13:54	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:39	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:14	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/21/2017 15:30
SDG#: SNB11-01

C. T. Male Associates
ELLE Sample #: SW 9280004
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	11/01/2017 19:37	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:03	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:03	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 05:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02BKG

C. T. Male Associates
ELLE Sample #: SW 9280005
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.67	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.67	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.67	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.67	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.67	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.67	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.67	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.67	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.67	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.67	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.67	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. Recoveries were also outside the QC acceptance limits in both the MS and MSD, indicating a matrix effect.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,600**	8.14	36.4	1
01650	**Calcium**	7440-70-2	**213**	3.03	36.4	1
01654	**Iron**	7439-89-6	**1,730**	7.33	36.4	1
01657	**Magnesium**	7439-95-4	**281**	2.21	18.2	1
06958	**Manganese**	7439-96-5	**28.9**	0.0756	0.910	1
01662	**Potassium**	7440-09-7	**978**	15.2	91.0	1
01667	**Sodium**	7440-23-5	**22.3 J**	15.2	182	1
06972	**Zinc**	7440-66-6	**2.14 J**	0.218	3.64	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0848 U	0.0848	0.364	2
06125	**Arsenic**	7440-38-2	**1.66**	0.117	0.728	2
06126	**Barium**	7440-39-3	**32.4**	0.165	0.728	2
06127	**Beryllium**	7440-41-7	**0.281**	0.0095	0.182	2
06128	Cadmium	7440-43-9	0.0313 U	0.0313	0.182	2
06131	**Chromium**	7440-47-3	**4.89**	0.158	0.728	2
06132	**Cobalt**	7440-48-4	**1.47**	0.0284	0.182	2
06133	**Copper**	7440-50-8	**2.46**	0.0976	0.728	2
06135	**Lead**	7439-92-1	**16.3**	0.0202	0.364	2
06139	**Nickel**	7440-02-0	**2.52**	0.181	0.728	2
06141	**Selenium**	7782-49-2	**0.135 J**	0.0910	0.728	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02BKG

C. T. Male Associates
ELLE Sample #: SW 9280005
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0266 U	0.0266	0.182	2
06145	**Thallium**	7440-28-0	**0.0315 J**	0.0228	0.182	2
06148	**Vanadium**	7440-62-2	**5.81**	0.0388	0.182	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**166 J**	123	370	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.49**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 16:20	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 15:37	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 13:40	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:17	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:04	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02BKG

C. T. Male Associates
ELLE Sample #: SW 9280005
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 21:44	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 21:44	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 05:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-108-109' MS Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9280006
ELLE Group #: 1866660
Matrix: Soil

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.7**	0.20	0.59	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8**	0.20	0.59	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.9**	0.20	0.59	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.20	0.59	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.20	0.59	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.20	0.59	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.098	0.39	1
14027	**Perfluorononanoic acid**	375-95-1	**1.7**	0.098	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.7**	0.20	0.59	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.7**	0.20	0.59	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.8**	0.20	0.59	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.1**	0.20	0.59	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**2.0**	0.20	0.59	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**29,200**	9.10	40.7	1
01650	**Calcium**	7440-70-2	**578**	3.39	40.7	1
01654	**Iron**	7439-89-6	**1,570**	8.19	40.7	1
01657	**Magnesium**	7439-95-4	**601**	2.47	20.3	1
06958	**Manganese**	7439-96-5	**70.3**	0.0844	1.02	1
01662	**Potassium**	7440-09-7	**2,050**	17.0	102	1
01667	**Sodium**	7440-23-5	**984**	17.0	203	1
06972	**Zinc**	7440-66-6	**52.0**	0.244	4.07	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.00**	0.0948	0.407	2
06125	**Arsenic**	7440-38-2	**3.59**	0.130	0.814	2
06126	**Barium**	7440-39-3	**37.3**	0.185	0.814	2
06127	**Beryllium**	7440-41-7	**1.11**	0.0107	0.203	2
06128	**Cadmium**	7440-43-9	**0.964**	0.0350	0.203	2
06131	**Chromium**	7440-47-3	**16.2**	0.177	0.814	2
06132	**Cobalt**	7440-48-4	**51.0**	0.0317	0.203	2
06133	**Copper**	7440-50-8	**13.2**	0.109	0.814	2
06135	**Lead**	7439-92-1	**14.0**	0.0226	0.407	2
06139	**Nickel**	7440-02-0	**14.4**	0.203	0.814	2
06141	**Selenium**	7782-49-2	**2.16**	0.102	0.814	2
06142	**Silver**	7440-22-4	**10.3**	0.0297	0.203	2
06145	**Thallium**	7440-28-0	**0.439**	0.0254	0.203	2
06148	**Vanadium**	7440-62-2	**15.9**	0.0433	0.203	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' MS Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02MS

C. T. Male Associates
ELLE Sample #: SW 9280006
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**13,000**	400	1,200	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 14:38	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 15:46	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	10/31/2017 15:46	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:28	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:09	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	11/01/2017 19:32	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 21:54	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 21:54	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 06:07	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-108-109' MSD Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02MSD

C. T. Male Associates
ELLE Sample #: SW 9280007
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.20	0.59	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.6**	0.20	0.59	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.7**	0.20	0.59	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.20	0.59	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.20	0.59	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.20	0.59	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.5**	0.098	0.39	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.098	0.39	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.29	0.88	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.4**	0.20	0.59	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.20	0.59	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.6**	0.20	0.59	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.20	0.59	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.7**	0.20	0.59	1
Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**32,800**	9.93	44.4	1
01650	**Calcium**	7440-70-2	**618**	3.70	44.4	1
01654	**Iron**	7439-89-6	**1,680**	8.94	44.4	1
01657	**Magnesium**	7439-95-4	**679**	2.70	22.2	1
06958	**Manganese**	7439-96-5	**78.5**	0.0922	1.11	1
01662	**Potassium**	7440-09-7	**2,330**	18.5	111	1
01667	**Sodium**	7440-23-5	**1,070**	18.5	222	1
06972	**Zinc**	7440-66-6	**58.2**	0.267	4.44	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.919**	0.104	0.444	2
06125	**Arsenic**	7440-38-2	**3.87**	0.142	0.889	2
06126	**Barium**	7440-39-3	**42.2**	0.202	0.889	2
06127	**Beryllium**	7440-41-7	**1.17**	0.0116	0.222	2
06128	**Cadmium**	7440-43-9	**0.989**	0.0382	0.222	2
06131	**Chromium**	7440-47-3	**17.0**	0.193	0.889	2
06132	**Cobalt**	7440-48-4	**51.0**	0.0347	0.222	2
06133	**Copper**	7440-50-8	**13.0**	0.119	0.889	2
06135	**Lead**	7439-92-1	**15.8**	0.0247	0.444	2
06139	**Nickel**	7440-02-0	**14.3**	0.221	0.889	2
06141	**Selenium**	7782-49-2	**2.30**	0.111	0.889	2
06142	**Silver**	7440-22-4	**10.0**	0.0324	0.222	2
06145	**Thallium**	7440-28-0	**0.478**	0.0278	0.222	2
06148	**Vanadium**	7440-62-2	**16.7**	0.0473	0.222	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' MSD Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02MSD

C. T. Male Associates
ELLE Sample #: SW 9280007
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 14:58	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 15:49	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	10/31/2017 15:49	Cindy M Gehman	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:32	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:11	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 21:57	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 21:57	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-108-109' Dupl Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02DUP

C. T. Male Associates
ELLE Sample #: SW 9280008
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,600**	9.93	44.4	1
01650	**Calcium**	7440-70-2	**222**	3.70	44.4	1
01654	**Iron**	7439-89-6	**1,320**	8.94	44.4	1
01657	**Magnesium**	7439-95-4	**262**	2.70	22.2	1
06958	**Manganese**	7439-96-5	**22.3**	0.0922	1.11	1
01662	**Potassium**	7440-09-7	**1,010**	18.5	111	1
01667	**Sodium**	7440-23-5	**23.7 J**	18.5	222	1
06972	**Zinc**	7440-66-6	**1.76 J**	0.267	4.44	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.104 U	0.104	0.444	2
06125	**Arsenic**	7440-38-2	**1.74**	0.142	0.889	2
06126	**Barium**	7440-39-3	**27.0**	0.202	0.889	2
06127	**Beryllium**	7440-41-7	**0.269**	0.0116	0.222	2
06128	Cadmium	7440-43-9	0.0382 U	0.0382	0.222	2
06131	**Chromium**	7440-47-3	**4.87**	0.193	0.889	2
06132	**Cobalt**	7440-48-4	**1.25**	0.0347	0.222	2
06133	**Copper**	7440-50-8	**2.02**	0.119	0.889	2
06135	**Lead**	7439-92-1	**11.2**	0.0247	0.444	2
06139	**Nickel**	7440-02-0	**2.25**	0.221	0.889	2
06141	**Selenium**	7782-49-2	**0.159 J**	0.111	0.889	2
06142	Silver	7440-22-4	0.0324 U	0.0324	0.222	2
06145	Thallium	7440-28-0	0.0278 U	0.0278	0.222	2
06148	**Vanadium**	7440-62-2	**4.43**	0.0473	0.222	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**173 J**	122	367	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.53**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**17.4**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**17.6**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-108-109' Dupl Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 12:00
SDG#: SNB11-02DUP

C. T. Male Associates
ELLE Sample #: SW 9280008
ELLE Group #: 1866660
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 15:43	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 13:47	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:25	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:07	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 21:51	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 21:51	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 06:19	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 13:40
SDG#: SNB11-03

C. T. Male Associates
ELLE Sample #: SW 9280009
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.66	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.66	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.66	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.66	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.66	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.66	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.99	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.66	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.66	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.66	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.66	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.66	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**24,300**	11.3	50.6	1
01650	**Calcium**	7440-70-2	**480**	4.21	50.6	1
01654	**Iron**	7439-89-6	**5,770**	10.2	50.6	1
01657	**Magnesium**	7439-95-4	**443**	3.07	25.3	1
06958	**Manganese**	7439-96-5	**7.30**	0.105	1.26	1
01662	**Potassium**	7440-09-7	**1,450**	21.1	126	1
01667	**Sodium**	7440-23-5	**31.6 J**	21.1	253	1
06972	**Zinc**	7440-66-6	**2.46 J**	0.304	5.06	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.118 U	0.118	0.506	2
06125	**Arsenic**	7440-38-2	**2.41**	0.162	1.01	2
06126	**Barium**	7440-39-3	**20.0**	0.230	1.01	2
06127	**Beryllium**	7440-41-7	**0.548**	0.0133	0.253	2
06128	Cadmium	7440-43-9	0.0435 U	0.0435	0.253	2
06131	**Chromium**	7440-47-3	**8.67**	0.220	1.01	2
06132	**Cobalt**	7440-48-4	**0.301**	0.0395	0.253	2
06133	**Copper**	7440-50-8	**3.64**	0.136	1.01	2
06135	**Lead**	7439-92-1	**6.68**	0.0281	0.506	2
06139	**Nickel**	7440-02-0	**2.59**	0.252	1.01	2
06141	**Selenium**	7782-49-2	**0.204 J**	0.126	1.01	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 13:40
SDG#: SNB11-03

C. T. Male Associates
ELLE Sample #: SW 9280009
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0369 U	0.0369	0.253	2
06145	**Thallium**	7440-28-0	**0.0415 J**	0.0316	0.253	2
06148	**Vanadium**	7440-62-2	**20.4**	0.0539	0.253	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	138 U	138	414	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.23**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**24.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 16:41	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 13:58	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:43	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:16	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-118-119' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 13:40
SDG#: SNB11-03

C. T. Male Associates
ELLE Sample #: SW 9280009
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:07	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:07	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 06:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401A	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:15
SDG#: SNB11-04

C. T. Male Associates
ELLE Sample #: SW 9280010
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.82	1
14027	Perfluorobutanoic acid	375-22-4	0.27 U	0.27	0.82	1
14027	Perfluorodecanoic acid	335-76-2	0.27 U	0.27	0.82	1
14027	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.82	1
14027	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.27 U	0.27	0.82	1
14027	Perfluorohexanoic acid	307-24-4	0.14 U	0.14	0.54	1
14027	Perfluorononanoic acid	375-95-1	0.14 U	0.14	0.54	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.41 U	0.41	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.82	1
14027	Perfluoropentanoic acid	2706-90-3	0.27 U	0.27	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.82	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.82	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27 U	0.27	0.82	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**22,600**	8.37	37.4	1
01650	**Calcium**	7440-70-2	**629**	3.12	37.4	1
01654	**Iron**	7439-89-6	**23,600**	7.53	37.4	1
01657	**Magnesium**	7439-95-4	**519**	2.27	18.7	1
06958	**Manganese**	7439-96-5	**63.5**	0.0777	0.936	1
01662	**Potassium**	7440-09-7	**525**	15.6	93.6	1
01667	**Sodium**	7440-23-5	**27.5 J**	15.6	187	1
06972	**Zinc**	7440-66-6	**16.1**	0.225	3.74	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.122 J**	0.0872	0.374	2
06125	**Arsenic**	7440-38-2	**3.96**	0.120	0.749	2
06126	**Barium**	7440-39-3	**69.9**	0.170	0.749	2
06127	**Beryllium**	7440-41-7	**0.760**	0.0098	0.187	2
06128	**Cadmium**	7440-43-9	**0.0655 J**	0.0322	0.187	2
06131	**Chromium**	7440-47-3	**13.0**	0.163	0.749	2
06132	**Cobalt**	7440-48-4	**3.78**	0.0292	0.187	2
06133	**Copper**	7440-50-8	**17.8**	0.100	0.749	2
06135	**Lead**	7439-92-1	**19.8**	0.0208	0.374	2
06139	**Nickel**	7440-02-0	**5.86**	0.186	0.749	2
06141	**Selenium**	7782-49-2	**0.270 J**	0.0936	0.749	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:15
SDG#: SNB11-04

C. T. Male Associates
ELLE Sample #: SW 9280010
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0273 U	0.0273	0.187	2
06145	**Thallium**	7440-28-0	**0.0258 J**	0.0234	0.187	2
06148	**Vanadium**	7440-62-2	**49.2**	0.0399	0.187	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**174 J**	140	421	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**27.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/02/2017 17:02	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:01	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:54	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/01/2017 19:44	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-128-129' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:15
SDG#: SNB11-04

C. T. Male Associates
ELLE Sample #: SW 9280010
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:16	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:16	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 06:45	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:45
SDG#: SNB11-05

C. T. Male Associates
ELLE Sample #: SW 9280011
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	Perfluorobutanoic acid	375-22-4	0.22 U	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**25,600**	11.2	50.1	1
01650	**Calcium**	7440-70-2	**345**	4.17	50.1	1
01654	**Iron**	7439-89-6	**2,110**	10.1	50.1	1
01657	**Magnesium**	7439-95-4	**431**	3.04	25.1	1
06958	**Manganese**	7439-96-5	**4.24**	0.104	1.25	1
01662	**Potassium**	7440-09-7	**965**	20.9	125	1
01667	**Sodium**	7440-23-5	**22.9 J**	20.9	251	1
06972	**Zinc**	7440-66-6	**3.54 J**	0.301	5.01	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.117 U	0.117	0.501	2
06125	**Arsenic**	7440-38-2	**2.12**	0.160	1.00	2
06126	**Barium**	7440-39-3	**12.2**	0.228	1.00	2
06127	**Beryllium**	7440-41-7	**0.433**	0.0131	0.251	2
06128	Cadmium	7440-43-9	0.0431 U	0.0431	0.251	2
06131	**Chromium**	7440-47-3	**45.4**	0.218	1.00	2
06132	**Cobalt**	7440-48-4	**0.431**	0.0391	0.251	2
06133	**Copper**	7440-50-8	**3.15**	0.134	1.00	2
06135	**Lead**	7439-92-1	**4.47**	0.0278	0.501	2
06139	**Nickel**	7440-02-0	**3.23**	0.250	1.00	2
06141	**Selenium**	7782-49-2	**0.206 J**	0.125	1.00	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:45
SDG#: SNB11-05

C. T. Male Associates
ELLE Sample #: SW 9280011
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0366 U	0.0366	0.251	2
06145	Thallium	7440-28-0	0.0313 U	0.0313	0.251	2
06148	**Vanadium**	7440-62-2	**14.6**	0.0534	0.251	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**6,020**	513	1,540	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**25.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 01:02	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:11	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:05	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 19:57	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:17	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-138-139' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 15:45
SDG#: SNB11-05

C. T. Male Associates
ELLE Sample #: SW 9280011
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:19	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:19	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 06:58	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 16:25
SDG#: SNB11-06

C. T. Male Associates
ELLE Sample #: SW 9280012
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.79	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.79	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.79	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.79	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.79	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.79	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13 U	0.13	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.39 U	0.39	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.79	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.79	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.79	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.79	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.79	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**29,100**	11.3	50.5	1
01650	**Calcium**	7440-70-2	**623**	4.20	50.5	1
01654	**Iron**	7439-89-6	**33,600**	10.2	50.5	1
01657	**Magnesium**	7439-95-4	**617**	3.07	25.2	1
06958	**Manganese**	7439-96-5	**23.3**	0.105	1.26	1
01662	**Potassium**	7440-09-7	**724**	21.1	126	1
01667	Sodium	7440-23-5	21.1 U	21.1	252	1
06972	**Zinc**	7440-66-6	**228**	0.303	5.05	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.118 U	0.118	0.505	2
06125	**Arsenic**	7440-38-2	**11.5**	0.162	1.01	2
06126	**Barium**	7440-39-3	**9.61**	0.229	1.01	2
06127	**Beryllium**	7440-41-7	**2.98**	0.0132	0.252	2
06128	**Cadmium**	7440-43-9	**0.140 J**	0.0434	0.252	2
06131	**Chromium**	7440-47-3	**15.9**	0.220	1.01	2
06132	**Cobalt**	7440-48-4	**10.2**	0.0394	0.252	2
06133	**Copper**	7440-50-8	**114**	0.135	1.01	2
06135	**Lead**	7439-92-1	**17.6**	0.0280	0.505	2
06139	**Nickel**	7440-02-0	**21.5**	0.251	1.01	2
06141	**Selenium**	7782-49-2	**0.542 J**	0.126	1.01	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 16:25
SDG#: SNB11-06

C. T. Male Associates
ELLE Sample #: SW 9280012
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0368 U	0.0368	0.252	2
06145	**Thallium**	7440-28-0	**0.0666 J**	0.0315	0.252	2
06148	**Vanadium**	7440-62-2	**79.6**	0.0538	0.252	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,490**	131	394	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 01:23	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	11/01/2017 14:19	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:19	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 20:01	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:23	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-148-149' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/22/2017 16:25
SDG#: SNB11-06

C. T. Male Associates
ELLE Sample #: SW 9280012
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:22	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:22	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 07:11	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:40
SDG#: SNB11-07

C. T. Male Associates
ELLE Sample #: SW 9280013
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.82	1
14027	Perfluorobutanoic acid	375-22-4	0.27 U	0.27	0.82	1
14027	Perfluorodecanoic acid	335-76-2	0.27 U	0.27	0.82	1
14027	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.82	1
14027	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.82	1
14027	Perfluorohexanesulfonate	355-46-4	0.27 U	0.27	0.82	1
14027	Perfluorohexanoic acid	307-24-4	0.14 U	0.14	0.55	1
14027	Perfluorononanoic acid	375-95-1	0.14 U	0.14	0.55	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.41 U	0.41	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.82	1
14027	Perfluoropentanoic acid	2706-90-3	0.27 U	0.27	0.82	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.82	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.82	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27 U	0.27	0.82	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**17,500**	47.6	213	5
01650	**Calcium**	7440-70-2	**628**	17.7	213	5
01654	**Iron**	7439-89-6	**98,600**	42.9	213	5
01657	**Magnesium**	7439-95-4	**808**	12.9	106	5
06958	**Manganese**	7439-96-5	**610**	0.442	5.32	5
01662	**Potassium**	7440-09-7	**775**	88.9	532	5
01667	Sodium	7440-23-5	88.9 U	88.9	1,060	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**805**	1.28	21.3	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0992	0.426	2
06125	**Arsenic**	7440-38-2	**15.8**	0.136	0.852	2
06126	**Barium**	7440-39-3	**12.0**	0.193	0.852	2
06127	**Beryllium**	7440-41-7	**3.43**	0.0112	0.213	2
06128	**Cadmium**	7440-43-9	**0.487**	0.0366	0.213	2
06131	**Chromium**	7440-47-3	**4.85**	0.185	0.852	2
06132	**Cobalt**	7440-48-4	**42.8**	0.0332	0.213	2
06133	**Copper**	7440-50-8	**161**	0.114	0.852	2
06135	**Lead**	7439-92-1	**21.9**	0.0236	0.426	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:40
SDG#: SNB11-07

C. T. Male Associates
ELLE Sample #: SW 9280013
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**52.9**	0.212	0.852	2
06141	**Selenium**	7782-49-2	**0.449 J**	0.106	0.852	2
06142	Silver	7440-22-4	0.0311 U	0.0311	0.213	2
06145	**Thallium**	7440-28-0	**0.349**	0.0266	0.213	2
06148	**Vanadium**	7440-62-2	**51.2**	0.0454	0.213	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**881**	146	439	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**28.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 01:43	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 15:17	Eric L Eby	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:17	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:24	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-158-159' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:40
SDG#: SNB11-07

C. T. Male Associates
ELLE Sample #: SW 9280013
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:26	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:26	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632A	11/09/2017 07:24	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:45
SDG#: SNB11-08

C. T. Male Associates
ELLE Sample #: SW 9280014
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.77	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.77	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.77	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.77	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.77	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.77	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.51	1
14027	Perfluorononanoic acid	375-95-1	0.13 U	0.13	0.51	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.38 U	0.38	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.77	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.77	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.77	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.77	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.77	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,700**	62.1	278	5
01650	**Calcium**	7440-70-2	**575**	23.1	278	5
01654	**Iron**	7439-89-6	**103,000**	55.9	278	5
01657	**Magnesium**	7439-95-4	**653**	16.9	139	5
06958	**Manganese**	7439-96-5	**330**	0.576	6.94	5
01662	**Potassium**	7440-09-7	**1,140**	116	694	5
01667	Sodium	7440-23-5	116 U	116	1,390	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**239**	1.67	27.8	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.129 U	0.129	0.555	2
06125	**Arsenic**	7440-38-2	**11.9**	0.178	1.11	2
06126	**Barium**	7440-39-3	**13.6**	0.252	1.11	2
06127	**Beryllium**	7440-41-7	**4.05**	0.0146	0.278	2
06128	**Cadmium**	7440-43-9	**0.231 J**	0.0478	0.278	2
06131	**Chromium**	7440-47-3	**11.4**	0.242	1.11	2
06132	**Cobalt**	7440-48-4	**16.5**	0.0433	0.278	2
06133	**Copper**	7440-50-8	**102**	0.149	1.11	2
06135	**Lead**	7439-92-1	**19.4**	0.0308	0.555	2
06139	**Nickel**	7440-02-0	**25.7**	0.277	1.11	2
06141	**Selenium**	7782-49-2	**0.818 J**	0.139	1.11	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:45
SDG#: SNB11-08

C. T. Male Associates
ELLE Sample #: SW 9280014
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0405 U	0.0405	0.278	2
06145	**Thallium**	7440-28-0	**0.140 J**	0.0347	0.278	2
06148	**Vanadium**	7440-62-2	**21.6**	0.0592	0.278	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**522**	146	438	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**29.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 02:04	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 15:21	Eric L Eby	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:20	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:26	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-168-169' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 10:45
SDG#: SNB11-08

C. T. Male Associates
ELLE Sample #: SW 9280014
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:29	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:29	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632A	11/10/2017 17:51	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 11:05
SDG#: SNB11-09

C. T. Male Associates
ELLE Sample #: SW 9280015
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,740**	8.57	38.3	1
01650	**Calcium**	7440-70-2	**165**	3.19	38.3	1
01654	**Iron**	7439-89-6	**8,700**	7.71	38.3	1
01657	**Magnesium**	7439-95-4	**116**	2.33	19.2	1
06958	**Manganese**	7439-96-5	**591**	0.0795	0.958	1
01662	**Potassium**	7440-09-7	**128**	16.0	95.8	1
01667	Sodium	7440-23-5	16.0 U	16.0	192	1
06972	**Zinc**	7440-66-6	**23.2**	0.230	3.83	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0893 U	0.0893	0.383	2
06125	**Arsenic**	7440-38-2	**1.26**	0.123	0.766	2
06126	**Barium**	7440-39-3	**62.1**	0.174	0.766	2
06127	**Beryllium**	7440-41-7	**0.455**	0.0100	0.192	2
06128	**Cadmium**	7440-43-9	**0.0778 J**	0.0330	0.192	2
06131	**Chromium**	7440-47-3	**1.56**	0.167	0.766	2
06132	**Cobalt**	7440-48-4	**18.4**	0.0299	0.192	2
06133	**Copper**	7440-50-8	**9.18**	0.103	0.766	2
06135	**Lead**	7439-92-1	**6.49**	0.0213	0.383	2
06139	**Nickel**	7440-02-0	**3.77**	0.191	0.766	2
06141	**Selenium**	7782-49-2	**0.103 J**	0.0958	0.766	2
06142	Silver	7440-22-4	0.0280 U	0.0280	0.192	2
06145	**Thallium**	7440-28-0	**0.405**	0.0240	0.192	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 11:05
SDG#: SNB11-09

C. T. Male Associates
ELLE Sample #: SW 9280015
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**2.84**	0.0408	0.192	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	125 U	125	374	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.09**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**16.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 02:24	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:30	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 20:12	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/01/2017 19:52	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-178-179' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 11:05
SDG#: SNB11-09

C. T. Male Associates
ELLE Sample #: SW 9280015
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:32	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:32	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632A	11/10/2017 18:04	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012A	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:00
SDG#: SNB11-10

C. T. Male Associates
ELLE Sample #: SW 9280016
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**18,300**	53.8	241	5
01650	**Calcium**	7440-70-2	**487**	20.0	241	5
01654	**Iron**	7439-89-6	**14,800**	48.4	241	5
01657	**Magnesium**	7439-95-4	**466**	14.6	120	5
06958	**Manganese**	7439-96-5	**120**	0.499	6.01	5
01662	**Potassium**	7440-09-7	**561 J**	100	601	5
01667	Sodium	7440-23-5	100 U	100	1,200	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**12.0 J**	1.44	24.1	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.112 U	0.112	0.481	2
06125	**Arsenic**	7440-38-2	**3.67**	0.154	0.962	2
06126	**Barium**	7440-39-3	**44.3**	0.218	0.962	2
06127	**Beryllium**	7440-41-7	**0.713**	0.0126	0.241	2
06128	**Cadmium**	7440-43-9	**0.0842 J**	0.0414	0.241	2
06131	**Chromium**	7440-47-3	**2.39**	0.209	0.962	2
06132	**Cobalt**	7440-48-4	**4.08**	0.0375	0.241	2
06133	**Copper**	7440-50-8	**9.26**	0.129	0.962	2
06135	**Lead**	7439-92-1	**16.5**	0.0267	0.481	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:00
SDG#: SNB11-10

C. T. Male Associates
ELLE Sample #: SW 9280016
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**4.08**	0.240	0.962	2
06141	**Selenium**	7782-49-2	**0.349 J**	0.120	0.962	2
06142	Silver	7440-22-4	0.0351 U	0.0351	0.241	2
06145	**Thallium**	7440-28-0	**0.0440 J**	0.0301	0.241	2
06148	**Vanadium**	7440-62-2	**6.02**	0.0512	0.241	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	130 U	130	390	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.27**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.5**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 02:45	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 22:43	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:26	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-188-189' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:00
SDG#: SNB11-10

C. T. Male Associates
ELLE Sample #: SW 9280016
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:28	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:35	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:35	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632A	11/10/2017 18:17	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-208-209' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:45
SDG#: SNB11-11

C. T. Male Associates
ELLE Sample #: SW 9280017
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.94	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,100**	40.9	183	5
01650	**Calcium**	7440-70-2	**579**	15.2	183	5
01654	**Iron**	7439-89-6	**61,100**	36.9	183	5
01657	**Magnesium**	7439-95-4	**743**	11.1	91.6	5
06958	**Manganese**	7439-96-5	**7,770**	0.380	4.58	5
01662	**Potassium**	7440-09-7	**549**	76.5	458	5
01667	Sodium	7440-23-5	76.5 U	76.5	916	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**99.9**	1.10	18.3	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0853 U	0.0853	0.366	2
06125	**Arsenic**	7440-38-2	**8.13**	0.117	0.733	2
06126	**Barium**	7440-39-3	**1,080**	0.832	3.66	10
06127	**Beryllium**	7440-41-7	**1.80**	0.0096	0.183	2
06128	**Cadmium**	7440-43-9	**1.04**	0.0315	0.183	2
06131	**Chromium**	7440-47-3	**2.46**	0.159	0.733	2
06132	**Cobalt**	7440-48-4	**87.1**	0.0286	0.183	2
06133	**Copper**	7440-50-8	**12.1**	0.0982	0.733	2
06135	**Lead**	7439-92-1	**25.2**	0.0203	0.366	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-208-209' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:45
SDG#: SNB11-11

C. T. Male Associates
ELLE Sample #: SW 9280017
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**44.1**	0.182	0.733	2
06141	**Selenium**	7782-49-2	**0.289 J**	0.0916	0.733	2
06142	**Silver**	7440-22-4	**0.655**	0.0267	0.183	2
06145	**Thallium**	7440-28-0	**3.22**	0.0229	0.183	2
06148	**Vanadium**	7440-62-2	**10.6**	0.0390	0.183	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**220 J**	137	410	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.10**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 03:05	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 15:25	Eric L Eby	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:29	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:29	Bradley M Berlot	10
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-208-209' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:45
SDG#: SNB11-11

C. T. Male Associates
ELLE Sample #: SW 9280017
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:38	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:38	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 18:30	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:00
SDG#: SNB11-12

C. T. Male Associates
ELLE Sample #: SW 9280018
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**16,200**	50.6	227	5
01650	**Calcium**	7440-70-2	**565**	18.9	227	5
01654	**Iron**	7439-89-6	**26,300**	45.6	227	5
01657	**Magnesium**	7439-95-4	**541**	13.8	113	5
06958	**Manganese**	7439-96-5	**274**	0.470	5.66	5
01662	**Potassium**	7440-09-7	**387 J**	94.6	566	5
01667	Sodium	7440-23-5	94.6 U	94.6	1,130	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**35.3**	1.36	22.7	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.106 U	0.106	0.453	2
06125	**Arsenic**	7440-38-2	**4.79**	0.145	0.906	2
06126	**Barium**	7440-39-3	**21.9**	0.206	0.906	2
06127	**Beryllium**	7440-41-7	**1.13**	0.0119	0.227	2
06128	**Cadmium**	7440-43-9	**0.0899 J**	0.0390	0.227	2
06131	**Chromium**	7440-47-3	**2.08**	0.197	0.906	2
06132	**Cobalt**	7440-48-4	**7.87**	0.0353	0.227	2
06133	**Copper**	7440-50-8	**14.6**	0.121	0.906	2
06135	**Lead**	7439-92-1	**10.9**	0.0251	0.453	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:00
SDG#: SNB11-12

C. T. Male Associates
ELLE Sample #: SW 9280018
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06139	**Nickel**	7440-02-0	**9.73**	0.226	0.906	2
06141	**Selenium**	7782-49-2	**0.429 J**	0.113	0.906	2
06142	Silver	7440-22-4	0.0331 U	0.0331	0.227	2
06145	**Thallium**	7440-28-0	**0.0406 J**	0.0283	0.227	2
06148	**Vanadium**	7440-62-2	**9.29**	0.0483	0.227	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**227 J**	139	418	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**23.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 03:26	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 22:46	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:32	Cindy M Gehman	5
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-198-199' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:00
SDG#: SNB11-12

C. T. Male Associates
ELLE Sample #: SW 9280018
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06126	Barium	SW-846 6020A	1	172981063704D	11/02/2017 20:31	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:41	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:41	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632B	11/10/2017 16:43	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-216.5-217' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:25
SDG#: SNB11-13

C. T. Male Associates
ELLE Sample #: SW 9280019
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.26 U	0.26	0.78	1
14027	Perfluorobutanoic acid	375-22-4	0.26 U	0.26	0.78	1
14027	Perfluorodecanoic acid	335-76-2	0.26 U	0.26	0.78	1
14027	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.78	1
14027	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.78	1
14027	Perfluorohexanesulfonate	355-46-4	0.26 U	0.26	0.78	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.52	1
14027	Perfluorononanoic acid	375-95-1	0.13 U	0.13	0.52	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.39 U	0.39	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.78	1
14027	Perfluoropentanoic acid	2706-90-3	0.26 U	0.26	0.78	1
14027	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.78	1
14027	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.78	1
14027	Perfluoroundecanoic acid	2058-94-8	0.26 U	0.26	0.78	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,860**	53.6	240	5
01650	**Calcium**	7440-70-2	**2,360**	39.9	480	10
01654	**Iron**	7439-89-6	**435,000**	193	959	20
01657	**Magnesium**	7439-95-4	**1,980**	14.6	120	5
06958	**Manganese**	7439-96-5	**76,000**	4.98	60.0	50
01662	**Potassium**	7440-09-7	**290 J**	100	600	5
01667	Sodium	7440-23-5	100 U	100	1,200	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**245**	2.88	48.0	10
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.205 J**	0.112	0.480	2
06125	**Arsenic**	7440-38-2	**235**	0.154	0.959	2
06126	**Barium**	7440-39-3	**7,290**	2.72	12.0	25
06127	**Beryllium**	7440-41-7	**6.43**	0.0126	0.240	2
06128	**Cadmium**	7440-43-9	**5.05**	0.0413	0.240	2
06131	**Chromium**	7440-47-3	**3.98**	0.209	0.959	2
06132	**Cobalt**	7440-48-4	**436**	0.0374	0.240	2
06133	**Copper**	7440-50-8	**4.22**	0.129	0.959	2
06135	**Lead**	7439-92-1	**6.33**	0.0266	0.480	2
06139	**Nickel**	7440-02-0	**77.1**	0.239	0.959	2
06141	**Selenium**	7782-49-2	**0.540 J**	0.120	0.959	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-216.5-217' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9280019
ELLE Group #: 1866660
Matrix: Soil

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:25
SDG#: SNB11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**3.67**		0.0350	0.240	2
06145	**Thallium**	7440-28-0	**17.8**		0.0300	0.240	2
06148	**Vanadium**	7440-62-2	**11.6**		0.0511	0.240	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**292**	**J**	133	400	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**		0.0100	0.0100	1
	The pH was measured in water at 20.3 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**23.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 03:46	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:35	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:58	Cindy M Gehman	10
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 17:02	Cindy M Gehman	20
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:35	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:55	Eric L Eby	50
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:35	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:35	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:58	Cindy M Gehman	10
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	11/01/2017 19:59	Bradley M Berlot	25
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-216.5-217' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:25
SDG#: SNB11-13

C. T. Male Associates
ELLE Sample #: SW 9280019
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:54	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:54	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 19:21	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039401B	10/28/2017 14:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-225-226' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 15:30
SDG#: SNB11-14

C. T. Male Associates
ELLE Sample #: SW 9280020
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.83	1
14027	Perfluorobutanoic acid	375-22-4	0.28 U	0.28	0.83	1
14027	Perfluorodecanoic acid	335-76-2	0.28 U	0.28	0.83	1
14027	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.83	1
14027	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.83	1
14027	Perfluorohexanesulfonate	355-46-4	0.28 U	0.28	0.83	1
14027	Perfluorohexanoic acid	307-24-4	0.14 U	0.14	0.56	1
14027	Perfluorononanoic acid	375-95-1	0.14 U	0.14	0.56	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.42 U	0.42	1.3	1
14027	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.83	1
14027	Perfluoropentanoic acid	2706-90-3	0.28 U	0.28	0.83	1
14027	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.83	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.83	1
14027	Perfluoroundecanoic acid	2058-94-8	0.28 U	0.28	0.83	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,540**	115	515	10
01650	**Calcium**	7440-70-2	**1,380**	42.9	515	10
01654	**Iron**	7439-89-6	**382,000**	207	1,030	20
01657	**Magnesium**	7439-95-4	**1,700**	15.6	129	5
06958	**Manganese**	7439-96-5	**11,400**	0.534	6.44	5
01662	**Potassium**	7440-09-7	**257 J**	108	644	5
01667	Sodium	7440-23-5	108 U	108	1,290	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**579**	3.09	51.5	10
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.08**	0.120	0.515	2
06125	**Arsenic**	7440-38-2	**57.0**	0.165	1.03	2
06126	**Barium**	7440-39-3	**792**	0.234	1.03	2
06127	**Beryllium**	7440-41-7	**10.8**	0.0135	0.258	2
06128	**Cadmium**	7440-43-9	**2.64**	0.0443	0.258	2
06131	**Chromium**	7440-47-3	**17.7**	0.224	1.03	2
06132	**Cobalt**	7440-48-4	**193**	0.0402	0.258	2
06133	**Copper**	7440-50-8	**14.5**	0.138	1.03	2
06135	**Lead**	7439-92-1	**81.3**	0.0286	0.515	2
06139	**Nickel**	7440-02-0	**190**	0.257	1.03	2
06141	**Selenium**	7782-49-2	**0.573 J**	0.129	1.03	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-225-226' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 15:30
SDG#: SNB11-14

C. T. Male Associates
ELLE Sample #: SW 9280020
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.619**	0.0376	0.258	2
06145	**Thallium**	7440-28-0	**2.67**	0.0322	0.258	2
06148	**Vanadium**	7440-62-2	**75.3**	0.0549	0.258	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**574**	142	426	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.63**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**28.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 04:07	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 17:10	Cindy M Gehman	10
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 17:10	Cindy M Gehman	10
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 17:13	Cindy M Gehman	20
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:49	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 14:59	Eric L Eby	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:49	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:49	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 17:10	Cindy M Gehman	10
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	10/28/2017 22:57	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-225-226' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 15:30
SDG#: SNB11-14

C. T. Male Associates
ELLE Sample #: SW 9280020
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 22:57	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 22:57	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 20:00	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-235-236' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:50
SDG#: SNB11-15

C. T. Male Associates
ELLE Sample #: SW 9280021
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.25 U	0.25	0.74	1
14027	Perfluorobutanoic acid	375-22-4	0.25 U	0.25	0.74	1
14027	Perfluorodecanoic acid	335-76-2	0.25 U	0.25	0.74	1
14027	Perfluorododecanoic acid	307-55-1	0.25 U	0.25	0.74	1
14027	Perfluoroheptanoic acid	375-85-9	0.25 U	0.25	0.74	1
14027	Perfluorohexanesulfonate	355-46-4	0.25 U	0.25	0.74	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.49	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.49	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.37 U	0.37	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.25 U	0.25	0.74	1
14027	Perfluoropentanoic acid	2706-90-3	0.25 U	0.25	0.74	1
14027	Perfluorotetradecanoic acid	376-06-7	0.25 U	0.25	0.74	1
14027	Perfluorotridecanoic acid	72629-94-8	0.25 U	0.25	0.74	1
14027	Perfluoroundecanoic acid	2058-94-8	0.25 U	0.25	0.74	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

The injection standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,900**	55.5	248	5
01650	**Calcium**	7440-70-2	**9,980**	20.7	248	5
01654	**Iron**	7439-89-6	**34,400**	50.0	248	5
01657	**Magnesium**	7439-95-4	**6,640**	15.1	124	5
06958	**Manganese**	7439-96-5	**1,120**	0.515	6.21	5
01662	**Potassium**	7440-09-7	**1,370**	104	621	5
01667	Sodium	7440-23-5	104 U	104	1,240	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**78.2**	1.49	24.8	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.220 J**	0.116	0.497	2
06125	**Arsenic**	7440-38-2	**14.3**	0.159	0.993	2
06126	**Barium**	7440-39-3	**356**	0.225	0.993	2
06127	**Beryllium**	7440-41-7	**3.63**	0.0130	0.248	2
06128	**Cadmium**	7440-43-9	**0.645**	0.0427	0.248	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: SG3-MW-BR4-235-236' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:50
SDG#: SNB11-15

C. T. Male Associates
ELLE Sample #: SW 9280021
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06131	**Chromium**	7440-47-3	**2.71**	0.216	0.993	2
06132	**Cobalt**	7440-48-4	**64.9**	0.0387	0.248	2
06133	**Copper**	7440-50-8	**31.5**	0.133	0.993	2
06135	**Lead**	7439-92-1	**29.5**	0.0276	0.497	2
06139	**Nickel**	7440-02-0	**49.4**	0.247	0.993	2
06141	**Selenium**	7782-49-2	**0.406 J**	0.124	0.993	2
06142	**Silver**	7440-22-4	**0.131 J**	0.0363	0.248	2
06145	**Thallium**	7440-28-0	**1.19**	0.0310	0.248	2
06148	**Vanadium**	7440-62-2	**35.3**	0.0529	0.248	2
Wet Chemistry	**SM 5310 B modified-2000**		mg/kg	mg/kg	mg/kg	
02079	**TOC**	n.a.	**508**	129	387	1
	SW-846 9045D modified		Std. Units	Std. Units	Std. Units	
00394	**pH**	n.a.	**8.03**	0.0100	0.0100	1
	The pH was measured in water at 20.3 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	
00111	**Moisture**	n.a.	**21.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 06:51	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
01650	Calcium	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
01654	Iron	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
01657	Magnesium	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 15:03	Eric L Eby	5
01662	Potassium	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
01667	Sodium	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5
06972	Zinc	SW-846 6010C	1	172981063704	10/31/2017 16:52	Cindy M Gehman	5

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR4-235-236' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:50
SDG#: SNB11-15

C. T. Male Associates
ELLE Sample #: SW 9280021
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	10/28/2017 23:00	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 23:00	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 23:00	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632B	11/10/2017 20:13	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR3-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:45
SDG#: SNB11-16

C. T. Male Associates
ELLE Sample #: SW 9280022
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,920**	9.33	41.7	1
01650	**Calcium**	7440-70-2	**7,670**	3.47	41.7	1
01654	**Iron**	7439-89-6	**27,700**	8.40	41.7	1
01657	**Magnesium**	7439-95-4	**5,160**	2.53	20.9	1
06958	**Manganese**	7439-96-5	**808**	0.0866	1.04	1
01662	**Potassium**	7440-09-7	**1,020**	17.4	104	1
01667	**Sodium**	7440-23-5	**24.1 J**	17.4	209	1
06972	**Zinc**	7440-66-6	**60.4**	0.250	4.17	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.231 J**	0.0972	0.417	2
06125	**Arsenic**	7440-38-2	**13.6**	0.134	0.835	2
06126	**Barium**	7440-39-3	**74.7**	0.189	0.835	2
06127	**Beryllium**	7440-41-7	**0.849**	0.0109	0.209	2
06128	**Cadmium**	7440-43-9	**0.305**	0.0359	0.209	2
06131	**Chromium**	7440-47-3	**9.05**	0.182	0.835	2
06132	**Cobalt**	7440-48-4	**17.9**	0.0325	0.209	2
06133	**Copper**	7440-50-8	**22.7**	0.112	0.835	2
06135	**Lead**	7439-92-1	**18.3**	0.0232	0.417	2
06139	**Nickel**	7440-02-0	**20.7**	0.208	0.835	2
06141	**Selenium**	7782-49-2	**0.255 J**	0.104	0.835	2
06142	Silver	7440-22-4	0.0305 U	0.0305	0.209	2
06145	**Thallium**	7440-28-0	**0.366**	0.0261	0.209	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR3-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:45
SDG#: SNB11-16

C. T. Male Associates
ELLE Sample #: SW 9280022
ELLE Group #: 1866660
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.8**	0.0444	0.209	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**947**	198	595	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.55**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**8.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 09:15	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
01650	Calcium	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
01654	Iron	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
01657	Magnesium	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
06958	Manganese	SW-846 6010C	1	172981063704	11/01/2017 15:14	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
01667	Sodium	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
06972	Zinc	SW-846 6010C	1	172981063704	10/27/2017 20:46	Cindy M Gehman	1
06124	Antimony	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063704D	10/28/2017 23:04	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MW-BR3-58-59' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:45
SDG#: SNB11-16

C. T. Male Associates
ELLE Sample #: SW 9280022
ELLE Group #: 1866660
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063704B	10/28/2017 23:04	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063704A	10/28/2017 23:04	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063704	10/26/2017 22:44	Annamaria Kuhns	1
02079	TOC	SM 5310 B modified-2000	2	17312667632B	11/10/2017 20:26	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820012B	10/27/2017 10:42	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB91-171023 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017
SDG#: SNB11-17TB

C. T. Male Associates
ELLE Sample #: WW 9280023
ELLE Group #: 1866660
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 18:43	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB92-171023 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017
SDG#: SNB11-18TB

C. T. Male Associates
ELLE Sample #: WW 9280024
ELLE Group #: 1866660
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 19:04	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17305004	Sample number(s): 9280004-9280007,9280009-9280022		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17299009	Sample number(s): 9280023-9280024		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 172981063704	Sample number(s): 9280004-9280022		
Aluminum	8.94 U	8.94	40.0
Calcium	3.64 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 172981063704A	Sample number(s): 9280004-9280022		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0618 J	0.0426	0.200
Batch number: 172981063704B	Sample number(s): 9280004-9280022		
Selenium	0.100 U	0.100	0.800
Batch number: 172981063704D	Sample number(s): 9280004-9280022		
Barium	0.182 U	0.182	0.800
Batch number: 17312667632A	Sample number(s): 9280004-9280006,9280008-9280016		
TOC	100 U	100	300
Batch number: 17312667632B	Sample number(s): 9280017-9280022		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17305004	Sample number(s): 9280004-9280007,9280009-9280022								
Perfluorobutanesulfonate	1.20	1.37			114		70-130		
Perfluorobutanoic acid	1.36	1.53			112		70-130		
Perfluorodecanoic acid	1.36	1.65			122		70-130		
Perfluorododecanoic acid	1.36	1.60			118		70-130		
Perfluoroheptanoic acid	1.36	1.46			107		70-130		
Perfluorohexanesulfonate	1.29	1.44			112		70-130		
Perfluorohexanoic acid	1.36	1.68			123		70-130		
Perfluorononanoic acid	1.36	1.40			103		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.35			104		70-130		
Perfluorooctanoic acid	1.36	1.58			116		70-130		
Perfluoropentanoic acid	1.36	1.58			117		70-130		
Perfluorotetradecanoic acid	1.36	1.54			113		70-130		
Perfluorotridecanoic acid	1.36	1.72			126		70-130		
Perfluoroundecanoic acid	1.36	1.56			115		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299009	Sample number(s): 9280023-9280024								
Perfluorobutanesulfonate	4.81	5.09	4.81	4.94	106	103	70-130	3	30
Perfluorobutanoic acid	5.44	5.65	5.44	5.36	104	98	70-130	5	30
Perfluorodecanoic acid	5.44	5.77	5.44	5.26	106	97	70-130	9	30
Perfluorododecanoic acid	5.44	5.70	5.44	4.98	105	91	70-130	14	30
Perfluoroheptanoic acid	5.44	5.62	5.44	5.71	103	105	70-130	2	30
Perfluorohexanesulfonate	5.14	4.79	5.14	4.31	93	84	70-130	10	30
Perfluorohexanoic acid	5.44	5.19	5.44	5.32	95	98	70-130	2	30
Perfluorononanoic acid	5.44	5.71	5.44	5.43	105	100	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.82	5.20	4.56	93	88	70-130	6	30
Perfluorooctanoic acid	5.44	5.20	5.44	4.37	96	80	70-130	17	30
Perfluoropentanoic acid	5.44	5.43	5.44	5.13	100	94	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.41	5.44	4.95	99	91	70-130	9	30
Perfluorotridecanoic acid	5.44	5.04	5.44	4.33	93	80	70-130	15	30
Perfluoroundecanoic acid	5.44	5.50	5.44	5.76	101	106	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172981063704	Sample number(s): 9280004-9280022								
Aluminum	200	199.39			100		80-120		
Calcium	400	400.82			100		80-120		
Iron	100	96.42			96		80-120		
Magnesium	200	201.21			101		80-120		
Manganese	50	50.53			101		80-120		
Potassium	1000	1007.84			101		80-120		
Sodium	1000	979.66			98		80-120		
Zinc	50	49.23			98		80-120		
Batch number: 172981063704A	Sample number(s): 9280004-9280022								
Antimony	0.600	0.501			84		80-120		
Arsenic	1.00	0.911			91		80-120		
Beryllium	0.400	0.406			101		80-120		
Cadmium	0.500	0.405			81		80-120		
Chromium	5.00	5.20			104		80-120		
Cobalt	25	25.03			100		80-120		
Copper	5.00	5.24			105		80-120		
Lead	1.50	1.50			100		80-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nickel	5.00	4.85			97		80-120		
Silver	5.00	4.83			97		80-120		
Thallium	0.200	0.223			112		80-120		
Vanadium	5.00	5.32			106		80-120		
Batch number: 172981063704B	Sample number(s): 9280004-9280022								
Selenium	1.00	1.03			103		80-120		
Batch number: 172981063704D	Sample number(s): 9280004-9280022								
Barium	5.00	5.69			114		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17312667632A	Sample number(s): 9280004-9280006,9280008-9280016								
TOC	7150	6765.34			95		47-143		
Batch number: 17312667632B	Sample number(s): 9280017-9280022								
TOC	7150	6765.34			95		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17301039401A	Sample number(s): 9280004,9280009								
pH	7.00	6.98			100		95-105		
Batch number: 17301039401B	Sample number(s): 9280005,9280008,9280010-9280019								
pH	7.00	6.98			100		95-105		
Batch number: 17301039402A	Sample number(s): 9280020-9280022								
pH	7.00	6.99			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17299820012A	Sample number(s): 9280004-9280015								
Moisture	89.5	89.44			100		99-101		
Moisture	89.5	89.44			100		99-101		
Moisture Duplicate	89.5	89.44			100		99-101		
Batch number: 17299820012B	Sample number(s): 9280016-9280022								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17305004	Sample number(s): 9280004-9280007,9280009-9280022 UNSPK: 9280005									
Perfluorobutanesulfonate	0.18 U	0.969	1.44	0.969	1.11	149*	115	70-130	26	30
Perfluorobutanoic acid	0.18 U	1.10	1.47	1.10	1.29	134*	118	70-130	13	30
Perfluorodecanoic acid	0.18 U	1.10	1.60	1.10	1.37	146*	125	70-130	16	30
Perfluorododecanoic acid	0.18 U	1.10	1.56	1.10	1.37	142*	125	70-130	13	30
Perfluoroheptanoic acid	0.18 U	1.10	1.45	1.10	1.24	132*	113	70-130	16	30
Perfluorohexanesulfonate	0.18 U	1.04	1.12	1.04	1.13	108	109	70-130	1	30
Perfluorohexanoic acid	0.092 U	1.10	1.44	1.10	1.26	131*	115	70-130	13	30
Perfluorononanoic acid	0.092 U	1.10	1.42	1.10	1.11	130	101	70-130	25	30
Perfluoro-octanesulfonate	0.28 U	1.05	1.12	1.05	1.17	107	111	70-130	4	30
Perfluorooctanoic acid	0.18 U	1.10	1.39	1.10	1.18	127	108	70-130	16	30
Perfluoropentanoic acid	0.18 U	1.10	1.44	1.10	1.26	131*	114	70-130	14	30
Perfluorotetradecanoic acid	0.18 U	1.10	1.51	1.10	1.30	138*	119	70-130	15	30
Perfluorotridecanoic acid	0.18 U	1.10	1.70	1.10	1.42	155*	130	70-130	18	30
Perfluoroundecanoic acid	0.18 U	1.10	1.66	1.10	1.37	152*	125	70-130	19	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172981063704	Sample number(s): 9280004-9280022 UNSPK: 9280005									
Aluminum	11251.08	168.07	24127.95	183.49	27094.81	7662 (2)	8635 (2)	75-125	12	20
Calcium	176.3	336.13	477.74	366.97	510.81	90	91	75-125	7	20
Iron	1432.28	84.03	1300.4	91.74	1386.63	-157 (2)	-50 (2)	75-125	6	20
Magnesium	232.31	168.07	496.6	183.49	561.13	157*	179*	75-125	12	20
Manganese	23.88	42.02	58.03	45.87	64.83	81	89	75-125	11	20
Potassium	807.56	840.34	1694.36	917.43	1922.53	106	122	75-125	13	20
Sodium	18.43	840.34	812.53	917.43	885.15	94	94	75-125	9	20
Zinc	1.77	42.02	42.95	45.87	48.09	98	101	75-125	11	20
Batch number: 172981063704A	Sample number(s): 9280004-9280022 UNSPK: 9280005									
Antimony	0.0701 U	1.01	0.827	1.10	0.759	82	69*	75-125	9	20
Arsenic	1.37	1.68	2.96	1.83	3.20	95	99	75-125	8	20
Beryllium	0.232	0.672	0.920	0.734	0.969	102	100	75-125	5	20
Cadmium	0.0259 U	0.840	0.796	0.917	0.817	95	89	75-125	3	20
Chromium	4.04	8.40	13.36	9.17	14.07	111	109	75-125	5	20
Cobalt	1.21	42.02	42.13	45.87	42.12	97	89	75-125	0	20
Copper	2.03	8.40	10.93	9.17	10.78	106	95	75-125	1	20
Lead	13.43	2.52	11.57	2.75	13.08	-74 (2)	-13 (2)	75-125	12	20
Nickel	2.08	8.40	11.93	9.17	11.84	117	106	75-125	1	20
Silver	0.0220 U	8.40	8.54	9.17	8.30	102	90	75-125	3	20
Thallium	0.0260	0.336	0.363	0.367	0.395	100	101	75-125	9	20
Vanadium	4.80	8.40	13.14	9.17	13.82	99	98	75-125	5	20
Batch number: 172981063704B	Sample number(s): 9280004-9280022 UNSPK: 9280005									
Selenium	0.112	1.68	1.78	1.83	1.90	99	97	75-125	6	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172981063704D	Sample number(s): 9280004-9280022 UNSPK: 9280005									
Barium	26.77	8.40	30.82	9.17	34.82	48*	88	75-125	12	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17312667632A	Sample number(s): 9280004-9280006,9280008-9280016 UNSPK: 9280005									
TOC	137.38	9900	10725.12			107		47-143		
Batch number: 17312667632B	Sample number(s): 9280017-9280022 UNSPK: 9280018									
TOC	172.41	12000	14286.86			118		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172981063704	Sample number(s): 9280004-9280022 BKG: 9280005			
Aluminum	11251.08	10391.74	8	20
Calcium	176.3	183.56	4	20
Iron	1432.28	1090.38	27*	20
Magnesium	232.31	216.6	7	20
Manganese	23.88	18.45	26*	20
Potassium	807.56	838.05	4	20
Sodium	18.43	19.55	6 (1)	20
Zinc	1.77	1.46	19 (1)	20
Batch number: 172981063704A	Sample number(s): 9280004-9280022 BKG: 9280005			
Antimony	0.0701 U	0.0855 U	0 (1)	20
Arsenic	1.37	1.44	5 (1)	20
Beryllium	0.232	0.222	4 (1)	20
Cadmium	0.0259 U	0.0316 U	0 (1)	20
Chromium	4.04	4.02	0	20
Cobalt	1.21	1.03	16	20
Copper	2.03	1.67	20 (1)	20
Lead	13.43	9.27	37*	20
Nickel	2.08	1.86	11 (1)	20
Silver	0.0220 U	0.0268 U	0 (1)	20
Thallium	0.0260	0.0229 U	200* (1)	20
Vanadium	4.80	3.66	27*	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 172981063704B	Sample number(s): 9280004-9280022 BKG: 9280005			
Selenium	0.112	0.131	16 (1)	20
Batch number: 172981063704D	Sample number(s): 9280004-9280022 BKG: 9280005			
Barium	26.77	22.27	18	20
	mg/kg	mg/kg		
Batch number: 17312667632A	Sample number(s): 9280004-9280006,9280008-9280016 BKG: 9280005			
TOC	137.38	142.84	4 (1)	7
Batch number: 17312667632B	Sample number(s): 9280017-9280022 BKG: 9280018			
TOC	172.41	203.36	16* (1)	7
	Std. Units	Std. Units		
Batch number: 17301039401A	Sample number(s): 9280004,9280009 BKG: P279984			
pH	8.67	8.65	0	3
Batch number: 17301039401B	Sample number(s): 9280005,9280008,9280010-9280019 BKG: 9280005			
pH	7.49	7.53	1	3
Batch number: 17301039402A	Sample number(s): 9280020-9280022 BKG: 9280020			
pH	7.63	7.67	1	3
	%	%		
Batch number: 17299820012A	Sample number(s): 9280004-9280015 BKG: 9280005, P280005			
Moisture	17.42	17.56	1	5
Moisture	17.42	17.56	1	5
Moisture Duplicate	17.42	17.56	1	5
Batch number: 17299820012B	Sample number(s): 9280016-9280022 BKG: 9280016			
Moisture	18.49	19.3	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9280023	91	91	78	94	81	98
9280024	97	96	84	99	84	101
Blank	91	95	84	98	86	92
LCS	87	90	75	98	76	96
LCSD	93	100	79	108	90	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9280023	101	97	122	102	103	105
9280024	109	97	122	105	102	89
Blank	103	86	100	97	92	90
LCS	103	83	103	90	87	78
LCSD	114*	97	114	101	93	93
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9280023	96
9280024	90
Blank	77
LCS	73
LCSD	78
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17305004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9280004	25*	21*	41	25*	49	25*
9280005	23*	22*	46	24*	52	24*
9280006	22*	21*	38	21*	46	22*
9280007	33*	32*	52	36*	66	39*
9280009	25*	24*	41	26*	45	25*
9280010	36*	32*	49	37*	65	36*
9280011	39	38*	52	41*	65	42*
9280012	18*	17*	32*	19*	39	18*
9280013	34*	29*	46	34*	54	33*
9280014	45	42*	57	49	64	47

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9280015	70	65*	68	71	72	75
9280016	31*	28*	49	31*	57	31*
9280017	31*	30*	47	32*	51	33*
9280018	31*	30*	49	36*	63	37*
9280019	45	40*	45	49	58	49
9280020	51	48*	53	60	67	53
9280021	31*	29*	53	30*	49	34*
9280022	46	45*	67	52	74	49
Blank	81	72	73	85	81	83
LCS	76	72	67	83	86	92
MS	22*	21*	38	21*	46	22*
MSD	33*	32*	52	36*	66	39*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9280004	22*	45	23*	24*	25	24
9280005	26*	53	24*	25*	26	24
9280006	21*	43	19*	22*	22*	21
9280007	34*	59	32*	34*	35	38
9280009	25*	47	23*	24*	29	32
9280010	39*	62	37	37	41	43
9280011	40*	60	35*	37	37	41
9280012	20*	40*	18*	19*	21*	20
9280013	34*	58	37	32*	34	36
9280014	46	63	45	48	51	53
9280015	72	80	59	66	66	71
9280016	33*	56	29*	34*	37	37
9280017	32*	52	30*	32*	34	32
9280018	32*	58	29*	32*	38	39
9280019	47	53	43	46	49	53
9280020	54	67	50	49	53	59
9280021	32*	54	42	28*	28	27
9280022	52	70	50	48	52	52
Blank	86	80	78	75	83	84
LCS	77	75	69	78	82	85
MS	21*	43	19*	22*	22*	21
MSD	34*	59	32*	34*	35	38

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/17/2017 09:45

Group Number: 1866660

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305004

Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9280004	28
9280005	27
9280006	24
9280007	39
9280009	34
9280010	44
9280011	40
9280012	20
9280013	39
9280014	54
9280015	74
9280016	38
9280017	35
9280018	39
9280019	54
9280020	61
9280021	27
9280022	56
Blank	88
LCS	92
MS	24
MSD	39
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/18666660/92800004-24

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52704

COC 3 of 6

REPORT TO	INVOICE TO
Company: Barr Eng. Co	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water	Soil: 250ml poly - PFCs (14)	Soil: 4oz. gls - TOC, Metals, pH, Moist.	Soil: % Solids
										Preservative Code: A	Preservative Code: A	
										Field Filtered Y/N: N	Field Filtered Y/N: N	
1. SG3-MW-BR4-98-99'	98	99	ft.	10/21/2017	1530	S	N	2		1	1	
2. SG3-MW-BR4-108-109'	108	109	ft.	10/22/2017	1200	S	Y	6		3	3	
3. SG3-MW-BR4-118-119'	118	119	ft.	10/22/2017	1340	S	N	2		1	1	
4. SG3-MW-BR4-128-129'	128	129	ft.	10/22/2017	1515	S	N	2		1	1	
5. SG3-MW-BR4-138-139'	138	139	ft	10-22-17	1545	S	N	2		1	1	
6. SG3-MW-BR4-148-149'	148	149	ft.	10/22/2017	1625	S	N	2		1	1	
7. SG3-MW-BR4-158-159'	158	159	ft.	10/23/2017	1040	S	N	2		1	1	
8. SG3-MW-BR4-168-169'	168	169	ft.	10/23/2017	1045	S	N	2		1	1	
9. SG3-MW-BR4-178-179'	178	179	ft.	10/23/2017	1105	S	N	2		1	1	
10. SG3-MW-BR4-188-189'	188	189	ft.	10/23/2017	1200	S	N	2		1	1	

* 7 DAY TAT *

BARR USE ONLY	
Sampled by:	RQM
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

	On Ice?	Date	Time		Date	Time
Relinquished by: (RQM)	(Y) N	10/23/2017	1700	Received by:		
Relinquished by:	Y N			Received by:	10/24/17	931

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191/18666660/9280004-24

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52705

COC 4 of 6

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water	Soil: 250ml poly - PFCs (14)	Soil: 4oz. - TOC, pH, metals, moist.	Soil: % Solids
										A	A	
										1	1	
1. SG3-MW-BR4-208-209'	208	209	ft.	10/23/2017	1345	S	N	2		1	1	
2. SG3-MW-BR4-198-199'	198	199	ft.	10/23/2017	1300	S	N	2		1	1	
3. SG3-MW-BR4-216.5-217'	216.5	217	ft.	10/23/2017	1425	S	N	2		1	1	
4. SG3-MW-BR4-225-226'	225	226	ft.	10/23/2017	1530	S	N	2		1	1	
5. SG3-MW-BR4-235-236'	235	236	ft.	10/23/2017	1650	S	N	2		1	1	
6. SG3-MW-~~BR4~~ BR3-58-59'	58	59	ft.	10/23/2017	1645	S	N	2		1	1	
7.												
8.												
9.												
10.												

Preservative Code

Field Filtered Y/N

7-DAY * TAT *

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: RQM	(RQM)	(Y) N	10/23/17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/24/17	Time 935
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 198539

Group Number(s): 1866000

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	10
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:44 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.0	DT	Wet	Y	Bagged	N
2	DT42-01	2.5	DT	Wet	Y	Bagged	N
3	DT42-01	1.7	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-LTB91-171023	2	10/23/2017 --	
SG3-LTB92-171023	2	10/23/2017 --	

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LTB89-171021	SG3-LTB80-171021	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 13, 2017 15:22

Project: SGPP - Bennington

Account #: 37191
Group Number: 1866664
SDG: SNB12
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR3-0-0.5' Soil	10/23/2017 12:15	9280038
SG3-MW-BR3-0.5-1' Soil	10/23/2017 12:20	9280039
SG3-MW-BR3-1-1.5' Soil	10/23/2017 12:25	9280040
SG3-MW-BR3-3-4' Soil	10/23/2017 12:30	9280041
SG3-MW-BR3-6.5-7.5' Soil	10/23/2017 12:35	9280042
SG3-MW-BR3-8-9' Soil	10/23/2017 12:40	9280043
SG3-MW-BR3-18-19' Soil	10/23/2017 13:35	9280044
SG3-MW-BR3-28-29' Soil	10/23/2017 14:00	9280045
SG3-MW-BR3-38-39' Soil	10/23/2017 14:45	9280046
SG3-MW-BR3-48-49' Soil	10/23/2017 16:15	9280047

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1866664

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9280038, 9280043, 9280044, 9280045, 9280046, 9280047

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17305004 (Sample number(s): 9280038-9280039 UNSPK: P280005)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluoroundecanoic acid, Perfluorododecanoic acid, Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluorohexanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9280038, MS, MSD

Batch #: 17305005 (Sample number(s): 9280040-9280047 UNSPK: P284290)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9280043, 9280044, 9280045, 9280046, 9280047, MS, MSD

SW-846 6010C, Metals

Batch #: 172981063703 (Sample number(s): 9280038-9280047 UNSPK: P279984 BKG: P279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Iron, Potassium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Calcium, Magnesium, Zinc

SW-846 6020A, Metals

Batch #: 172981063703A (Sample number(s): 9280038-9280047 UNSPK: P279984 BKG: P279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Chromium, Lead, Nickel, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Chromium, Copper, Lead, Nickel, Vanadium

Batch #: 172981063703D (Sample number(s): 9280038-9280047 UNSPK: P279984 BKG: P279984)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Batch #: 17312667632B (Sample number(s): 9280038-9280041 UNSPK: P280018 BKG: P280018)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9280041, 9280045, 9280047

The pH was measured in water at 20.1 C.

Sample #s: 9280038, 9280039, 9280040, 9280042, 9280043, 9280046

The pH was measured in water at 20.2 C.

Sample #s: 9280044

The pH was measured in water at 20.4 C.

Sample Description: **SG3-MW-BR3-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:15
SDG#: SNB12-01

C. T. Male Associates
ELLE Sample #: SW 9280038
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.091 U	0.091	0.36	1
14027	**Perfluorononanoic acid**	375-95-1	**0.093 J**	0.091	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,310**	7.18	32.1	1
01650	**Calcium**	7440-70-2	**64,200**	13.4	161	5
01654	**Iron**	7439-89-6	**13,800**	6.46	32.1	1
01657	**Magnesium**	7439-95-4	**25,400**	1.95	16.1	1
06958	**Manganese**	7439-96-5	**542**	0.0666	0.803	1
01662	**Potassium**	7440-09-7	**692**	13.4	80.3	1
01667	**Sodium**	7440-23-5	**32.0 J**	13.4	161	1
06972	**Zinc**	7440-66-6	**32.1**	0.193	3.21	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.158 J**	0.0748	0.321	2
06125	**Arsenic**	7440-38-2	**6.21**	0.103	0.642	2
06126	**Barium**	7440-39-3	**78.2**	0.146	0.642	2
06127	**Beryllium**	7440-41-7	**0.203**	0.0084	0.161	2
06128	**Cadmium**	7440-43-9	**0.105 J**	0.0276	0.161	2
06131	**Chromium**	7440-47-3	**4.60**	0.140	0.642	2
06132	**Cobalt**	7440-48-4	**8.67**	0.0251	0.161	2
06133	**Copper**	7440-50-8	**13.2**	0.0861	0.642	2
06135	**Lead**	7439-92-1	**13.3**	0.0178	0.321	2
06139	**Nickel**	7440-02-0	**11.4**	0.160	0.642	2
06141	**Selenium**	7782-49-2	**0.209 J**	0.0803	0.642	2
06142	**Silver**	7440-22-4	**0.0575 J**	0.0234	0.161	2
06145	**Thallium**	7440-28-0	**0.252**	0.0201	0.161	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:15
SDG#: SNB12-01

C. T. Male Associates
ELLE Sample #: SW 9280038
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**22.2**	0.0342	0.161	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**48,700**	1,870	5,610	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.59**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**2.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 09:36	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/31/2017 12:25	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:04	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:52	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:20	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:52	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-0-0.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:15
SDG#: SNB12-01

C. T. Male Associates
ELLE Sample #: SW 9280038
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:20	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:20	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 20:39	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:20
SDG#: SNB12-02

C. T. Male Associates
ELLE Sample #: SW 9280039
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.56	1
14027	Perfluorobutanoic acid	375-22-4	0.19 U	0.19	0.56	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.56	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.56	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.56	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.56	1
14027	Perfluorohexanoic acid	307-24-4	0.093 U	0.093	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.093 U	0.093	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.28 U	0.28	0.84	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.56	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.56	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.56	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.56	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.56	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,670**	7.95	35.5	1
01650	**Calcium**	7440-70-2	**82,000**	14.8	178	5
01654	**Iron**	7439-89-6	**14,500**	7.15	35.5	1
01657	**Magnesium**	7439-95-4	**31,700**	2.16	17.8	1
06958	**Manganese**	7439-96-5	**380**	0.0738	0.889	1
01662	**Potassium**	7440-09-7	**780**	14.8	88.9	1
01667	**Sodium**	7440-23-5	**35.6 J**	14.8	178	1
06972	**Zinc**	7440-66-6	**30.6**	0.213	3.55	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.211 J**	0.0828	0.355	2
06125	**Arsenic**	7440-38-2	**9.53**	0.114	0.711	2
06126	**Barium**	7440-39-3	**33.8**	0.161	0.711	2
06127	**Beryllium**	7440-41-7	**0.210**	0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.107 J**	0.0306	0.178	2
06131	**Chromium**	7440-47-3	**4.90**	0.155	0.711	2
06132	**Cobalt**	7440-48-4	**10.3**	0.0277	0.178	2
06133	**Copper**	7440-50-8	**14.6**	0.0953	0.711	2
06135	**Lead**	7439-92-1	**11.9**	0.0197	0.355	2
06139	**Nickel**	7440-02-0	**11.9**	0.177	0.711	2
06141	**Selenium**	7782-49-2	**0.329 J**	0.0889	0.711	2
06142	**Silver**	7440-22-4	**0.0393 J**	0.0260	0.178	2
06145	**Thallium**	7440-28-0	**0.0921 J**	0.0222	0.178	2
06148	**Vanadium**	7440-62-2	**8.42**	0.0379	0.178	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:20
SDG#: SNB12-02

C. T. Male Associates
ELLE Sample #: SW 9280039
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**30,300**	992	2,980	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.93**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**3.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305004	11/03/2017 09:57	Mark Makowiecki	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305004	11/01/2017 18:55	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/31/2017 12:28	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:08	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:54	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:23	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:54	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:23	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-0.5-1' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:20
SDG#: SNB12-02

C. T. Male Associates
ELLE Sample #: SW 9280039
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:23	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 20:52	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:25
SDG#: SNB12-03

C. T. Male Associates
ELLE Sample #: SW 9280040
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.14 U	0.14	0.42	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.25 JB**	0.14	0.42	1
14027	Perfluorodecanoic acid	335-76-2	0.14 U	0.14	0.42	1
14027	Perfluorododecanoic acid	307-55-1	0.14 U	0.14	0.42	1
14027	Perfluoroheptanoic acid	375-85-9	0.14 U	0.14	0.42	1
14027	Perfluorohexanesulfonate	355-46-4	0.14 U	0.14	0.42	1
14027	Perfluorohexanoic acid	307-24-4	0.071 U	0.071	0.28	1
14027	Perfluorononanoic acid	375-95-1	0.071 U	0.071	0.28	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.21 U	0.21	0.64	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.17 J**	0.14	0.42	1
14027	Perfluoropentanoic acid	2706-90-3	0.14 U	0.14	0.42	1
14027	Perfluorotetradecanoic acid	376-06-7	0.14 U	0.14	0.42	1
14027	Perfluorotridecanoic acid	72629-94-8	0.14 U	0.14	0.42	1
14027	Perfluoroundecanoic acid	2058-94-8	0.14 U	0.14	0.42	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,230**	8.99	40.2	1
01650	**Calcium**	7440-70-2	**79,100**	16.7	201	5
01654	**Iron**	7439-89-6	**12,400**	8.10	40.2	1
01657	**Magnesium**	7439-95-4	**30,400**	2.44	20.1	1
06958	**Manganese**	7439-96-5	**344**	0.0835	1.01	1
01662	**Potassium**	7440-09-7	**974**	16.8	101	1
01667	**Sodium**	7440-23-5	**37.8 J**	16.8	201	1
06972	**Zinc**	7440-66-6	**28.4**	0.241	4.02	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0937 U	0.0937	0.402	2
06125	**Arsenic**	7440-38-2	**7.11**	0.129	0.805	2
06126	**Barium**	7440-39-3	**32.8**	0.183	0.805	2
06127	**Beryllium**	7440-41-7	**0.198 J**	0.0105	0.201	2
06128	**Cadmium**	7440-43-9	**0.109 J**	0.0346	0.201	2
06131	**Chromium**	7440-47-3	**5.51**	0.175	0.805	2
06132	**Cobalt**	7440-48-4	**6.29**	0.0314	0.201	2
06133	**Copper**	7440-50-8	**11.5**	0.108	0.805	2
06135	**Lead**	7439-92-1	**8.68**	0.0223	0.402	2
06139	**Nickel**	7440-02-0	**8.68**	0.200	0.805	2
06141	**Selenium**	7782-49-2	**0.155 J**	0.101	0.805	2
06142	Silver	7440-22-4	0.0294 U	0.0294	0.201	2
06145	**Thallium**	7440-28-0	**0.0907 J**	0.0251	0.201	2
06148	**Vanadium**	7440-62-2	**6.29**	0.0428	0.201	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:25
SDG#: SNB12-03

C. T. Male Associates
ELLE Sample #: SW 9280040
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**31,300**	1,350	4,040	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.80**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**4.4**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 05:09	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/31/2017 12:31	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:12	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 09:55	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:26	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 09:55	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:26	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-1-1.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:25
SDG#: SNB12-03

C. T. Male Associates
ELLE Sample #: SW 9280040
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:26	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 21:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:30
SDG#: SNB12-04

C. T. Male Associates
ELLE Sample #: SW 9280041
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.57	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.37 JB**	0.19	0.57	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.57	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.57	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.57	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.57	1
14027	Perfluorohexanoic acid	307-24-4	0.095 U	0.095	0.38	1
14027	Perfluorononanoic acid	375-95-1	0.095 U	0.095	0.38	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.86	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.0**	0.19	0.57	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.57	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.57	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.57	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.57	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,930**	7.23	32.3	1
01650	**Calcium**	7440-70-2	**30,900**	2.69	32.3	1
01654	**Iron**	7439-89-6	**16,300**	6.51	32.3	1
01657	**Magnesium**	7439-95-4	**12,900**	1.96	16.2	1
06958	**Manganese**	7439-96-5	**538**	0.0671	0.809	1
01662	**Potassium**	7440-09-7	**1,300**	13.5	80.9	1
01667	**Sodium**	7440-23-5	**45.1 J**	13.5	162	1
06972	**Zinc**	7440-66-6	**48.1**	0.194	3.23	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.155 J**	0.0754	0.323	2
06125	**Arsenic**	7440-38-2	**6.75**	0.103	0.647	2
06126	**Barium**	7440-39-3	**60.3**	0.147	0.647	2
06127	**Beryllium**	7440-41-7	**0.427**	0.0085	0.162	2
06128	**Cadmium**	7440-43-9	**0.231**	0.0278	0.162	2
06131	**Chromium**	7440-47-3	**9.35**	0.141	0.647	2
06132	**Cobalt**	7440-48-4	**10.7**	0.0252	0.162	2
06133	**Copper**	7440-50-8	**14.5**	0.0867	0.647	2
06135	**Lead**	7439-92-1	**14.4**	0.0179	0.323	2
06139	**Nickel**	7440-02-0	**14.0**	0.161	0.647	2
06141	**Selenium**	7782-49-2	**0.310 J**	0.0809	0.647	2
06142	**Silver**	7440-22-4	**0.0909 J**	0.0236	0.162	2
06145	**Thallium**	7440-28-0	**0.180**	0.0202	0.162	2
06148	**Vanadium**	7440-62-2	**13.2**	0.0344	0.162	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:30
SDG#: SNB12-04

C. T. Male Associates
ELLE Sample #: SW 9280041
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**9,930**	390	1,170	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.20**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
	%Moisture Calc					
00111	**Moisture**	n.a.	**14.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 05:30	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:16	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:14	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:29	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:29	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-3-4' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:30
SDG#: SNB12-04

C. T. Male Associates
ELLE Sample #: SW 9280041
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:29	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667632B	11/10/2017 21:18	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-6.5-7.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:35
SDG#: SNB12-05

C. T. Male Associates
ELLE Sample #: SW 9280042
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.48	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.31 JB**	0.16	0.48	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.48	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.48	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.48	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.48	1
14027	Perfluorohexanoic acid	307-24-4	0.080 U	0.080	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.080 U	0.080	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.72	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.19 J**	0.16	0.48	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.48	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.48	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.48	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.48	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,290**	7.87	35.2	1
01650	**Calcium**	7440-70-2	**81,200**	14.7	176	5
01654	**Iron**	7439-89-6	**14,100**	7.09	35.2	1
01657	**Magnesium**	7439-95-4	**31,600**	2.14	17.6	1
06958	**Manganese**	7439-96-5	**288**	0.0731	0.880	1
01662	**Potassium**	7440-09-7	**609**	14.7	88.0	1
01667	**Sodium**	7440-23-5	**26.9 J**	14.7	176	1
06972	**Zinc**	7440-66-6	**35.1**	0.211	3.52	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0884 J**	0.0820	0.352	2
06125	**Arsenic**	7440-38-2	**5.99**	0.113	0.704	2
06126	**Barium**	7440-39-3	**23.6**	0.160	0.704	2
06127	**Beryllium**	7440-41-7	**0.191**	0.0092	0.176	2
06128	**Cadmium**	7440-43-9	**0.0857 J**	0.0303	0.176	2
06131	**Chromium**	7440-47-3	**5.79**	0.153	0.704	2
06132	**Cobalt**	7440-48-4	**5.89**	0.0275	0.176	2
06133	**Copper**	7440-50-8	**13.3**	0.0944	0.704	2
06135	**Lead**	7439-92-1	**20.6**	0.0195	0.352	2
06139	**Nickel**	7440-02-0	**10.1**	0.175	0.704	2
06141	**Selenium**	7782-49-2	**0.238 J**	0.0880	0.704	2
06142	Silver	7440-22-4	0.0257 U	0.0257	0.176	2
06145	**Thallium**	7440-28-0	**0.0856 J**	0.0220	0.176	2
06148	**Vanadium**	7440-62-2	**10.6**	0.0375	0.176	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-6.5-7.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:35
SDG#: SNB12-05

C. T. Male Associates
ELLE Sample #: SW 9280042
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**29,300**	957	2,870	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.89**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**2.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 05:50	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/31/2017 12:34	Eric L Eby	5
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:20	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:04	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:33	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:04	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:33	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-6.5-7.5' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:35
SDG#: SNB12-05

C. T. Male Associates
ELLE Sample #: SW 9280042
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:33	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	2	17312667633A	11/10/2017 21:31	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:40
SDG#: SNB12-06

C. T. Male Associates
ELLE Sample #: SW 9280043
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.35 JB**	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,850**	8.72	39.0	1
01650	**Calcium**	7440-70-2	**402**	3.25	39.0	1
01654	**Iron**	7439-89-6	**16,900**	7.85	39.0	1
01657	**Magnesium**	7439-95-4	**1,240**	2.37	19.5	1
06958	**Manganese**	7439-96-5	**520**	0.0809	0.975	1
01662	**Potassium**	7440-09-7	**1,490**	16.3	97.5	1
01667	**Sodium**	7440-23-5	**24.5 J**	16.3	195	1
06972	**Zinc**	7440-66-6	**30.7**	0.234	3.90	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.151 J**	0.0909	0.390	2
06125	**Arsenic**	7440-38-2	**6.14**	0.125	0.780	2
06126	**Barium**	7440-39-3	**75.8**	0.177	0.780	2
06127	**Beryllium**	7440-41-7	**0.515**	0.0102	0.195	2
06128	**Cadmium**	7440-43-9	**0.154 J**	0.0335	0.195	2
06131	**Chromium**	7440-47-3	**7.81**	0.170	0.780	2
06132	**Cobalt**	7440-48-4	**17.6**	0.0304	0.195	2
06133	**Copper**	7440-50-8	**18.8**	0.105	0.780	2
06135	**Lead**	7439-92-1	**11.1**	0.0216	0.390	2
06139	**Nickel**	7440-02-0	**15.0**	0.194	0.780	2
06141	**Selenium**	7782-49-2	**0.219 J**	0.0975	0.780	2
06142	Silver	7440-22-4	0.0285 U	0.0285	0.195	2
06145	**Thallium**	7440-28-0	**0.307**	0.0244	0.195	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:40
SDG#: SNB12-06

C. T. Male Associates
ELLE Sample #: SW 9280043
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**11.1**	0.0415	0.195	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,040**	232	696	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.90**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**10.8**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 09:36	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:31	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:06	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:42	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-8-9' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 12:40
SDG#: SNB12-06

C. T. Male Associates
ELLE Sample #: SW 9280043
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:42	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:42	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/10/2017 21:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402A	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:35
SDG#: SNB12-07

C. T. Male Associates
ELLE Sample #: SW 9280044
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.55	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.37 JB**	0.18	0.55	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.55	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.55	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.55	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.55	1
14027	Perfluorohexanoic acid	307-24-4	0.092 U	0.092	0.37	1
14027	Perfluorononanoic acid	375-95-1	0.092 U	0.092	0.37	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.82	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.55	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.55	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.55	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.55	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.55	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,800**	9.82	44.0	1
01650	**Calcium**	7440-70-2	**13,700**	3.66	44.0	1
01654	**Iron**	7439-89-6	**34,300**	44.2	220	5
01657	**Magnesium**	7439-95-4	**7,960**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**6,100**	0.456	5.49	5
01662	**Potassium**	7440-09-7	**2,070**	18.4	110	1
01667	**Sodium**	7440-23-5	**41.3 J**	18.4	220	1
06972	**Zinc**	7440-66-6	**95.4**	0.264	4.40	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.278 J**	0.102	0.440	2
06125	**Arsenic**	7440-38-2	**11.4**	0.141	0.879	2
06126	**Barium**	7440-39-3	**1,330**	0.499	2.20	5
06127	**Beryllium**	7440-41-7	**1.54**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.487**	0.0378	0.220	2
06131	**Chromium**	7440-47-3	**12.8**	0.191	0.879	2
06132	**Cobalt**	7440-48-4	**62.1**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**32.4**	0.118	0.879	2
06135	**Lead**	7439-92-1	**25.2**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**39.7**	0.219	0.879	2
06141	**Selenium**	7782-49-2	**0.338 J**	0.110	0.879	2
06142	**Silver**	7440-22-4	**0.0859 J**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**4.28**	0.0275	0.220	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:35
SDG#: SNB12-07

C. T. Male Associates
ELLE Sample #: SW 9280044
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.0**	0.0468	0.220	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**2,190**	352	1,050	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.37**	0.0100	0.0100	1
	The pH was measured in water at 20.4 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 09:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/31/2017 12:37	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	11/01/2017 22:39	Cindy M Gehman	5
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:35	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:07	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	11/01/2017 10:16	Choon Y Tian	5
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:07	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-18-19' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 13:35
SDG#: SNB12-07

C. T. Male Associates
ELLE Sample #: SW 9280044
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:45	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:45	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	2	17312667633A	11/10/2017 21:57	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:00
SDG#: SNB12-08

C. T. Male Associates
ELLE Sample #: SW 9280045
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.35 JB**	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.084 U	0.084	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.084 U	0.084	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,000**	9.52	42.6	1
01650	**Calcium**	7440-70-2	**4,700**	3.54	42.6	1
01654	**Iron**	7439-89-6	**34,600**	42.8	213	5
01657	**Magnesium**	7439-95-4	**3,180**	2.59	21.3	1
06958	**Manganese**	7439-96-5	**728**	0.0883	1.06	1
01662	**Potassium**	7440-09-7	**1,550**	17.8	106	1
01667	**Sodium**	7440-23-5	**25.9 J**	17.8	213	1
06972	**Zinc**	7440-66-6	**63.7**	0.255	4.26	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.228 J**	0.0992	0.426	2
06125	**Arsenic**	7440-38-2	**14.7**	0.136	0.852	2
06126	**Barium**	7440-39-3	**80.2**	0.193	0.852	2
06127	**Beryllium**	7440-41-7	**0.956**	0.0112	0.213	2
06128	**Cadmium**	7440-43-9	**0.224**	0.0366	0.213	2
06131	**Chromium**	7440-47-3	**13.9**	0.185	0.852	2
06132	**Cobalt**	7440-48-4	**22.3**	0.0332	0.213	2
06133	**Copper**	7440-50-8	**28.1**	0.114	0.852	2
06135	**Lead**	7439-92-1	**18.2**	0.0236	0.426	2
06139	**Nickel**	7440-02-0	**27.3**	0.212	0.852	2
06141	**Selenium**	7782-49-2	**0.309 J**	0.106	0.852	2
06142	Silver	7440-22-4	0.0311 U	0.0311	0.213	2
06145	**Thallium**	7440-28-0	**0.385**	0.0266	0.213	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:00
SDG#: SNB12-08

C. T. Male Associates
ELLE Sample #: SW 9280045
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**17.8**	0.0453	0.213	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**978**	305	916	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.46**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 10:17	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/31/2017 12:40	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:39	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:09	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:48	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:09	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-28-29' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:00
SDG#: SNB12-08

C. T. Male Associates
ELLE Sample #: SW 9280045
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:48	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:48	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/09/2017 13:05	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:45
SDG#: SNB12-09

C. T. Male Associates
ELLE Sample #: SW 9280046
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.63	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.56 JB**	0.21	0.63	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.63	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.63	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.63	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.63	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.42	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.42	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.32 U	0.32	0.95	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.63	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.63	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.63	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.63	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.63	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,000**	9.19	41.1	1
01650	**Calcium**	7440-70-2	**2,840**	3.42	41.1	1
01654	**Iron**	7439-89-6	**50,500**	41.4	206	5
01657	**Magnesium**	7439-95-4	**2,380**	2.50	20.6	1
06958	**Manganese**	7439-96-5	**740**	0.0853	1.03	1
01662	**Potassium**	7440-09-7	**1,400**	17.2	103	1
01667	**Sodium**	7440-23-5	**21.0 J**	17.2	206	1
06972	**Zinc**	7440-66-6	**70.8**	0.247	4.11	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.227 J**	0.0958	0.411	2
06125	**Arsenic**	7440-38-2	**25.2**	0.132	0.822	2
06126	**Barium**	7440-39-3	**109**	0.187	0.822	2
06127	**Beryllium**	7440-41-7	**1.32**	0.0108	0.206	2
06128	**Cadmium**	7440-43-9	**0.356**	0.0354	0.206	2
06131	**Chromium**	7440-47-3	**10.7**	0.179	0.822	2
06132	**Cobalt**	7440-48-4	**22.3**	0.0321	0.206	2
06133	**Copper**	7440-50-8	**32.2**	0.110	0.822	2
06135	**Lead**	7439-92-1	**23.6**	0.0228	0.411	2
06139	**Nickel**	7440-02-0	**30.1**	0.205	0.822	2
06141	**Selenium**	7782-49-2	**0.334 J**	0.103	0.822	2
06142	Silver	7440-22-4	0.0300 U	0.0300	0.206	2
06145	**Thallium**	7440-28-0	**0.516**	0.0257	0.206	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:45
SDG#: SNB12-09

C. T. Male Associates
ELLE Sample #: SW 9280046
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.4**	0.0438	0.206	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**576**	149	446	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.52**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**9.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 10:37	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/31/2017 12:43	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:43	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:11	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:52	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:11	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-38-39' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 14:45
SDG#: SNB12-09

C. T. Male Associates
ELLE Sample #: SW 9280046
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:52	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:52	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/10/2017 22:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:15
SDG#: SNB12-10

C. T. Male Associates
ELLE Sample #: SW 9280047
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.22 JB**	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.93	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,900**	7.89	35.3	1
01650	**Calcium**	7440-70-2	**5,960**	2.94	35.3	1
01654	**Iron**	7439-89-6	**34,800**	35.5	177	5
01657	**Magnesium**	7439-95-4	**3,820**	2.15	17.7	1
06958	**Manganese**	7439-96-5	**677**	0.0733	0.883	1
01662	**Potassium**	7440-09-7	**1,290**	14.7	88.3	1
01667	**Sodium**	7440-23-5	**20.5 J**	14.7	177	1
06972	**Zinc**	7440-66-6	**60.3**	0.212	3.53	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.194 J**	0.0823	0.353	2
06125	**Arsenic**	7440-38-2	**17.9**	0.113	0.706	2
06126	**Barium**	7440-39-3	**67.0**	0.160	0.706	2
06127	**Beryllium**	7440-41-7	**0.878**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.252**	0.0304	0.177	2
06131	**Chromium**	7440-47-3	**11.4**	0.154	0.706	2
06132	**Cobalt**	7440-48-4	**20.9**	0.0275	0.177	2
06133	**Copper**	7440-50-8	**26.0**	0.0947	0.706	2
06135	**Lead**	7439-92-1	**20.2**	0.0196	0.353	2
06139	**Nickel**	7440-02-0	**26.4**	0.176	0.706	2
06141	**Selenium**	7782-49-2	**0.254 J**	0.0883	0.706	2
06142	**Silver**	7440-22-4	**0.0403 J**	0.0258	0.177	2
06145	**Thallium**	7440-28-0	**0.381**	0.0221	0.177	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR3-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:15
SDG#: SNB12-10

C. T. Male Associates
ELLE Sample #: SW 9280047
ELLE Group #: 1866664
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**16.4**	0.0376	0.177	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**917**	267	801	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.47**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.2**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 10:58	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
01650	Calcium	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
01654	Iron	SW-846 6010C	1	172981063703	10/31/2017 12:52	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
06958	Manganese	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
01662	Potassium	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
01667	Sodium	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
06972	Zinc	SW-846 6010C	1	172981063703	10/27/2017 12:46	Patrick J Engle	1
06124	Antimony	SW-846 6020A	1	172981063703A	11/01/2017 10:12	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	172981063703D	10/28/2017 12:55	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	172981063703A	11/01/2017 10:12	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MW-BR3-48-49' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/24/2017 09:35
Collection Date/Time: 10/23/2017 16:15
SDG#: SNB12-10

C. T. Male Associates
ELLE Sample #: SW 9280047
ELLE Group #: 1866664
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	172981063703B	10/28/2017 12:55	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	172981063703A	10/28/2017 12:55	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	172981063703	10/26/2017 17:30	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/09/2017 13:32	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17299820013B	10/27/2017 11:18	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17305004	Sample number(s): 9280038-9280039		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
Batch number: 17305005	Sample number(s): 9280040-9280047		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.21 J	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	mg/kg	mg/kg	mg/kg
Batch number: 172981063703	Sample number(s): 9280038-9280047		
Aluminum	11.3 J	8.94	40.0
Calcium	19.0 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Sodium	16.7 U	16.7	200
Zinc	0.249 J	0.240	4.00
Batch number: 172981063703A	Sample number(s): 9280038-9280047		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.128 J	0.107	0.800
Lead	0.0246 J	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 172981063703B	Sample number(s): 9280038-9280047		
Selenium	0.100 U	0.100	0.800
Batch number: 172981063703D	Sample number(s): 9280038-9280047		
Barium	0.182 U	0.182	0.800
Batch number: 17312667632B	Sample number(s): 9280038-9280041		
TOC	100 U	100	300
Batch number: 17312667633A	Sample number(s): 9280042-9280047		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17305004	Sample number(s): 9280038-9280039								
Perfluorobutanesulfonate	1.20	1.37			114		70-130		
Perfluorobutanoic acid	1.36	1.53			112		70-130		
Perfluorodecanoic acid	1.36	1.65			122		70-130		
Perfluorododecanoic acid	1.36	1.60			118		70-130		
Perfluoroheptanoic acid	1.36	1.46			107		70-130		
Perfluorohexanesulfonate	1.29	1.44			112		70-130		
Perfluorohexanoic acid	1.36	1.68			123		70-130		
Perfluorononanoic acid	1.36	1.40			103		70-130		
Perfluoro-octanesulfonate	1.30	1.35			104		70-130		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	1.36	1.58			116		70-130		
Perfluoropentanoic acid	1.36	1.58			117		70-130		
Perfluorotetradecanoic acid	1.36	1.54			113		70-130		
Perfluorotridecanoic acid	1.36	1.72			126		70-130		
Perfluoroundecanoic acid	1.36	1.56			115		70-130		
Batch number: 17305005	Sample number(s): 9280040-9280047								
Perfluorobutanesulfonate	1.20	1.40			117		70-130		
Perfluorobutanoic acid	1.36	1.69			124		70-130		
Perfluorodecanoic acid	1.36	1.57			116		70-130		
Perfluorododecanoic acid	1.36	1.71			126		70-130		
Perfluoroheptanoic acid	1.36	1.59			117		70-130		
Perfluorohexanesulfonate	1.29	1.50			116		70-130		
Perfluorohexanoic acid	1.36	1.76			130		70-130		
Perfluorononanoic acid	1.36	1.55			114		70-130		
Perfluoro-octanesulfonate	1.30	1.68			129		70-130		
Perfluorooctanoic acid	1.36	1.29			95		70-130		
Perfluoropentanoic acid	1.36	1.47			108		70-130		
Perfluorotetradecanoic acid	1.36	1.67			123		70-130		
Perfluorotridecanoic acid	1.36	2.18			160*		70-130		
Perfluoroundecanoic acid	1.36	1.46			108		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 172981063703	Sample number(s): 9280038-9280047								
Aluminum	200	215.37			108		80-120		
Calcium	400	420.8			105		80-120		
Iron	100	103.57			104		80-120		
Magnesium	200	204.52			102		80-120		
Manganese	50	51.19			102		80-120		
Potassium	1000	1023.84			102		80-120		
Sodium	1000	992.74			99		80-120		
Zinc	50	50.44			101		80-120		
Batch number: 172981063703A	Sample number(s): 9280038-9280047								
Antimony	0.600	0.618			103		80-120		
Arsenic	1.00	1.13			113		80-120		
Beryllium	0.400	0.398			100		80-120		
Cadmium	0.500	0.529			106		80-120		
Chromium	5.00	5.42			108		80-120		
Cobalt	25	25.46			102		80-120		
Copper	5.00	5.36			107		80-120		
Lead	1.50	1.57			105		80-120		
Nickel	5.00	4.79			96		80-120		
Silver	5.00	5.05			101		80-120		
Thallium	0.200	0.227			114		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Vanadium	5.00	5.58			112		80-120		
Batch number: 172981063703B	Sample number(s): 9280038-9280047								
Selenium	1.00	1.09			109		80-120		
Batch number: 172981063703D	Sample number(s): 9280038-9280047								
Barium	5.00	5.38			108		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17312667632B	Sample number(s): 9280038-9280041								
TOC	7150	6765.34			95		47-143		
Batch number: 17312667633A	Sample number(s): 9280042-9280047								
TOC	7150	7637.56			107		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17301039402A	Sample number(s): 9280038-9280043								
pH	7.00	6.99			100		95-105		
Batch number: 17301039402B	Sample number(s): 9280044-9280047								
pH	7.00	6.99			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17299820013B	Sample number(s): 9280038-9280047								
Moisture	89.5	89.43			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17305004	Sample number(s): 9280038-9280039 UNSPK: P280005									
Perfluorobutanesulfonate	0.18 U	0.969	1.44	0.969	1.11	149*	115	70-130	26	30
Perfluorobutanoic acid	0.18 U	1.10	1.47	1.10	1.29	134*	118	70-130	13	30
Perfluorodecanoic acid	0.18 U	1.10	1.60	1.10	1.37	146*	125	70-130	16	30
Perfluorododecanoic acid	0.18 U	1.10	1.56	1.10	1.37	142*	125	70-130	13	30
Perfluoroheptanoic acid	0.18 U	1.10	1.45	1.10	1.24	132*	113	70-130	16	30
Perfluorohexanesulfonate	0.18 U	1.04	1.12	1.04	1.13	108	109	70-130	1	30
Perfluorohexanoic acid	0.092 U	1.10	1.44	1.10	1.26	131*	115	70-130	13	30
Perfluorononanoic acid	0.092 U	1.10	1.42	1.10	1.11	130	101	70-130	25	30
Perfluoro-octanesulfonate	0.28 U	1.05	1.12	1.05	1.17	107	111	70-130	4	30

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	0.18 U	1.10	1.39	1.10	1.18	127	108	70-130	16	30
Perfluoropentanoic acid	0.18 U	1.10	1.44	1.10	1.26	131*	114	70-130	14	30
Perfluorotetradecanoic acid	0.18 U	1.10	1.51	1.10	1.30	138*	119	70-130	15	30
Perfluorotridecanoic acid	0.18 U	1.10	1.70	1.10	1.42	155*	130	70-130	18	30
Perfluoroundecanoic acid	0.18 U	1.10	1.66	1.10	1.37	152*	125	70-130	19	30
Batch number: 17305005	Sample number(s): 9280040-9280047 UNSPK: P284290									
Perfluorobutanesulfonate	0.16 U	0.993	1.04	1.11	1.31	105	118	70-130	23	30
Perfluorobutanoic acid	0.514	1.12	1.38	1.26	1.43	77	73	70-130	4	30
Perfluorodecanoic acid	0.16 U	1.12	1.44	1.26	1.47	128	117	70-130	2	30
Perfluorododecanoic acid	0.16 U	1.12	1.35	1.26	1.57	120	124	70-130	15	30
Perfluoroheptanoic acid	0.16 U	1.12	1.47	1.26	1.45	130	115	70-130	1	30
Perfluorohexanesulfonate	0.16 U	1.06	1.30	1.19	1.23	122	103	70-130	5	30
Perfluorohexanoic acid	0.079 U	1.12	1.36	1.26	1.43	121	113	70-130	5	30
Perfluorononanoic acid	0.079 U	1.12	1.08	1.26	1.20	96	95	70-130	10	30
Perfluoro-octanesulfonate	0.24 U	1.07	1.31	1.20	1.22	122	101	70-130	8	30
Perfluorooctanoic acid	0.16 U	1.12	1.31	1.26	1.45	117	115	70-130	10	30
Perfluoropentanoic acid	0.16 U	1.12	1.24	1.26	1.51	110	120	70-130	20	30
Perfluorotetradecanoic acid	0.16 U	1.12	1.34	1.26	1.58	119	126	70-130	17	30
Perfluorotridecanoic acid	0.16 U	1.12	1.42	1.26	1.69	126	134*	70-130	18	30
Perfluoroundecanoic acid	0.16 U	1.12	1.18	1.26	1.30	105	104	70-130	10	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 172981063703	Sample number(s): 9280038-9280047 UNSPK: P279984									
Aluminum	7349.21	165.29	16539.34	194.17	18926.69	5560 (2)	5962 (2)	75-125	13	20
Calcium	45375.82	330.58	16921.46	388.35	15867.32	-8607 (2)	-7598 (2)	75-125	6	20
Iron	13774.06	82.64	15313.93	97.09	16537.25	1863 (2)	2846 (2)	75-125	8	20
Magnesium	27262.45	165.29	10757.53	194.17	10303.47	-9985 (2)	-8734 (2)	75-125	4	20
Manganese	391.77	41.32	432.92	48.54	452.21	100 (2)	125 (2)	75-125	4	20
Potassium	1278.46	826.45	3023.46	970.87	3517.63	211*	231*	75-125	15	20
Sodium	31.98	826.45	813.48	970.87	974.43	95	97	75-125	18	20
Zinc	23.25	41.32	65.74	48.54	76.52	103	110	75-125	15	20
Batch number: 172981063703A	Sample number(s): 9280038-9280047 UNSPK: P279984									
Antimony	0.0871 U	0.992	0.848	1.17	1.05	86	90	75-125	21*	20
Arsenic	2.99	1.65	4.37	1.94	4.94	84	101	75-125	12	20
Beryllium	0.368	0.661	1.14	0.777	1.25	117	114	75-125	10	20
Cadmium	0.0978	0.826	0.957	0.971	1.11	104	104	75-125	15	20
Chromium	4.91	8.26	14.34	9.71	17.31	114	128*	75-125	19	20
Cobalt	7.19	41.32	52.61	48.54	58.58	110	106	75-125	11	20
Copper	7.37	8.26	17.74	9.71	19.3	125	123	75-125	8	20
Lead	8.86	2.48	13.65	2.91	14.27	193*	186*	75-125	4	20
Nickel	9.76	8.26	20.95	9.71	22.16	135*	128*	75-125	6	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Silver	0.0273 U	8.26	9.16	9.71	10.56	111	109	75-125	14	20
Thallium	0.175	0.331	0.525	0.388	0.533	106	92	75-125	1	20
Vanadium	7.19	8.26	17.58	9.71	21.49	126*	147*	75-125	20	20
Batch number: 172981063703B	Sample number(s): 9280038-9280047 UNSPK: P279984									
Selenium	0.123	1.65	1.90	1.94	2.13	107	103	75-125	11	20
Batch number: 172981063703D	Sample number(s): 9280038-9280047 UNSPK: P279984									
Barium	36.26	8.26	53.15	9.71	57.24	204 (2)	216*	75-125	7	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17312667632B	Sample number(s): 9280038-9280041 UNSPK: P280018									
TOC	172.41	12000	14286.86			118		47-143		
Batch number: 17312667633A	Sample number(s): 9280042-9280047 UNSPK: P281821									
TOC	811.15	19860	22748.34			110		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 172981063703	Sample number(s): 9280038-9280047 BKG: P279984			
Aluminum	7349.21	9979.57	30*	20
Calcium	45375.82	15406.45	99*	20
Iron	13774.06	16802.08	20	20
Magnesium	27262.45	9899.96	93*	20
Manganese	391.77	472.53	19	20
Potassium	1278.46	1473.34	14	20
Sodium	31.98	35.69	11 (1)	20
Zinc	23.25	30.11	26*	20
Batch number: 172981063703A	Sample number(s): 9280038-9280047 BKG: P279984			
Antimony	0.0871 U	0.0955	200* (1)	20
Arsenic	2.99	3.11	4 (1)	20
Beryllium	0.368	0.447	19 (1)	20
Cadmium	0.0978	0.0827	17 (1)	20
Chromium	4.91	6.44	27*	20
Cobalt	7.19	8.69	19	20
Copper	7.37	9.90	29*	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Lead	8.86	11.43	25*	20
Nickel	9.76	12.93	28*	20
Silver	0.0273 U	0.0283 U	0 (1)	20
Thallium	0.175	0.143	20 (1)	20
Vanadium	7.19	9.35	26*	20
Batch number: 172981063703B	Sample number(s): 9280038-9280047 BKG: P279984			
Selenium	0.123	0.149	19 (1)	20
Batch number: 172981063703D	Sample number(s): 9280038-9280047 BKG: P279984			
Barium	36.26	45.9	23*	20
	mg/kg	mg/kg		
Batch number: 17312667632B	Sample number(s): 9280038-9280041 BKG: P280018			
TOC	172.41	203.36	16* (1)	7
Batch number: 17312667633A	Sample number(s): 9280042-9280047 BKG: P281821			
TOC	811.15	774.24	5 (1)	7
	Std. Units	Std. Units		
Batch number: 17301039402A	Sample number(s): 9280038-9280043 BKG: P280020			
pH	7.63	7.67	1	3
Batch number: 17301039402B	Sample number(s): 9280044-9280047 BKG: 9280044			
pH	8.37	8.39	0	3
	%	%		
Batch number: 17299820013B	Sample number(s): 9280038-9280047 BKG: 9280044			
Moisture	9.05	8.59	5	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9280038	64	62*	61	66	71	67
9280039	74	71	71	82	78	78

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
Blank	81	72	73	85	81	83
LCS	76	72	67	83	86	92
MS	22*	21*	38	21*	46	22*
MSD	33*	32*	52	36*	66	39*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9280038	62	64	72	59	62	63
9280039	75	75	79	70	76	66
Blank	86	80	78	75	83	84
LCS	77	75	69	78	82	85
MS	21*	43	19*	22*	22*	21
MSD	34*	59	32*	34*	35	38
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9280038	61
9280039	68
Blank	88
LCS	92
MS	24
MSD	39
Limits:	20-127

Analysis Name: 14 PFCs
Batch number: 17305005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9280040	80	76	77	89	93	90
9280041	82	78	78	79	88	82
9280042	80	72	80	77	80	75
9280043	71	68*	79	69	70	70
9280044	64	63*	73	60	79	64
9280045	59	56*	65	59	78	59
9280046	53	53*	65	51	76	50
9280047	68	66*	76	70	82	67
Blank	79	79	78	75	79	84

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1866664

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
LCS	85	81	79	79	95	90
MS	42	41*	55	36*	57	39*
MSD	42	36*	56	39*	73	44*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9280040	90	85	87	81	85	87
9280041	81	77	67	80	93	95
9280042	81	82	76	82	80	81
9280043	63	76	64	69	72	72
9280044	55	78	63	65	75	68
9280045	57	68	57	69	61	59
9280046	58	72	52	48	50	57
9280047	70	84	72	80	74	76
Blank	72	66	69	81	83	84
LCS	86	81	78	88	94	89
MS	39*	61	37	40	41	45
MSD	45	64	41	40	50	45
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9280040	85
9280041	89
9280042	81
9280043	74
9280044	68
9280045	57
9280046	56
9280047	78
Blank	84
LCS	92
MS	44
MSD	48
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/18dd664/9280038-47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47446

COC 6 of 6

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: 250 ml plastic / PFC (14)	Soil: 4 oz glass / TOC, pH, moisture	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR3-0-0.5'	0	0.5	ft	10/23/2017	1215	Soil	N	2		1	1			PFC (14), TOC, pH, moisture
2. SG3-MWBR3-0.5-1'	0.5	1	ft	10-23-17	1220	S	N	2		1	1			
3. SG3-MWBR3-1-1.5'	1	1.5	ft	10-23-17	1225	S	N	2		1	1			
4. SG3-MWBR3-3-4	3	4	ft	10-23-17	1230	S	N	2		1	1			
5. SG3-MWBR3-6.5-7.5'	6.5	7.5	ft	10-23-17	1235	S	N	2		1	1			
6. SG3-MWBR3-8-9'	8	9	ft	10-23-17	1240	S	N	2		1	1			
7. SG3-MWBR3-18-19'	18	19	ft	10-23-17	1335	S	N	2		1	1			
8. SG3-MWBR3-28-29'	28	29	ft	10-23-17	1400	S	N	2		1	1			
9. SG3-MWBR3-38-39'	38	39	ft	10-23-17	1445	S	N	2		1	1			
10. SG3-MWBR3-48-49'	48	49	ft	10-23-17	1615	S	N	2		1	1			

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	DJZ / RAK	Relinquished by:	☒ Y ☐ N	10-23-17	1700	Received by:		
Barr Proj. Manager:	JTC	Relinquished by:	☐ Y ☐ N	Date	Time	Received by:	10/24/17	931
Barr DQ Manager:	MDD							
Lab Name:	ELLE							
Lab Location:	Lancaster							

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198539

Group Number(s): 1866664

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/24/2017 9:35
Number of Packages:	3	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	10
Paperwork Enclosed:	Yes	Trip Blank Type:	N/A
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:44 on 10/24/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.8	DT	Wet	Y	Bagged	N
2	DT42-01	2.5	DT	Wet	Y	Bagged	N
3	DT42-01	1.2	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 16, 2017 16:24

Project: SGPP - Bennington

Account #: 37191
Group Number: 1867061
SDG: SNB13
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D08-171024 Groundwater	10/24/2017 09:30	9281811
SG3-LTB01-171024 Blank Water	10/24/2017	9281812
SG3-D09-171024 Groundwater	10/24/2017 13:50	9281813
SG3-D25-171024 Groundwater	10/24/2017 14:40	9281814
SG3-FTB01-171024 Blank Water	10/24/2017 16:00	9281815

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1867061

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9281811, 9281813, 9281814

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17299WAF026 (Sample number(s): 9281811, 9281813-9281814)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9281811, 9281813, 9281814, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9281811, 9281812, 9281813, 9281815

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17299005 (Sample number(s): 9281811-9281815)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9281811, 9281812, 9281813, 9281815, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 172981063503 (Sample number(s): 9281811, 9281813-9281814 UNSPK: P281270 BKG: P281270)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Sodium, Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 172981063902A (Sample number(s): 9281811, 9281813-9281814 UNSPK: P278013 BKG: P278013)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

SW-846 7470A, Metals

Batch #: 172980571303 (Sample number(s): 9281811, 9281813-9281814 UNSPK: P282173 BKG: P282173)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Mercury

EPA 300.0, Wet Chemistry

Batch #: 17298987112A (Sample number(s): 9281811, 9281813-9281814 UNSPK: 9281811 BKG: 9281811)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

EPA 351.2, Wet Chemistry

Batch #: 17318108101A (Sample number(s): 9281813 UNSPK: P298236 BKG: P298236)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Kjeldahl Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17303008204A (Sample number(s): 9281811 UNSPK: P281959 BKG: P281813, P281959)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Batch #: 17303008204B (Sample number(s): 9281813 UNSPK: P281959 BKG: P9281813-P281959)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

REVISED

Sample Description: **SG3-D08-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:30
SDG#: SNB13-01

C. T. Male Associates
ELLE Sample #: GW 9281811
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:30
SDG#: SNB13-01

C. T. Male Associates
ELLE Sample #: GW 9281811
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.19 J**	0.051	0.21	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**1**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**7**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**4**	0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**0.8 J**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**4**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.7 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**5**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**53**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:30
SDG#: SNB13-01

C. T. Male Associates
ELLE Sample #: GW 9281811
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0565 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**133**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.43**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**26.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.01**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.53**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**34.5**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0030 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.436**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0028**	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0017 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00015 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00026 J**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**53.2**	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**9.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.19**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**2.5**	0.50	1.0	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:30
SDG#: SNB13-01

C. T. Male Associates
ELLE Sample #: GW 9281811
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SW-846 9012A**		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**447**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**447**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5173001AA	10/27/2017 12:55	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5173001AA	10/27/2017 12:55	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17299WAF026	10/30/2017 09:06	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17299WAF026	10/27/2017 08:00	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 20:41	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172981063503	10/27/2017 17:34	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172981063902D	10/28/2017 10:00	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D08-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:30
SDG#: SNB13-01

C. T. Male Associates
ELLE Sample #: GW 9281811
ELLE Group #: 1867061
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06039	Nickel	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172981063902B	10/28/2017 10:00	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172981063902A	10/28/2017 10:00	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172981063902A	10/31/2017 22:15	Bradley M Berlot	1
00259	Mercury	SW-846 7470A	1	172980571303	10/28/2017 12:17	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172981063503	10/26/2017 16:30	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172981063902	10/26/2017 16:10	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172980571303	10/26/2017 18:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17298987112A	10/25/2017 18:41	Clinton M Wilson	5
00224	Chloride	EPA 300.0	2	17298987112A	10/26/2017 07:06	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 18:41	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 18:41	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17298987112A	10/25/2017 18:41	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17311107101A	11/07/2017 19:54	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17304108101B	11/04/2017 00:43	Samuel J Weaver	1
08255	Total Cyanide	SW-846 9012A	1	17306117101A	11/03/2017 11:21	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17304108101B	10/31/2017 17:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17306117101A	11/02/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17303008204A	10/31/2017 05:08	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17303008204A	10/31/2017 05:08	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17303008204A	10/31/2017 05:08	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17299022601A	10/26/2017 00:05	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171024 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017
SDG#: SNB13-02TB

C. T. Male Associates
ELLE Sample #: WW 9281812
ELLE Group #: 1867061
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 21:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 13:50
SDG#: SNB13-03

C. T. Male Associates
ELLE Sample #: GW 9281813
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 13:50
SDG#: SNB13-03

C. T. Male Associates
ELLE Sample #: GW 9281813
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.18 J**	0.051	0.20	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**1 J**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**3**	0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**1 J**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**3**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**3**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**50**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 13:50
SDG#: SNB13-03

C. T. Male Associates
ELLE Sample #: GW 9281813
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals		**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum		7429-90-5	0.0894 U	0.0894	0.400	1
08014	**Boron**		7440-42-8	**0.156**	0.0101	0.100	1
01750	**Calcium**		7440-70-2	**161**	0.0600	0.400	1
01754	**Iron**		7439-89-6	**6.73**	0.0805	0.400	1
01757	**Magnesium**		7439-95-4	**27.9**	0.0374	0.200	1
07058	**Manganese**		7439-96-5	**1.82**	0.0016	0.0100	1
01762	**Potassium**		7440-09-7	**7.96**	0.179	1.00	1
01767	**Sodium**		7440-23-5	**68.4**	0.321	2.00	1
07072	Zinc		7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony		7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**		7440-38-2	**0.0058**	0.00072	0.0040	1
06026	**Barium**		7440-39-3	**0.883**	0.00072	0.0040	1
06027	Beryllium		7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium		7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium		7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**		7440-48-4	**0.0326**	0.00016	0.0010	1
06033	Copper		7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead		7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**		7440-02-0	**0.0076**	0.0010	0.0040	1
06041	Selenium		7782-49-2	0.00050 U	0.00050	0.0040	1
06042	**Silver**		7440-22-4	**0.00016 J**	0.00015	0.0010	1
06045	**Thallium**		7440-28-0	**0.00071 J**	0.00012	0.0010	1
06048	Vanadium		7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury		7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide		24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**		16887-00-6	**113**	4.0	8.0	20
00368	Nitrate Nitrogen		14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen		14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**		14808-79-8	**12.0**	1.5	5.0	5
		EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**		7664-41-7	**1.2**	0.050	0.10	1
		EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**		n.a.	**1.6**	0.50	1.0	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 13:50
SDG#: SNB13-03

C. T. Male Associates
ELLE Sample #: GW 9281813
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SW-846 9012A**		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**510**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**510**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5173001AA	10/27/2017 13:17	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5173001AA	10/27/2017 13:17	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17299WAF026	10/30/2017 09:19	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17299WAF026	10/27/2017 08:00	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 21:22	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172981063503	10/27/2017 17:37	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172981063902D	10/28/2017 09:32	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D09-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 13:50
SDG#: SNB13-03

C. T. Male Associates
ELLE Sample #: GW 9281813
ELLE Group #: 1867061
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06039	Nickel	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172981063902B	10/28/2017 09:32	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172981063902A	10/28/2017 09:32	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172980571303	10/28/2017 12:19	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172981063503	10/26/2017 16:30	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172981063902	10/26/2017 16:10	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172980571303	10/26/2017 18:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17298987112A	10/25/2017 19:27	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17298987112A	10/26/2017 07:53	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 19:27	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 19:27	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17298987112A	10/25/2017 19:27	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17311107101A	11/07/2017 19:52	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	2	17318108101A	11/15/2017 03:35	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17306117101A	11/03/2017 11:23	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	17318108101A	11/14/2017 09:05	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17306117101A	11/02/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17303008204B	10/31/2017 03:45	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17303008204B	10/31/2017 03:45	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17303008204B	10/31/2017 03:45	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17299022601A	10/26/2017 00:05	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 14:40
SDG#: SNB13-04

C. T. Male Associates
ELLE Sample #: GW 9281814
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 14:40
SDG#: SNB13-04

C. T. Male Associates
ELLE Sample #: GW 9281814
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051 U	0.051	0.20	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.7 J**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**2**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**1**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**3 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**19**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 14:40
SDG#: SNB13-04

C. T. Male Associates
ELLE Sample #: GW 9281814
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**67.8**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.0861 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**17.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.412**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.17**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**17.6**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0395**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0018**	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**22.4**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**4.3 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**1.4**	0.50	1.0	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 14:40
SDG#: SNB13-04

C. T. Male Associates
ELLE Sample #: GW 9281814
ELLE Group #: 1867061
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SW-846 9012A**		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**246**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**246**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5173001AA	10/27/2017 13:38	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5173001AA	10/27/2017 13:38	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17299WAF026	10/30/2017 09:33	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17299WAF026	10/27/2017 08:00	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 23:05	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172981063503	10/27/2017 17:41	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	172981063902D	10/31/2017 22:17	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D25-171024 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 14:40
SDG#: SNB13-04

C. T. Male Associates
ELLE Sample #: GW 9281814
ELLE Group #: 1867061
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06039	Nickel	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	172981063902B	10/28/2017 09:35	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	172981063902A	10/28/2017 09:35	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	172980571303	10/28/2017 12:25	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172981063503	10/26/2017 16:30	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172981063902	10/26/2017 16:10	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	172980571303	10/26/2017 18:00	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17298987112A	10/25/2017 19:43	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17298987112A	10/25/2017 19:43	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 19:43	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17298987112A	10/25/2017 19:43	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17298987112A	10/25/2017 19:43	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17311107101A	11/07/2017 19:56	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17304108101B	11/04/2017 00:46	Samuel J Weaver	1
08255	Total Cyanide	SW-846 9012A	1	17306117101A	11/03/2017 11:29	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17304108101B	10/31/2017 17:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17306117101A	11/02/2017 16:45	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17303008203A	10/31/2017 01:06	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17303008203A	10/31/2017 01:06	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17303008203A	10/31/2017 01:06	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17299022601A	10/26/2017 00:05	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171024 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 16:00
SDG#: SNB13-05TB

C. T. Male Associates
ELLE Sample #: WW 9281815
ELLE Group #: 1867061
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299005	10/30/2017 23:25	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299005	10/26/2017 08:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5173001AA	Sample number(s): 9281811,9281813-9281814		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17299WAF026	Sample number(s): 9281811,9281813-9281814		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17299005	Sample number(s): 9281811-9281815		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 172980571303	Sample number(s): 9281811,9281813-9281814		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 172981063503	Sample number(s): 9281811,9281813-9281814		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172981063902A	Sample number(s): 9281811,9281813-9281814		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172981063902B	Sample number(s): 9281811,9281813-9281814		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172981063902D	Sample number(s): 9281811,9281813-9281814		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17298987112A	Sample number(s): 9281811,9281813-9281814		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17304108101B	Sample number(s): 9281811,9281814		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17306117101A	Sample number(s): 9281811,9281813-9281814		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17311107101A	Sample number(s): 9281811,9281813-9281814		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17318108101A	Sample number(s): 9281813		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17299022601A	Sample number(s): 9281811,9281813-9281814		
Ortho-Phosphate as P	0.030 U	0.030	0.090

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17303008203A	Sample number(s): 9281814		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17303008204A	Sample number(s): 9281811		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17303008204B	Sample number(s): 9281813		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5173001AA	Sample number(s): 9281811,9281813-9281814								
Acetone	150	149.26	150	154.06	100	103	44-177	3	30
Benzene	20	19.71	20	19.72	99	99	78-120	0	30
Bromochloromethane	20	19.95	20	19.67	100	98	80-125	1	30
Bromodichloromethane	20	18.51	20	18.82	93	94	71-120	2	30
Bromoform	20	15.69	20	15.75	78	79	59-120	0	30
Bromomethane	20	20.04	20	20.18	100	101	44-139	1	30
2-Butanone	150	156.78	150	153.99	105	103	53-140	2	30
Carbon Disulfide	20	17.5	20	17.17	88	86	65-128	2	30
Carbon Tetrachloride	20	20.8	20	20.6	104	103	68-128	1	30
Chlorobenzene	20	19.64	20	19.61	98	98	80-120	0	30
Chloroethane	20	17.08	20	16.97	85	85	52-127	1	30
Chloroform	20	18.64	20	18.59	93	93	80-120	0	30
Chloromethane	20	18.6	20	18.49	93	92	57-120	1	30
Cyclohexane	20	18.15	20	17.99	91	90	67-121	1	30
1,2-Dibromo-3-chloropropane	20	20.25	20	19.97	101	100	64-120	1	30
Dibromochloromethane	20	18.81	20	18.84	94	94	71-120	0	30
1,2-Dibromoethane	20	20.74	20	20.65	104	103	75-120	0	30
1,2-Dichlorobenzene	20	20.24	20	20	101	100	80-120	1	30
1,3-Dichlorobenzene	20	19.34	20	18.78	97	94	80-120	3	30
1,4-Dichlorobenzene	20	19.59	20	19.3	98	96	80-120	2	30
Dichlorodifluoromethane	20	16.03	20	16	80	80	47-124	0	30
1,1-Dichloroethane	20	19.12	20	19.27	96	96	80-120	1	30
1,2-Dichloroethane	20	17.75	20	17.9	89	90	73-124	1	30
1,1-Dichloroethene	20	19.01	20	18.74	95	94	76-124	1	30
cis-1,2-Dichloroethene	20	20.24	20	20.33	101	102	80-120	0	30
trans-1,2-Dichloroethene	20	20.06	20	20.04	100	100	80-120	0	30
1,2-Dichloropropane	20	20.74	20	20.73	104	104	80-120	0	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,3-Dichloropropene	20	17.81	20	18.22	89	91	75-120	2	30
trans-1,3-Dichloropropene	20	17.94	20	18.31	90	92	76-120	2	30
Ethylbenzene	20	19.81	20	19.82	99	99	78-120	0	30
Freon 113	20	17.95	20	18.21	90	91	68-137	1	30
2-Hexanone	100	100.04	100	100.6	100	101	60-134	1	30
Isopropylbenzene	20	19.85	20	19.95	99	100	80-120	1	30
Methyl Acetate	20	22.1	20	22.17	111	111	61-137	0	30
Methyl Tertiary Butyl Ether	20	19.49	20	19.61	97	98	75-120	1	30
4-Methyl-2-pentanone	100	100.27	100	101.13	100	101	67-128	1	30
Methylcyclohexane	20	19	20	19.17	95	96	66-126	1	30
Methylene Chloride	20	20.46	20	20.48	102	102	80-120	0	30
Styrene	20	20.52	20	20.47	103	102	80-120	0	30
1,1,2,2-Tetrachloroethane	20	21.85	20	21.32	109	107	72-120	2	30
Tetrachloroethene	20	18.26	20	18.25	91	91	80-129	0	30
Toluene	20	19.81	20	19.87	99	99	80-120	0	30
1,2,3-Trichlorobenzene	20	18.37	20	17.77	92	89	66-120	3	30
1,2,4-Trichlorobenzene	20	17.97	20	17.37	90	87	70-120	3	30
1,1,1-Trichloroethane	20	17.63	20	17.79	88	89	67-120	1	30
1,1,2-Trichloroethane	20	21.63	20	21.87	108	109	80-120	1	30
Trichloroethene	20	18.36	20	18.65	92	93	80-120	2	30
Trichlorofluoromethane	20	17.94	20	17.58	90	88	52-143	2	30
Vinyl Chloride	20	18.62	20	18.68	93	93	63-121	0	30
m+p-Xylene	40	39.8	40	39.58	99	99	80-120	1	30
o-Xylene	20	19.73	20	19.92	99	100	80-120	1	30
Xylene (Total)	60	59.53	60	59.49	99	99	80-120	0	30
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17299WAF026	Sample number(s): 9281811,9281813-9281814								
1,4-Dioxane	1.00	1.21	1.00	1.25	121	125	70-130	3	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299005	Sample number(s): 9281811-9281815								
6:2 fluorotelomersulfonate	15.17	18.7	15.17	16.47	123	109	70-130	13	30
8:2 fluorotelomersulfonate	15.33	13.23	15.33	15.3	86	100	70-130	15	30
NEtFOSAA	5.44	7.87	5.44	8.15	145*	150*	70-130	3	30
NMeFOSAA	5.44	8.14	5.44	8.22	150*	151*	70-130	1	30
Perfluorobutanesulfonate	4.81	5.19	4.81	4.97	108	103	70-130	4	30
Perfluorobutanoic acid	5.44	6.08	5.44	6.26	112	115	70-130	3	30
Perfluorodecanoic acid	5.44	6.66	5.44	5.83	122	107	70-130	13	30
Perfluorododecanoic acid	5.44	5.66	5.44	5.44	104	100	70-130	4	30
Perfluoroheptanoic acid	5.44	6.29	5.44	6.10	116	112	70-130	3	30
Perfluorohexanesulfonate	5.14	5.19	5.14	4.64	101	90	70-130	11	30
Perfluorohexanoic acid	5.44	5.87	5.44	5.78	108	106	70-130	2	30
Perfluorononanoic acid	5.44	5.43	5.44	5.03	100	92	70-130	8	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanesulfonamide	5.44	6.98	5.44	6.71	128	123	70-130	4	30
Perfluoro-octanesulfonate	5.20	4.85	5.20	5.56	93	107	70-130	14	30
Perfluorooctanoic acid	5.44	6.59	5.44	6.03	121	111	70-130	9	30
Perfluoropentanoic acid	5.44	5.94	5.44	6.13	109	113	70-130	3	30
Perfluorotetradecanoic acid	5.44	6.49	5.44	5.60	119	103	70-130	15	30
Perfluorotridecanoic acid	5.44	6.02	5.44	5.66	111	104	70-130	6	30
Perfluoroundecanoic acid	5.44	5.71	5.44	5.65	105	104	70-130	1	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172980571303	Sample number(s): 9281811,9281813-9281814								
Mercury	0.00100	0.00100			100		80-120		
Batch number: 172981063503	Sample number(s): 9281811,9281813-9281814								
Aluminum	2.00	1.85			92		80-120		
Boron	2.00	1.87			93		80-120		
Calcium	4.00	3.70			93		80-120		
Iron	1.00	0.950			95		80-120		
Magnesium	2.00	1.84			92		80-120		
Manganese	0.500	0.505			101		80-120		
Potassium	10	9.67			97		80-120		
Sodium	10	9.47			95		80-120		
Zinc	0.500	0.495			99		80-120		
Batch number: 172981063902A	Sample number(s): 9281811,9281813-9281814								
Antimony	0.00600	0.00527			88		80-120		
Arsenic	0.0100	0.00981			98		80-120		
Beryllium	0.00400	0.00397			99		80-120		
Cadmium	0.00500	0.00499			100		80-120		
Chromium	0.0500	0.0497			99		80-120		
Cobalt	0.250	0.241			96		80-120		
Copper	0.0500	0.0496			99		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0490			98		80-120		
Silver	0.0500	0.0494			99		80-120		
Thallium	0.00200	0.00202			101		80-120		
Vanadium	0.0500	0.0514			103		80-120		
Batch number: 172981063902B	Sample number(s): 9281811,9281813-9281814								
Selenium	0.0100	0.00979			98		80-120		
Batch number: 172981063902D	Sample number(s): 9281811,9281813-9281814								
Barium	0.0500	0.0480			96		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17298987112A	Sample number(s): 9281811,9281813-9281814								

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Bromide	7.50	7.47	7.50	7.47	100	100	90-110	0	20
Chloride	3.00	2.93	3.00	2.93	98	98	90-110	0	20
Nitrate Nitrogen	0.750	0.748	0.750	0.750	100	100	90-110	0	20
Nitrite Nitrogen	0.750	0.728	0.750	0.733	97	98	90-110	1	20
Sulfate	7.50	7.42	7.50	7.43	99	99	90-110	0	20
Batch number: 17304108101B	Sample number(s): 9281811,9281814								
Kjeldahl Nitrogen	5.00	5.07	5.00	5.03	101	101	90-110	1	20
Batch number: 17306117101A	Sample number(s): 9281811,9281813-9281814								
Total Cyanide	0.200	0.206			103		90-110		
Batch number: 17311107101A	Sample number(s): 9281811,9281813-9281814								
Ammonia Nitrogen	1.50	1.45			97		90-110		
Batch number: 17318108101A	Sample number(s): 9281813								
Kjeldahl Nitrogen	5.00	5.28			106		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17299022601A	Sample number(s): 9281811,9281813-9281814								
Ortho-Phosphate as P	0.400	0.400			100		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17303008203A	Sample number(s): 9281814								
Total Alkalinity to pH 4.5	188	186.71			99		77-114		
Batch number: 17303008204A	Sample number(s): 9281811								
Total Alkalinity to pH 4.5	188	186.56			99		77-114		
Batch number: 17303008204B	Sample number(s): 9281813								
Total Alkalinity to pH 4.5	188	186.56			99		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 172980571303	Sample number(s): 9281811,9281813-9281814 UNSPK: P282173									
Mercury	0.0121	0.00100	0.0139	0.00100	0.0130	183 (2)	91 (2)	80-120	7	20
Batch number: 172981063503	Sample number(s): 9281811,9281813-9281814 UNSPK: P281270									

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Aluminum	0.0894 U	2.00	1.96	2.00	1.91	98	96	75-125	3	20
Boron	0.268	2.00	2.24	2.00	2.22	98	97	75-125	1	20
Calcium	174.57	4.00	183.58	4.00	179.14	225 (2)	114 (2)	75-125	2	20
Iron	7.91	1.00	9.00	1.00	8.91	110 (2)	100 (2)	75-125	1	20
Magnesium	30.12	2.00	32.63	2.00	32.03	126 (2)	96 (2)	75-125	2	20
Manganese	1.66	0.500	2.16	0.500	2.15	100	98	75-125	0	20
Potassium	6.38	10	16.59	10	16.38	102	100	75-125	1	20
Sodium	323.5	10	342.95	10	337.76	194 (2)	143 (2)	75-125	2	20
Zinc	0.0065 U	0.500	0.499	0.500	0.498	100	100	75-125	0	20
Batch number: 172981063902A	Sample number(s): 9281811,9281813-9281814 UNSPK: P278013									
Antimony	0.00045 U	0.00600	0.00504	0.00600	0.00670	84	112	75-125	28*	20
Arsenic	0.00072 U	0.0100	0.0103	0.0100	0.0119	103	119	75-125	14	20
Beryllium	0.000071 U	0.00400	0.00409	0.00400	0.00407	102	102	75-125	0	20
Cadmium	0.00015 U	0.00500	0.00460	0.00500	0.00510	92	102	75-125	10	20
Chromium	0.0139	0.0500	0.0613	0.0500	0.0674	95	107	75-125	9	20
Cobalt	0.000623	0.250	0.243	0.250	0.252	97	100	75-125	4	20
Copper	0.0471	0.0500	0.0925	0.0500	0.0986	91	103	75-125	6	20
Lead	0.000283	0.0150	0.0148	0.0150	0.0152	97	100	75-125	3	20
Nickel	0.0105	0.0500	0.0593	0.0500	0.0622	98	103	75-125	5	20
Silver	0.00015 U	0.0500	0.0480	0.0500	0.0516	96	103	75-125	7	20
Thallium	0.00012 U	0.00200	0.00184	0.00200	0.00175	92	88	75-125	5	20
Vanadium	0.00146	0.0500	0.0526	0.0500	0.0532	102	103	75-125	1	20
Batch number: 172981063902B	Sample number(s): 9281811,9281813-9281814 UNSPK: P278013									
Selenium	0.00050 U	0.0100	0.00977	0.0100	0.0106	98	106	75-125	9	20
Batch number: 172981063902D	Sample number(s): 9281811,9281813-9281814 UNSPK: P278013									
Barium	0.0659	0.0500	0.117	0.0500	0.116	103	101	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17298987112A	Sample number(s): 9281811,9281813-9281814 UNSPK: 9281811									
Bromide	1.3 U	25	25.29			101		90-110		
Chloride	53.18	40	99.61			116*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.59			104		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.41			96		90-110		
Sulfate	9.03	25	33.11			96		90-110		
Batch number: 17304108101B	Sample number(s): 9281811,9281814 UNSPK: P283924									
Kjeldahl Nitrogen	0.50 U	5.00	4.48			90		90-110		
Batch number: 17306117101A	Sample number(s): 9281811,9281813-9281814 UNSPK: 9281813									
Total Cyanide	0.0050 U	0.200	0.202			101		72-114		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17311107101A	Sample number(s): 9281811,9281813-9281814 UNSPK: P276770									
Ammonia Nitrogen	0.050 U	1.00	1.00			100		90-110		
Batch number: 17318108101A	Sample number(s): 9281813 UNSPK: P298236									
Kjeldahl Nitrogen	1.12	5.00	4.45			67*		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17299022601A	Sample number(s): 9281811,9281813-9281814 UNSPK: P282087									
Ortho-Phosphate as P	0.535	0.400	0.869	0.400	0.872	83	84	69-131	0	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17303008203A	Sample number(s): 9281814 UNSPK: P281273									
Total Alkalinity to pH 4.5	534.77	188	710.06			93		77-114		
Batch number: 17303008204A	Sample number(s): 9281811 UNSPK: P281959									
Total Alkalinity to pH 4.5	289.51	188	345.29			30*		77-114		
Batch number: 17303008204B	Sample number(s): 9281813 UNSPK: P281959									
Total Alkalinity to pH 4.5	289.51	188	345.29			30*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 172980571303	Sample number(s): 9281811,9281813-9281814 BKG: P282173			
Mercury	0.0121	0.0127	5	20
Batch number: 172981063503	Sample number(s): 9281811,9281813-9281814 BKG: P281270			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.268	0.262	2 (1)	20
Calcium	174.57	176.49	1	20
Iron	7.91	7.93	0	20
Magnesium	30.12	30.21	0	20
Manganese	1.66	1.64	1	20
Potassium	6.38	6.46	1	20
Sodium	323.5	331.75	3	20
Zinc	0.0065 U	0.0065 U	0 (1)	20

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172981063902A	Sample number(s): 9281811,9281813-9281814 BKG: P278013			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.0139	0.0153	9 (1)	20
Cobalt	0.000623	0.000579	7 (1)	20
Copper	0.0471	0.0443	6	20
Lead	0.000283	0.000288	2 (1)	20
Nickel	0.0105	0.0113	7 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00146	0.00149	2 (1)	20
Batch number: 172981063902B	Sample number(s): 9281811,9281813-9281814 BKG: P278013			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172981063902D	Sample number(s): 9281811,9281813-9281814 BKG: P278013			
Barium	0.0659	0.0697	6	20
	mg/l	mg/l		
Batch number: 17298987112A	Sample number(s): 9281811,9281813-9281814 BKG: 9281811			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	53.18	53.32	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	9.03	8.87	2 (1)	15
Batch number: 17304108101B	Sample number(s): 9281811,9281814 BKG: P283924			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17306117101A	Sample number(s): 9281811,9281813-9281814 BKG: 9281813			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17311107101A	Sample number(s): 9281811,9281813-9281814 BKG: P276770			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 17318108101A	Sample number(s): 9281813 BKG: P298236			
Kjeldahl Nitrogen	1.12	1.20	7 (1)	20
	mg/l	mg/l		
Batch number: 17299022601A	Sample number(s): 9281811,9281813-9281814 BKG: P282087			
Ortho-Phosphate as P	0.535	0.528	1	6
	mg/l as CaCO3	mg/l as CaCO3		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l as CaCO3	DUP Conc mg/l as CaCO3	DUP RPD	DUP RPD Max
Batch number: 17303008203A	Sample number(s): 9281814 BKG: P281273			
Total Alkalinity to pH 4.5	534.77	533.64	0	5
Batch number: 17303008204A	Sample number(s): 9281811 BKG: P281959			
Total Alkalinity to pH 4.5	289.51	289.73	0	5
Batch number: 17303008204B	Sample number(s): 9281813 BKG: 9281813			
Total Alkalinity to pH 4.5	509.5	517.84	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5173001AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9281811	96	108	102	100
9281813	98	106	102	100
9281814	96	105	102	99
Blank	96	106	102	101
LCS	98	104	102	104
LCSD	99	105	102	102
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17299WAF026

	1,4-Dioxane-d8
9281811	47*
9281813	39*
9281814	47*
Blank	45*
LCS	47*
LCSD	42*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/16/2017 16:24

Group Number: 1867061

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17299005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9281811	86	102	109	85	96	88
9281812	84	81	76	89	93	83
9281813	74	84	88	76	75	78
9281814	93	97	93	98	99	102
9281815	73	70	69	81	80	82
Blank	88	85	85	101	99	97
LCS	77	79	77	75	84	75
LCSD	81	81	84	92	106	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9281811	82	87	85	92	88	86
9281812	74	84	82	81	82	82
9281813	68	80	77	83	73	58
9281814	76	91	89	85	91	75
9281815	85	80	69	59	70	54
Blank	88	89	80	71	81	58
LCS	64	80	77	72	74	79
LCSD	83	89	84	82	82	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9281811	76	81	88	71	74	49*
9281812	63	83	73	81	70	60*
9281813	61	77	79	75	57	33*
9281814	93	92	110	96	90	73
9281815	57	67	65	67	60	39*
Blank	59	76	71	75	80	60*
LCS	66	76	74	77	71	57*
LCSD	58	74	63	74	75	51*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1867061 9281811-15

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47383
COC 1 of 1

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co.	Company:	CT Male
Address:	4300 Market Point Dr.	Address:	50 Century Hill Rd.
Name:	Michael Dupay	Name:	Latham, NY
email:	mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:		Barr Project No:	

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: 250 mL w/Trizma	250 mL – HNO_3	40 mL glass-unpres.	250 mL	500 mL – H_2SO_4	250 mL	40 mL glass – HCl	250 mL Plastic NaOH/Asc	250 mL glass	% Solids	Preservative Code	Field Filtered Y/N	
									O	C	A	A	D	A	B	E	A				
									N	N	N	N	N	N	N	N	N				
1. SG3-D08-171024	—	—	—	10/24/17	9:30	GW	N	5													LANDFILL
2. SG3-LTB01-171024	—	—	—		—	GW	N	2													
3. SG3-D09-171024	—	—	—		13:50	GW	N	5													LANDFILL
4. SG3-D25-171024	—	—	—		14:40	GW	N	5													LANDFILL
5. SG3-FTB01-171024	—	—	—		16:00	RW	N	2													Analyses: (19) PFCs, TCL VOCs (some 2 vol), TAL Metals + Cations (excluding CN + Hg), anions, ammonia, orthophosphate, ~~total Kjeldahl~~ nitrogen, 1,4-Dioxane
6. ~~SG3~~																					
7.																					
8.																					
9.																					
10.																					*Verify w/ MDD

BARR USE ONLY		Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	DK/DA		☒ N	10/24/17	17:30			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						10/26/17	9:45
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location:	Lancaster, PA	Lab WO:		Temperature on Receipt (°C): 1.1/3.5		Custody Seal Intact? ☐ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 186706 9281811-15

ALL WELLS:

6:2 fluorotelomersulfonate 8:2 fluorotelomersulfonate NEtFOSAA NMeFOSAA Perfluoro-octanesulfonate Perfluorobutanesulfonate Perfluorobutanoic Acid Perfluorodecanoic acid Perfluorododecanoic acid Perfluoroheptanoic acid Perfluorohexanesulfonate Perfluorohexanoic acid Perfluorononanoic acid Perfluorooctanoic acid Perfluoropentanoic Acid Perfluorotetradecanoic acid Perfluorotridecanoic acid Perfluoroundecanoic acid PFOSA	**19 PFCs**	Aluminum Boron Calcium Iron Magnesium Manganese Potassium Sodium Zinc Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Selenium Silver Thallium Vanadium	**Metals (no Hg)**
Bromide Chloride Nitrate Nitrogen Nitrite Nitrogen Sulfate	**Anions**	Ammonia Nitrogen Kjeldahl Nitrogen	**Nitrogens**
Total Alkalinity to pH 4.5 Bicarbonate Alkalinity Carbonate Alkalinity	**Alkalinities**	**Ortho-Phosphate as P**	Anions

LANDFILL WELLS:

- EVERYTHING ABOVE
- 1,4 dioxane
- Mercury
- SOM 02.2 Volatiles
- Cyanide

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Sample Administration Receipt Documentation Log

Doc Log ID: 198701

Group Number(s): 1867061

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/25/2017 9:45
Number of Packages:	4	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 12:02 on 10/25/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.9	DT	Wet	Y	Bagged	N
2	DT42-01	1.1	DT	Wet	Y	Bagged	N
3	DT42-01	3.4	DT	Wet	Y	Bagged	N
4	DT42-01	3.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 13, 2017 15:22

Project: SGPP - Bennington

Account #: 37191
Group Number: 1867063
SDG: SNB14
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-68-69' Soil	10/24/2017 09:00	9281819
SG3-MWBR3-78-79' Soil	10/24/2017 09:20	9281820
SG3-MWBR3-88-89' Soil	10/24/2017 09:50	9281821
SG3-MWBR3-98-99' Soil	10/24/2017 11:00	9281822
SG3-MWBR3-104-105' Soil	10/24/2017 12:30	9281823
SG3-LTB93-171024 Blank Water	10/24/2017	9281824
SG3-LTB94-171024 Blank Water	10/24/2017	9281825

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1867063

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9281819, 9281820, 9281821, 9281822, 9281823

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17299009 (Sample number(s): 9281824-9281825)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

Batch #: 17305005 (Sample number(s): 9281819-9281823 UNSPK: P284290)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9281819, 9281820, 9281821, 9281822, 9281823, MS, MSD

SW-846 6010C, Metals

Batch #: 173061063701 (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium

Batch #: 173101063702 (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Magnesium

Batch #: 173111063701 (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

SW-846 6020A, Metals

Batch #: 173061063701A (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Beryllium, Lead, Nickel, Thallium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Cadmium

Batch #: 173061063701D (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 173111063701A (Sample number(s): 9281819-9281823 UNSPK: P291199 BKG: P291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Copper, Vanadium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9281823

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17312667631B (Sample number(s): 9281819-9281820 UNSPK: P279984 BKG: P279984)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

Batch #: 17312667633B (Sample number(s): 9281823 UNSPK: P282664 BKG: P282664)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9281819, 9281821, 9281823

The pH was measured in water at 20.1 C.

Sample #s: 9281820, 9281822

The pH was measured in water at 20.2 C.

Sample Description: **SG3-MWBR3-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:00
SDG#: SNB14-01

C. T. Male Associates
ELLE Sample #: SW 9281819
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.54 JB**	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.096 U	0.096	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.096 U	0.096	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,800**	7.26	32.5	1
01650	**Calcium**	7440-70-2	**4,030**	3.74	44.9	1
01654	**Iron**	7439-89-6	**36,000**	45.2	225	5
01657	**Magnesium**	7439-95-4	**3,200**	1.97	16.2	1
06958	**Manganese**	7439-96-5	**650**	0.0674	0.812	1
01662	**Potassium**	7440-09-7	**1,150**	13.6	81.2	1
01667	**Sodium**	7440-23-5	**23.6 J**	13.6	162	1
06972	**Zinc**	7440-66-6	**68.8**	0.270	4.49	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.225 J**	0.0757	0.325	2
06125	**Arsenic**	7440-38-2	**16.1**	0.104	0.650	2
06126	**Barium**	7440-39-3	**92.9**	0.148	0.650	2
06127	**Beryllium**	7440-41-7	**0.979**	0.0085	0.162	2
06128	**Cadmium**	7440-43-9	**0.313**	0.0279	0.162	2
06131	**Chromium**	7440-47-3	**12.9**	0.195	0.898	2
06132	**Cobalt**	7440-48-4	**20.6**	0.0253	0.162	2
06133	**Copper**	7440-50-8	**28.6**	0.120	0.898	2
06135	**Lead**	7439-92-1	**23.2**	0.0180	0.325	2
06139	**Nickel**	7440-02-0	**27.4**	0.162	0.650	2
06141	**Selenium**	7782-49-2	**0.171 J**	0.0812	0.650	2
06142	**Silver**	7440-22-4	**0.0337 J**	0.0237	0.162	2
06145	**Thallium**	7440-28-0	**0.419**	0.0203	0.162	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:00
SDG#: SNB14-01

C. T. Male Associates
ELLE Sample #: SW 9281819
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**19.2**	0.0478	0.225	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,050**	117	351	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.66**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.7**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 11:18	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:20	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 06:44	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:28	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 18:39	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:20	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:20	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:20	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 06:44	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:02	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:45	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:45	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-68-69' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:00
SDG#: SNB14-01

C. T. Male Associates
ELLE Sample #: SW 9281819
ELLE Group #: 1867063
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:02	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:02	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:45	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/10/2017 22:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17300820001A	10/27/2017 13:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:20
SDG#: SNB14-02

C. T. Male Associates
ELLE Sample #: SW 9281820
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.34 JB**	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,100**	9.29	41.6	1
01650	**Calcium**	7440-70-2	**2,830**	3.59	43.1	1
01654	**Iron**	7439-89-6	**24,400**	43.4	216	5
01657	**Magnesium**	7439-95-4	**3,070**	2.53	20.8	1
06958	**Manganese**	7439-96-5	**571**	0.0862	1.04	1
01662	**Potassium**	7440-09-7	**1,190**	17.4	104	1
01667	**Sodium**	7440-23-5	**23.6 J**	17.4	208	1
06972	**Zinc**	7440-66-6	**49.2**	0.259	4.31	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.302 J**	0.0968	0.416	2
06125	**Arsenic**	7440-38-2	**14.3**	0.133	0.831	2
06126	**Barium**	7440-39-3	**74.4**	0.189	0.831	2
06127	**Beryllium**	7440-41-7	**0.992**	0.0109	0.208	2
06128	**Cadmium**	7440-43-9	**0.208**	0.0357	0.208	2
06131	**Chromium**	7440-47-3	**7.75**	0.188	0.862	2
06132	**Cobalt**	7440-48-4	**18.1**	0.0324	0.208	2
06133	**Copper**	7440-50-8	**19.6**	0.116	0.862	2
06135	**Lead**	7439-92-1	**20.7**	0.0231	0.416	2
06139	**Nickel**	7440-02-0	**25.3**	0.207	0.831	2
06141	**Selenium**	7782-49-2	**0.196 J**	0.104	0.831	2
06142	Silver	7440-22-4	0.0303 U	0.0303	0.208	2
06145	**Thallium**	7440-28-0	**0.354**	0.0260	0.208	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:20
SDG#: SNB14-02

C. T. Male Associates
ELLE Sample #: SW 9281820
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.1**	0.0459	0.216	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**865**	123	370	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**13.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 11:39	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:24	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 06:47	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:32	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 18:46	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:24	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:24	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:24	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 06:47	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:46	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:46	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-78-79' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:20
SDG#: SNB14-02

C. T. Male Associates
ELLE Sample #: SW 9281820
ELLE Group #: 1867063
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:46	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667631B	11/10/2017 23:01	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17300820001A	10/27/2017 13:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:50
SDG#: SNB14-03

C. T. Male Associates
ELLE Sample #: SW 9281821
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.39 JB**	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.099 U	0.099	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**23,700**	10.4	46.6	1
01650	**Calcium**	7440-70-2	**32,900**	3.96	47.5	1
01654	**Iron**	7439-89-6	**30,800**	9.57	47.5	1
01657	**Magnesium**	7439-95-4	**5,480**	2.83	23.3	1
06958	**Manganese**	7439-96-5	**614**	0.0968	1.17	1
01662	**Potassium**	7440-09-7	**3,400**	19.5	117	1
01667	**Sodium**	7440-23-5	**57.1 J**	19.5	233	1
06972	**Zinc**	7440-66-6	**77.9**	0.285	4.75	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.355 J**	0.109	0.466	2
06125	**Arsenic**	7440-38-2	**12.2**	0.149	0.933	2
06126	**Barium**	7440-39-3	**179**	0.212	0.933	2
06127	**Beryllium**	7440-41-7	**1.26**	0.0122	0.233	2
06128	**Cadmium**	7440-43-9	**0.216 J**	0.0401	0.233	2
06131	**Chromium**	7440-47-3	**21.6**	0.207	0.951	2
06132	**Cobalt**	7440-48-4	**19.8**	0.0364	0.233	2
06133	**Copper**	7440-50-8	**31.0**	0.127	0.951	2
06135	**Lead**	7439-92-1	**25.6**	0.0259	0.466	2
06139	**Nickel**	7440-02-0	**35.9**	0.232	0.933	2
06141	**Selenium**	7782-49-2	**0.180 J**	0.117	0.933	2
06142	Silver	7440-22-4	0.0340 U	0.0340	0.233	2
06145	**Thallium**	7440-28-0	**0.457**	0.0291	0.233	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:50
SDG#: SNB14-03

C. T. Male Associates
ELLE Sample #: SW 9281821
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**28.2**	0.0506	0.238	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**993**	255	764	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.41**	0.0100	0.0100	1
	The pH was measured in water at 20.1 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 12:00	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:35	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 06:58	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:43	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:02	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:35	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:35	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:35	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 06:58	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06131	Chromium	SW-846 6020A	2	173111063701A	11/08/2017 06:53	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:53	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-88-89' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 09:50
SDG#: SNB14-03

C. T. Male Associates
ELLE Sample #: SW 9281821
ELLE Group #: 1867063
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:53	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/09/2017 14:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17300820001A	10/27/2017 13:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 11:00
SDG#: SNB14-04

C. T. Male Associates
ELLE Sample #: SW 9281822
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.57 JB**	0.20	0.59	1
14027	**Perfluorodecanoic acid**	335-76-2	**0.21 J**	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.90**	0.099	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.099 U	0.099	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	**Perfluorooctanoic acid**	335-67-1	**0.22 J**	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**19,700**	49.7	222	5
01650	**Calcium**	7440-70-2	**1,650**	19.0	228	5
01654	**Iron**	7439-89-6	**145,000**	46.0	228	5
01657	**Magnesium**	7439-95-4	**2,570**	13.5	111	5
06958	**Manganese**	7439-96-5	**2,230**	0.461	5.55	5
01662	**Potassium**	7440-09-7	**1,340**	92.8	555	5
01667	Sodium	7440-23-5	92.8 U	92.8	1,110	5
06972	**Zinc**	7440-66-6	**357**	1.37	22.8	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**1.58**	0.104	0.444	2
06125	**Arsenic**	7440-38-2	**36.5**	0.142	0.889	2
06126	**Barium**	7440-39-3	**175**	0.202	0.889	2
06127	**Beryllium**	7440-41-7	**8.96**	0.0291	0.555	5
06128	**Cadmium**	7440-43-9	**2.93**	0.0382	0.222	2
06131	**Chromium**	7440-47-3	**18.0**	0.536	2.47	5
06132	**Cobalt**	7440-48-4	**47.5**	0.0347	0.222	2
06133	**Copper**	7440-50-8	**66.2**	0.122	0.913	2
06135	**Lead**	7439-92-1	**79.1**	0.0247	0.444	2
06139	**Nickel**	7440-02-0	**160**	0.221	0.889	2
06141	**Selenium**	7782-49-2	**0.290 J**	0.111	0.889	2
06142	**Silver**	7440-22-4	**0.0847 J**	0.0324	0.222	2
06145	**Thallium**	7440-28-0	**1.36**	0.0278	0.222	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 11:00
SDG#: SNB14-04

C. T. Male Associates
ELLE Sample #: SW 9281822
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**48.5**	0.131	0.617	5
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**748**	171	514	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 12:20	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/05/2017 19:05	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 08:13	Jonathan J Allen	5
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:47	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:05	Elaine F Stoltzfus	5
06958	Manganese	SW-846 6010C	1	173061063701	11/05/2017 19:05	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173061063701	11/05/2017 19:05	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173061063701	11/05/2017 19:05	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	3	173111063701	11/08/2017 08:13	Jonathan J Allen	5
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:36	Choon Y Tian	5
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 07:08	Choon Y Tian	5
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:55	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-98-99' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 11:00
SDG#: SNB14-04

C. T. Male Associates
ELLE Sample #: SW 9281822
ELLE Group #: 1867063
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 07:08	Choon Y Tian	5
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633A	11/09/2017 14:50	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17300820001A	10/27/2017 13:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-104-105' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 12:30
SDG#: SNB14-05

C. T. Male Associates
ELLE Sample #: SW 9281823
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.17 U	0.17	0.51	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.28 JB**	0.17	0.51	1
14027	Perfluorodecanoic acid	335-76-2	0.17 U	0.17	0.51	1
14027	Perfluorododecanoic acid	307-55-1	0.17 U	0.17	0.51	1
14027	Perfluoroheptanoic acid	375-85-9	0.17 U	0.17	0.51	1
14027	Perfluorohexanesulfonate	355-46-4	0.17 U	0.17	0.51	1
14027	Perfluorohexanoic acid	307-24-4	0.085 U	0.085	0.34	1
14027	Perfluorononanoic acid	375-95-1	0.085 U	0.085	0.34	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.76	1
14027	Perfluorooctanoic acid	335-67-1	0.17 U	0.17	0.51	1
14027	Perfluoropentanoic acid	2706-90-3	0.17 U	0.17	0.51	1
14027	Perfluorotetradecanoic acid	376-06-7	0.17 U	0.17	0.51	1
14027	Perfluorotridecanoic acid	72629-94-8	0.17 U	0.17	0.51	1
14027	Perfluoroundecanoic acid	2058-94-8	0.17 U	0.17	0.51	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,990**	44.3	198	5
01650	**Calcium**	7440-70-2	**378**	3.75	45.1	1
01654	**Iron**	7439-89-6	**20,400**	9.07	45.1	1
01657	**Magnesium**	7439-95-4	**557**	12.5	103	5
06958	**Manganese**	7439-96-5	**266**	0.0822	0.991	1
01662	**Potassium**	7440-09-7	**866**	82.7	495	5
01667	Sodium	7440-23-5	82.7 U	82.7	991	5
06972	**Zinc**	7440-66-6	**38.1**	0.270	4.51	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.250 J**	0.0924	0.396	2
06125	**Arsenic**	7440-38-2	**5.15**	0.127	0.793	2
06126	**Barium**	7440-39-3	**19.8**	0.180	0.793	2
06127	**Beryllium**	7440-41-7	**1.95**	0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**0.410**	0.0341	0.198	2
06131	**Chromium**	7440-47-3	**5.47**	0.196	0.902	2
06132	**Cobalt**	7440-48-4	**6.19**	0.0309	0.198	2
06133	**Copper**	7440-50-8	**15.1**	0.121	0.902	2
06135	**Lead**	7439-92-1	**14.7**	0.0220	0.396	2
06139	**Nickel**	7440-02-0	**20.6**	0.197	0.793	2
06141	Selenium	7782-49-2	0.0991 U	0.0991	0.793	2
06142	Silver	7440-22-4	0.0289 U	0.0289	0.198	2
06145	**Thallium**	7440-28-0	**0.374**	0.0248	0.198	2

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MWBR3-104-105' Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 12:30
SDG#: SNB14-05

C. T. Male Associates
ELLE Sample #: SW 9281823
ELLE Group #: 1867063
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**4.75**		0.0480	0.225	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**137**	**J**	116	348	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.57**		0.0100	0.0100	1
	The pH was measured in water at 20.1 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 12:41	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/05/2017 19:11	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 07:05	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:51	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	173101063702	11/07/2017 09:40	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:43	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/05/2017 19:11	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173061063701	11/05/2017 19:11	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 19:51	Elaine F Stoltzfus	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:20	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:57	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-104-105' Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017 12:30
SDG#: SNB14-05

C. T. Male Associates
ELLE Sample #: SW 9281823
ELLE Group #: 1867063
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:57	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:20	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:20	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:57	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17312667633B	11/09/2017 15:03	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17301039402B	10/28/2017 15:25	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17300820001A	10/27/2017 13:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB93-171024 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017
SDG#: SNB14-06TB

C. T. Male Associates
ELLE Sample #: WW 9281824
ELLE Group #: 1867063
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 19:24	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB94-171024 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/25/2017 09:45
Collection Date/Time: 10/24/2017
SDG#: SNB14-07TB

C. T. Male Associates
ELLE Sample #: WW 9281825
ELLE Group #: 1867063
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17299009	10/31/2017 19:45	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17299009	10/26/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17305005	Sample number(s): 9281819-9281823		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.21 J	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17299009	Sample number(s): 9281824-9281825		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 173061063701	Sample number(s): 9281819-9281823		
Aluminum	13.3 J	8.94	40.0
Magnesium	31.6	2.43	20.0
Manganese	0.485 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

Method Blank (continued)

Analysis Name	Result mg/kg	MDL** mg/kg	LOQ mg/kg
Batch number: 173061063701A	Sample number(s): 9281819-9281823		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.175 J	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Cobalt	0.0312 U	0.0312	0.200
Lead	0.155 J	0.0222	0.400
Nickel	0.345 J	0.199	0.800
Silver	0.0325 J	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Batch number: 173061063701B	Sample number(s): 9281819-9281823		
Selenium	0.100 U	0.100	0.800
Batch number: 173061063701D	Sample number(s): 9281819-9281823		
Barium	0.398 J	0.182	0.800
Batch number: 173101063702	Sample number(s): 9281823		
Magnesium	2.43 U	2.43	20.0
Batch number: 173111063701	Sample number(s): 9281819-9281823		
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Zinc	0.240 U	0.240	4.00
Batch number: 173111063701A	Sample number(s): 9281819-9281823		
Chromium	0.174 U	0.174	0.800
Copper	0.107 U	0.107	0.800
Vanadium	0.115 J	0.0426	0.200
Batch number: 17312667631B	Sample number(s): 9281819-9281820		
TOC	100 U	100	300
Batch number: 17312667633A	Sample number(s): 9281821-9281822		
TOC	100 U	100	300
Batch number: 17312667633B	Sample number(s): 9281823		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17305005	Sample number(s): 9281819-9281823								

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorobutanesulfonate	1.20	1.40			117		70-130		
Perfluorobutanoic acid	1.36	1.69			124		70-130		
Perfluorodecanoic acid	1.36	1.57			116		70-130		
Perfluorododecanoic acid	1.36	1.71			126		70-130		
Perfluoroheptanoic acid	1.36	1.59			117		70-130		
Perfluorohexanesulfonate	1.29	1.50			116		70-130		
Perfluorohexanoic acid	1.36	1.76			130		70-130		
Perfluorononanoic acid	1.36	1.55			114		70-130		
Perfluoro-octanesulfonate	1.30	1.68			129		70-130		
Perfluorooctanoic acid	1.36	1.29			95		70-130		
Perfluoropentanoic acid	1.36	1.47			108		70-130		
Perfluorotetradecanoic acid	1.36	1.67			123		70-130		
Perfluorotridecanoic acid	1.36	2.18			160*		70-130		
Perfluoroundecanoic acid	1.36	1.46			108		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17299009	Sample number(s): 9281824-9281825								
Perfluorobutanesulfonate	4.81	5.09	4.81	4.94	106	103	70-130	3	30
Perfluorobutanoic acid	5.44	5.65	5.44	5.36	104	98	70-130	5	30
Perfluorodecanoic acid	5.44	5.77	5.44	5.26	106	97	70-130	9	30
Perfluorododecanoic acid	5.44	5.70	5.44	4.98	105	91	70-130	14	30
Perfluoroheptanoic acid	5.44	5.62	5.44	5.71	103	105	70-130	2	30
Perfluorohexanesulfonate	5.14	4.79	5.14	4.31	93	84	70-130	10	30
Perfluorohexanoic acid	5.44	5.19	5.44	5.32	95	98	70-130	2	30
Perfluorononanoic acid	5.44	5.71	5.44	5.43	105	100	70-130	5	30
Perfluoro-octanesulfonate	5.20	4.82	5.20	4.56	93	88	70-130	6	30
Perfluorooctanoic acid	5.44	5.20	5.44	4.37	96	80	70-130	17	30
Perfluoropentanoic acid	5.44	5.43	5.44	5.13	100	94	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.41	5.44	4.95	99	91	70-130	9	30
Perfluorotridecanoic acid	5.44	5.04	5.44	4.33	93	80	70-130	15	30
Perfluoroundecanoic acid	5.44	5.50	5.44	5.76	101	106	70-130	5	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173061063701	Sample number(s): 9281819-9281823								
Aluminum	200	217.43			109		80-120		
Magnesium	200	240.01			120		80-120		
Manganese	50	52.41			105		80-120		
Potassium	1000	1072.25			107		80-120		
Sodium	1000	1039.34			104		80-120		
Batch number: 173061063701A	Sample number(s): 9281819-9281823								
Antimony	0.600	0.584			97		80-120		
Arsenic	1.00	0.992			99		80-120		
Beryllium	0.400	0.434			109		80-120		

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Cadmium	0.500	0.555			111		80-120		
Cobalt	25	24.94			100		80-120		
Lead	1.50	1.58			105		80-120		
Nickel	5.00	5.35			107		80-120		
Silver	5.00	5.14			103		80-120		
Thallium	0.200	0.202			101		80-120		
Batch number: 173061063701B	Sample number(s): 9281819-9281823								
Selenium	1.00	0.988			99		80-120		
Batch number: 173061063701D	Sample number(s): 9281819-9281823								
Barium	5.00	5.23			105		80-120		
Batch number: 173101063702	Sample number(s): 9281823								
Magnesium	200	189.91			95		80-120		
Batch number: 173111063701	Sample number(s): 9281819-9281823								
Calcium	400	407.9			102		80-120		
Iron	100	106.17			106		80-120		
Zinc	50	53.04			106		80-120		
Batch number: 173111063701A	Sample number(s): 9281819-9281823								
Chromium	5.00	5.59			112		80-120		
Copper	5.00	4.90			98		80-120		
Vanadium	5.00	5.66			113		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17312667631B	Sample number(s): 9281819-9281820								
TOC	7150	7774.57			109		47-143		
Batch number: 17312667633A	Sample number(s): 9281821-9281822								
TOC	7150	7637.56			107		47-143		
Batch number: 17312667633B	Sample number(s): 9281823								
TOC	7150	7637.56			107		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17301039402B	Sample number(s): 9281819-9281823								
pH	7.00	6.99			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17300820001A	Sample number(s): 9281819-9281823								
Moisture	89.5	89.42			100		99-101		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17305005	Sample number(s): 9281819-9281823 UNSPK: P284290									
Perfluorobutanesulfonate	0.16 U	0.993	1.04	1.11	1.31	105	118	70-130	23	30
Perfluorobutanoic acid	0.514	1.12	1.38	1.26	1.43	77	73	70-130	4	30
Perfluorodecanoic acid	0.16 U	1.12	1.44	1.26	1.47	128	117	70-130	2	30
Perfluorododecanoic acid	0.16 U	1.12	1.35	1.26	1.57	120	124	70-130	15	30
Perfluoroheptanoic acid	0.16 U	1.12	1.47	1.26	1.45	130	115	70-130	1	30
Perfluorohexanesulfonate	0.16 U	1.06	1.30	1.19	1.23	122	103	70-130	5	30
Perfluorohexanoic acid	0.079 U	1.12	1.36	1.26	1.43	121	113	70-130	5	30
Perfluorononanoic acid	0.079 U	1.12	1.08	1.26	1.20	96	95	70-130	10	30
Perfluoro-octanesulfonate	0.24 U	1.07	1.31	1.20	1.22	122	101	70-130	8	30
Perfluorooctanoic acid	0.16 U	1.12	1.31	1.26	1.45	117	115	70-130	10	30
Perfluoropentanoic acid	0.16 U	1.12	1.24	1.26	1.51	110	120	70-130	20	30
Perfluorotetradecanoic acid	0.16 U	1.12	1.34	1.26	1.58	119	126	70-130	17	30
Perfluorotridecanoic acid	0.16 U	1.12	1.42	1.26	1.69	126	134*	70-130	18	30
Perfluoroundecanoic acid	0.16 U	1.12	1.18	1.26	1.30	105	104	70-130	10	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 173061063701	Sample number(s): 9281819-9281823 UNSPK: P291199									
Aluminum	21653.3	169.49	25697.9	145.99	25418.76	2386 (2)	2579 (2)	75-125	1	20
Magnesium	5940.52	169.49	5537.14	145.99	6170.62	-238 (2)	158 (2)	75-125	11	20
Manganese	390.61	42.37	446.55	36.5	467.83	132 (2)	212 (2)	75-125	5	20
Potassium	4657.79	847.46	5427	729.93	5432.09	91 (2)	106 (2)	75-125	0	20
Sodium	18.23	847.46	762.5	729.93	643.53	88	86	75-125	17	20
Batch number: 173061063701A	Sample number(s): 9281819-9281823 UNSPK: P291199									
Antimony	0.131	1.02	0.954	0.876	0.734	81	69*	75-125	26*	20
Arsenic	7.85	1.69	9.48	1.46	9.68	96 (2)	126 (2)	75-125	2	20
Beryllium	1.68	0.678	2.65	0.584	2.50	143*	141*	75-125	6	20
Cadmium	0.173	0.847	1.18	0.730	0.922	119	103	75-125	24*	20
Cobalt	12.31	42.37	63.92	36.5	56.44	122	121	75-125	12	20
Lead	6.56	2.54	10.04	2.19	9.95	137*	155*	75-125	1	20
Nickel	19.15	8.47	31.41	7.30	29.88	145*	147*	75-125	5	20
Silver	0.0345	8.47	9.16	7.30	7.54	108	103	75-125	19	20
Thallium	1.28	0.339	1.72	0.292	1.55	130*	93 (2)	75-125	10	20
Batch number: 173061063701B	Sample number(s): 9281819-9281823 UNSPK: P291199									
Selenium	0.0943 U	1.69	1.93	1.46	1.63	114	112	75-125	17	20
Batch number: 173061063701D	Sample number(s): 9281819-9281823 UNSPK: P291199									
Barium	68.4	8.47	80.02	7.30	78.92	137 (2)	144 (2)	75-125	1	20
Batch number: 173101063702	Sample number(s): 9281823 UNSPK: P291199									
Magnesium	5249.54	185.19	6236.11	185.19	6098.02	533 (2)	458 (2)	75-125	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 173111063701	Sample number(s): 9281819-9281823 UNSPK: P291199									
Calcium	562.04	392.16	877.22	400	950.14	80	97	75-125	8	20
Iron	29586.92	98.04	27327.69	100	29557.75	-2304 (2)	-29 (2)	75-125	8	20
Zinc	43.85	49.02	83.56	50	89.35	81	91	75-125	7	20
Batch number: 173111063701A	Sample number(s): 9281819-9281823 UNSPK: P291199									
Chromium	11.24	9.80	21.25	10	22.84	102	116	75-125	7	20
Copper	30.24	9.80	45.25	10	45	153*	148*	75-125	1	20
Vanadium	17.15	9.80	29.71	10	29.02	128*	119	75-125	2	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17312667631B	Sample number(s): 9281819-9281820 UNSPK: P279984									
TOC	4870.09	16830	20801.57			95		47-143		
Batch number: 17312667633A	Sample number(s): 9281821-9281822 UNSPK: 9281821									
TOC	811.15	19860	22748.34			110		47-143		
Batch number: 17312667633B	Sample number(s): 9281823 UNSPK: P282664									
TOC	989.9	50340	58422.82			114		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 173061063701	Sample number(s): 9281819-9281823 BKG: P291199			
Aluminum	21653.3	22751.99	5	20
Magnesium	5940.52	7198.73	19	20
Manganese	390.61	357.15	9	20
Potassium	4657.79	5338.84	14	20
Sodium	18.23	17.29	5 (1)	20
Batch number: 173061063701A	Sample number(s): 9281819-9281823 BKG: P291199			
Antimony	0.131	0.153	15 (1)	20
Arsenic	7.85	7.29	7	20
Beryllium	1.68	1.80	7	20
Cadmium	0.173	0.147	16 (1)	20
Cobalt	12.31	13.17	7	20
Lead	6.56	6.38	3	20
Nickel	19.15	20.82	8	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Silver	0.0345	0.0396	14 (1)	20
Thallium	1.28	1.40	9	20
Batch number: 173061063701B	Sample number(s): 9281819-9281823 BKG: P291199			
Selenium	0.0943 U	0.0952 U	0 (1)	20
Batch number: 173061063701D	Sample number(s): 9281819-9281823 BKG: P291199			
Barium	68.4	68.69	0	20
Batch number: 173101063702	Sample number(s): 9281823 BKG: P291199			
Magnesium	5249.54	5541.97	5	20
Batch number: 173111063701	Sample number(s): 9281819-9281823 BKG: P291199			
Calcium	562.04	535.48	5	20
Iron	29586.92	26892.59	10	20
Zinc	43.85	41.54	5	20
Batch number: 173111063701A	Sample number(s): 9281819-9281823 BKG: P291199			
Chromium	11.24	10.76	4	20
Copper	30.24	31.54	4	20
Vanadium	17.15	16.64	3	20
	mg/kg	mg/kg		
Batch number: 17312667631B	Sample number(s): 9281819-9281820 BKG: P279984			
TOC	4870.09	4460.13	9*	7
Batch number: 17312667633A	Sample number(s): 9281821-9281822 BKG: 9281821			
TOC	811.15	774.24	5 (1)	7
Batch number: 17312667633B	Sample number(s): 9281823 BKG: P282664			
TOC	989.9	1210.45	20* (1)	7
	Std. Units	Std. Units		
Batch number: 17301039402B	Sample number(s): 9281819-9281823 BKG: P280044			
pH	8.37	8.39	0	3
	%	%		
Batch number: 17300820001A	Sample number(s): 9281819-9281823 BKG: P283638			
Moisture	83.7	84.2	1	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17299009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9281824	76	79	66	74	65	81
9281825	89	94	81	98	84	94
Blank	91	95	84	98	86	92
LCS	87	90	75	98	76	96
LCSD	93	100	79	108	90	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9281824	91	80	87	92	89	74
9281825	96	89	127	108	93	88
Blank	103	86	100	97	92	90
LCS	103	83	103	90	87	78
LCSD	114*	97	114	101	93	93
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9281824	76
9281825	68
Blank	77
LCS	73
LCSD	78
Limits:	26-119

Analysis Name: 14 PFCs
Batch number: 17305005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9281819	55	53*	66	59	76	57
9281820	59	55*	68	61	75	57
9281821	65	63*	70	65	88	71
9281822	65	59*	68	56	73	64
9281823	76	69*	75	72	81	83
Blank	79	79	78	75	79	84
LCS	85	81	79	79	95	90
MS	42	41*	55	36*	57	39*
MSD	42	36*	56	39*	73	44*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/13/2017 15:22

Group Number: 1867063

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305005

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9281819	62	65	47	56	63	58
9281820	61	72	56	53	66	59
9281821	78	69	60	65	70	72
9281822	59	67	63	60	71	65
9281823	72	73	61	75	74	75
Blank	72	66	69	81	83	84
LCS	86	81	78	88	94	89
MS	39*	61	37	40	41	45
MSD	45	64	41	40	50	45
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9281819	66
9281820	59
9281821	72
9281822	73
9281823	75
Blank	84
LCS	92
MS	44
MSD	48
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1667063 9281819-25

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47448

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc.
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic trip blank	Soil: 250 ml Plastic/PFC (14)	Soil: 4oz glass/TOC, pH, moist	% Solids	Preservative Code	Field Filtered Y/N	Notes
1. SG3-MWBR3-68-69'	68	69	ft	10/24/2017	0900	Soil	N	2		1	1				PFC (14), pH, TOC
2. SG3-MWBR3-78-79'	78	79	ft	10-24-17	0920	S	N	2		1	1				moisture
3. SG3-MWBR3-88-89'	88	89	ft	10-24-17	0950	S	N	2		1	1				
4. SG3-MWBR3-98-99'	98	99	ft	10-24-17	1100	S	N	2		1	1				
5. SG3-MWBR3-104-105'	104	105	ft	10-24-17	1230	S	N	2		1	1				
6. SG3-LTB93-171024	—	—	—	—	AM	W	N	2	2						
7. SG3-LTB94-171024	—	—	—	—	AM	W	N	2	2						
8.															
9.															
10.															

BARR USE ONLY							
Sampled by: DJZ / RAK	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/25/17	Time 948
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:			Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 0.9/3.4	Custody Seal Intact? ☐ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198701

Group Number(s): 1867063

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/25/2017 9:45
Number of Packages:	4	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpres.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wesley Miller (2308) at 14:41 on 10/25/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.9	DT	Wet	Y	Bagged	N
2	DT42-01	1.1	DT	Wet	Y	Bagged	N
3	DT42-01	3.4	DT	Wet	Y	Bagged	N
4	DT42-01	3.5	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-MWBR3-104-105'	SG3-MWBR3-105-106'	

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 11, 2017 07:54

Project: SGPP - Bennington

Account #: 37191
Group Number: 1867584
SDG: SNB15
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-171025 Water	10/25/2017	9283922
SG3-FTB01-171025 Water	10/25/2017	9283923
SG3-D15-171025 Grab Groundwater	10/25/2017 13:50	9283924
SG3-D15-171025 Grab Groundwater	10/25/2017 13:50	9283925
SG3-D15-171025 Grab Groundwater	10/25/2017 13:50	9283926
SG3-D15-171025 Grab Groundwater	10/25/2017 13:50	9283927

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1867584

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9283924, 9283925, 9283926

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9283923

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Native compound PFOA was detected in this trip blank. This trip blank was re-extracted within the method holding time and native compounds were detected in the method blank associated with the re-extracted trip blank. Native compounds PFOA and PFDA were detected in the re-extracted trip blank. The data reported is from the initial trial. Both sets of data are included in the data package.

Sample #s: 9283922

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data quality is not impacted by this result.

Batch #: 17302007 (Sample number(s): 9283923-9283926 UNSPK: 9283924)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Perfluorooctanoic acid, Perfluorobutanoic acid, NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9283923, 9283924, 9283925, 9283926, Blank, LCS, MS, MSD

Batch #: 17312003 (Sample number(s): 9283922)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9283922, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 172991063501 (Sample number(s): 9283924-9283927 UNSPK: 9283924 BKG: 9283924)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Calcium, Iron, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Iron, Zinc, Boron

SW-846 6020A, Metals

Batch #: 172991063902A (Sample number(s): 9283924-9283927 UNSPK: 9283924 BKG: 9283924)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Antimony, Beryllium, Nickel, Thallium

Batch #: 172991063902D (Sample number(s): 9283924-9283927 UNSPK: 9283924 BKG: 9283924)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

EPA 300.0, Wet Chemistry

Batch #: 17299987113A (Sample number(s): 9283924-9283925, 9283927 UNSPK: 9283924 BKG: 9283924)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

EPA 350.1, Wet Chemistry

Batch #: 17312107105B (Sample number(s): 9283924-9283927 UNSPK: 9283924 BKG: 9283924)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Ammonia Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17310006203A (Sample number(s): 9283924-9283927 UNSPK: 9283924 BKG: 9283924)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: **SG3-LTB01-171025 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB15-01TB

C. T. Male Associates
ELLE Sample #: WW 9283922
ELLE Group #: 1867584
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17312003	11/10/2017 04:49	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17312003	11/08/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FTB01-171025 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB15-02TB

C. T. Male Associates
ELLE Sample #: WW 9283923
ELLE Group #: 1867584
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Native compound PFOA was detected in this trip blank. This trip blank was re-extracted within the method holding time and native compounds were detected in the method blank associated with the re-extracted trip blank. Native compounds PFOA and PFDA were detected in the re-extracted trip blank. The data reported is from the initial trial. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 02:03	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03BKG

C. T. Male Associates
ELLE Sample #: GW 9283924
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	7 U	7	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5 U	5	10	1
14473	NEtFOSAA	2991-50-6	1 U	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.7 U	0.7	2	1
14473	Perfluorobutanoic acid	375-22-4	5 U	5	10	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	5	1
14473	Perfluorododecanoic acid	307-55-1	0.7 U	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2 J**	0.7	2	1
14473	Perfluorohexanesulfonate	355-46-4	1 U	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**3**	0.7	2	1
14473	Perfluorononanoic acid	375-95-1	0.7 U	0.7	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.7 U	0.7	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	2 U	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**8**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2 J**	0.7	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.7 U	0.7	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.7 U	0.7	2	1
14473	Perfluoroundecanoic acid	2058-94-8	1 U	1	5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**3.10**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0187 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**95.1**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**3.85**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**45.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.521**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.96**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**11.3**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0088 J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.00046 J**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0041**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.110**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00017 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03BKG

C. T. Male Associates
ELLE Sample #: GW 9283924
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06031	**Chromium**	7440-47-3	**0.0067**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0039**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0070**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0031**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0113**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0048**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**85.5**	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**21.1**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.079 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**273**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**273**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03BKG

C. T. Male Associates
ELLE Sample #: GW 9283924
ELLE Group #: 1867584
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 02:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172991063501	10/27/2017 18:18	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172991063902D	10/31/2017 02:20	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172991063902B	10/31/2017 02:20	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172991063902A	10/31/2017 02:20	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172991063902A	10/31/2017 16:30	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172991063501	10/27/2017 06:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172991063902	10/30/2017 06:05	James L Mertz	1
01505	Bromide	EPA 300.0	1	17299987113A	10/26/2017 16:11	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17299987113A	10/26/2017 21:41	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:11	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:11	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17299987113A	10/26/2017 16:11	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	2	17312107105B	11/08/2017 22:52	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17304108101B	11/04/2017 00:48	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17304108101B	10/31/2017 17:30	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	2	17310006203A	11/07/2017 05:52	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	2	17310006203A	11/07/2017 05:52	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	2	17310006203A	11/07/2017 05:52	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17300022602A	10/27/2017 00:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MS

C. T. Male Associates
ELLE Sample #: GW 9283925
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**41**	7	10	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**38**	5	10	1
14473	**NEtFOSAA**	2991-50-6	**23**	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	**NMeFOSAA**	2355-31-9	**23**	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**14**	0.7	2	1
14473	**Perfluorobutanoic acid**	375-22-4	**18**	5	10	1
14473	**Perfluorodecanoic acid**	335-76-2	**16**	1	5	1
14473	**Perfluorododecanoic acid**	307-55-1	**15**	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**18**	0.7	2	1
14473	**Perfluorohexanesulfonate**	355-46-4	**13**	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**18**	0.7	2	1
14473	**Perfluorononanoic acid**	375-95-1	**14**	0.7	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**19**	0.7	2	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**14**	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**25**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**16**	0.7	2	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**15**	0.7	2	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**16**	0.7	2	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**15**	1	5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**8.38**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**2.08**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**102**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**6.54**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**49.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.07**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**14.8**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**22.1**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.523**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0064**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0143**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.166**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0041**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0056**	0.00015	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-D15-171025 Grab Groundwater
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MS

C. T. Male Associates
ELLE Sample #: GW 9283925
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		mg/l	mg/l	mg/l	
06031	**Chromium**	7440-47-3	**0.0561**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.257**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0590**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0177**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0586**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0091**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0489**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0023**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0575**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		mg/l	mg/l	mg/l	
01505	**Bromide**	24959-67-9	**23.1**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**137 E**	4.0	8.0	20
00368	**Nitrate Nitrogen**	14797-55-8	**2.5**	0.25	0.50	5
01506	**Nitrite Nitrogen**	14797-65-0	**2.4**	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**44.4**	1.5	5.0	5
	EPA 350.1		mg/l	mg/l	mg/l	
12892	**Ammonia Nitrogen**	7664-41-7	**0.95**	0.050	0.10	1
	EPA 351.2		mg/l	mg/l	mg/l	
00217	**Kjeldahl Nitrogen**	n.a.	**4.5**	0.50	1.0	1
	SM 2320 B-1997		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	**Total Alkalinity to pH 4.5**	n.a.	**299**	1.7	5.0	1
	SM 4500-P E-1999		mg/l	mg/l	mg/l	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.40**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/04/2017 20:53	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MS

C. T. Male Associates
ELLE Sample #: GW 9283925
ELLE Group #: 1867584
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172991063501	10/27/2017 18:27	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172991063902D	10/31/2017 02:29	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172991063902B	10/31/2017 02:29	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172991063902A	10/31/2017 02:29	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172991063902A	10/31/2017 16:35	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172991063501	10/27/2017 06:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172991063902	10/30/2017 06:05	James L Mertz	1
01505	Bromide	EPA 300.0	1	17299987113A	10/26/2017 16:48	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17299987113A	10/26/2017 22:17	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:48	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:48	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17299987113A	10/26/2017 16:48	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	2	17312107105B	11/08/2017 22:55	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17304108101B	11/04/2017 00:54	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17304108101B	10/31/2017 17:30	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	2	17310006203A	11/07/2017 06:01	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17300022602A	10/27/2017 00:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MSD

C. T. Male Associates
ELLE Sample #: GW 9283926
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**48**	7	10	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**46**	5	10	1
14473	**NEtFOSAA**	2991-50-6	**20**	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	**NMeFOSAA**	2355-31-9	**22**	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**14**	0.7	2	1
14473	**Perfluorobutanoic acid**	375-22-4	**18**	5	10	1
14473	**Perfluorodecanoic acid**	335-76-2	**16**	1	5	1
14473	**Perfluorododecanoic acid**	307-55-1	**15**	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**16**	0.7	2	1
14473	**Perfluorohexanesulfonate**	355-46-4	**14**	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**18**	0.7	2	1
14473	**Perfluorononanoic acid**	375-95-1	**14**	0.7	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**19**	0.7	2	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**15**	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**26**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**18**	0.7	2	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**15**	0.7	2	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**15**	0.7	2	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**14**	1	5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**6.89**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**2.09**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**102**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**5.42**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**49.2**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.06**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**14.3**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**22.0**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.517**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0071**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0147**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.145**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0043**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0049**	0.00015	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MSD

C. T. Male Associates
ELLE Sample #: GW 9283926
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06031	**Chromium**	7440-47-3	**0.0572**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.240**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0520**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0175**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0501**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0103**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0499**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0021**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0520**	0.00021	0.0010	1
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.99**	0.050	0.10	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**300**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.41**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/04/2017 21:13	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172991063501	10/27/2017 18:30	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172991063902A	10/31/2017 16:37	Bradley M Berlot	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03MSD

C. T. Male Associates
ELLE Sample #: GW 9283926
ELLE Group #: 1867584
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06026	Barium	SW-846 6020A	1	172991063902D	10/31/2017 02:32	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172991063902B	10/31/2017 02:32	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172991063902A	10/31/2017 02:32	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172991063902A	10/31/2017 16:37	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	172991063902A	10/31/2017 16:37	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172991063501	10/27/2017 06:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172991063902	10/30/2017 06:05	James L Mertz	1
12892	Ammonia Nitrogen	EPA 350.1	2	17312107105B	11/08/2017 22:56	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	2	17310006203A	11/07/2017 06:25	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17300022602A	10/27/2017 00:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03DUP

C. T. Male Associates
ELLE Sample #: GW 9283927
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**4.07**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0112 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**96.3**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**4.84**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**46.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.524**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.36**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**11.5**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0115 J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0043**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.120**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00022 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0062**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0041**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0064**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0031**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0073**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00016 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0055**	0.00021	0.0010	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**85.6**	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**19.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.077 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**270**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**270**	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03DUP

C. T. Male Associates
ELLE Sample #: GW 9283927
ELLE Group #: 1867584
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2320 B-1997**		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	172991063501	10/27/2017 18:24	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	172991063902D	10/31/2017 02:26	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	172991063902B	10/31/2017 02:26	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	172991063902A	10/31/2017 02:26	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	172991063902A	10/31/2017 16:34	Bradley M Berlot	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	172991063501	10/27/2017 06:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	172991063902	10/30/2017 06:05	James L Mertz	1
01505	Bromide	EPA 300.0	1	17299987113A	10/26/2017 16:29	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17299987113A	10/26/2017 21:59	Clinton M Wilson	20
00368	Nitrate Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:29	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17299987113A	10/26/2017 16:29	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17299987113A	10/26/2017 16:29	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17312107105B	11/08/2017 22:53	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17304108101B	11/04/2017 00:53	Samuel J Weaver	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-D15-171025 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:50
SDG#: SNB15-03DUP

C. T. Male Associates
ELLE Sample #: GW 9283927
ELLE Group #: 1867584
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17304108101B	10/31/2017 17:30	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17310006203A	11/07/2017 06:33	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17310006203A	11/07/2017 06:33	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17310006203A	11/07/2017 06:33	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17300022602A	10/27/2017 00:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17302007	Sample number(s): 9283923-9283926			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17312003	Sample number(s): 9283922			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.9	J	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	1		0.3	1
Perfluoropentanoic acid	0.5	J	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 172991063501	Sample number(s): 9283924-9283927		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 172991063902A	Sample number(s): 9283924-9283927		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 172991063902B	Sample number(s): 9283924-9283927		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 172991063902D	Sample number(s): 9283924-9283927		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17299987113A	Sample number(s): 9283924-9283925,9283927		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17304108101B	Sample number(s): 9283924-9283925,9283927		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17312107105B	Sample number(s): 9283924-9283927		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17300022602A	Sample number(s): 9283924-9283927		
Ortho-Phosphate as P	0.030 U	0.030	0.090

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17310006203A	Sample number(s): 9283924-9283927		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17302007	Sample number(s): 9283923-9283926								
6:2 fluorotelomersulfonate	15.17	19.22			127		70-130		
8:2 fluorotelomersulfonate	15.33	18.11			118		70-130		
NEtFOSAA	5.44	8.73			160*		70-130		
NMeFOSAA	5.44	9.32			171*		70-130		
Perfluorobutanesulfonate	4.81	5.49			114		70-130		
Perfluorobutanoic acid	5.44	6.46			119		70-130		
Perfluorodecanoic acid	5.44	6.62			122		70-130		
Perfluorododecanoic acid	5.44	6.77			124		70-130		
Perfluoroheptanoic acid	5.44	6.23			114		70-130		
Perfluorohexanesulfonate	5.14	5.47			106		70-130		
Perfluorohexanoic acid	5.44	5.83			107		70-130		
Perfluorononanoic acid	5.44	5.64			104		70-130		
Perfluorooctanesulfonamide	5.44	7.97			146*		70-130		
Perfluoro-octanesulfonate	5.20	5.40			104		70-130		
Perfluorooctanoic acid	5.44	5.28			97		70-130		
Perfluoropentanoic acid	5.44	6.42			118		70-130		
Perfluorotetradecanoic acid	5.44	6.28			115		70-130		
Perfluorotridecanoic acid	5.44	6.90			127		70-130		
Perfluoroundecanoic acid	5.44	6.02			111		70-130		
Batch number: 17312003	Sample number(s): 9283922								
6:2 fluorotelomersulfonate	15.17	16.22	15.17	16.42	107	108	70-130	1	30
8:2 fluorotelomersulfonate	15.33	16.46	15.33	14.74	107	96	70-130	11	30
NEtFOSAA	5.44	6.09	5.44	6.94	112	128	70-130	13	30
NMeFOSAA	5.44	6.45	5.44	6.66	119	122	70-130	3	30
Perfluorobutanesulfonate	4.81	6.05	4.81	5.17	126	107	70-130	16	30
Perfluorobutanoic acid	5.44	6.31	5.44	6.27	116	115	70-130	1	30
Perfluorodecanoic acid	5.44	6.45	5.44	5.88	119	108	70-130	9	30
Perfluorododecanoic acid	5.44	6.37	5.44	6.56	117	121	70-130	3	30
Perfluoroheptanoic acid	5.44	5.92	5.44	6.15	109	113	70-130	4	30
Perfluorohexanesulfonate	5.14	6.32	5.14	5.41	123	105	70-130	16	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.99	5.44	5.86	110	108	70-130	2	30
Perfluorononanoic acid	5.44	5.80	5.44	5.70	107	105	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.75	5.44	5.93	106	109	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.57	5.20	5.44	107	105	70-130	2	30
Perfluorooctanoic acid	5.44	5.88	5.44	5.82	108	107	70-130	1	30
Perfluoropentanoic acid	5.44	6.74	5.44	6.24	124	115	70-130	8	30
Perfluorotetradecanoic acid	5.44	6.14	5.44	5.86	113	108	70-130	5	30
Perfluorotridecanoic acid	5.44	5.56	5.44	6.06	102	111	70-130	9	30
Perfluoroundecanoic acid	5.44	6.01	5.44	5.88	111	108	70-130	2	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172991063501	Sample number(s): 9283924-9283927								
Aluminum	2.00	2.04			102		80-120		
Boron	2.00	2.04			102		80-120		
Calcium	4.00	4.03			101		80-120		
Iron	1.00	1.02			102		80-120		
Magnesium	2.00	2.04			102		80-120		
Manganese	0.500	0.544			109		80-120		
Potassium	10	10.16			102		80-120		
Sodium	10	10.12			101		80-120		
Zinc	0.500	0.522			104		80-120		
Batch number: 172991063902A	Sample number(s): 9283924-9283927								
Antimony	0.00600	0.00614			102		80-120		
Arsenic	0.0100	0.0110			110		80-120		
Beryllium	0.00400	0.00406			102		80-120		
Cadmium	0.00500	0.00572			114		80-120		
Chromium	0.0500	0.0538			108		80-120		
Cobalt	0.250	0.263			105		80-120		
Copper	0.0500	0.0548			110		80-120		
Lead	0.0150	0.0154			103		80-120		
Nickel	0.0500	0.0548			110		80-120		
Silver	0.0500	0.0507			101		80-120		
Thallium	0.00200	0.00230			115		80-120		
Vanadium	0.0500	0.0503			101		80-120		
Batch number: 172991063902B	Sample number(s): 9283924-9283927								
Selenium	0.0100	0.00976			98		80-120		
Batch number: 172991063902D	Sample number(s): 9283924-9283927								
Barium	0.0500	0.0456			91		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17299987113A	Sample number(s): 9283924-9283925,9283927								
Bromide	7.50	6.87	7.50	6.86	92	91	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloride	3.00	2.70	3.00	2.70	90	90	90-110	0	20
Nitrate Nitrogen	0.750	0.697	0.750	0.701	93	94	90-110	1	20
Nitrite Nitrogen	0.750	0.711	0.750	0.711	95	95	90-110	0	20
Sulfate	7.50	7.09	7.50	7.09	95	94	90-110	0	20
Batch number: 17304108101B	Sample number(s): 9283924-9283925,9283927								
Kjeldahl Nitrogen	5.00	5.07	5.00	5.03	101	101	90-110	1	20
Batch number: 17312107105B	Sample number(s): 9283924-9283927								
Ammonia Nitrogen	1.50	1.55			103		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17300022602A	Sample number(s): 9283924-9283927								
Ortho-Phosphate as P	0.400	0.399			100		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17310006203A	Sample number(s): 9283924-9283927								
Total Alkalinity to pH 4.5	188	185.59			99		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17302007	Sample number(s): 9283923-9283926 UNSPK: 9283924									
6:2 fluorotelomersulfonate	7 U	37.15	40.74	36.89	47.98	110	130	70-130	16	30
8:2 fluorotelomersulfonate	5 U	37.54	38.28	37.28	46.36	102	124	70-130	19	30
NEtFOSAA	1 U	13.32	22.85	13.23	19.53	171*	148*	70-130	16	30
NMeFOSAA	1 U	13.32	22.79	13.23	22.43	171*	170*	70-130	2	30
Perfluorobutanesulfonate	0.7 U	11.79	13.82	11.7	13.63	117	116	70-130	1	30
Perfluorobutanoic acid	5 U	13.32	18.03	13.23	17.95	135*	136*	70-130	0	30
Perfluorodecanoic acid	1 U	13.32	15.88	13.23	15.87	119	120	70-130	0	30
Perfluorododecanoic acid	0.7 U	13.32	15.48	13.23	15.25	116	115	70-130	2	30
Perfluoroheptanoic acid	1.61	13.32	17.65	13.23	16.32	120	111	70-130	8	30
Perfluorohexanesulfonate	1 U	12.6	13.12	12.51	14.12	104	113	70-130	7	30
Perfluorohexanoic acid	2.96	13.32	18.42	13.23	18.11	116	115	70-130	2	30
Perfluorononanoic acid	0.7 U	13.32	14.09	13.23	13.54	106	102	70-130	4	30
Perfluorooctanesulfonamide	0.7 U	13.32	19.48	13.23	19.26	146*	146*	70-130	1	30
Perfluoro-octanesulfonate	2 U	12.74	13.84	12.65	15.4	109	122	70-130	11	30
Perfluorooctanoic acid	7.68	13.32	24.65	13.23	25.63	127	136*	70-130	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	1.96	13.32	16	13.23	17.65	105	119	70-130	10	30
Perfluorotetradecanoic acid	0.7 U	13.32	14.94	13.23	14.85	112	112	70-130	1	30
Perfluorotridecanoic acid	0.7 U	13.32	16.18	13.23	15.24	121	115	70-130	6	30
Perfluoroundecanoic acid	1 U	13.32	14.73	13.23	14.49	111	109	70-130	2	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 172991063501	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Aluminum	3.10	2.00	8.38	2.00	6.89	264*	189*	75-125	20	20
Boron	0.0187	2.00	2.08	2.00	2.09	103	104	75-125	0	20
Calcium	95.12	4.00	101.95	4.00	102.14	171 (2)	176 (2)	75-125	0	20
Iron	3.85	1.00	6.54	1.00	5.42	269*	157*	75-125	19	20
Magnesium	45.48	2.00	49.35	2.00	49.19	194 (2)	186 (2)	75-125	0	20
Manganese	0.521	0.500	1.07	0.500	1.06	111	108	75-125	1	20
Potassium	2.96	10	14.85	10	14.25	119	113	75-125	4	20
Sodium	11.35	10	22.06	10	21.97	107	106	75-125	0	20
Zinc	0.00880	0.500	0.523	0.500	0.517	103	102	75-125	1	20
Batch number: 172991063902A	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Antimony	0.000457	0.00600	0.00641	0.00600	0.00705	99	110	75-125	10	20
Arsenic	0.00406	0.0100	0.0143	0.0100	0.0147	102	107	75-125	3	20
Beryllium	0.000171	0.00400	0.00414	0.00400	0.00428	99	103	75-125	3	20
Cadmium	0.00015 U	0.00500	0.00562	0.00500	0.00495	112	99	75-125	13	20
Chromium	0.00668	0.0500	0.0561	0.0500	0.0572	99	101	75-125	2	20
Cobalt	0.00388	0.250	0.257	0.250	0.240	101	94	75-125	7	20
Copper	0.00703	0.0500	0.0590	0.0500	0.0520	104	90	75-125	13	20
Lead	0.00310	0.0150	0.0177	0.0150	0.0175	97	96	75-125	1	20
Nickel	0.0113	0.0500	0.0586	0.0500	0.0501	95	78	75-125	16	20
Silver	0.00015 U	0.0500	0.0489	0.0500	0.0499	98	100	75-125	2	20
Thallium	0.00012 U	0.00200	0.00226	0.00200	0.00205	113	103	75-125	10	20
Vanadium	0.00478	0.0500	0.0575	0.0500	0.0520	105	94	75-125	10	20
Batch number: 172991063902B	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Selenium	0.00050 U	0.0100	0.00905	0.0100	0.0103	91	103	75-125	13	20
Batch number: 172991063902D	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Barium	0.110	0.0500	0.166	0.0500	0.145	113	71*	75-125	14	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17299987113A	Sample number(s): 9283924-9283925,9283927 UNSPK: 9283924									
Bromide	1.3 U	25	23.09			92		90-110		
Chloride	85.51	40	136.56			128*		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.45			98		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.42			97		90-110		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Sulfate	21.07	25	44.36			93		90-110		
Batch number: 17304108101B	Sample number(s): 9283924-9283925,9283927 UNSPK: 9283924									
Kjeldahl Nitrogen	0.50 U	5.00	4.48			90		90-110		
Batch number: 17312107105B	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Ammonia Nitrogen	0.0790	1.00	0.947	1.00	0.990	87*	91	90-110	4	8
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17300022602A	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Ortho-Phosphate as P	0.030 U	0.400	0.405	0.400	0.412	101	103	69-131	2	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17310006203A	Sample number(s): 9283924-9283927 UNSPK: 9283924									
Total Alkalinity to pH 4.5	273.06	188	298.94	188	299.99	14*	14*	77-114	0	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 172991063501	Sample number(s): 9283924-9283927 BKG: 9283924			
Aluminum	3.10	4.07	27*	20
Boron	0.0187	0.0112	50* (1)	20
Calcium	95.12	96.31	1	20
Iron	3.85	4.84	23*	20
Magnesium	45.48	46.35	2	20
Manganese	0.521	0.524	0	20
Potassium	2.96	3.36	13 (1)	20
Sodium	11.35	11.49	1	20
Zinc	0.00880	0.0115	26* (1)	20
Batch number: 172991063902A	Sample number(s): 9283924-9283927 BKG: 9283924			
Antimony	0.000457	0.00045 U	200* (1)	20
Arsenic	0.00406	0.00432	6 (1)	20
Beryllium	0.000171	0.000222	26* (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00668	0.00622	7 (1)	20
Cobalt	0.00388	0.00406	4 (1)	20

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Copper	0.00703	0.00642	9 (1)	20
Lead	0.00310	0.00309	0 (1)	20
Nickel	0.0113	0.00729	43* (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.000159	200* (1)	20
Vanadium	0.00478	0.00547	13 (1)	20
Batch number: 172991063902B	Sample number(s): 9283924-9283927 BKG: 9283924			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 172991063902D	Sample number(s): 9283924-9283927 BKG: 9283924			
Barium	0.110	0.120	9	20
	mg/l	mg/l		
Batch number: 17299987113A	Sample number(s): 9283924-9283925,9283927 BKG: 9283924			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	85.51	85.56	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	21.07	19.62	7 (1)	15
Batch number: 17304108101B	Sample number(s): 9283924-9283925,9283927 BKG: 9283924			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17312107105B	Sample number(s): 9283924-9283927 BKG: 9283924			
Ammonia Nitrogen	0.0790	0.0772	2 (1)	20
	mg/l	mg/l		
Batch number: 17300022602A	Sample number(s): 9283924-9283927 BKG: 9283924			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17310006203A	Sample number(s): 9283924-9283927 BKG: 9283924			
Total Alkalinity to pH 4.5	273.06	270.45	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9283923	82	74	75	87	82	70
9283924	75	68	68	74	77	74
9283925	80	82	71	88	89	86
9283926	79	76	77	82	77	83
Blank	79	73	72	83	82	78
LCS	80	72	69	82	77	74
MS	80	82	71	88	89	86
MSD	79	76	77	82	77	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9283923	69	79	83	82	76	65
9283924	71	80	75	73	74	59
9283925	83	83	78	80	87	79
9283926	67	79	75	81	76	67
Blank	63	81	68	65	90	76
LCS	66	82	83	79	79	68
MS	83	83	78	80	87	79
MSD	67	79	75	81	76	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9283923	86	96	89	91	97	26*
9283924	71	75	84	86	88	29*
9283925	85	92	98	101	106	29*
9283926	76	89	96	92	90	36*
Blank	78	84	102	91	95	42*
LCS	75	81	94	83	86	34*
MS	85	92	98	101	106	29*
MSD	76	89	96	92	90	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17312003

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 07:54

Group Number: 1867584

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17312003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9283922	82	76	73	86	78	84
Blank	81	73	71	83	79	75
LCS	89	83	73	96	90	93
LCSD	88	84	75	94	85	84
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9283922	62	87	73	75	77	50
Blank	63	80	75	75	83	45
LCS	71	98	85	83	85	55
LCSD	62	93	85	78	88	55
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9283922	67	67	68	55	22*	25*
Blank	72	71	78	73	68	35*
LCS	101	95	119	95	78	43*
LCSD	82	73	80	69	60	44*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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A-37191 G-1867584- S-9283922-27

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47395

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-N. Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL w/Trizma	250 mL - HNO_3	40 mL glass - unpres.	250mL	500mL - H_2SO_4	250mL	Soil: 40 mL glass - HCl	250 mL Plastic - NaOH	250 mL Glass	% Solids	Preservative Code	Field Filtered Y/N
									C	A	A	D	A		B	E	A			
									N	N	N	N	N	Y	N	N	N			
1. SG3-LTB01-171025	—	—	—	10/25/17	—	RW	N	2	2											blank
2. SG3-FTB01-171025	—	—	—	10/25/17	9:20	RW	N	2	2											blank
3. SG3-D15-171025	—	—	—	10/25/17	13:50	GW	Y	15	6	6	6	3	3	3	9	3	6			OUTSIDE LANDFILL
4.																				
5.																				Analyses:
6.																				(9) PFCs, TAL Metals/cations,
7.																				Anions, Ammonia, orthophosphate,
8.																				Total Kjeldahl nitrogen
9.																				* verify w/ MPD
10.																				

BARR USE ONLY		Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by:	DK, CB, NC							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MPD						10.26.17	9:35
Lab Name:	ELLE	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location:	Lancaster PA	Lab WO:	Temperature on Receipt (°C): 1.6 - 4.2			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

A-37191 G-1867584 S-9283922-21

LANDFILL WELLS:

- PFCs
- TCL VOCs (SOM02.2 VOC)
- TAL Metals and Cations (including cyanide and mercury)
- Anions
- Ammonia
- Orthophosphate
- Total Kjeldahl nitrogen
- 1,4-Dioxane

OUTSIDE LANDFILL WELLS:

- PFCs
- TAL Metals/Cations (excluding cyanide and mercury)
- Anions
- Ammonia
- Orthophosphate
- Total Kjeldahl nitrogen

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Sample Administration Receipt Documentation Log

Doc Log ID: 198872

Group Number(s): 1867584

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/26/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL plastic unpreserved

Unpacked by Timothy Cubberley (6520) at 10:46 on 10/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N
2	DT131	4.2	DT	Wet	Y	Bagged	N

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 09:12

Project: SGPP - Bennington

Account #: 37191
Group Number: 1867693
SDG: SNB16
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FBS16-171025 Grab Blank Water	10/25/2017 12:40	9284289
SG3-MW-BR4-245-246' Grab Soil	10/25/2017 12:50	9284290
SG3-MW-BR4-245-246' MS Grab Soil	10/25/2017 12:50	9284291
SG3-MW-BR4-245-246' MSD Grab Soil	10/25/2017 12:50	9284292
SG3-MW-BR4-245-246' DUP Grab Soil	10/25/2017 12:50	9284293
SG3-MW-BR4-251-252' Grab Soil	10/25/2017 13:00	9284294
SG3-FDS16-171025 Grab Soil	10/25/2017	9284295
SG3-AfterPOETD-171025 Grab Water	10/25/2017 15:15	9284296
SG3-FBS17-171025 Grab Blank Water	10/25/2017 14:20	9284297
Trip Blank Water	10/25/2017	9284298
SG3-Pump300-171025 Grab Water	10/25/2017 16:00	9284299

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1867693

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9284289, 9284290, 9284291, 9284292, 9284294, 9284296, 9284297, 9284298, 9284299

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9284295

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for C5-PFHxA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Batch #: 17302007 (Sample number(s): 9284289, 9284296-9284299 UNSPK: P283924)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorobutanoic acid, NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9284289, 9284296, 9284297, 9284298, 9284299, Blank, LCS, MS, MSD

Batch #: 17305005 (Sample number(s): 9284290-9284292, 9284294-9284295 UNSPK: 9284290)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9284290, 9284291, 9284292, 9284294, 9284295, MS, MSD

SW-846 6010C, Metals

Sample #s: 9284290, 9284291, 9284292, 9284293, 9284294, 9284295

Reporting limits were raised for metals due to interference from the sample matrix.

Batch #: 173031063703 (Sample number(s): 9284290-9284295 UNSPK: 9284290 BKG: 9284290)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Iron, Magnesium, Potassium, Manganese, Aluminum

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Magnesium, Sodium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Calcium, Magnesium, Potassium, Manganese

SW-846 6020A, Metals

Batch #: 173031063703A (Sample number(s): 9284290-9284295 UNSPK: 9284290 BKG: 9284290)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead, Thallium, Cobalt, Copper, Nickel

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Beryllium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Copper, Lead, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Cobalt, Copper, Lead, Thallium

Batch #: 173031063703B (Sample number(s): 9284290-9284295 UNSPK: 9284290 BKG: 9284290)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Selenium

Batch #: 173031063703D (Sample number(s): 9284290-9284295 UNSPK: 9284290 BKG: 9284290)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9284294, 9284295

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered

sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9284290

The pH was measured in water at 19.5 C.

Sample #s: 9284295

The pH was measured in water at 19.6 C.

Sample #s: 9284293, 9284294

The pH was measured in water at 19.7 C.

Sample Description: **SG3-FBS16-171025 Grab Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:40
SDG#: SNB16-01FB

C. T. Male Associates
ELLE Sample #: WW 9284289
ELLE Group #: 1867693
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 02:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02BKG

C. T. Male Associates
ELLE Sample #: SW 9284290
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.19 U	0.19	0.58	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.63 B**	0.19	0.58	1
14027	Perfluorodecanoic acid	335-76-2	0.19 U	0.19	0.58	1
14027	Perfluorododecanoic acid	307-55-1	0.19 U	0.19	0.58	1
14027	Perfluoroheptanoic acid	375-85-9	0.19 U	0.19	0.58	1
14027	Perfluorohexanesulfonate	355-46-4	0.19 U	0.19	0.58	1
14027	Perfluorohexanoic acid	307-24-4	0.097 U	0.097	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.097 U	0.097	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.29 U	0.29	0.87	1
14027	Perfluorooctanoic acid	335-67-1	0.19 U	0.19	0.58	1
14027	Perfluoropentanoic acid	2706-90-3	0.19 U	0.19	0.58	1
14027	Perfluorotetradecanoic acid	376-06-7	0.19 U	0.19	0.58	1
14027	Perfluorotridecanoic acid	72629-94-8	0.19 U	0.19	0.58	1
14027	Perfluoroundecanoic acid	2058-94-8	0.19 U	0.19	0.58	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**18,600**	49.2	220	5
01650	**Calcium**	7440-70-2	**570**	18.3	220	5
01654	**Iron**	7439-89-6	**43,300**	44.3	220	5
01657	**Magnesium**	7439-95-4	**3,440**	13.4	110	5
06958	**Manganese**	7439-96-5	**1,410**	0.457	5.50	5
01662	**Potassium**	7440-09-7	**2,170**	91.9	550	5
01667	Sodium	7440-23-5	91.9 U	91.9	1,100	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**68.3**	1.32	22.0	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.103 J**	0.103	0.440	2
06125	**Arsenic**	7440-38-2	**10.9**	0.141	0.881	2
06126	**Barium**	7440-39-3	**171**	0.200	0.881	2
06127	**Beryllium**	7440-41-7	**2.27**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.260**	0.0379	0.220	2
06131	**Chromium**	7440-47-3	**6.17**	0.192	0.881	2
06132	**Cobalt**	7440-48-4	**18.2**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**128**	0.118	0.881	2
06135	**Lead**	7439-92-1	**8.92**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**34.4**	0.219	0.881	2
06141	**Selenium**	7782-49-2	**0.330 J**	0.110	0.881	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02BKG

C. T. Male Associates
ELLE Sample #: SW 9284290
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.184 J**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**1.04**	0.0275	0.220	2
06148	**Vanadium**	7440-62-2	**14.2**	0.0469	0.220	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**595**	123	370	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**	0.0100	0.0100	1
	The pH was measured in water at 19.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 13:42	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:30	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:01	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:01	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:01	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:30	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:30	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:30	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:30	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/06/2017 09:02	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:05	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:02	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02BKG

C. T. Male Associates
ELLE Sample #: SW 9284290
ELLE Group #: 1867693
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:05	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:05	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17314667631A	11/11/2017 03:59	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17304039402A	10/31/2017 14:55	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR4-245-246' MS Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02MS

C. T. Male Associates
ELLE Sample #: SW 9284291
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.3**	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.7 B**	0.20	0.61	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.7**	0.20	0.61	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.20	0.61	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.6**	0.20	0.61	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.7**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.6**	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.6**	0.20	0.61	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.5**	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.7**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.7**	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.5**	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**18,100**	52.0	233	5
01650	**Calcium**	7440-70-2	**831**	19.4	233	5
01654	**Iron**	7439-89-6	**39,800**	46.8	233	5
01657	**Magnesium**	7439-95-4	**2,400**	14.1	116	5
06958	**Manganese**	7439-96-5	**1,420**	0.483	5.82	5
01662	**Potassium**	7440-09-7	**2,460**	97.1	582	5
01667	**Sodium**	7440-23-5	**988 J**	97.1	1,160	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**113**	1.40	23.3	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.867**	0.108	0.465	2
06125	**Arsenic**	7440-38-2	**15.4**	0.149	0.931	2
06126	**Barium**	7440-39-3	**271**	0.211	0.931	2
06127	**Beryllium**	7440-41-7	**3.15**	0.0122	0.233	2
06128	**Cadmium**	7440-43-9	**1.41**	0.0400	0.233	2
06131	**Chromium**	7440-47-3	**16.8**	0.202	0.931	2
06132	**Cobalt**	7440-48-4	**91.7**	0.0363	0.233	2
06133	**Copper**	7440-50-8	**173**	0.125	0.931	2
06135	**Lead**	7439-92-1	**17.1**	0.0258	0.465	2
06139	**Nickel**	7440-02-0	**56.3**	0.232	0.931	2
06141	**Selenium**	7782-49-2	**2.92**	0.116	0.931	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' MS Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02MS

C. T. Male Associates
ELLE Sample #: SW 9284291
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**13.5**	0.0340	0.233	2
06145	**Thallium**	7440-28-0	**1.86**	0.0291	0.233	2
06148	**Vanadium**	7440-62-2	**24.5**	0.0496	0.233	2
Wet Chemistry		**SM 5310 B modified-2000**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**26,500**	732	2,200	1
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**18.9**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/05/2017 10:35	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:40	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:13	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:13	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:13	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:40	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:40	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:40	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:40	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/06/2017 09:07	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:14	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:07	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:14	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:14	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:07	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' MS Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02MS

C. T. Male Associates
ELLE Sample #: SW 9284291
ELLE Group #: 1867693
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17314667631A	11/11/2017 04:12	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' MSD Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02MSD

C. T. Male Associates
ELLE Sample #: SW 9284292
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.6**	0.23	0.69	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.8 B**	0.23	0.69	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.8**	0.23	0.69	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.9**	0.23	0.69	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.8**	0.23	0.69	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.5**	0.23	0.69	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.8**	0.11	0.46	1
14027	**Perfluorononanoic acid**	375-95-1	**1.5**	0.11	0.46	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.5**	0.34	1.0	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.8**	0.23	0.69	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.9**	0.23	0.69	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**2.0**	0.23	0.69	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**2.1**	0.23	0.69	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.6**	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**20,000**	41.8	187	5
01650	**Calcium**	7440-70-2	**807**	15.6	187	5
01654	**Iron**	7439-89-6	**41,300**	37.6	187	5
01657	**Magnesium**	7439-95-4	**3,000**	11.3	93.4	5
06958	**Manganese**	7439-96-5	**1,440**	0.388	4.67	5
01662	**Potassium**	7440-09-7	**2,680**	78.0	467	5
01667	**Sodium**	7440-23-5	**794 J**	78.0	934	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**105**	1.12	18.7	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.612**	0.0871	0.374	2
06125	**Arsenic**	7440-38-2	**13.8**	0.120	0.747	2
06126	**Barium**	7440-39-3	**215**	0.170	0.747	2
06127	**Beryllium**	7440-41-7	**2.58**	0.0098	0.187	2
06128	**Cadmium**	7440-43-9	**1.25**	0.0321	0.187	2
06131	**Chromium**	7440-47-3	**14.7**	0.163	0.747	2
06132	**Cobalt**	7440-48-4	**75.3**	0.0291	0.187	2
06133	**Copper**	7440-50-8	**138**	0.100	0.747	2
06135	**Lead**	7439-92-1	**13.5**	0.0207	0.374	2
06139	**Nickel**	7440-02-0	**44.0**	0.186	0.747	2
06141	**Selenium**	7782-49-2	**2.45**	0.0934	0.747	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' MSD Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02MSD

C. T. Male Associates
ELLE Sample #: SW 9284292
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**11.1**	0.0273	0.187	2
06145	**Thallium**	7440-28-0	**1.56**	0.0234	0.187	2
06148	**Vanadium**	7440-62-2	**20.3**	0.0398	0.187	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**18.9**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/05/2017 10:55	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:43	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:16	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:16	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:16	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:43	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:43	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:43	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:43	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/06/2017 09:09	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:17	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:09	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:17	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:17	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:09	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR4-245-246' DUP Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

C. T. Male Associates
ELLE Sample #: SW 9284293
ELLE Group #: 1867693
Matrix: Soil

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,920**	52.0	233	5
01650	**Calcium**	7440-70-2	**452**	19.4	233	5
01654	**Iron**	7439-89-6	**49,200**	46.8	233	5
01657	**Magnesium**	7439-95-4	**2,010**	14.1	116	5
06958	**Manganese**	7439-96-5	**2,310**	0.483	5.82	5
01662	**Potassium**	7440-09-7	**1,100**	97.1	582	5
01667	Sodium	7440-23-5	97.1 U	97.1	1,160	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**80.3**	1.40	23.3	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.117 J**	0.108	0.465	2
06125	**Arsenic**	7440-38-2	**12.5**	0.149	0.931	2
06126	**Barium**	7440-39-3	**343**	0.211	0.931	2
06127	**Beryllium**	7440-41-7	**2.17**	0.0122	0.233	2
06128	**Cadmium**	7440-43-9	**0.289**	0.0400	0.233	2
06131	**Chromium**	7440-47-3	**4.77**	0.202	0.931	2
06132	**Cobalt**	7440-48-4	**22.8**	0.0363	0.233	2
06133	**Copper**	7440-50-8	**160**	0.125	0.931	2
06135	**Lead**	7439-92-1	**12.8**	0.0258	0.465	2
06139	**Nickel**	7440-02-0	**40.6**	0.232	0.931	2
06141	**Selenium**	7782-49-2	**0.406 J**	0.116	0.931	2
06142	**Silver**	7440-22-4	**0.212 J**	0.0340	0.233	2
06145	**Thallium**	7440-28-0	**1.84**	0.0291	0.233	2
06148	**Vanadium**	7440-62-2	**14.0**	0.0496	0.233	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**611**	125	374	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.01**	0.0100	0.0100	1
	The pH was measured in water at 19.7 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**18.9**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**19.3**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-245-246' DUP Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 12:50
SDG#: SNB16-02DUP

C. T. Male Associates
ELLE Sample #: SW 9284293
ELLE Group #: 1867693
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:36	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:09	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:09	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:09	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:36	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:36	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:36	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:36	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/06/2017 09:06	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:11	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:11	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:11	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:06	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17314667631A	11/13/2017 14:22	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17304039402A	10/31/2017 14:55	Jeremy L Bolf	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR4-251-252' Grab Soil
SGPP - North Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:00
SDG#: SNB16-03

C. T. Male Associates
ELLE Sample #: SW 9284294
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.61	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.61	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.61	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.61	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.61	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.61	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.61	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.61	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.61	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.61	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.61	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,000**	44.7	200	5
01650	**Calcium**	7440-70-2	**600**	16.6	200	5
01654	**Iron**	7439-89-6	**47,600**	40.2	200	5
01657	**Magnesium**	7439-95-4	**1,460**	12.1	99.9	5
06958	**Manganese**	7439-96-5	**2,370**	0.415	5.00	5
01662	**Potassium**	7440-09-7	**1,210**	83.4	500	5
01667	Sodium	7440-23-5	83.4 U	83.4	999	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**62.7**	1.20	20.0	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0931 U	0.0931	0.400	2
06125	**Arsenic**	7440-38-2	**4.53**	0.128	0.799	2
06126	**Barium**	7440-39-3	**378**	0.181	0.799	2
06127	**Beryllium**	7440-41-7	**3.40**	0.0105	0.200	2
06128	**Cadmium**	7440-43-9	**0.260**	0.0344	0.200	2
06131	**Chromium**	7440-47-3	**6.80**	0.174	0.799	2
06132	**Cobalt**	7440-48-4	**33.6**	0.0312	0.200	2
06133	**Copper**	7440-50-8	**25.5**	0.107	0.799	2
06135	**Lead**	7439-92-1	**18.5**	0.0222	0.400	2
06139	**Nickel**	7440-02-0	**29.8**	0.199	0.799	2
06141	**Selenium**	7782-49-2	**0.281 J**	0.0999	0.799	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-251-252' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:00
SDG#: SNB16-03

C. T. Male Associates
ELLE Sample #: SW 9284294
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06142	**Silver**	7440-22-4	**0.131**	**J**	0.0292	0.200	2
06145	**Thallium**	7440-28-0	**2.91**		0.0250	0.200	2
06148	**Vanadium**	7440-62-2	**8.94**		0.0426	0.200	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**233**	**J**	146	438	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.98**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**28.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/05/2017 11:36	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:49	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:24	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:24	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:24	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:49	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:49	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:49	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:49	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:29	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-251-252' Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 13:00
SDG#: SNB16-03

C. T. Male Associates
ELLE Sample #: SW 9284294
ELLE Group #: 1867693
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:16	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:29	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:29	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:16	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17314667631B	11/13/2017 14:35	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17304039402A	10/31/2017 14:55	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS16-171025 Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB16-04FD

C. T. Male Associates
ELLE Sample #: SW 9284295
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.22 U	0.22	0.65	1
14027	**Perfluorobutanoic acid**	375-22-4	**0.64 JB**	0.22	0.65	1
14027	Perfluorodecanoic acid	335-76-2	0.22 U	0.22	0.65	1
14027	Perfluorododecanoic acid	307-55-1	0.22 U	0.22	0.65	1
14027	Perfluoroheptanoic acid	375-85-9	0.22 U	0.22	0.65	1
14027	Perfluorohexanesulfonate	355-46-4	0.22 U	0.22	0.65	1
14027	**Perfluorohexanoic acid**	307-24-4	**0.15 J**	0.11	0.44	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.44	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.33 U	0.33	0.98	1
14027	Perfluorooctanoic acid	335-67-1	0.22 U	0.22	0.65	1
14027	Perfluoropentanoic acid	2706-90-3	0.22 U	0.22	0.65	1
14027	Perfluorotetradecanoic acid	376-06-7	0.22 U	0.22	0.65	1
14027	Perfluorotridecanoic acid	72629-94-8	0.22 U	0.22	0.65	1
14027	Perfluoroundecanoic acid	2058-94-8	0.22 U	0.22	0.65	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for C5-PFHxA is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,600**	47.4	212	5
01650	**Calcium**	7440-70-2	**566**	17.7	212	5
01654	**Iron**	7439-89-6	**42,300**	42.7	212	5
01657	**Magnesium**	7439-95-4	**1,670**	12.9	106	5
06958	**Manganese**	7439-96-5	**2,950**	0.440	5.30	5
01662	**Potassium**	7440-09-7	**1,370**	88.5	530	5
01667	Sodium	7440-23-5	88.5 U	88.5	1,060	5
	Reporting limits were raised for metals due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**57.7**	1.27	21.2	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0988 U	0.0988	0.424	2
06125	**Arsenic**	7440-38-2	**3.78**	0.136	0.848	2
06126	**Barium**	7440-39-3	**637**	0.193	0.848	2
06127	**Beryllium**	7440-41-7	**4.12**	0.0111	0.212	2
06128	**Cadmium**	7440-43-9	**0.285**	0.0365	0.212	2
06131	**Chromium**	7440-47-3	**7.71**	0.185	0.848	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS16-171025 Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB16-04FD

C. T. Male Associates
ELLE Sample #: SW 9284295
ELLE Group #: 1867693
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06132	**Cobalt**	7440-48-4	**52.8**	0.0331	0.212	2
06133	**Copper**	7440-50-8	**23.7**	0.114	0.848	2
06135	**Lead**	7439-92-1	**23.2**	0.0235	0.424	2
06139	**Nickel**	7440-02-0	**30.2**	0.211	0.848	2
06141	**Selenium**	7782-49-2	**0.273 J**	0.106	0.848	2
06142	**Silver**	7440-22-4	**0.189 J**	0.0310	0.212	2
06145	**Thallium**	7440-28-0	**3.52**	0.0265	0.212	2
06148	**Vanadium**	7440-62-2	**9.42**	0.0452	0.212	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**235 J**	124	373	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.97**	0.0100	0.0100	1
	The pH was measured in water at 19.6 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.0**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17305005	11/03/2017 14:23	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17305005	11/01/2017 18:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173031063703	11/03/2017 20:52	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173031063703	11/04/2017 12:28	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173031063703	11/04/2017 12:28	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173031063703	11/04/2017 12:28	Eric L Eby	5
06958	Manganese	SW-846 6010C	1	173031063703	11/03/2017 20:52	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173031063703	11/03/2017 20:52	Elaine F Stoltzfus	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS16-171025 Grab Soil**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB16-04FD

C. T. Male Associates
ELLE Sample #: SW 9284295
ELLE Group #: 1867693
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01667	Sodium	SW-846 6010C	1	173031063703	11/03/2017 20:52	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173031063703	11/03/2017 20:52	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173031063703D	11/03/2017 12:32	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173031063703A	11/06/2017 09:18	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173031063703B	11/03/2017 12:32	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173031063703A	11/03/2017 12:32	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173031063703A	11/06/2017 09:18	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173031063703	10/31/2017 06:40	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17314667631B	11/13/2017 14:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17304039402A	10/31/2017 14:55	Jeremy L Bolf	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17303820003A	10/31/2017 00:28	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AfterPOETD-171025 Grab Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 15:15
SDG#: SNB16-05

C. T. Male Associates
ELLE Sample #: GW 9284296
ELLE Group #: 1867693
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 03:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FBS17-171025 Grab Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 14:20
SDG#: SNB16-06FB

C. T. Male Associates
ELLE Sample #: WW 9284297
ELLE Group #: 1867693
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 04:06	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017
SDG#: SNB16-07TB

C. T. Male Associates
ELLE Sample #: WW 9284298
ELLE Group #: 1867693
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 04:26	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Pump300-171025 Grab Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/26/2017 09:35
Collection Date/Time: 10/25/2017 16:00
SDG#: SNB16-08

C. T. Male Associates
ELLE Sample #: GW 9284299
ELLE Group #: 1867693
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 04:47	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

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Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17305005	Sample number(s): 9284290-9284292,9284294-9284295		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.21 J	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17302007	Sample number(s): 9284289,9284296-9284299		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 173031063703	Sample number(s): 9284290-9284295		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

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Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Aluminum	8.94 U	8.94	40.0
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.240 U	0.240	4.00
Batch number: 173031063703A	Sample number(s): 9284290-9284295		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 173031063703B	Sample number(s): 9284290-9284295		
Selenium	0.100 U	0.100	0.800
Batch number: 173031063703D	Sample number(s): 9284290-9284295		
Barium	0.182 U	0.182	0.800
Batch number: 17314667631A	Sample number(s): 9284290-9284291,9284293		
TOC	100 U	100	300
Batch number: 17314667631B	Sample number(s): 9284294-9284295		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17305005	Sample number(s): 9284290-9284292,9284294-9284295								
Perfluorobutanesulfonate	1.20	1.40			117		70-130		
Perfluorobutanoic acid	1.36	1.69			124		70-130		
Perfluorodecanoic acid	1.36	1.57			116		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
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LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorododecanoic acid	1.36	1.71			126		70-130		
Perfluoroheptanoic acid	1.36	1.59			117		70-130		
Perfluorohexanesulfonate	1.29	1.50			116		70-130		
Perfluorohexanoic acid	1.36	1.76			130		70-130		
Perfluorononanoic acid	1.36	1.55			114		70-130		
Perfluoro-octanesulfonate	1.30	1.68			129		70-130		
Perfluorooctanoic acid	1.36	1.29			95		70-130		
Perfluoropentanoic acid	1.36	1.47			108		70-130		
Perfluorotetradecanoic acid	1.36	1.67			123		70-130		
Perfluorotridecanoic acid	1.36	2.18			160*		70-130		
Perfluoroundecanoic acid	1.36	1.46			108		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17302007	Sample number(s): 9284289,9284296-9284299								
6:2 fluorotelomersulfonate	15.17	19.22			127		70-130		
8:2 fluorotelomersulfonate	15.33	18.11			118		70-130		
NEtFOSAA	5.44	8.73			160*		70-130		
NMeFOSAA	5.44	9.32			171*		70-130		
Perfluorobutanesulfonate	4.81	5.49			114		70-130		
Perfluorobutanoic acid	5.44	6.46			119		70-130		
Perfluorodecanoic acid	5.44	6.62			122		70-130		
Perfluorododecanoic acid	5.44	6.77			124		70-130		
Perfluoroheptanoic acid	5.44	6.23			114		70-130		
Perfluorohexanesulfonate	5.14	5.47			106		70-130		
Perfluorohexanoic acid	5.44	5.83			107		70-130		
Perfluorononanoic acid	5.44	5.64			104		70-130		
Perfluorooctanesulfonamide	5.44	7.97			146*		70-130		
Perfluoro-octanesulfonate	5.20	5.40			104		70-130		
Perfluorooctanoic acid	5.44	5.28			97		70-130		
Perfluoropentanoic acid	5.44	6.42			118		70-130		
Perfluorotetradecanoic acid	5.44	6.28			115		70-130		
Perfluorotridecanoic acid	5.44	6.90			127		70-130		
Perfluoroundecanoic acid	5.44	6.02			111		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173031063703	Sample number(s): 9284290-9284295								
Aluminum	200	194.75			97		80-120		
Calcium	400	400.02			100		80-120		
Iron	100	98.33			98		80-120		
Magnesium	200	202.05			101		80-120		
Manganese	50	51.8			104		80-120		
Potassium	1000	1002.04			100		80-120		
Sodium	1000	978.96			98		80-120		
Zinc	50	50.04			100		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

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LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 173031063703A	Sample number(s): 9284290-9284295								
Antimony	0.600	0.663			111		80-120		
Arsenic	1.00	1.00			100		80-120		
Beryllium	0.400	0.415			104		80-120		
Cadmium	0.500	0.552			110		80-120		
Chromium	5.00	5.03			101		80-120		
Cobalt	25	25.27			101		80-120		
Copper	5.00	5.47			109		80-120		
Lead	1.50	1.49			99		80-120		
Nickel	5.00	5.38			108		80-120		
Silver	5.00	5.02			100		80-120		
Thallium	0.200	0.174			87		80-120		
Vanadium	5.00	5.37			107		80-120		
Batch number: 173031063703B	Sample number(s): 9284290-9284295								
Selenium	1.00	1.07			107		80-120		
Batch number: 173031063703D	Sample number(s): 9284290-9284295								
Barium	5.00	5.36			107		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17314667631A	Sample number(s): 9284290-9284291,9284293								
TOC	7150	7589.35			106		47-143		
Batch number: 17314667631B	Sample number(s): 9284294-9284295								
TOC	7150	7589.35			106		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17304039402A	Sample number(s): 9284290,9284293-9284295								
pH	7.00	6.96			99		95-105		
	%	**%**	**%**	**%**					
Batch number: 17303820003A	Sample number(s): 9284290-9284295								
Moisture	89.5	89.38			100		99-101		
Moisture	89.5	89.38			100		99-101		
Moisture Duplicate	89.5	89.38			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17305005	Sample number(s): 9284290-9284292,9284294-9284295 UNSPK: 9284290									
Perfluorobutanesulfonate	0.16 U	0.993	1.04	1.11	1.31	105	118	70-130	23	30
Perfluorobutanoic acid	0.514	1.12	1.38	1.26	1.43	77	73	70-130	4	30
Perfluorodecanoic acid	0.16 U	1.12	1.44	1.26	1.47	128	117	70-130	2	30
Perfluorododecanoic acid	0.16 U	1.12	1.35	1.26	1.57	120	124	70-130	15	30
Perfluoroheptanoic acid	0.16 U	1.12	1.47	1.26	1.45	130	115	70-130	1	30
Perfluorohexanesulfonate	0.16 U	1.06	1.30	1.19	1.23	122	103	70-130	5	30
Perfluorohexanoic acid	0.079 U	1.12	1.36	1.26	1.43	121	113	70-130	5	30
Perfluorononanoic acid	0.079 U	1.12	1.08	1.26	1.20	96	95	70-130	10	30
Perfluoro-octanesulfonate	0.24 U	1.07	1.31	1.20	1.22	122	101	70-130	8	30
Perfluorooctanoic acid	0.16 U	1.12	1.31	1.26	1.45	117	115	70-130	10	30
Perfluoropentanoic acid	0.16 U	1.12	1.24	1.26	1.51	110	120	70-130	20	30
Perfluorotetradecanoic acid	0.16 U	1.12	1.34	1.26	1.58	119	126	70-130	17	30
Perfluorotridecanoic acid	0.16 U	1.12	1.42	1.26	1.69	126	134*	70-130	18	30
Perfluoroundecanoic acid	0.16 U	1.12	1.18	1.26	1.30	105	104	70-130	10	30
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 17302007	Sample number(s): 9284289,9284296-9284299 UNSPK: P283924									
6:2 fluorotelomersulfonate	7 U	37.15	40.74	36.89	47.98	110	130	70-130	16	30
8:2 fluorotelomersulfonate	5 U	37.54	38.28	37.28	46.36	102	124	70-130	19	30
NEtFOSAA	1 U	13.32	22.85	13.23	19.53	171*	148*	70-130	16	30
NMeFOSAA	1 U	13.32	22.79	13.23	22.43	171*	170*	70-130	2	30
Perfluorobutanesulfonate	0.7 U	11.79	13.82	11.7	13.63	117	116	70-130	1	30
Perfluorobutanoic acid	5 U	13.32	18.03	13.23	17.95	135*	136*	70-130	0	30
Perfluorodecanoic acid	1 U	13.32	15.88	13.23	15.87	119	120	70-130	0	30
Perfluorododecanoic acid	0.7 U	13.32	15.48	13.23	15.25	116	115	70-130	2	30
Perfluoroheptanoic acid	1.61	13.32	17.65	13.23	16.32	120	111	70-130	8	30
Perfluorohexanesulfonate	1 U	12.6	13.12	12.51	14.12	104	113	70-130	7	30
Perfluorohexanoic acid	2.96	13.32	18.42	13.23	18.11	116	115	70-130	2	30
Perfluorononanoic acid	0.7 U	13.32	14.09	13.23	13.54	106	102	70-130	4	30
Perfluorooctanesulfonamide	0.7 U	13.32	19.48	13.23	19.26	146*	146*	70-130	1	30
Perfluoro-octanesulfonate	2 U	12.74	13.84	12.65	15.4	109	122	70-130	11	30
Perfluorooctanoic acid	7.68	13.32	24.65	13.23	25.63	127	136*	70-130	4	30
Perfluoropentanoic acid	1.96	13.32	16	13.23	17.65	105	119	70-130	10	30
Perfluorotetradecanoic acid	0.7 U	13.32	14.94	13.23	14.85	112	112	70-130	1	30
Perfluorotridecanoic acid	0.7 U	13.32	16.18	13.23	15.24	121	115	70-130	6	30
Perfluoroundecanoic acid	1 U	13.32	14.73	13.23	14.49	111	109	70-130	2	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 173031063703	Sample number(s): 9284290-9284295 UNSPK: 9284290									
Aluminum	15067.54	188.68	14669.81	151.52	16232.53	-211 (2)	769 (2)	75-125	10	20
Calcium	461.96	377.36	673.55	303.03	654.4	56*	64*	75-125	3	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Iron	35122.95	94.34	32285.8	75.76	33464.15	-3007 (2)	-2190 (2)	75-125	4	20
Magnesium	2786.59	188.68	1944.33	151.52	2429.64	-446 (2)	-236 (2)	75-125	22*	20
Manganese	1143.75	47.17	1150.73	37.88	1170.52	15 (2)	71 (2)	75-125	2	20
Potassium	1760.41	943.4	1997	757.58	2169.5	25*	54*	75-125	8	20
Sodium	74.6 U	943.4	801.31	757.58	643.75	85	85	75-125	22*	20
Zinc	55.4	47.17	91.3	37.88	85.45	76	79	75-125	7	20
Batch number: 173031063703A	Sample number(s): 9284290-9284295 UNSPK: 9284290									
Antimony	0.0836	1.13	0.703	0.909	0.496	55*	45*	75-125	35*	20
Arsenic	8.85	1.89	12.52	1.52	11.16	194 (2)	152 (2)	75-125	12	20
Beryllium	1.84	0.755	2.55	0.606	2.09	94	42*	75-125	20	20
Cadmium	0.211	0.943	1.14	0.758	1.02	99	106	75-125	12	20
Chromium	5.01	9.43	13.63	7.58	11.96	91	92	75-125	13	20
Cobalt	14.74	47.17	74.34	37.88	61.08	126*	122	75-125	20	20
Copper	103.81	9.43	140.07	7.58	111.95	384 (2)	107 (2)	75-125	22*	20
Lead	7.24	2.83	13.84	2.27	10.97	233*	164*	75-125	23*	20
Nickel	27.92	9.43	45.68	7.58	35.7	188*	103	75-125	25*	20
Silver	0.149	9.43	10.93	7.58	8.97	114	116	75-125	20	20
Thallium	0.845	0.377	1.51	0.303	1.27	176*	139*	75-125	17	20
Vanadium	11.49	9.43	19.83	7.58	16.48	88	66*	75-125	18	20
Batch number: 173031063703B	Sample number(s): 9284290-9284295 UNSPK: 9284290									
Selenium	0.268	1.89	2.37	1.52	1.99	111	113	75-125	18	20
Batch number: 173031063703D	Sample number(s): 9284290-9284295 UNSPK: 9284290									
Barium	138.4	9.43	219.58	7.58	173.96	861 (2)	469 (2)	75-125	23*	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17314667631A	Sample number(s): 9284290-9284291,9284293 UNSPK: 9284290									
TOC	482.5	17682	21455.73			119		47-143		
Batch number: 17314667631B	Sample number(s): 9284294-9284295 UNSPK: P283949									
TOC	22236.77	34830	71126.6			140		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 173031063703	Sample number(s): 9284290-9284295 BKG: 9284290			

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Aluminum	15067.54	8044.23	61*	20
Calcium	461.96	366.54	23* (1)	20
Iron	35122.95	39909.3	13	20
Magnesium	2786.59	1631.82	52*	20
Manganese	1143.75	1877.15	49*	20
Potassium	1760.41	890.64	66* (1)	20
Sodium	74.6 U	78.8 U	0 (1)	20
Zinc	55.4	65.15	16 (1)	20
Batch number: 173031063703A	Sample number(s): 9284290-9284295 BKG: 9284290			
Antimony	0.0836	0.0948	13 (1)	20
Arsenic	8.85	10.1	13	20
Beryllium	1.84	1.76	4	20
Cadmium	0.211	0.234	10 (1)	20
Chromium	5.01	3.87	26*	20
Cobalt	14.74	18.46	22*	20
Copper	103.81	129.94	22*	20
Lead	7.24	10.42	36*	20
Nickel	27.92	32.96	17	20
Silver	0.149	0.172	14 (1)	20
Thallium	0.845	1.49	56* (1)	20
Vanadium	11.49	11.32	1	20
Batch number: 173031063703B	Sample number(s): 9284290-9284295 BKG: 9284290			
Selenium	0.268	0.329	21* (1)	20
Batch number: 173031063703D	Sample number(s): 9284290-9284295 BKG: 9284290			
Barium	138.4	277.91	67*	20
	mg/kg	mg/kg		
Batch number: 17314667631A	Sample number(s): 9284290-9284291,9284293 BKG: 9284290			
TOC	482.5	495.7	3 (1)	7
Batch number: 17314667631B	Sample number(s): 9284294-9284295 BKG: P283949			
TOC	22236.77	23963.96	7	7
	Std. Units	Std. Units		
Batch number: 17304039402A	Sample number(s): 9284290,9284293-9284295 BKG: 9284290			
pH	8.02	8.01	0	3
	%	%		
Batch number: 17303820003A	Sample number(s): 9284290-9284295 BKG: 9284290, P284290			
Moisture	18.92	19.28	2	5
Moisture	18.92	19.28	2	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Moisture Duplicate	18.92	19.28	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9284289	81	75	72	85	85	84
9284296	83	72	77	81	81	84
9284297	80	74	76	94	78	81
9284298	76	67	69	82	78	71
9284299	97	96	94	107	101	99
Blank	79	73	72	83	82	78
LCS	80	72	69	82	77	74
MS	80	82	71	88	89	86
MSD	79	76	77	82	77	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9284289	85	83	80	87	69	56
9284296	68	83	78	78	73	70
9284297	68	83	80	78	81	68
9284298	82	74	78	71	65	65
9284299	84	94	99	99	97	82
Blank	63	81	68	65	90	76
LCS	66	82	83	79	79	68
MS	83	83	78	80	87	79
MSD	67	79	75	81	76	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9284289	73	77	86	81	83	21*
9284296	67	70	76	70	78	43*
9284297	77	72	88	83	83	20*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9284298	62	67	72	78	75	39*
9284299	96	100	115	106	108	49*
Blank	78	84	102	91	95	42*
LCS	75	81	94	83	86	34*
MS	85	92	98	101	106	29*
MSD	76	89	96	92	90	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17305005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9284290	43	42*	66	47	65	45
9284291	42	41*	55	36*	57	39*
9284292	42	36*	56	39*	73	44*
9284294	46	44*	60	47	63	49
9284295	45	42*	58	42*	69	51
Blank	79	79	78	75	79	84
LCS	85	81	79	79	95	90
MS	42	41*	55	36*	57	39*
MSD	42	36*	56	39*	73	44*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9284290	45	65	53	45	51	47
9284291	39*	61	37	40	41	45
9284292	45	64	41	40	50	45
9284294	47	70	47	47	56	53
9284295	50	69	48	48	54	52
Blank	72	66	69	81	83	84
LCS	86	81	78	88	94	89
MS	39*	61	37	40	41	45
MSD	45	64	41	40	50	45
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 09:12

Group Number: 1867693

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17305005

	13C2-PFTeDA
9284290	49
9284291	44
9284292	48
9284294	55
9284295	51
Blank	84
LCS	92
MS	44
MSD	48
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1867693 / 9284289-99 *SAMPLES SPLIT INTO TWO COOLERS*

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☐ MN ☐ SD

COC Number: 52328

COC 1 of 1

REPORT TO	INVOICE TO
Company: BARR ENG. CO.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Road
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Field Blank	250ml Trip Blank	250ml poly Trizma pres PFCs (9)	250ml Trizma Trip Blanks	Soil: 250ml poly - PFCs (4)	4oz. 4s - TOC, pH, metals, moist.	% Solids
									A	A	O	O	A	A	
									N	N	N	N	1	1	
1. SG3-FBS16-171025	—	—	—	10/25/2017	1240	W	N	2	2						
2. SG3-MW-BR4-245-246'	245	246	ft.	10/25/2017	1250	S	Y	6					3	3	
3. SG3-MW-BR4-251-252'	251	252	ft.	10/25/2017	1300	S	N	2					1	1	
4. SG3-FDS16-171025	—	—	—	10/25/2017	—	S	N	2					1	1	
5. SG3-LTB95-171025	—	—	—	10/25/2017	PM	W	N	2		2					
6. SG3-LTB96-171025	—	—	—	10/25/2017	PM	W	N	2		2					
7. SG3-AfterPOETD-171025	—	—	—	10/25/2017	1515	W	N	2			2				
8. SG3-FBS17-171025	—	—	—	10/25/2017	1420	W	N	2	2						
9. Trip Blanks	—	—	—	—	—	W						2			
10. SG3-Pump300-171025	—	—	—	10/25/2017	1600	W	N	2	2						

Preservative Code

Field Filtered Y/N

2 DAY TAT *

BARR USE ONLY	
Sampled by:	RQM
Barr Proj. Manager:	JTL
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

	On Ice?	Date	Time		Date	Time
Relinquished by:	(Y) N	10/25/2017	17:00	Received by:		
Relinquished by:	Y N	Date	Time	Received by:	Date 10.26.17	Time 935

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.6-1.8 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 198866

Group Number(s): 1867693

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/26/2017 9:35
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	Yes		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved 250mL plastic

Unpacked by Timothy Cubberley (6520) at 10:22 on 10/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N
2	DT131	1.6	DT	Wet	Y	Bagged	N

Missing Sample Details

Sample ID on COC	Comments
SG3-LTB9S-171025	
SG3-LTB96-171025	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 14:23

Project: SGPP - Bennington

Account #: 37191
Group Number: 1868251
SDG: SNB17
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-171026 Blank Water	10/26/2017	9287013
SG3-FTB01-171026 Grab Blank Water	10/26/2017 15:30	9287014
SG3-D11-171026 Grab Groundwater	10/26/2017 14:15	9287015
SG3-FD01-171026 Grab Groundwater	10/26/2017	9287016

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1868251

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9287015, 9287016

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Batch #: L173071AA (Sample number(s): 9287015-9287016 UNSPK: P291805)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Methylcyclohexane, trans-1,2-Dichloroethene

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9287015, 9287016

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the target analytes were detected again in the method blank. THere is insufficient sample to re-extract again.
The client was contact and the data is reported from the initial trial.

Batch #: 17303WAE026 (Sample number(s): 9287015-9287016)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9287015, 9287016, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9287013, 9287014, 9287015, 9287016

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17302007 (Sample number(s): 9287013-9287016 UNSPK: P283924)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorobutanoic acid, NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9287013, 9287014, 9287015, 9287016, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 173051063502 (Sample number(s): 9287015-9287016 UNSPK: P291231 BKG: P291231)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium

SW-846 6020A, Metals

Batch #: 173051063902A (Sample number(s): 9287015-9287016 UNSPK: P285342 BKG: P285342)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

EPA 300.0, Wet Chemistry

Batch #: 17300987113B (Sample number(s): 9287015-9287016 UNSPK: 9287015 BKG: 9287015)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Nitrate Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 17314107101B (Sample number(s): 9287015-9287016 UNSPK: P283321 BKG: P283321)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17303008204A (Sample number(s): 9287015 UNSPK: P281959 BKG: P281813, P281959)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

REVISED

Sample Description: **SG3-LTB01-171026 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-01TB

C. T. Male Associates
ELLE Sample #: WW 9287013
ELLE Group #: 1868251
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 05:08	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171026 Grab Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 15:30
SDG#: SNB17-02TB

C. T. Male Associates
ELLE Sample #: WW 9287014
ELLE Group #: 1868251
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 05:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D11-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 14:15
SDG#: SNB17-03

C. T. Male Associates
ELLE Sample #: GW 9287015
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D11-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 14:15
SDG#: SNB17-03

C. T. Male Associates
ELLE Sample #: GW 9287015
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.16 J**	0.050	0.20	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the target analytes were detected again in the method blank. THere is insufficient sample to re-extract again.
The client was contact and the data is reported from the initial trial.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	7 U	7	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5 U	5	10	1
14473	NEtFOSAA	2991-50-6	1 U	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**1 J**	0.7	2	1
14473	**Perfluorobutanoic acid**	375-22-4	**10 J**	5	10	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	5	1
14473	Perfluorododecanoic acid	307-55-1	0.7 U	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**20**	0.7	2	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2 J**	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**18**	0.7	2	1
14473	**Perfluorononanoic acid**	375-95-1	**1 J**	0.7	2	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D11-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 14:15
SDG#: SNB17-03

C. T. Male Associates
ELLE Sample #: GW 9287015
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorooctanesulfonamide	754-91-6	0.7 U	0.7	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	2 U	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**120**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**14**	0.7	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.7 U	0.7	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.7 U	0.7	2	1
14473	Perfluoroundecanoic acid	2058-94-8	1 U	1	5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.810**	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**56.2**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**2.99**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**22.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.76**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.92**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.61 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0162 J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0059**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0888**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00045 J**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00020 J**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0039 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0114**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0073**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0022**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0129**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00032 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0014**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00013 J**	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D11-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 14:15
SDG#: SNB17-03

C. T. Male Associates
ELLE Sample #: GW 9287015
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.6 J**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**6.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**244**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**244**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.19**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173071AA	11/03/2017 20:55	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173071AA	11/03/2017 20:55	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17303WAE026	11/06/2017 10:19	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17303WAE026	10/30/2017 16:30	Ryan J Dowdy	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 05:49	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D11-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017 14:15
SDG#: SNB17-03

C. T. Male Associates
ELLE Sample #: GW 9287015
ELLE Group #: 1868251
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173051063502	11/02/2017 16:23	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173051063902D	11/07/2017 01:32	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173051063902A	11/07/2017 07:34	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	173051063902B	11/07/2017 01:32	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173051063902A	11/07/2017 01:32	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173051063902A	11/07/2017 07:34	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	173030571302	10/31/2017 08:19	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173051063502	11/01/2017 18:04	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173051063902	11/02/2017 06:17	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173030571302	10/31/2017 01:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17300987113B	10/28/2017 11:09	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17300987113B	10/28/2017 11:09	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17300987113B	10/28/2017 11:09	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17300987113B	10/28/2017 11:09	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17300987113B	10/28/2017 11:09	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17314107101B	11/10/2017 18:49	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17307108101B	11/06/2017 18:57	Samuel J Weaver	1
08255	Total Cyanide	SW-846 9012A	1	17307117101B	11/07/2017 11:56	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17307108101B	11/03/2017 16:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17307117101B	11/03/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17303008204A	10/31/2017 05:00	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17303008204A	10/31/2017 05:00	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17303008204A	10/31/2017 05:00	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17301022602A	10/28/2017 05:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FD01-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-04FD

C. T. Male Associates
ELLE Sample #: GW 9287016
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FD01-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-04FD

C. T. Male Associates
ELLE Sample #: GW 9287016
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.16 J**	0.051	0.20	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the target analytes were detected again in the method blank. THere is insufficient sample to re-extract again.
The client was contact and the data is reported from the initial trial.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	7 U	7	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5 U	5	10	1
14473	NEtFOSAA	2991-50-6	1 U	1	5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**1 J**	0.7	2	1
14473	**Perfluorobutanoic acid**	375-22-4	**10 J**	5	10	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	5	1
14473	Perfluorododecanoic acid	307-55-1	0.7 U	0.7	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**20**	0.7	2	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2 J**	1	5	1
14473	**Perfluorohexanoic acid**	307-24-4	**18**	0.7	2	1
14473	**Perfluorononanoic acid**	375-95-1	**1 J**	0.7	2	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FD01-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-04FD

C. T. Male Associates
ELLE Sample #: GW 9287016
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorooctanesulfonamide	754-91-6	0.7 U	0.7	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	2 U	2	7	1
14473	**Perfluorooctanoic acid**	335-67-1	**130**	0.7	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**13**	0.7	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.7 U	0.7	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.7 U	0.7	2	1
14473	Perfluoroundecanoic acid	2058-94-8	1 U	1	5	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.509**	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**56.3**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.76**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**22.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.65**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.68**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.58 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0097 J**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0030 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0677**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00025 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0032 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0084**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0038 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0011 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0098**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00024 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00069 J**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00014 J**	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FD01-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-04FD

C. T. Male Associates
ELLE Sample #: GW 9287016
ELLE Group #: 1868251
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.5 J**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**6.2**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**243**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**243**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173071AA	11/03/2017 21:17	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173071AA	11/03/2017 21:17	Linda C Pape	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17303WAE026	11/06/2017 10:33	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17303WAE026	10/30/2017 16:30	Ryan J Dowdy	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 06:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FD01-171026 Grab Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/27/2017 09:45
Collection Date/Time: 10/26/2017
SDG#: SNB17-04FD

C. T. Male Associates
ELLE Sample #: GW 9287016
ELLE Group #: 1868251
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173051063502	11/02/2017 16:27	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173051063902D	11/07/2017 01:41	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173051063902A	11/07/2017 07:35	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	173051063902B	11/07/2017 01:41	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173051063902A	11/07/2017 01:41	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173051063902A	11/07/2017 07:35	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	173030571302	10/31/2017 08:21	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173051063502	11/01/2017 18:04	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173051063902	11/02/2017 06:17	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173030571302	10/31/2017 01:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17300987113B	10/28/2017 13:18	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17300987113B	10/28/2017 13:18	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17300987113B	10/28/2017 13:18	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17300987113B	10/28/2017 13:18	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17300987113B	10/28/2017 13:18	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17314107101B	11/10/2017 18:43	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17307108101B	11/06/2017 18:59	Samuel J Weaver	1
08255	Total Cyanide	SW-846 9012A	1	17310117101A	11/07/2017 12:04	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17307108101B	11/03/2017 16:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17310117101A	11/06/2017 09:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17303008203A	10/31/2017 00:58	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17303008203A	10/31/2017 00:58	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17303008203A	10/31/2017 00:58	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17301022602A	10/28/2017 05:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L173071AA	Sample number(s): 9287015-9287016		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17303WAE026	Sample number(s): 9287015-9287016		
1,4-Dioxane	0.071 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17302007	Sample number(s): 9287013-9287016		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173030571302	Sample number(s): 9287015-9287016		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173051063502	Sample number(s): 9287015-9287016		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173051063902A	Sample number(s): 9287015-9287016		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0014 J	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173051063902B	Sample number(s): 9287015-9287016		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173051063902D	Sample number(s): 9287015-9287016		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17300987113B	Sample number(s): 9287015-9287016		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17307108101B	Sample number(s): 9287015-9287016		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17307117101B	Sample number(s): 9287015		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17310117101A	Sample number(s): 9287016		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17314107101B	Sample number(s): 9287015-9287016		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17301022602A	Sample number(s): 9287015-9287016		
Ortho-Phosphate as P	0.030 U	0.030	0.090

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Method Blank (continued)

Analysis Name	Result mg/l as CaCO3	MDL** mg/l as CaCO3	LOQ mg/l as CaCO3
Batch number: 17303008203A	Sample number(s): 9287016		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17303008204A	Sample number(s): 9287015		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L173071AA	Sample number(s): 9287015-9287016								
Acetone	150	175.31			117		44-177		
Benzene	20	19.59			98		78-120		
Bromochloromethane	20	19.27			96		80-125		
Bromodichloromethane	20	18.03			90		71-120		
Bromoform	20	15.61			78		59-120		
Bromomethane	20	20.91			105		44-139		
2-Butanone	150	130.44			87		53-140		
Carbon Disulfide	20	17.27			86		65-128		
Carbon Tetrachloride	20	17.44			87		68-128		
Chlorobenzene	20	19.5			97		80-120		
Chloroethane	20	23.91			120		52-127		
Chloroform	20	19.4			97		80-120		
Chloromethane	20	19.9			99		57-120		
Cyclohexane	20	17.37			87		67-121		
1,2-Dibromo-3-chloropropane	20	16.43			82		64-120		
Dibromochloromethane	20	17.69			88		71-120		
1,2-Dibromoethane	20	18.95			95		75-120		
1,2-Dichlorobenzene	20	18.84			94		80-120		
1,3-Dichlorobenzene	20	18.69			93		80-120		
1,4-Dichlorobenzene	20	19.43			97		80-120		
Dichlorodifluoromethane	20	20.06			100		47-124		
1,1-Dichloroethane	20	18.07			90		80-120		
1,2-Dichloroethane	20	18.45			92		73-124		
1,1-Dichloroethene	20	19.46			97		76-124		
cis-1,2-Dichloroethene	20	19.41			97		80-120		
trans-1,2-Dichloroethene	20	19.47			97		80-120		
1,2-Dichloropropane	20	19.4			97		80-120		
cis-1,3-Dichloropropene	20	17.44			87		75-120		
trans-1,3-Dichloropropene	20	16.76			84		76-120		
Ethylbenzene	20	19.49			97		78-120		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Freon 113	20	19.53			98		68-137		
2-Hexanone	100	88.42			88		60-134		
Isopropylbenzene	20	19.38			97		80-120		
Methyl Acetate	20	17.35			87		61-137		
Methyl Tertiary Butyl Ether	20	17.62			88		75-120		
4-Methyl-2-pentanone	100	91.95			92		67-128		
Methylcyclohexane	20	19.6			98		66-126		
Methylene Chloride	20	18.93			95		80-120		
Styrene	20	19.05			95		80-120		
1,1,2,2-Tetrachloroethane	20	19.87			99		72-120		
Tetrachloroethene	20	18.46			92		80-129		
Toluene	20	19.4			97		80-120		
1,2,3-Trichlorobenzene	20	17.07			85		66-120		
1,2,4-Trichlorobenzene	20	16.32			82		70-120		
1,1,1-Trichloroethane	20	17.31			87		67-120		
1,1,2-Trichloroethane	20	19.57			98		80-120		
Trichloroethene	20	19.06			95		80-120		
Trichlorofluoromethane	20	24.36			122		52-143		
Vinyl Chloride	20	20.9			104		63-121		
m+p-Xylene	40	39.11			98		80-120		
o-Xylene	20	18.68			93		80-120		
Xylene (Total)	60	57.8			96		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17303WAE026	Sample number(s): 9287015-9287016								
1,4-Dioxane	1.00	1.20	1.00	1.19	120	119	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17302007	Sample number(s): 9287013-9287016								
6:2 fluorotelomersulfonate	15.17	19.22			127		70-130		
8:2 fluorotelomersulfonate	15.33	18.11			118		70-130		
NEtFOSAA	5.44	8.73			160*		70-130		
NMeFOSAA	5.44	9.32			171*		70-130		
Perfluorobutanesulfonate	4.81	5.49			114		70-130		
Perfluorobutanoic acid	5.44	6.46			119		70-130		
Perfluorodecanoic acid	5.44	6.62			122		70-130		
Perfluorododecanoic acid	5.44	6.77			124		70-130		
Perfluoroheptanoic acid	5.44	6.23			114		70-130		
Perfluorohexanesulfonate	5.14	5.47			106		70-130		
Perfluorohexanoic acid	5.44	5.83			107		70-130		
Perfluorononanoic acid	5.44	5.64			104		70-130		
Perfluorooctanesulfonamide	5.44	7.97			146*		70-130		
Perfluoro-octanesulfonate	5.20	5.40			104		70-130		
Perfluorooctanoic acid	5.44	5.28			97		70-130		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoropentanoic acid	5.44	6.42			118		70-130		
Perfluorotetradecanoic acid	5.44	6.28			115		70-130		
Perfluorotridecanoic acid	5.44	6.90			127		70-130		
Perfluoroundecanoic acid	5.44	6.02			111		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173030571302	Sample number(s): 9287015-9287016								
Mercury	0.00100	0.00101			101		80-120		
Batch number: 173051063502	Sample number(s): 9287015-9287016								
Aluminum	2.00	1.93			96		80-120		
Boron	2.00	1.79			89		80-120		
Calcium	4.00	3.88			97		80-120		
Iron	1.00	0.958			96		80-120		
Magnesium	2.00	1.93			97		80-120		
Manganese	0.500	0.502			100		80-120		
Potassium	10	9.84			98		80-120		
Sodium	10	9.54			95		80-120		
Zinc	0.500	0.496			99		80-120		
Batch number: 173051063902A	Sample number(s): 9287015-9287016								
Antimony	0.00600	0.00611			102		80-120		
Arsenic	0.0100	0.0106			106		80-120		
Beryllium	0.00400	0.00415			104		80-120		
Cadmium	0.00500	0.00522			104		80-120		
Chromium	0.0500	0.0506			101		80-120		
Cobalt	0.250	0.262			105		80-120		
Copper	0.0500	0.0559			112		80-120		
Lead	0.0150	0.0154			103		80-120		
Nickel	0.0500	0.0543			109		80-120		
Silver	0.0500	0.0529			106		80-120		
Thallium	0.00200	0.00206			103		80-120		
Vanadium	0.0500	0.0536			107		80-120		
Batch number: 173051063902B	Sample number(s): 9287015-9287016								
Selenium	0.0100	0.0102			102		80-120		
Batch number: 173051063902D	Sample number(s): 9287015-9287016								
Barium	0.0500	0.0547			109		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17300987113B	Sample number(s): 9287015-9287016								
Bromide	7.50	7.02	7.50	7.02	94	94	90-110	0	20
Chloride	3.00	2.75	3.00	2.76	92	92	90-110	0	20
Nitrate Nitrogen	0.750	0.731	0.750	0.731	98	97	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nitrite Nitrogen	0.750	0.731	0.750	0.734	98	98	90-110	0	20
Sulfate	7.50	7.32	7.50	7.32	98	98	90-110	0	20
Batch number: 17307108101B	Sample number(s): 9287015-9287016								
Kjeldahl Nitrogen	5.00	4.89			98		90-110		
Batch number: 17307117101B	Sample number(s): 9287015								
Total Cyanide	0.200	0.205			103		90-110		
Batch number: 17310117101A	Sample number(s): 9287016								
Total Cyanide	0.200	0.193			97		90-110		
Batch number: 17314107101B	Sample number(s): 9287015-9287016								
Ammonia Nitrogen	1.50	1.45			97		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17301022602A	Sample number(s): 9287015-9287016								
Ortho-Phosphate as P	0.400	0.403			101		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17303008203A	Sample number(s): 9287016								
Total Alkalinity to pH 4.5	188	186.71			99		77-114		
Batch number: 17303008204A	Sample number(s): 9287015								
Total Alkalinity to pH 4.5	188	186.56			99		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L173071AA	Sample number(s): 9287015-9287016 UNSPK: P291805									
Acetone	6 U	150	169.27	150	217.85	113	145	44-177	25	30
Benzene	0.5 U	20	23.99	20	22.48	120	112	78-120	7	30
Bromochloromethane	1 U	20	21.08	20	20.77	105	104	80-125	1	30
Bromodichloromethane	0.5 U	20	20.83	20	19.29	104	96	71-120	8	30
Bromoform	0.5 U	20	16.14	20	16.31	81	82	59-120	1	30
Bromomethane	0.5 U	20	23.16	20	20.73	116	104	44-139	11	30
2-Butanone	3 U	150	149.09	150	136.94	99	91	53-140	8	30
Carbon Disulfide	1 U	20	22.23	20	17.84	111	89	65-128	22	30
Carbon Tetrachloride	0.5 U	20	20.81	20	19.31	104	97	68-128	8	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Chlorobenzene	0.5 U	20	22.64	20	22.07	113	110	80-120	3	30
Chloroethane	0.5 U	20	24.63	20	22.38	123	112	52-127	10	30
Chloroform	0.5 U	20	22.67	20	20.32	113	102	80-120	11	30
Chloromethane	0.5 U	20	21.69	20	20.8	108	104	57-120	4	30
Cyclohexane	2 U	20	23.34	20	21.67	117	108	67-121	7	30
1,2-Dibromo-3-chloropropane	2 U	20	18.3	20	18.21	91	91	64-120	1	30
Dibromochloromethane	0.5 U	20	19.2	20	19.54	96	98	71-120	2	30
1,2-Dibromoethane	0.5 U	20	20.95	20	21.27	105	106	75-120	2	30
1,2-Dichlorobenzene	1 U	20	21.63	20	21.01	108	105	80-120	3	30
1,3-Dichlorobenzene	1 U	20	21.82	20	21.16	109	106	80-120	3	30
1,4-Dichlorobenzene	1 U	20	22.3	20	21.89	112	109	80-120	2	30
Dichlorodifluoromethane	0.5 U	20	23.74	20	22.25	119	111	47-124	6	30
1,1-Dichloroethane	0.5 U	20	21.1	20	21.47	105	107	80-120	2	30
1,2-Dichloroethane	0.5 U	20	20.38	20	18.88	102	94	73-124	8	30
1,1-Dichloroethene	0.5 U	20	23.48	20	23.48	117	117	76-124	0	30
cis-1,2-Dichloroethene	0.5 U	20	23.3	20	21.69	116	108	80-120	7	30
trans-1,2-Dichloroethene	0.5 U	20	24.8	20	19.37	124*	97	80-120	25	30
1,2-Dichloropropane	0.5 U	20	23.68	20	22.22	118	111	80-120	6	30
cis-1,3-Dichloropropene	0.5 U	20	20.86	20	19.58	104	98	75-120	6	30
trans-1,3-Dichloropropene	0.5 U	20	18.7	20	19.46	93	97	76-120	4	30
Ethylbenzene	0.5 U	20	22.08	20	22.88	110	114	78-120	4	30
Freon 113	2 U	20	23.89	20	23.55	119	118	68-137	1	30
2-Hexanone	3 U	100	94.65	100	98.21	95	98	60-134	4	30
Isopropylbenzene	1 U	20	22.95	20	23.06	115	115	80-120	0	30
Methyl Acetate	1 U	20	20.27	20	15.92	101	80	61-137	24	30
Methyl Tertiary Butyl Ether	0.5 U	20	21	20	16.5	105	83	75-120	24	30
4-Methyl-2-pentanone	3 U	100	100.11	100	94.36	100	94	67-128	6	30
Methylcyclohexane	1 U	20	26.72	20	24.77	134*	124	66-126	8	30
Methylene Chloride	0.5 U	20	23.91	20	18.01	120	90	80-120	28	30
Styrene	1 U	20	21.87	20	22.39	109	112	80-120	2	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.44	20	21.61	107	108	72-120	1	30
Tetrachloroethene	0.5 U	20	22.17	20	22.24	111	111	80-129	0	30
Toluene	0.5 U	20	22.87	20	23.17	114	116	80-120	1	30
1,2,3-Trichlorobenzene	1 U	20	19.73	20	19.6	99	98	66-120	1	30
1,2,4-Trichlorobenzene	1 U	20	19.44	20	19.35	97	97	70-120	0	30
1,1,1-Trichloroethane	0.5 U	20	20.07	20	19.31	100	97	67-120	4	30
1,1,2-Trichloroethane	0.5 U	20	22.58	20	22.54	113	113	80-120	0	30
Trichloroethene	0.5 U	20	23.65	20	21.78	118	109	80-120	8	30
Trichlorofluoromethane	0.5 U	20	26.17	20	23.39	131	117	52-143	11	30
Vinyl Chloride	0.5 U	20	23.7	20	22.33	119	112	63-121	6	30
m+p-Xylene	0.5 U	40	46.32	40	45.76	116	114	80-120	1	30
o-Xylene	0.5 U	20	21.64	20	22.17	108	111	80-120	2	30
Xylene (Total)	0.5 U	60	67.96	60	67.92	113	113	80-120	0	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 17302007	Sample number(s): 9287013-9287016 UNSPK: P283924									
6:2 fluorotelomersulfonate	7 U	37.15	40.74	36.89	47.98	110	130	70-130	16	30
8:2 fluorotelomersulfonate	5 U	37.54	38.28	37.28	46.36	102	124	70-130	19	30
NEtFOSAA	1 U	13.32	22.85	13.23	19.53	171*	148*	70-130	16	30
NMeFOSAA	1 U	13.32	22.79	13.23	22.43	171*	170*	70-130	2	30
Perfluorobutanesulfonate	0.7 U	11.79	13.82	11.7	13.63	117	116	70-130	1	30
Perfluorobutanoic acid	5 U	13.32	18.03	13.23	17.95	135*	136*	70-130	0	30
Perfluorodecanoic acid	1 U	13.32	15.88	13.23	15.87	119	120	70-130	0	30
Perfluorododecanoic acid	0.7 U	13.32	15.48	13.23	15.25	116	115	70-130	2	30
Perfluoroheptanoic acid	1.61	13.32	17.65	13.23	16.32	120	111	70-130	8	30
Perfluorohexanesulfonate	1 U	12.6	13.12	12.51	14.12	104	113	70-130	7	30
Perfluorohexanoic acid	2.96	13.32	18.42	13.23	18.11	116	115	70-130	2	30
Perfluorononanoic acid	0.7 U	13.32	14.09	13.23	13.54	106	102	70-130	4	30
Perfluorooctanesulfonamide	0.7 U	13.32	19.48	13.23	19.26	146*	146*	70-130	1	30
Perfluoro-octanesulfonate	2 U	12.74	13.84	12.65	15.4	109	122	70-130	11	30
Perfluorooctanoic acid	7.68	13.32	24.65	13.23	25.63	127	136*	70-130	4	30
Perfluoropentanoic acid	1.96	13.32	16	13.23	17.65	105	119	70-130	10	30
Perfluorotetradecanoic acid	0.7 U	13.32	14.94	13.23	14.85	112	112	70-130	1	30
Perfluorotridecanoic acid	0.7 U	13.32	16.18	13.23	15.24	121	115	70-130	6	30
Perfluoroundecanoic acid	1 U	13.32	14.73	13.23	14.49	111	109	70-130	2	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 173030571302	Sample number(s): 9287015-9287016 UNSPK: P283334									
Mercury	0.000050 U	0.00100	0.00104	0.00100	0.00104	104	104	80-120	0	20
Batch number: 173051063502	Sample number(s): 9287015-9287016 UNSPK: P291231									
Aluminum	0.0894 U	2.00	2.02	2.00	2.01	101	101	75-125	0	20
Boron	0.285	2.00	2.19	2.00	2.19	95	95	75-125	0	20
Calcium	98.35	4.00	100.85	4.00	101.12	62 (2)	69 (2)	75-125	0	20
Iron	7.01	1.00	7.85	1.00	7.86	84 (2)	85 (2)	75-125	0	20
Magnesium	18.02	2.00	19.78	2.00	19.79	88 (2)	89 (2)	75-125	0	20
Manganese	2.01	0.500	2.47	0.500	2.48	92 (2)	95 (2)	75-125	1	20
Potassium	3.37	10	13.5	10	13.44	101	101	75-125	0	20
Sodium	54.37	10	63.64	10	63.63	93 (2)	93 (2)	75-125	0	20
Zinc	0.0065 U	0.500	0.512	0.500	0.507	102	101	75-125	1	20
Batch number: 173051063902A	Sample number(s): 9287015-9287016 UNSPK: P285342									
Antimony	0.00045 U	0.00600	0.00650	0.00600	0.00670	108	112	75-125	3	20
Arsenic	0.00072 U	0.0100	0.0106	0.0100	0.0117	106	117	75-125	10	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Beryllium	0.000071 U	0.00400	0.00430	0.00400	0.00407	107	102	75-125	6	20
Cadmium	0.00015 U	0.00500	0.00467	0.00500	0.00563	93	113	75-125	19	20
Chromium	0.00087 U	0.0500	0.0542	0.0500	0.0541	108	108	75-125	0	20
Cobalt	0.00321	0.250	0.258	0.250	0.268	102	106	75-125	4	20
Copper	0.000548	0.0500	0.0529	0.0500	0.0526	105	104	75-125	1	20
Lead	0.00011 U	0.0150	0.0156	0.0150	0.0153	104	102	75-125	2	20
Nickel	0.0159	0.0500	0.0689	0.0500	0.0690	106	106	75-125	0	20
Silver	0.00015 U	0.0500	0.0500	0.0500	0.0519	100	104	75-125	4	20
Thallium	0.00012 U	0.00200	0.00170	0.00200	0.00208	85	104	75-125	20	20
Vanadium	0.00021 U	0.0500	0.0530	0.0500	0.0522	106	104	75-125	1	20
Batch number: 173051063902B	Sample number(s): 9287015-9287016 UNSPK: P285342									
Selenium	0.00050 U	0.0100	0.0106	0.0100	0.0103	106	103	75-125	3	20
Batch number: 173051063902D	Sample number(s): 9287015-9287016 UNSPK: P285342									
Barium	0.0579	0.0500	0.100	0.0500	0.104	85	92	75-125	3	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17300987113B	Sample number(s): 9287015-9287016 UNSPK: 9287015									
Bromide	1.3 U	25	26.53			106		90-110		
Chloride	1.58	10	11.68			101		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.82			113*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.67			107		90-110		
Sulfate	6.57	25	32.91			105		90-110		
Batch number: 17307108101B	Sample number(s): 9287015-9287016 UNSPK: P284838									
Kjeldahl Nitrogen	0.748	5.00	6.00			105		90-110		
Batch number: 17307117101B	Sample number(s): 9287015 UNSPK: P282366									
Total Cyanide	0.0050 U	0.200	0.178			89		72-114		
Batch number: 17310117101A	Sample number(s): 9287016 UNSPK: P287281									
Total Cyanide	0.113	0.200	0.290			89		72-114		
Batch number: 17314107101B	Sample number(s): 9287015-9287016 UNSPK: P283321									
Ammonia Nitrogen	0.050 U	1.00	1.15			115*		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17301022602A	Sample number(s): 9287015-9287016 UNSPK: P287951									
Ortho-Phosphate as P	0.030 U	0.400	0.424	0.400	0.422	106	106	69-131	0	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l as CaCO3	MS Spike Added mg/l as CaCO3	MS Conc mg/l as CaCO3	MSD Spike Added mg/l as CaCO3	MSD Conc mg/l as CaCO3	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17303008203A	Sample number(s): 9287016 UNSPK: P281273									
Total Alkalinity to pH 4.5	534.77	188	710.06			93		77-114		
Batch number: 17303008204A	Sample number(s): 9287015 UNSPK: P281959									
Total Alkalinity to pH 4.5	289.51	188	345.29			30*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 173030571302	Sample number(s): 9287015-9287016 BKG: P283334			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173051063502	Sample number(s): 9287015-9287016 BKG: P291231			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.285	0.283	1 (1)	20
Calcium	98.35	98.74	0	20
Iron	7.01	7.02	0	20
Magnesium	18.02	18.07	0	20
Manganese	2.01	2.01	0	20
Potassium	3.37	3.50	4 (1)	20
Sodium	54.37	54.55	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 173051063902A	Sample number(s): 9287015-9287016 BKG: P285342			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00321	0.00307	4 (1)	20
Copper	0.000548	0.000695	24* (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.0159	0.0169	6 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 173051063902B	Sample number(s): 9287015-9287016 BKG: P285342			

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173051063902D	Sample number(s): 9287015-9287016 BKG: P285342			
Barium	0.0579	0.0548	5	20
	mg/l	mg/l		
Batch number: 17300987113B	Sample number(s): 9287015-9287016 BKG: 9287015			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	1.58	1.58	0 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	6.57	6.60	0 (1)	15
Batch number: 17307108101B	Sample number(s): 9287015-9287016 BKG: P284838			
Kjeldahl Nitrogen	0.748	0.632	17 (1)	20
Batch number: 17307117101B	Sample number(s): 9287015 BKG: P282366			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17310117101A	Sample number(s): 9287016 BKG: P287281			
Total Cyanide	0.113	0.115	2	20
Batch number: 17314107101B	Sample number(s): 9287015-9287016 BKG: P283321			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17301022602A	Sample number(s): 9287015-9287016 BKG: P287951			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17303008203A	Sample number(s): 9287016 BKG: P281273			
Total Alkalinity to pH 4.5	534.77	533.64	0	5
Batch number: 17303008204A	Sample number(s): 9287015 BKG: P281959			
Total Alkalinity to pH 4.5	289.51	289.73	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L173071AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9287015	85	89	100	96
9287016	99	103	100	95
Blank	98	101	100	94
LCS	98	101	101	98
MS	102	107	103	99
MSD	97	100	105	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17303WAE026

	1,4-Dioxane-d8
9287015	43*
9287016	41*
Blank	40*
LCS	46*
LCSD	42*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9287013	73	67	65	82	80	72
9287014	78	75	71	79	77	75
9287015	86	84	81	96	91	87
9287016	81	84	82	88	83	84
Blank	79	73	72	83	82	78
LCS	80	72	69	82	77	74
MS	80	82	71	88	89	86
MSD	79	76	77	82	77	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9287013	61	76	71	66	71	59
9287014	62	74	77	76	78	66
9287015	78	82	83	84	83	72
9287016	75	80	82	76	79	62

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:23

Group Number: 1868251

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
Blank	63	81	68	65	90	76
LCS	66	82	83	79	79	68
MS	83	83	78	80	87	79
MSD	67	79	75	81	76	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9287013	68	71	73	83	81	49*
9287014	78	94	100	93	95	41*
9287015	97	89	113	90	89	46*
9287016	76	81	81	78	71	47*
Blank	78	84	102	91	95	42*
LCS	75	81	94	83	86	34*
MS	85	92	98	101	106	29*
MSD	76	89	96	92	90	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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37191/186825/9287013-16

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47396

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupuy	Name: Latham, NY
email: mdupuy@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCAPP-N. Bennington	Barr Project No: 32421001.05

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250mL w/Trizma	250mL - HNO_3	40 mL glass - amber	250mL	500 mL - H_2SO_4	250mL	Soil: 40mL Glass - HCl	250mL Plastic - NaOH/ascorbic	250mL Glass	% Solids	Preservative Code	Field Filtered Y/N	
									O	C	A	A	D	A	B	E	A				
									N	N	N	N	N	Y	N	N	N				
1. SGB3-LTB01-171026	—	—	—	10/26/17	—	RW	N	2	2												blank
2. SG3-FTB01-171026	—	—	—	10/26/17	15:30	RW	N	2	2												blank
3. SG3-D11-171026	—	—	—	10/26/17	1415	GW	MS	2	2	2	1	1	1	3	1	2					LANDFILL
4. SG3-FD01-171026	—	—	—	10/26/17	—	GW	MS	2	2	2	1	1	1	3	1	2					LANDFILL
5.																					Analyses:
6.																					(19) PFCs, TCL VOCs (SOM02.2 VOC),
7.																					TAL Metals + Cations (including CN+Hg), Anions, Ammonia,
8.																					Orthophosphate, Total
9.																					Kjeldahl Nitrogen,
10.																					1,4-Dioxane

BARR USE ONLY

Sampled by: CB, NC

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] — On Ice? (Y) N — Date 10/26/17 — Time 1730

Received by: — Date — Time

Relinquished by: — On Ice? Y N — Date — Time

Received by: [signature] — Date 10/27/17 — Time 945

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.6/0.6 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Document; Pink Copy: Send to Data Management Administrators.

1868251

ALL WELLS:

6:2 fluorotelomersulfonate 8:2 fluorotelomersulfonate NEtFOSAA NMeFOSAA Perfluoro-octanesulfonate Perfluorobutanesulfonate Perfluorobutanoic Acid Perfluorodecanoic acid Perfluorododecanoic acid Perfluoroheptanoic acid Perfluorohexanesulfonate Perfluorohexanoic acid Perfluorononanoic acid Perfluorooctanoic acid Perfluoropentanoic Acid Perfluorotetradecanoic acid Perfluorotridecanoic acid Perfluoroundecanoic acid PFOSA	**19 PFCs**	Aluminum Boron Calcium Iron Magnesium Manganese Potassium Sodium Zinc Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Copper Lead Nickel Selenium Silver Thallium Vanadium	**Metals (no Hg)**
Bromide Chloride Nitrate Nitrogen Nitrite Nitrogen Sulfate	**Anions**	Ammonia Nitrogen Kjeldahl Nitrogen	**Nitrogens**
Total Alkalinity to pH 4.5 Bicarbonate Alkalinity Carbonate Alkalinity	**Alkalinities**	**Ortho-Phosphate as P**	Anions

LANDFILL WELLS:

- EVERYTHING ABOVE
- 1,4 dioxane
- Mercury
- SOM 02.2 Volatiles
- Cyanide

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Sample Administration Receipt Documentation Log

Doc Log ID: 199067

Group Number(s): 1868251

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/27/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:27 on 10/27/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	1.6	DT	Wet	Y	Bagged	N
2	DT42-01	0.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: October 30, 2017 16:11

Project: SGPP - North Bennington

Account #: 37191
Group Number: 1868533
SDG: SNB18
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FilteredWaterTKD-171026 Water	10/26/2017 16:55	9288541
SG3-FILTEREDWATERTKC-171027 Water	10/27/2017 16:00	9288542

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - North Bennington
ELLE Group #: 1868533

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9288541, 9288542

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17302001 (Sample number(s): 9288541-9288542)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288541, 9288542, Blank, LCS, LCSD

Sample Description: SG3-FilteredWaterTKD-171026 Water
SGPP - North Bennington

Project Name: SGPP - North Bennington

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017 16:55
SDG#: SNB18-01

C. T. Male Associates
ELLE Sample #: GW 9288541
ELLE Group #: 1868533
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302001	10/30/2017 12:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302001	10/29/2017 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDWATERTKC-171027 Water**
SGPP - North Bennington

Project Name: **SGPP - North Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 16:00
SDG#: SNB18-02

C. T. Male Associates
ELLE Sample #: GW 9288542
ELLE Group #: 1868533
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302001	10/30/2017 12:49	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302001	10/29/2017 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 16:11

Group Number: 1868533

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17302001	Sample number(s): 9288541-9288542		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17302001	Sample number(s): 9288541-9288542								
6:2 fluorotelomersulfonate	15.17	17.99	15.17	17.55	119	116	70-130	2	30
8:2 fluorotelomersulfonate	15.33	15.3	15.33	16.01	100	104	70-130	5	30
NEtFOSAA	5.44	8.96	5.44	9.49	165*	174*	70-130	6	30
NMeFOSAA	5.44	9.15	5.44	10.17	168*	187*	70-130	11	30
Perfluorobutanesulfonate	4.81	5.47	4.81	5.55	114	115	70-130	1	30
Perfluorobutanoic acid	5.44	6.15	5.44	6.93	113	127	70-130	12	30
Perfluorodecanoic acid	5.44	6.12	5.44	7.07	113	130	70-130	14	30
Perfluorododecanoic acid	5.44	6.78	5.44	6.28	125	115	70-130	8	30
Perfluoroheptanoic acid	5.44	6.08	5.44	5.99	112	110	70-130	2	30
Perfluorohexanesulfonate	5.14	5.93	5.14	5.34	115	104	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 16:11

Group Number: 1868533

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.15	5.44	6.52	113	120	70-130	6	30
Perfluorononanoic acid	5.44	5.69	5.44	5.98	105	110	70-130	5	30
Perfluorooctanesulfonamide	5.44	7.31	5.44	7.31	134*	134*	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.47	5.20	5.81	105	112	70-130	6	30
Perfluorooctanoic acid	5.44	6.49	5.44	6.07	119	112	70-130	7	30
Perfluoropentanoic acid	5.44	6.41	5.44	6.30	118	116	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.84	5.44	6.00	107	110	70-130	3	30
Perfluorotridecanoic acid	5.44	6.98	5.44	6.07	128	112	70-130	14	30
Perfluoroundecanoic acid	5.44	5.83	5.44	6.50	107	120	70-130	11	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9288541	84	85	82	87	93	84
9288542	73	73	71	73	79	75
Blank	76	77	71	74	66	69
LCS	79	78	69	79	77	82
LCSD	70	72	66	69	77	74
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9288541	77	86	77	76	88	72
9288542	71	81	67	64	67	52
Blank	69	71	70	64	70	73
LCS	65	79	70	67	78	63
LCSD	72	74	74	68	67	61
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9288541	81	80	92	81	60	42*
9288542	65	70	72	66	61	31*
Blank	69	67	81	70	70	40*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 10/30/2017 16:11

Group Number: 1868533

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302001

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	72	72	82	66	73	40*
LCSD	63	66	76	73	71	33*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

NEED RESULTS ASAP 37191 1868533. 92888541-42

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52698

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Tr:2ms PFCs (18)	Water: 250ml	Soil: % Solids
1. SG3-FilteredWaterTKD-171026	—	—	—	10/26/2017	1655	W	N	2	2		
2. SG3-FILTEREDWATER TKC-171027	—	—	—	10-27-17	1600	W	N	2	2		
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											

Preservative Code

Field Filtered Y/N

ASAP TAT*

BARR USE ONLY

Sampled by: RQM

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 10-27-17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 10-28-17 Time 10:00

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 2.0 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 199185

Group Number(s): 1868533

Client: Barr Engineering Co.

SGPP Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/28/2017 10:00
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4 Unpreserved, 2 Trizma

Unpacked by Nicole Reiff (25684) at 10:37 on 10/28/2017

Samples Chilled Details: SGPP Bennington

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.0	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 11, 2017 09:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1868544
SDG: SNB19
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CityWaterTruck-171026 Water	10/26/2017 16:00	9288593
SG3-CityWaterHose-171026 Water	10/26/2017 16:05	9288594
SG3-CityWaterTK2-171026 Water	10/26/2017 17:00	9288595
SG3-AfterPOETC-171026 Water	10/26/2017 17:15	9288596
SG3-LTB95-171025 Blank Water	10/25/2017	9288597
SG3-LTB96-171025 Blank Water	10/25/2017	9288598
Trip Blank Water	10/26/2017	9288599

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1868544

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9288593, 9288594, 9288595, 9288596, 9288597, 9288599

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9288598

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data quality is not impacted by this result.

Batch #: 17302007 (Sample number(s): 9288597 UNSPK: P283924)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorobutanoic acid, NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288597, Blank, LCS, MS, MSD

Batch #: 17303007 (Sample number(s): 9288593-9288596, 9288599)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288593,

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9288594, 9288595, 9288596, 9288599, Blank, LCS, LCSD

Batch #: 17312003 (Sample number(s): 9288598)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288598, Blank, LCS, LCSD

Sample Description: **SG3-CityWaterTruck-171026 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017 16:00
SDG#: SNB19-01

C. T. Male Associates
ELLE Sample #: GW 9288593
ELLE Group #: 1868544
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.3 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 08:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CityWaterHose-171026 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017 16:05
SDG#: SNB19-02

C. T. Male Associates
ELLE Sample #: GW 9288594
ELLE Group #: 1868544
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 08:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CityWaterTK2-171026 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017 17:00
SDG#: SNB19-03

C. T. Male Associates
ELLE Sample #: GW 9288595
ELLE Group #: 1868544
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.5 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 09:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AfterPOETC-171026 Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017 17:15
SDG#: SNB19-04

C. T. Male Associates
ELLE Sample #: GW 9288596
ELLE Group #: 1868544
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 09:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB95-171025 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/25/2017
SDG#: SNB19-05TB

C. T. Male Associates
ELLE Sample #: WW 9288597
ELLE Group #: 1868544
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17302007	11/05/2017 06:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17302007	10/30/2017 08:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB96-171025 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/25/2017
SDG#: SNB19-06TB

C. T. Male Associates
ELLE Sample #: WW 9288598
ELLE Group #: 1868544
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17312003	11/10/2017 05:30	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17312003	11/08/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/26/2017
SDG#: SNB19-07TB

C. T. Male Associates
ELLE Sample #: WW 9288599
ELLE Group #: 1868544
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 09:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17302007	Sample number(s): 9288597			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17303007	Sample number(s): 9288593-9288596,9288599			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17312003	Sample number(s): 9288598		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.9 J	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	1	0.3	1
Perfluoropentanoic acid	0.5 J	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17302007	Sample number(s): 9288597								
6:2 fluorotelomersulfonate	15.17	19.22			127		70-130		
8:2 fluorotelomersulfonate	15.33	18.11			118		70-130		
NEtFOSAA	5.44	8.73			160*		70-130		
NMeFOSAA	5.44	9.32			171*		70-130		
Perfluorobutanesulfonate	4.81	5.49			114		70-130		
Perfluorobutanoic acid	5.44	6.46			119		70-130		
Perfluorodecanoic acid	5.44	6.62			122		70-130		
Perfluorododecanoic acid	5.44	6.77			124		70-130		
Perfluoroheptanoic acid	5.44	6.23			114		70-130		
Perfluorohexanesulfonate	5.14	5.47			106		70-130		
Perfluorohexanoic acid	5.44	5.83			107		70-130		
Perfluorononanoic acid	5.44	5.64			104		70-130		
Perfluorooctanesulfonamide	5.44	7.97			146*		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.40			104		70-130		
Perfluorooctanoic acid	5.44	5.28			97		70-130		
Perfluoropentanoic acid	5.44	6.42			118		70-130		
Perfluorotetradecanoic acid	5.44	6.28			115		70-130		
Perfluorotridecanoic acid	5.44	6.90			127		70-130		
Perfluoroundecanoic acid	5.44	6.02			111		70-130		
Batch number: 17303007	Sample number(s): 9288593-9288596,9288599								
6:2 fluorotelomersulfonate	15.17	18.91	15.17	18.06	125	119	70-130	5	30
8:2 fluorotelomersulfonate	15.33	16.64	15.33	15.75	109	103	70-130	5	30
NEtFOSAA	5.44	7.99	5.44	9.03	147*	166*	70-130	12	30
NMeFOSAA	5.44	10.03	5.44	8.86	184*	163*	70-130	12	30
Perfluorobutanesulfonate	4.81	5.30	4.81	5.71	110	119	70-130	7	30
Perfluorobutanoic acid	5.44	6.05	5.44	6.48	111	119	70-130	7	30
Perfluorodecanoic acid	5.44	6.62	5.44	6.25	122	115	70-130	6	30
Perfluorododecanoic acid	5.44	6.38	5.44	6.42	117	118	70-130	1	30
Perfluoroheptanoic acid	5.44	5.98	5.44	6.17	110	113	70-130	3	30
Perfluorohexanesulfonate	5.14	5.35	5.14	5.48	104	107	70-130	2	30
Perfluorohexanoic acid	5.44	6.04	5.44	5.93	111	109	70-130	2	30
Perfluorononanoic acid	5.44	5.50	5.44	5.53	101	102	70-130	1	30
Perfluorooctanesulfonamide	5.44	7.14	5.44	7.58	131*	139*	70-130	6	30
Perfluoro-octanesulfonate	5.20	5.51	5.20	4.96	106	95	70-130	10	30
Perfluorooctanoic acid	5.44	6.32	5.44	6.11	116	112	70-130	3	30
Perfluoropentanoic acid	5.44	6.29	5.44	6.33	116	116	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.46	5.44	6.19	119	114	70-130	4	30
Perfluorotridecanoic acid	5.44	6.70	5.44	6.05	123	111	70-130	10	30
Perfluoroundecanoic acid	5.44	6.43	5.44	5.86	118	108	70-130	9	30
Batch number: 17312003	Sample number(s): 9288598								
6:2 fluorotelomersulfonate	15.17	16.22	15.17	16.42	107	108	70-130	1	30
8:2 fluorotelomersulfonate	15.33	16.46	15.33	14.74	107	96	70-130	11	30
NEtFOSAA	5.44	6.09	5.44	6.94	112	128	70-130	13	30
NMeFOSAA	5.44	6.45	5.44	6.66	119	122	70-130	3	30
Perfluorobutanesulfonate	4.81	6.05	4.81	5.17	126	107	70-130	16	30
Perfluorobutanoic acid	5.44	6.31	5.44	6.27	116	115	70-130	1	30
Perfluorodecanoic acid	5.44	6.45	5.44	5.88	119	108	70-130	9	30
Perfluorododecanoic acid	5.44	6.37	5.44	6.56	117	121	70-130	3	30
Perfluoroheptanoic acid	5.44	5.92	5.44	6.15	109	113	70-130	4	30
Perfluorohexanesulfonate	5.14	6.32	5.14	5.41	123	105	70-130	16	30
Perfluorohexanoic acid	5.44	5.99	5.44	5.86	110	108	70-130	2	30
Perfluorononanoic acid	5.44	5.80	5.44	5.70	107	105	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.75	5.44	5.93	106	109	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.57	5.20	5.44	107	105	70-130	2	30
Perfluorooctanoic acid	5.44	5.88	5.44	5.82	108	107	70-130	1	30
Perfluoropentanoic acid	5.44	6.74	5.44	6.24	124	115	70-130	8	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	5.44	6.14	5.44	5.86	113	108	70-130	5	30
Perfluorotridecanoic acid	5.44	5.56	5.44	6.06	102	111	70-130	9	30
Perfluoroundecanoic acid	5.44	6.01	5.44	5.88	111	108	70-130	2	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17302007	Sample number(s): 9288597 UNSPK: P283924									
6:2 fluorotelomersulfonate	7 U	37.15	40.74	36.89	47.98	110	130	70-130	16	30
8:2 fluorotelomersulfonate	5 U	37.54	38.28	37.28	46.36	102	124	70-130	19	30
NEtFOSAA	1 U	13.32	22.85	13.23	19.53	171*	148*	70-130	16	30
NMeFOSAA	1 U	13.32	22.79	13.23	22.43	171*	170*	70-130	2	30
Perfluorobutanesulfonate	0.7 U	11.79	13.82	11.7	13.63	117	116	70-130	1	30
Perfluorobutanoic acid	5 U	13.32	18.03	13.23	17.95	135*	136*	70-130	0	30
Perfluorodecanoic acid	1 U	13.32	15.88	13.23	15.87	119	120	70-130	0	30
Perfluorododecanoic acid	0.7 U	13.32	15.48	13.23	15.25	116	115	70-130	2	30
Perfluoroheptanoic acid	1.61	13.32	17.65	13.23	16.32	120	111	70-130	8	30
Perfluorohexanesulfonate	1 U	12.6	13.12	12.51	14.12	104	113	70-130	7	30
Perfluorohexanoic acid	2.96	13.32	18.42	13.23	18.11	116	115	70-130	2	30
Perfluorononanoic acid	0.7 U	13.32	14.09	13.23	13.54	106	102	70-130	4	30
Perfluorooctanesulfonamide	0.7 U	13.32	19.48	13.23	19.26	146*	146*	70-130	1	30
Perfluoro-octanesulfonate	2 U	12.74	13.84	12.65	15.4	109	122	70-130	11	30
Perfluorooctanoic acid	7.68	13.32	24.65	13.23	25.63	127	136*	70-130	4	30
Perfluoropentanoic acid	1.96	13.32	16	13.23	17.65	105	119	70-130	10	30
Perfluorotetradecanoic acid	0.7 U	13.32	14.94	13.23	14.85	112	112	70-130	1	30
Perfluorotridecanoic acid	0.7 U	13.32	16.18	13.23	15.24	121	115	70-130	6	30
Perfluoroundecanoic acid	1 U	13.32	14.73	13.23	14.49	111	109	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17302007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9288597	87	79	81	76	78	80
Blank	79	73	72	83	82	78
LCS	80	72	69	82	77	74
MS	80	82	71	88	89	86
MSD	79	76	77	82	77	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9288597	69	82	90	95	78	60
Blank	63	81	68	65	90	76
LCS	66	82	83	79	79	68
MS	83	83	78	80	87	79
MSD	67	79	75	81	76	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9288597	79	87	98	91	89	38*
Blank	78	84	102	91	95	42*
LCS	75	81	94	83	86	34*
MS	85	92	98	101	106	29*
MSD	76	89	96	92	90	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9288593	89	109	131	76	87	85
9288594	74	86	103	74	76	75
9288595	79	94	116	75	77	75
9288596	73	68	62	80	78	79
9288599	77	71	72	85	89	78
Blank	82	77	72	90	91	83
LCS	75	71	67	75	79	74
LCSD	73	70	68	85	84	83

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9288593	95	85	84	83	82	73
9288594	77	77	79	76	72	62
9288595	83	83	73	75	71	59
9288596	58	72	63	61	70	56
9288599	63	89	66	67	67	54
Blank	79	86	80	82	85	73
LCS	59	73	74	65	70	58
LCSD	69	75	75	68	74	62
Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9288593	87	79	95	79	52	44*
9288594	71	68	78	64	62	38*
9288595	70	77	82	72	70	41*
9288596	67	66	72	69	64	48*
9288599	60	77	70	74	63	47*
Blank	100	87	111	89	96	59*
LCS	87	75	105	76	74	56*
LCSD	77	70	89	77	76	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17312003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9288598	94	90	83	102	90	92
Blank	81	73	71	83	79	75
LCS	89	83	73	96	90	93
LCSD	88	84	75	94	85	84
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9288598	69	102	83	85	85	58
Blank	63	80	75	75	83	45
LCS	71	98	85	83	85	55

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 09:17

Group Number: 1868544

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17312003

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
LCSD	62	93	85	78	88	55
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9288598	79	67	86	42	9*	34*
Blank	72	71	78	73	68	35*
LCS	101	95	119	95	78	43*
LCSD	82	73	80	69	60	44*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1868544 9288593-99

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52327

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Road
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Trizma PFCs (9)	250ml Trip Blank	250ml Trizma Trip Blanks	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-CityWaterTruck-171026	–	–	–	10/26/17	1600	W	N	2	2				N	N
2. SG3-CityWaterHose-171026	–	–	–	10/26/17	1605	W	N	2	2				N	N
3. SG3-CityWaterTKZ-171026	–	–	–	10/26/17	1700	W	N	2	2				N	N
4. SG3-AfterPOETC-171026	–	–	–	10/26/17	1715	W	N	2	2				N	N
5. SG3-LTB95-171025	–	–	–	10/25/17	PM	W	N	2		2			N	N
6. SG3-LTB96-171025	–	–	–	10/25/17	PM	W	N	2		2			N	N
7. Trip Blanks	–	–	–	10/26/17	PM	W	N	2			2		N	N
8.														
9.														
10.														

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: RQM/DJZ	[signature]	Y	10-27-17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: [signature]	Date 10.28.17	Time 10:00
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 2.0	Custody Seal Intact? ☑ Y ☐ N ☐ None				

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 199185

Group Number(s): 1868544

Client: Barr Engineering Co.

SGPP Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/28/2017 10:00
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 4 Unpreserved, 2 Trizma

Unpacked by Nicole Reiff (25684) at 10:37 on 10/28/2017

Samples Chilled Details: SGPP Bennington

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 16:19

Project: SGPP - Bennington

Account #: 37191
Group Number: 1868545
SDG: SNB20
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D21-171027 Groundwater	10/27/2017 09:15	9288600
SG3-LTB01-171027 Blank Water	10/27/2017	9288601
SG3-FTB01-171027 Blank Water	10/27/2017 10:20	9288602
SG3-B-4-3-171027 Groundwater	10/27/2017 11:40	9288603

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1868545

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9288603

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Batch #: 5173103AA (Sample number(s): 9288603 UNSPK: P300791)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cyclohexane, Methylcyclohexane, 1,1,1-Trichloroethane, Carbon Tetrachloride, Freon 113

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9288603

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the target analytes were detected again in the method blank. THere is insufficient sample to re-extract again.
The client was contact and the data is reported from the initial trial.

Batch #: 17303WAE026 (Sample number(s): 9288603)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288603, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9288600, 9288601, 9288603

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9288602

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Native compound PFDA is a "J" level detection in this trip blank. This trip blank was not re-extracted.

Batch #: 17303007 (Sample number(s): 9288600-9288603)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9288600, 9288601, 9288602, 9288603, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 173051063502 (Sample number(s): 9288600, 9288603 UNSPK: P291231 BKG: P291231)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium

SW-846 6020A, Metals

Batch #: 173051063902A (Sample number(s): 9288600, 9288603 UNSPK: P285342 BKG: P285342)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

EPA 300.0, Wet Chemistry

Batch #: 17301987106A (Sample number(s): 9288600, 9288603 UNSPK: 9288603 BKG: 9288603)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chloride

REVISED

Sample Description: **SG3-D21-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 09:15
SDG#: SNB20-01

C. T. Male Associates
ELLE Sample #: GW 9288600
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**2**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**12**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**6**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.7 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**200**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.326 J**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0216 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**91.8**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.588**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**25.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.407**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.65**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**50.4**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0385**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D21-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 09:15
SDG#: SNB20-01

C. T. Male Associates
ELLE Sample #: GW 9288600
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06031	**Chromium**	7440-47-3	**0.00095 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0017**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0010 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00043 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0042**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0026 J**	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0011**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**118**	10.0	20.0	50
00368	**Nitrate Nitrogen**	14797-55-8	**0.87**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**11.7**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**286**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**286**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.032 J**	0.030	0.090	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-D21-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 09:15
SDG#: SNB20-01

C. T. Male Associates
ELLE Sample #: GW 9288600
ELLE Group #: 1868545
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 10:11	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173051063502	11/02/2017 16:31	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173051063902D	11/07/2017 01:44	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173051063902A	11/07/2017 07:37	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	173051063902B	11/07/2017 01:44	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173051063902A	11/07/2017 01:44	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173051063902A	11/07/2017 07:37	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	173050571305	11/07/2017 07:34	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173051063502	11/01/2017 18:04	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173051063902	11/02/2017 06:17	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173050571305	11/01/2017 16:40	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17301987106A	10/28/2017 15:22	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17301987106A	10/31/2017 14:27	Hallie A Burnett	50
00368	Nitrate Nitrogen	EPA 300.0	1	17301987106A	10/28/2017 15:22	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17301987106A	10/28/2017 15:22	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17301987106A	10/28/2017 15:22	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17314107104A	11/10/2017 21:54	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17310108102B	11/09/2017 03:09	Joseph E McKenzie	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17310108102B	11/06/2017 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17304003102A	10/31/2017 17:48	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17304003102A	10/31/2017 17:48	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17304003102A	10/31/2017 17:48	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17301022603A	10/28/2017 23:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB01-171027 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017
SDG#: SNB20-02TB

C. T. Male Associates
ELLE Sample #: WW 9288601
ELLE Group #: 1868545
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 11:12	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FTB01-171027 Blank Water**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 10:20
SDG#: SNB20-03TB

C. T. Male Associates
ELLE Sample #: WW 9288602
ELLE Group #: 1868545
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Native compound PFDA is a "J" level detection in this trip blank. This trip blank was not re-extracted.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 11:33	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-B-4-3-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 11:40
SDG#: SNB20-04

C. T. Male Associates
ELLE Sample #: GW 9288603
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-B-4-3-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 11:40
SDG#: SNB20-04

C. T. Male Associates
ELLE Sample #: GW 9288603
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.072 J**	0.050	0.20	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.
Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted and the target analytes were detected again in the method blank. THere is insufficient sample to re-extract again.
The client was contact and the data is reported from the initial trial.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	**NEtFOSAA**	2991-50-6	**0.6 J**	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-B-4-3-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 11:40
SDG#: SNB20-04

C. T. Male Associates
ELLE Sample #: GW 9288603
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**5.84**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**2.44**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0054 J**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.05**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**2.56**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0017 J**	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0155**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00016 J**	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00022 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0026 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00058 J**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-B-4-3-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 11:40
SDG#: SNB20-04

C. T. Male Associates
ELLE Sample #: GW 9288603
ELLE Group #: 1868545
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.0 J**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**4.3 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**28.1**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**28.1**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.22**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5173103AA	11/07/2017 05:36	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5173103AA	11/07/2017 05:36	Kevin D Kelly	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17303WAE026	11/06/2017 10:46	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17303WAE026	10/30/2017 16:30	Ryan J Dowdy	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17303007	11/02/2017 11:54	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17303007	10/30/2017 16:10	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-B-4-3-171027 Groundwater**
SGPP - North Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/28/2017 10:00
Collection Date/Time: 10/27/2017 11:40
SDG#: SNB20-04

C. T. Male Associates
ELLE Sample #: GW 9288603
ELLE Group #: 1868545
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173051063502	11/02/2017 16:34	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173051063902A	11/07/2017 07:39	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173051063902D	11/07/2017 01:47	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173051063902A	11/07/2017 07:39	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	173051063902B	11/07/2017 01:47	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173051063902A	11/07/2017 01:47	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173051063902A	11/07/2017 07:39	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	173030571302	10/31/2017 08:23	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173051063502	11/01/2017 18:04	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173051063902	11/02/2017 06:17	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173030571302	10/31/2017 01:00	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17301987106A	10/28/2017 14:33	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17301987106A	10/28/2017 14:33	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17301987106A	10/28/2017 14:33	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17301987106A	10/28/2017 14:33	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17301987106A	10/28/2017 14:33	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17314107104A	11/10/2017 21:50	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17310108102B	11/09/2017 03:11	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17311117101B	11/07/2017 13:58	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17310108102B	11/06/2017 17:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17311117101B	11/07/2017 07:20	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17304003102A	10/31/2017 17:42	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17304003102A	10/31/2017 17:42	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17304003102A	10/31/2017 17:42	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17301022603A	10/28/2017 23:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5173103AA	Sample number(s): 9288603		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17303WAE026	Sample number(s): 9288603		
1,4-Dioxane	0.071 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17303007	Sample number(s): 9288600-9288603		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173030571302	Sample number(s): 9288603		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173050571305	Sample number(s): 9288600		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173051063502	Sample number(s): 9288600,9288603		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173051063902A	Sample number(s): 9288600,9288603		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0014 J	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173051063902B	Sample number(s): 9288600,9288603		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173051063902D	Sample number(s): 9288600,9288603		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17301987106A	Sample number(s): 9288600,9288603		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17310108102B	Sample number(s): 9288600,9288603		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17311117101B	Sample number(s): 9288603		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17314107104A	Sample number(s): 9288600,9288603		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17301022603A	Sample number(s): 9288600,9288603		
Ortho-Phosphate as P	0.030 U	0.030	0.090

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17304003102A	Sample number(s): 9288600,9288603		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5173103AA	Sample number(s): 9288603								
Acetone	150	128.37			86		44-177		
Benzene	20	18.59			93		78-120		
Bromochloromethane	20	20.91			105		80-125		
Bromodichloromethane	20	19.17			96		71-120		
Bromoform	20	17.32			87		59-120		
Bromomethane	20	18.41			92		44-139		
2-Butanone	150	133.49			89		53-140		
Carbon Disulfide	20	20.66			103		65-128		
Carbon Tetrachloride	20	22.9			115		68-128		
Chlorobenzene	20	18.69			93		80-120		
Chloroethane	20	17.08			85		52-127		
Chloroform	20	18.97			95		80-120		
Chloromethane	20	16.28			81		57-120		
Cyclohexane	20	18.14			91		67-121		
1,2-Dibromo-3-chloropropane	20	18.69			93		64-120		
Dibromochloromethane	20	18.81			94		71-120		
1,2-Dibromoethane	20	18.6			93		75-120		
1,2-Dichlorobenzene	20	18.92			95		80-120		
1,3-Dichlorobenzene	20	18.47			92		80-120		
1,4-Dichlorobenzene	20	18.58			93		80-120		
Dichlorodifluoromethane	20	16.7			84		47-124		
1,1-Dichloroethane	20	18.36			92		80-120		
1,2-Dichloroethane	20	18.48			92		73-124		
1,1-Dichloroethene	20	18.01			90		76-124		
cis-1,2-Dichloroethene	20	19.39			97		80-120		
trans-1,2-Dichloroethene	20	18.81			94		80-120		
1,2-Dichloropropane	20	18.97			95		80-120		
cis-1,3-Dichloropropene	20	18.24			91		75-120		
trans-1,3-Dichloropropene	20	17.32			87		76-120		
Ethylbenzene	20	18.66			93		78-120		
Freon 113	20	20.94			105		68-137		
2-Hexanone	100	84.79			85		60-134		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	19.38			97		80-120		
Methyl Acetate	20	18.95			95		61-137		
Methyl Tertiary Butyl Ether	20	19.36			97		75-120		
4-Methyl-2-pentanone	100	88.56			89		67-128		
Methylcyclohexane	20	19.87			99		66-126		
Methylene Chloride	20	18.21			91		80-120		
Styrene	20	19.02			95		80-120		
1,1,2,2-Tetrachloroethane	20	18.15			91		72-120		
Tetrachloroethene	20	19.76			99		80-129		
Toluene	20	18.38			92		80-120		
1,2,3-Trichlorobenzene	20	18.03			90		66-120		
1,2,4-Trichlorobenzene	20	17.67			88		70-120		
1,1,1-Trichloroethane	20	21.07			105		67-120		
1,1,2-Trichloroethane	20	18.82			94		80-120		
Trichloroethene	20	18.8			94		80-120		
Trichlorofluoromethane	20	19.02			95		52-143		
Vinyl Chloride	20	16.76			84		63-121		
m+p-Xylene	40	38.37			96		80-120		
o-Xylene	20	18.58			93		80-120		
Xylene (Total)	60	56.96			95		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17303WAE026	Sample number(s): 9288603								
1,4-Dioxane	1.00	1.20	1.00	1.19	120	119	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17303007	Sample number(s): 9288600-9288603								
6:2 fluorotelomersulfonate	15.17	18.91	15.17	18.06	125	119	70-130	5	30
8:2 fluorotelomersulfonate	15.33	16.64	15.33	15.75	109	103	70-130	5	30
NEtFOSAA	5.44	7.99	5.44	9.03	147*	166*	70-130	12	30
NMeFOSAA	5.44	10.03	5.44	8.86	184*	163*	70-130	12	30
Perfluorobutanesulfonate	4.81	5.30	4.81	5.71	110	119	70-130	7	30
Perfluorobutanoic acid	5.44	6.05	5.44	6.48	111	119	70-130	7	30
Perfluorodecanoic acid	5.44	6.62	5.44	6.25	122	115	70-130	6	30
Perfluorododecanoic acid	5.44	6.38	5.44	6.42	117	118	70-130	1	30
Perfluoroheptanoic acid	5.44	5.98	5.44	6.17	110	113	70-130	3	30
Perfluorohexanesulfonate	5.14	5.35	5.14	5.48	104	107	70-130	2	30
Perfluorohexanoic acid	5.44	6.04	5.44	5.93	111	109	70-130	2	30
Perfluorononanoic acid	5.44	5.50	5.44	5.53	101	102	70-130	1	30
Perfluorooctanesulfonamide	5.44	7.14	5.44	7.58	131*	139*	70-130	6	30
Perfluoro-octanesulfonate	5.20	5.51	5.20	4.96	106	95	70-130	10	30
Perfluorooctanoic acid	5.44	6.32	5.44	6.11	116	112	70-130	3	30
Perfluoropentanoic acid	5.44	6.29	5.44	6.33	116	116	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.46	5.44	6.19	119	114	70-130	4	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	6.70	5.44	6.05	123	111	70-130	10	30
Perfluoroundecanoic acid	5.44	6.43	5.44	5.86	118	108	70-130	9	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173030571302	Sample number(s): 9288603								
Mercury	0.00100	0.00101			101		80-120		
Batch number: 173050571305	Sample number(s): 9288600								
Mercury	0.00100	0.000902			90		80-120		
Batch number: 173051063502	Sample number(s): 9288600,9288603								
Aluminum	2.00	1.93			96		80-120		
Boron	2.00	1.79			89		80-120		
Calcium	4.00	3.88			97		80-120		
Iron	1.00	0.958			96		80-120		
Magnesium	2.00	1.93			97		80-120		
Manganese	0.500	0.502			100		80-120		
Potassium	10	9.84			98		80-120		
Sodium	10	9.54			95		80-120		
Zinc	0.500	0.496			99		80-120		
Batch number: 173051063902A	Sample number(s): 9288600,9288603								
Antimony	0.00600	0.00611			102		80-120		
Arsenic	0.0100	0.0106			106		80-120		
Beryllium	0.00400	0.00415			104		80-120		
Cadmium	0.00500	0.00522			104		80-120		
Chromium	0.0500	0.0506			101		80-120		
Cobalt	0.250	0.262			105		80-120		
Copper	0.0500	0.0559			112		80-120		
Lead	0.0150	0.0154			103		80-120		
Nickel	0.0500	0.0543			109		80-120		
Silver	0.0500	0.0529			106		80-120		
Thallium	0.00200	0.00206			103		80-120		
Vanadium	0.0500	0.0536			107		80-120		
Batch number: 173051063902B	Sample number(s): 9288600,9288603								
Selenium	0.0100	0.0102			102		80-120		
Batch number: 173051063902D	Sample number(s): 9288600,9288603								
Barium	0.0500	0.0547			109		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17301987106A	Sample number(s): 9288600,9288603								
Bromide	7.50	7.05	7.50	7.01	94	93	90-110	1	20
Chloride	3.00	2.84	3.00	2.82	95	94	90-110	1	20
Nitrate Nitrogen	0.750	0.725	0.750	0.719	97	96	90-110	1	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Nitrite Nitrogen	0.750	0.687	0.750	0.684	92	91	90-110	1	20
Sulfate	7.50	7.13	7.50	7.07	95	94	90-110	1	20
Batch number: 17310108102B	Sample number(s): 9288600,9288603								
Kjeldahl Nitrogen	5.00	5.22			104		90-110		
Batch number: 17311117101B	Sample number(s): 9288603								
Total Cyanide	0.200	0.189			94		90-110		
Batch number: 17314107104A	Sample number(s): 9288600,9288603								
Ammonia Nitrogen	1.50	1.35			90		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17301022603A	Sample number(s): 9288600,9288603								
Ortho-Phosphate as P	0.400	0.406	0.400	0.400	102	100	95-105	1	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17304003102A	Sample number(s): 9288600,9288603								
Total Alkalinity to pH 4.5	188	172.55			92		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 5173103AA	Sample number(s): 9288603 UNSPK: P300791									
Acetone	6 U	150	205.45	150	205	137	137	44-177	0	30
Benzene	0.5 U	20	21.55	20	21.33	108	107	78-120	1	30
Bromochloromethane	1 U	20	21.61	20	21.69	108	108	80-125	0	30
Bromodichloromethane	0.5 U	20	20.94	20	20.74	105	104	71-120	1	30
Bromoform	0.5 U	20	18.29	20	18.08	91	90	59-120	1	30
Bromomethane	0.5 U	20	19.39	20	19.78	97	99	44-139	2	30
2-Butanone	3 U	150	167.1	150	165.32	111	110	53-140	1	30
Carbon Disulfide	1 U	20	22.78	20	22.81	114	114	65-128	0	30
Carbon Tetrachloride	0.5 U	20	27.28	20	27.47	136*	137*	68-128	1	30
Chlorobenzene	0.5 U	20	20.94	20	20.75	105	104	80-120	1	30
Chloroethane	0.5 U	20	18.34	20	18.59	92	93	52-127	1	30
Chloroform	0.5 U	20	21.3	20	21.22	107	106	80-120	0	30
Chloromethane	0.5 U	20	18.41	20	18.62	92	93	57-120	1	30
Cyclohexane	2 U	20	24.42	20	24.48	122*	122*	67-121	0	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dibromo-3-chloropropane	2 U	20	18.31	20	18.81	92	94	64-120	3	30
Dibromochloromethane	0.5 U	20	20.53	20	20.41	103	102	71-120	1	30
1,2-Dibromoethane	0.5 U	20	20.47	20	20.43	102	102	75-120	0	30
1,2-Dichlorobenzene	1 U	20	19.93	20	20.13	100	101	80-120	1	30
1,3-Dichlorobenzene	1 U	20	20.19	20	20.17	101	101	80-120	0	30
1,4-Dichlorobenzene	1 U	20	20.02	20	20.2	100	101	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	22.16	20	22.43	111	112	47-124	1	30
1,1-Dichloroethane	0.5 U	20	21.17	20	21.12	106	106	80-120	0	30
1,2-Dichloroethane	0.5 U	20	20.34	20	20.27	102	101	73-124	0	30
1,1-Dichloroethene	0.5 U	20	23.44	20	23.41	117	117	76-124	0	30
cis-1,2-Dichloroethene	0.5 U	20	21.9	20	21.92	109	110	80-120	0	30
trans-1,2-Dichloroethene	0.5 U	20	22.98	20	22.71	115	114	80-120	1	30
1,2-Dichloropropane	0.5 U	20	21.12	20	21.14	106	106	80-120	0	30
cis-1,3-Dichloropropene	0.5 U	20	20.18	20	20.1	101	100	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	19.13	20	19.27	96	96	76-120	1	30
Ethylbenzene	0.5 U	20	21.16	20	21.16	106	106	78-120	0	30
Freon 113	2 U	20	27.9	20	28.11	139*	141*	68-137	1	30
2-Hexanone	3 U	100	95.03	100	94.88	95	95	60-134	0	30
Isopropylbenzene	1 U	20	22.05	20	22.06	110	110	80-120	0	30
Methyl Acetate	1 U	20	19.44	20	19.62	97	98	61-137	1	30
Methyl Tertiary Butyl Ether	0.5 U	20	21.02	20	20.93	105	105	75-120	0	30
4-Methyl-2-pentanone	3 U	100	93.93	100	92.83	94	93	67-128	1	30
Methylcyclohexane	1 U	20	26.48	20	26.33	132*	132*	66-126	1	30
Methylene Chloride	0.5 U	20	21.4	20	21.46	107	107	80-120	0	30
Styrene	1 U	20	21.18	20	21.28	106	106	80-120	0	30
1,1,2,2-Tetrachloroethane	0.5 U	20	18.31	20	18.17	92	91	72-120	1	30
Tetrachloroethene	0.5 U	20	22.63	20	22.56	113	113	80-129	0	30
Toluene	0.5 U	20	20.91	20	20.97	105	105	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	19	20	19.52	95	98	66-120	3	30
1,2,4-Trichlorobenzene	1 U	20	19.23	20	19.45	96	97	70-120	1	30
1,1,1-Trichloroethane	0.5 U	20	24.35	20	24.33	122*	122*	67-120	0	30
1,1,2-Trichloroethane	0.5 U	20	20.48	20	20.72	102	104	80-120	1	30
Trichloroethene	0.5 U	20	21.57	20	21.24	108	106	80-120	2	30
Trichlorofluoromethane	0.5 U	20	22.94	20	23.07	115	115	52-143	1	30
Vinyl Chloride	0.5 U	20	19.54	20	19.83	98	99	63-121	1	30
m+p-Xylene	0.5 U	40	42.69	40	42.65	107	107	80-120	0	30
o-Xylene	0.5 U	20	20.88	20	20.83	104	104	80-120	0	30
Xylene (Total)	0.5 U	60	63.57	60	63.48	106	106	80-120	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173030571302	Sample number(s): 9288603 UNSPK: P283334									
Mercury	0.000050 U	0.00100	0.00104	0.00100	0.00104	104	104	80-120	0	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 173050571305	Sample number(s): 9288600 UNSPK: P285346									
Mercury	0.000050 U	0.00100	0.000897	0.00100	0.000877	90	88	80-120	2	20
Batch number: 173051063502	Sample number(s): 9288600,9288603 UNSPK: P291231									
Aluminum	0.0894 U	2.00	2.02	2.00	2.01	101	101	75-125	0	20
Boron	0.285	2.00	2.19	2.00	2.19	95	95	75-125	0	20
Calcium	98.35	4.00	100.85	4.00	101.12	62 (2)	69 (2)	75-125	0	20
Iron	7.01	1.00	7.85	1.00	7.86	84 (2)	85 (2)	75-125	0	20
Magnesium	18.02	2.00	19.78	2.00	19.79	88 (2)	89 (2)	75-125	0	20
Manganese	2.01	0.500	2.47	0.500	2.48	92 (2)	95 (2)	75-125	1	20
Potassium	3.37	10	13.5	10	13.44	101	101	75-125	0	20
Sodium	54.37	10	63.64	10	63.63	93 (2)	93 (2)	75-125	0	20
Zinc	0.0065 U	0.500	0.512	0.500	0.507	102	101	75-125	1	20
Batch number: 173051063902A	Sample number(s): 9288600,9288603 UNSPK: P285342									
Antimony	0.00045 U	0.00600	0.00650	0.00600	0.00670	108	112	75-125	3	20
Arsenic	0.00072 U	0.0100	0.0106	0.0100	0.0117	106	117	75-125	10	20
Beryllium	0.000071 U	0.00400	0.00430	0.00400	0.00407	107	102	75-125	6	20
Cadmium	0.00015 U	0.00500	0.00467	0.00500	0.00563	93	113	75-125	19	20
Chromium	0.00087 U	0.0500	0.0542	0.0500	0.0541	108	108	75-125	0	20
Cobalt	0.00321	0.250	0.258	0.250	0.268	102	106	75-125	4	20
Copper	0.000548	0.0500	0.0529	0.0500	0.0526	105	104	75-125	1	20
Lead	0.00011 U	0.0150	0.0156	0.0150	0.0153	104	102	75-125	2	20
Nickel	0.0159	0.0500	0.0689	0.0500	0.0690	106	106	75-125	0	20
Silver	0.00015 U	0.0500	0.0500	0.0500	0.0519	100	104	75-125	4	20
Thallium	0.00012 U	0.00200	0.00170	0.00200	0.00208	85	104	75-125	20	20
Vanadium	0.00021 U	0.0500	0.0530	0.0500	0.0522	106	104	75-125	1	20
Batch number: 173051063902B	Sample number(s): 9288600,9288603 UNSPK: P285342									
Selenium	0.00050 U	0.0100	0.0106	0.0100	0.0103	106	103	75-125	3	20
Batch number: 173051063902D	Sample number(s): 9288600,9288603 UNSPK: P285342									
Barium	0.0579	0.0500	0.100	0.0500	0.104	85	92	75-125	3	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17301987106A	Sample number(s): 9288600,9288603 UNSPK: 9288603									
Bromide	1.3 U	25	23.29			93		90-110		
Chloride	1.02	10	9.98			90		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.50			100		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.35			94		90-110		
Sulfate	4.31	25	27.78			94		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17310108102B	Sample number(s): 9288600,9288603 UNSPK: P291945									
Kjeldahl Nitrogen	0.734	5.00	6.24			110		90-110		
Batch number: 17311117101B	Sample number(s): 9288603 UNSPK: P288689									
Total Cyanide	0.0050 U	0.200	0.190			95		72-114		
Batch number: 17314107104A	Sample number(s): 9288600,9288603 UNSPK: 9288603									
Ammonia Nitrogen	0.050 U	1.00	0.950			95		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17304003102A	Sample number(s): 9288600,9288603 UNSPK: P289990									
Total Alkalinity to pH 4.5	246.11	188	416.46			91		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 173030571302	Sample number(s): 9288603 BKG: P283334			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173050571305	Sample number(s): 9288600 BKG: P285346			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173051063502	Sample number(s): 9288600,9288603 BKG: P291231			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.285	0.283	1 (1)	20
Calcium	98.35	98.74	0	20
Iron	7.01	7.02	0	20
Magnesium	18.02	18.07	0	20
Manganese	2.01	2.01	0	20
Potassium	3.37	3.50	4 (1)	20
Sodium	54.37	54.55	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 173051063902A	Sample number(s): 9288600,9288603 BKG: P285342			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00321	0.00307	4 (1)	20
Copper	0.000548	0.000695	24* (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.0159	0.0169	6 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 173051063902B	Sample number(s): 9288600,9288603 BKG: P285342			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173051063902D	Sample number(s): 9288600,9288603 BKG: P285342			
Barium	0.0579	0.0548	5	20
	mg/l	mg/l		
Batch number: 17301987106A	Sample number(s): 9288600,9288603 BKG: 9288603			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	1.02	1.0 U	200* (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	4.31	4.46	4 (1)	15
Batch number: 17310108102B	Sample number(s): 9288600,9288603 BKG: P291945			
Kjeldahl Nitrogen	0.734	0.699	5 (1)	20
Batch number: 17311117101B	Sample number(s): 9288603 BKG: P288689			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17314107104A	Sample number(s): 9288600,9288603 BKG: 9288603			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17301022603A	Sample number(s): 9288600,9288603 BKG: 9288603			
Ortho-Phosphate as P	0.225	0.228	2 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17304003102A	Sample number(s): 9288600,9288603 BKG: P289990			
Total Alkalinity to pH 4.5	246.11	249.26	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5173103AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9288603	99	103	98	98
Blank	99	102	98	96
LCS	102	105	98	99
MS	101	100	99	100
MSD	102	101	100	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17303WAE026

	1,4-Dioxane-d8
9288603	42*
Blank	40*
LCS	46*
LCSD	42*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9288600	74	86	88	78	89	84
9288601	65	62	66	73	73	74
9288602	71	68	63	77	79	80
9288603	90	74	75	88	92	86
Blank	82	77	72	90	91	83
LCS	75	71	67	75	79	74
LCSD	73	70	68	85	84	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9288600	61	73	75	73	73	62
9288601	50	68	65	60	64	49
9288602	66	73	70	64	67	49
9288603	68	85	78	81	85	61
Blank	79	86	80	82	85	73
LCS	59	73	74	65	70	58
LCSD	69	75	75	68	74	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1868545

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17303007

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9288600	74	76	80	71	60	40*
9288601	73	69	79	70	67	52*
9288602	80	65	89	74	69	54*
9288603	82	88	106	85	80	54*
Blank	100	87	111	89	96	59*
LCS	87	75	105	76	74	56*
LCSD	77	70	89	77	76	53*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1868545 9288600-03

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52272

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-N. Bennington	Barr Project No: 32421001.03

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250 mL w/ HNO3	250 mL - Filtered	40 mL glass - unpres.	250 mL - H2SO4	500 mL - H2SO4	250 mL	Soil 40mL glass - HCl	250mL Plastic - NaOH/ascorbic	250 mL Glass	% Solids	Preservative Code	Field Filtered Y/N
										O	C	D	A	D	A	B	E	A			
										N	N	N	N	N	Y	N	N	N			
1.	SG3-DZ1-171027	—	—	—	10/27/17	9:15	GW	N	7	2	1		1	1				2			
2.	SG3-LTB01-171027	—	—	—	10/27/17	—	RW	N	2	2											
3.	SG3-FTB01-171027	—	—	—	10/27/17	10:20	RW	N	2				2								
4.	SG3-B-4-3-171027	—	—	—	10/27/17	11:40	GW	N	8	2	2	2	1	1	1	3	1	2			
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Analyses:
(9) PFCs, TCL VOCs (SOM02.2 VOC), TAL Metals + Cations (including CN, Hg), Anions, Ammonia as thephosphate, Total Kjeldahl Nitrogen, 1,4-dioxane
* See attachments & Verify w/ MDD

BARR USE ONLY							
Sampled by: DK, NC	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 10/28/17	Time 1000
Barr DQ Manager: MDD	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 2.6/2.8	Custody Seal Intact? ☑ Y ☐ N ☐ None				
Lab Location: Lancaster PA							

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

37191 1868545 9258600-03
~~1868251~~
(3) MM 10/26/17

LANDFILL WELLS:

- PFCs
- TCL VOCs (SOM02.2 VOC)
- TAL Metals and Cations (including cyanide and mercury)
- Anions
- Ammonia
- Orthophosphate
- Total Kjeldahl nitrogen
- 1,4-Dioxane

OUTSIDE LANDFILL WELLS:

- PFCs
- TAL Metals/Cations (excluding cyanide and mercury)
- Anions
- Ammonia
- Orthophosphate
- Total Kjeldahl nitrogen

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Sample Administration Receipt Documentation Log

Doc Log ID: 199191

Group Number(s): 1868545

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/28/2017 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 Unpres. + 2 Trizma

Unpacked by Wyatt Shiffler (12792) at 11:17 on 10/28/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	2.8	DT	Wet	Y	Bagged	N
2	DT42-02	2.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 14, 2017 10:34

Project: SGPP - Bennington

Account #: 37191
Group Number: 1869094
SDG: SNB21
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB97-171030 Water	10/30/2017	9291197
SG3-LTB98-171030 Water	10/30/2017	9291198
SG3-MW-BR4-261-262' Grab Soil	10/30/2017 12:00	9291199
SG3-MW-BR4-261-262' MS Grab Soil	10/30/2017 12:00	9291200
SG3-MW-BR4-261-262' MSD Grab Soil	10/30/2017 12:00	9291201
SG3-MW-BR4-261-262' Dupl Grab Soil	10/30/2017 12:00	9291202
SG3-FDS17-171030 Grab Soil	10/30/2017	9291203
SG3-MW-BR4-271-272' Grab Soil	10/30/2017 12:40	9291204
SG3-MW-BR4-281-282' Grab Soil	10/30/2017 14:40	9291205
SG3-MW-BR4-291-292' Grab Soil	10/30/2017 15:30	9291206

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1869094

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9291199, 9291203, 9291204, 9291205, 9291206

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9291200, 9291201

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standard(s) is outside the QC acceptance limits. The recovery for the labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike(s), indicating a matrix effect.

Batch #: 17307011 (Sample number(s): 9291199-9291201, 9291203-9291206 UNSPK: 9291199)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoro-octanesulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9291199, 9291200, 9291201, 9291203, 9291204, 9291205, 9291206, MS, MSD

Batch #: 17310003 (Sample number(s): 9291197-9291198)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluoro-octanesulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

SW-846 6010C, Metals

Batch #: 173061063701 (Sample number(s): 9291199-9291206 UNSPK: 9291199 BKG: 9291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium, Manganese

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Magnesium

Batch #: 173111063701 (Sample number(s): 9291199-9291206 UNSPK: 9291199 BKG: 9291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron

SW-846 6020A, Metals

Batch #: 173061063701A (Sample number(s): 9291199-9291206 UNSPK: 9291199 BKG: 9291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Beryllium, Lead, Nickel, Thallium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony, Cadmium

Batch #: 173061063701D (Sample number(s): 9291199-9291206 UNSPK: 9291199 BKG: 9291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

Batch #: 173111063701A (Sample number(s): 9291199-9291206 UNSPK: 9291199 BKG: 9291199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Copper, Vanadium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9291203, 9291204, 9291205, 9291206

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9291199

The pH was measured in water at 19.2 C.

Sample #s: 9291202

The pH was measured in water at 19.5 C.

Sample #s: 9291203, 9291204, 9291206

The pH was measured in water at 19.7 C.

Sample #s: 9291205

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The pH was measured in water at 20 C.

Sample Description: **SG3-LTB97-171030 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017
SDG#: SNB21-01TB

C. T. Male Associates
ELLE Sample #: WW 9291197
ELLE Group #: 1869094
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310003	11/08/2017 01:55	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310003	11/06/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB98-171030 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017
SDG#: SNB21-02TB

C. T. Male Associates
ELLE Sample #: WW 9291198
ELLE Group #: 1869094
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310003	11/08/2017 02:16	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310003	11/06/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03BKG

C. T. Male Associates
ELLE Sample #: SW 9291199
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.53	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.53	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.53	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.53	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.53	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.53	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.53	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.53	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.53	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.53	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.53	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**25,300**	9.84	44.0	1
01650	**Calcium**	7440-70-2	**656**	3.89	46.7	1
01654	**Iron**	7439-89-6	**34,500**	47.0	233	5
01657	**Magnesium**	7439-95-4	**6,930**	2.67	22.0	1
06958	**Manganese**	7439-96-5	**456**	0.0914	1.10	1
01662	**Potassium**	7440-09-7	**5,430**	18.4	110	1
01667	**Sodium**	7440-23-5	**21.3 J**	18.4	220	1
06972	**Zinc**	7440-66-6	**51.2**	0.280	4.67	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.153 J**	0.103	0.440	2
06125	**Arsenic**	7440-38-2	**9.16**	0.141	0.881	2
06126	**Barium**	7440-39-3	**79.8**	0.200	0.881	2
06127	**Beryllium**	7440-41-7	**1.96**	0.0115	0.220	2
06128	**Cadmium**	7440-43-9	**0.202 J**	0.0379	0.220	2
06131	**Chromium**	7440-47-3	**13.1**	0.203	0.933	2
06132	**Cobalt**	7440-48-4	**14.4**	0.0343	0.220	2
06133	**Copper**	7440-50-8	**35.3**	0.125	0.933	2
06135	**Lead**	7439-92-1	**7.66**	0.0244	0.440	2
06139	**Nickel**	7440-02-0	**22.3**	0.219	0.881	2
06141	Selenium	7782-49-2	0.110 U	0.110	0.881	2
06142	**Silver**	7440-22-4	**0.0402 J**	0.0321	0.220	2
06145	**Thallium**	7440-28-0	**1.50**	0.0275	0.220	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03BKG

C. T. Male Associates
ELLE Sample #: SW 9291199
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**20.0**	0.0497	0.233	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**367**	118	354	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.57**	0.0100	0.0100	1
	The pH was measured in water at 19.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**14.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 07:28	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 16:57	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 06:23	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:05	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 17:53	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 16:57	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 16:57	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 16:57	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 06:23	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 12:43	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:34	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:34	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03BKG

C. T. Male Associates
ELLE Sample #: SW 9291199
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 12:43	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 12:43	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:34	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 08:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' MS Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MS

C. T. Male Associates
ELLE Sample #: SW 9291200
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.2**	0.20	0.61	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.4**	0.20	0.61	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.2**	0.20	0.61	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.3**	0.20	0.61	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.5**	0.20	0.61	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.4**	0.20	0.61	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.4**	0.10	0.41	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.10	0.41	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**1.4**	0.31	0.92	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.5**	0.20	0.61	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.3**	0.20	0.61	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.3**	0.20	0.61	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.3**	0.20	0.61	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.4**	0.20	0.61	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standard(s) is outside the QC acceptance limits. The recovery for the labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike(s), indicating a matrix effect.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**30,000**	8.84	39.6	1
01650	**Calcium**	7440-70-2	**1,020**	3.81	45.8	1
01654	**Iron**	7439-89-6	**31,900**	46.0	229	5
01657	**Magnesium**	7439-95-4	**6,460**	2.40	19.8	1
06958	**Manganese**	7439-96-5	**521**	0.0821	0.989	1
01662	**Potassium**	7440-09-7	**6,330**	16.5	98.9	1
01667	**Sodium**	7440-23-5	**890**	16.5	198	1
06972	**Zinc**	7440-66-6	**97.5**	0.275	4.58	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**1.11**	0.0922	0.396	2
06125	**Arsenic**	7440-38-2	**11.1**	0.127	0.791	2
06126	**Barium**	7440-39-3	**93.4**	0.180	0.791	2
06127	**Beryllium**	7440-41-7	**3.09**	0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**1.37**	0.0340	0.198	2
06131	**Chromium**	7440-47-3	**24.8**	0.199	0.915	2
06132	**Cobalt**	7440-48-4	**74.6**	0.0309	0.198	2
06133	**Copper**	7440-50-8	**52.8**	0.123	0.915	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' MS Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MS

C. T. Male Associates
ELLE Sample #: SW 9291200
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	**Lead**	7439-92-1	**11.7**	0.0220	0.396	2
06139	**Nickel**	7440-02-0	**36.6**	0.197	0.791	2
06141	**Selenium**	7782-49-2	**2.26**	0.0989	0.791	2
06142	**Silver**	7440-22-4	**10.7**	0.0289	0.198	2
06145	**Thallium**	7440-28-0	**2.01**	0.0247	0.198	2
06148	**Vanadium**	7440-62-2	**34.7**	0.0487	0.229	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**19,900**	554	1,660	1
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**14.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 05:45	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:08	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 06:34	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:17	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 18:03	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:08	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:08	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:08	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 06:34	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 12:53	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06131	Chromium	SW-846 6020A	2	173111063701A	11/08/2017 06:39	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:39	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 12:53	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' MS Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MS

C. T. Male Associates
ELLE Sample #: SW 9291200
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 12:53	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:39	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 08:49	Drew M Gerhart	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-BR4-261-262' MSD Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MSD

C. T. Male Associates
ELLE Sample #: SW 9291201
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/g	ng/g	ng/g	
14027	**Perfluorobutanesulfonate**	375-73-5	**1.1**	0.19	0.56	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.3**	0.19	0.56	1
14027	**Perfluorodecanoic acid**	335-76-2	**1.4**	0.19	0.56	1
14027	**Perfluorododecanoic acid**	307-55-1	**1.4**	0.19	0.56	1
14027	**Perfluoroheptanoic acid**	375-85-9	**1.6**	0.19	0.56	1
14027	**Perfluorohexanesulfonate**	355-46-4	**1.3**	0.19	0.56	1
14027	**Perfluorohexanoic acid**	307-24-4	**1.3**	0.093	0.37	1
14027	**Perfluorononanoic acid**	375-95-1	**1.3**	0.093	0.37	1
14027	**Perfluoro-octanesulfonate**	1763-23-1	**0.94**	0.28	0.84	1
14027	**Perfluorooctanoic acid**	335-67-1	**1.2**	0.19	0.56	1
14027	**Perfluoropentanoic acid**	2706-90-3	**1.4**	0.19	0.56	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**1.3**	0.19	0.56	1
14027	**Perfluorotridecanoic acid**	72629-94-8	**1.4**	0.19	0.56	1
14027	**Perfluoroundecanoic acid**	2058-94-8	**1.3**	0.19	0.56	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compounds used as extraction standard(s) is outside the QC acceptance limits. The recovery for the labeled compounds used as extraction standards is also outside the QC acceptance limits in the associated matrix spike(s), indicating a matrix effect.

Metals	**SW-846 6010C**		mg/kg	mg/kg	mg/kg	
01643	**Aluminum**	7429-90-5	**29,700**	7.61	34.1	1
01650	**Calcium**	7440-70-2	**1,110**	3.89	46.7	1
01654	**Iron**	7439-89-6	**34,500**	47.0	233	5
01657	**Magnesium**	7439-95-4	**7,200**	2.07	17.0	1
06958	**Manganese**	7439-96-5	**546**	0.0707	0.852	1
01662	**Potassium**	7440-09-7	**6,340**	14.2	85.2	1
01667	**Sodium**	7440-23-5	**751**	14.2	170	1
06972	**Zinc**	7440-66-6	**104**	0.280	4.67	1
	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06124	**Antimony**	7440-36-0	**0.857**	0.0794	0.341	2
06125	**Arsenic**	7440-38-2	**11.3**	0.109	0.681	2
06126	**Barium**	7440-39-3	**92.1**	0.155	0.681	2
06127	**Beryllium**	7440-41-7	**2.92**	0.0089	0.170	2
06128	**Cadmium**	7440-43-9	**1.08**	0.0293	0.170	2
06131	**Chromium**	7440-47-3	**26.7**	0.203	0.933	2
06132	**Cobalt**	7440-48-4	**65.9**	0.0266	0.170	2
06133	**Copper**	7440-50-8	**52.5**	0.125	0.933	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' MSD Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MSD

C. T. Male Associates
ELLE Sample #: SW 9291201
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals		**SW-846 6020A**	**mg/kg**	**mg/kg**	**mg/kg**	
06135	**Lead**	7439-92-1	**11.6**	0.0189	0.341	2
06139	**Nickel**	7440-02-0	**34.9**	0.170	0.681	2
06141	**Selenium**	7782-49-2	**1.90**	0.0852	0.681	2
06142	**Silver**	7440-22-4	**8.80**	0.0249	0.170	2
06145	**Thallium**	7440-28-0	**1.81**	0.0213	0.170	2
06148	**Vanadium**	7440-62-2	**33.9**	0.0497	0.233	2
Wet Chemistry		**SM 2540 G-1997 %Moisture Calc**	**%**	**%**	**%**	
00118	**Moisture**	n.a.	**14.3**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 06:06	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:12	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	2	173111063701	11/08/2017 06:37	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:20	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 18:07	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:12	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:12	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:12	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 06:37	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 12:56	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06131	Chromium	SW-846 6020A	2	173111063701A	11/08/2017 06:41	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:41	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 12:56	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 12:56	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:41	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' MSD Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03MSD

C. T. Male Associates
ELLE Sample #: SW 9291201
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Sample Description: SG3-MW-BR4-261-262' Dupl Grab Soil
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03DUP

C. T. Male Associates
ELLE Sample #: SW 9291202
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**26,500**	9.93	44.5	1
01650	**Calcium**	7440-70-2	**625**	3.89	46.7	1
01654	**Iron**	7439-89-6	**31,400**	47.0	233	5
01657	**Magnesium**	7439-95-4	**8,400**	2.70	22.2	1
06958	**Manganese**	7439-96-5	**417**	0.0922	1.11	1
01662	**Potassium**	7440-09-7	**6,230**	18.6	111	1
01667	**Sodium**	7440-23-5	**20.2 J**	18.6	222	1
06972	**Zinc**	7440-66-6	**48.5**	0.280	4.67	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.178 J**	0.104	0.445	2
06125	**Arsenic**	7440-38-2	**8.51**	0.142	0.889	2
06126	**Barium**	7440-39-3	**80.1**	0.202	0.889	2
06127	**Beryllium**	7440-41-7	**2.10**	0.0116	0.222	2
06128	**Cadmium**	7440-43-9	**0.172 J**	0.0382	0.222	2
06131	**Chromium**	7440-47-3	**12.6**	0.203	0.933	2
06132	**Cobalt**	7440-48-4	**15.4**	0.0347	0.222	2
06133	**Copper**	7440-50-8	**36.8**	0.125	0.933	2
06135	**Lead**	7439-92-1	**7.45**	0.0247	0.445	2
06139	**Nickel**	7440-02-0	**24.3**	0.221	0.889	2
06141	Selenium	7782-49-2	0.111 U	0.111	0.889	2
06142	**Silver**	7440-22-4	**0.0462 J**	0.0324	0.222	2
06145	**Thallium**	7440-28-0	**1.63**	0.0278	0.222	2
06148	**Vanadium**	7440-62-2	**19.4**	0.0497	0.233	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**357**	117	350	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.54**	0.0100	0.0100	1
	The pH was measured in water at 19.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00118	**Moisture**	n.a.	**14.3**	0.50	0.50	1
00121	**Moisture Duplicate**	n.a.	**14.6**	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-261-262' Dupl Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:00
SDG#: SNB21-03DUP

C. T. Male Associates
ELLE Sample #: SW 9291202
ELLE Group #: 1869094
Matrix: Soil

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:05	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 06:30	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:13	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 18:00	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:05	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:05	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:05	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 06:30	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 12:50	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:38	Choon Y Tian	2
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:38	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 12:50	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 12:50	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:38	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 09:02	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS17-171030 Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017
SDG#: SNB21-04

C. T. Male Associates
ELLE Sample #: SW 9291203
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.081 U	0.081	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.081 U	0.081	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.73	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,900**	8.62	38.5	1
01650	**Calcium**	7440-70-2	**616**	3.67	44.1	1
01654	**Iron**	7439-89-6	**17,300**	8.88	44.1	1
01657	**Magnesium**	7439-95-4	**3,020**	2.34	19.3	1
06958	**Manganese**	7439-96-5	**566**	0.0800	0.964	1
01662	**Potassium**	7440-09-7	**2,290**	16.1	96.4	1
01667	Sodium	7440-23-5	16.1 U	16.1	193	1
06972	**Zinc**	7440-66-6	**37.4**	0.265	4.41	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0898 U	0.0898	0.385	2
06125	**Arsenic**	7440-38-2	**1.68**	0.123	0.771	2
06126	**Barium**	7440-39-3	**79.9**	0.175	0.771	2
06127	**Beryllium**	7440-41-7	**1.19**	0.0101	0.193	2
06128	**Cadmium**	7440-43-9	**0.276**	0.0332	0.193	2
06131	**Chromium**	7440-47-3	**5.79**	0.192	0.882	2
06132	**Cobalt**	7440-48-4	**15.0**	0.0301	0.193	2
06133	**Copper**	7440-50-8	**11.8**	0.118	0.882	2
06135	**Lead**	7439-92-1	**5.85**	0.0214	0.385	2
06139	**Nickel**	7440-02-0	**13.2**	0.192	0.771	2
06141	Selenium	7782-49-2	0.0964 U	0.0964	0.771	2
06142	**Silver**	7440-22-4	**0.0467 J**	0.0281	0.193	2
06145	**Thallium**	7440-28-0	**0.631**	0.0241	0.193	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS17-171030 Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017
SDG#: SNB21-04

C. T. Male Associates
ELLE Sample #: SW 9291203
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.08**		0.0470	0.221	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**164**	**J**	118	354	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.26**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**12.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 07:48	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:46	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 07:08	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 19:58	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:18	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:46	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:46	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:46	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 07:08	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:23	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 06:59	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FDS17-171030 Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017
SDG#: SNB21-04

C. T. Male Associates
ELLE Sample #: SW 9291203
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 06:59	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:23	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:23	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 06:59	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 07:44	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-271-272' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:40
SDG#: SNB21-05

C. T. Male Associates
ELLE Sample #: SW 9291204
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.69	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.69	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.69	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.69	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.69	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.69	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.46	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.46	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.69	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.69	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.69	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.69	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.69	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**13,000**	8.86	39.6	1
01650	**Calcium**	7440-70-2	**560**	3.83	46.0	1
01654	**Iron**	7439-89-6	**16,600**	9.25	46.0	1
01657	**Magnesium**	7439-95-4	**3,560**	2.41	19.8	1
06958	**Manganese**	7439-96-5	**969**	0.0822	0.991	1
01662	**Potassium**	7440-09-7	**2,990**	16.5	99.1	1
01667	Sodium	7440-23-5	16.5 U	16.5	198	1
06972	**Zinc**	7440-66-6	**38.9**	0.276	4.60	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0924 U	0.0924	0.396	2
06125	**Arsenic**	7440-38-2	**1.58**	0.127	0.793	2
06126	**Barium**	7440-39-3	**144**	0.180	0.793	2
06127	**Beryllium**	7440-41-7	**1.37**	0.0104	0.198	2
06128	**Cadmium**	7440-43-9	**0.423**	0.0341	0.198	2
06131	**Chromium**	7440-47-3	**5.63**	0.200	0.920	2
06132	**Cobalt**	7440-48-4	**17.9**	0.0309	0.198	2
06133	**Copper**	7440-50-8	**11.7**	0.123	0.920	2
06135	**Lead**	7439-92-1	**9.99**	0.0220	0.396	2
06139	**Nickel**	7440-02-0	**19.1**	0.197	0.793	2
06141	Selenium	7782-49-2	0.0991 U	0.0991	0.793	2
06142	**Silver**	7440-22-4	**0.0775 J**	0.0289	0.198	2
06145	**Thallium**	7440-28-0	**1.09**	0.0248	0.198	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-271-272' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:40
SDG#: SNB21-05

C. T. Male Associates
ELLE Sample #: SW 9291204
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.60**		0.0490	0.230	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**140**	**J**	120	359	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.22**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**13.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 08:09	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:50	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 07:11	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 20:02	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:21	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:50	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:50	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:50	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 07:11	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:27	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/08/2017 07:06	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 07:00	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-271-272' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 12:40
SDG#: SNB21-05

C. T. Male Associates
ELLE Sample #: SW 9291204
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 07:00	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:27	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:27	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 07:00	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 08:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-281-282' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 14:40
SDG#: SNB21-06

C. T. Male Associates
ELLE Sample #: SW 9291205
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.47	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.47	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.35 U	0.35	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**12,000**	10.2	45.5	1
01650	**Calcium**	7440-70-2	**543**	3.90	46.8	1
01654	**Iron**	7439-89-6	**55,100**	47.1	234	5
01657	**Magnesium**	7439-95-4	**5,370**	2.77	22.8	1
06958	**Manganese**	7439-96-5	**2,530**	0.472	5.69	5
01662	**Potassium**	7440-09-7	**3,980**	19.0	114	1
01667	Sodium	7440-23-5	19.0 U	19.0	228	1
06972	**Zinc**	7440-66-6	**89.3**	0.281	4.68	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.197 J**	0.106	0.455	2
06125	**Arsenic**	7440-38-2	**6.60**	0.146	0.910	2
06126	**Barium**	7440-39-3	**221**	0.207	0.910	2
06127	**Beryllium**	7440-41-7	**3.03**	0.0119	0.228	2
06128	**Cadmium**	7440-43-9	**0.556**	0.0391	0.228	2
06131	**Chromium**	7440-47-3	**5.03**	0.204	0.937	2
06132	**Cobalt**	7440-48-4	**44.1**	0.0355	0.228	2
06133	**Copper**	7440-50-8	**55.3**	0.126	0.937	2
06135	**Lead**	7439-92-1	**46.7**	0.0253	0.455	2
06139	**Nickel**	7440-02-0	**31.2**	0.227	0.910	2
06141	Selenium	7782-49-2	0.114 U	0.114	0.910	2
06142	**Silver**	7440-22-4	**0.0498 J**	0.0332	0.228	2
06145	**Thallium**	7440-28-0	**1.19**	0.0284	0.228	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-281-282' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 14:40
SDG#: SNB21-06

C. T. Male Associates
ELLE Sample #: SW 9291205
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.5**	0.0499	0.234	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC	n.a.	129 U	129	387	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.					
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.00**	0.0100	0.0100	1
	The pH was measured in water at 20 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**17.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 08:29	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:54	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 07:15	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 20:06	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:25	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/05/2017 19:32	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:54	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:54	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	2	173111063701	11/08/2017 07:15	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:30	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 07:02	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-281-282' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 14:40
SDG#: SNB21-06

C. T. Male Associates
ELLE Sample #: SW 9291205
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 07:02	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:30	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:30	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 07:02	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 09:15	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-291-292' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 15:30
SDG#: SNB21-07

C. T. Male Associates
ELLE Sample #: SW 9291206
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.59	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.59	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.59	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.59	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.59	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.59	1
14027	Perfluorohexanoic acid	307-24-4	0.098 U	0.098	0.39	1
14027	Perfluorononanoic acid	375-95-1	0.098 U	0.098	0.39	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.89	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.59	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.59	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.59	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.59	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.59	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**14,400**	9.67	43.3	1
01650	**Calcium**	7440-70-2	**492**	4.00	48.0	1
01654	**Iron**	7439-89-6	**30,800**	9.66	48.0	1
01657	**Magnesium**	7439-95-4	**5,110**	2.63	21.6	1
06958	**Manganese**	7439-96-5	**1,470**	0.0898	1.08	1
01662	**Potassium**	7440-09-7	**3,980**	18.1	108	1
01667	Sodium	7440-23-5	18.1 U	18.1	216	1
06972	**Zinc**	7440-66-6	**48.6**	0.288	4.80	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.101 U	0.101	0.433	2
06125	**Arsenic**	7440-38-2	**1.84**	0.138	0.865	2
06126	**Barium**	7440-39-3	**237**	0.196	0.865	2
06127	**Beryllium**	7440-41-7	**2.73**	0.0113	0.216	2
06128	**Cadmium**	7440-43-9	**0.413**	0.0372	0.216	2
06131	**Chromium**	7440-47-3	**5.22**	0.209	0.960	2
06132	**Cobalt**	7440-48-4	**11.1**	0.0337	0.216	2
06133	**Copper**	7440-50-8	**3.04**	0.129	0.960	2
06135	**Lead**	7439-92-1	**3.74**	0.0240	0.433	2
06139	**Nickel**	7440-02-0	**16.6**	0.215	0.865	2
06141	Selenium	7782-49-2	0.108 U	0.108	0.865	2
06142	**Silver**	7440-22-4	**0.125 J**	0.0316	0.216	2
06145	**Thallium**	7440-28-0	**0.964**	0.0270	0.216	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-291-292' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 15:30
SDG#: SNB21-07

C. T. Male Associates
ELLE Sample #: SW 9291206
ELLE Group #: 1869094
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**14.8**		0.0511	0.240	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**128**	**J**	121	364	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.05**		0.0100	0.0100	1
	The pH was measured in water at 19.7 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 08:50	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173061063701	11/03/2017 17:58	Elaine F Stoltzfus	1
01650	Calcium	SW-846 6010C	1	173111063701	11/08/2017 07:18	Jonathan J Allen	1
01654	Iron	SW-846 6010C	2	173111063701	11/08/2017 20:10	Elaine F Stoltzfus	1
01657	Magnesium	SW-846 6010C	1	173061063701	11/05/2017 19:28	Elaine F Stoltzfus	1
06958	Manganese	SW-846 6010C	1	173061063701	11/03/2017 17:58	Elaine F Stoltzfus	1
01662	Potassium	SW-846 6010C	1	173061063701	11/03/2017 17:58	Elaine F Stoltzfus	1
01667	Sodium	SW-846 6010C	1	173061063701	11/03/2017 17:58	Elaine F Stoltzfus	1
06972	Zinc	SW-846 6010C	1	173111063701	11/08/2017 07:18	Jonathan J Allen	1
06124	Antimony	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06125	Arsenic	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	173061063701D	11/06/2017 13:33	Choon Y Tian	2
06127	Beryllium	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	173111063701A	11/08/2017 07:04	Choon Y Tian	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-291-292' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 10/31/2017 09:45
Collection Date/Time: 10/30/2017 15:30
SDG#: SNB21-07

C. T. Male Associates
ELLE Sample #: SW 9291206
ELLE Group #: 1869094
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	173111063701A	11/08/2017 07:04	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	173061063701B	11/06/2017 13:33	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06145	Thallium	SW-846 6020A	1	173061063701A	11/06/2017 13:33	Choon Y Tian	2
06148	Vanadium	SW-846 6020A	1	173111063701A	11/08/2017 07:04	Choon Y Tian	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173061063701	11/02/2017 16:20	JoElla L Rice	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	2	173101063702	11/06/2017 22:30	Denise L Trimby	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	3	173111063701	11/07/2017 18:10	Barbara A Kane	1
02079	TOC	SM 5310 B modified-2000	1	17314667632A	11/11/2017 09:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17305039401A	11/01/2017 17:15	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820003B	11/02/2017 13:39	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	**ng/g**	**ng/g**
Batch number: 17307011	Sample number(s): 9291199-9291201,9291203-9291206		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	**ng/l**	**ng/l**
Batch number: 17310003	Sample number(s): 9291197-9291198		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	**mg/kg**	**mg/kg**
Batch number: 173061063701	Sample number(s): 9291199-9291206		
Aluminum	13.3 J	8.94	40.0
Magnesium	31.6	2.43	20.0
Manganese	0.485 J	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

Method Blank (continued)

Analysis Name	Result mg/kg	MDL** mg/kg	LOQ mg/kg
Batch number: 173061063701A	Sample number(s): 9291199-9291206		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.175 J	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Cobalt	0.0312 U	0.0312	0.200
Lead	0.155 J	0.0222	0.400
Nickel	0.345 J	0.199	0.800
Silver	0.0325 J	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Batch number: 173061063701B	Sample number(s): 9291199-9291206		
Selenium	0.100 U	0.100	0.800
Batch number: 173061063701D	Sample number(s): 9291199-9291206		
Barium	0.398 J	0.182	0.800
Batch number: 173111063701	Sample number(s): 9291199-9291206		
Calcium	3.33 U	3.33	40.0
Iron	8.05 U	8.05	40.0
Zinc	0.240 U	0.240	4.00
Batch number: 173111063701A	Sample number(s): 9291199-9291206		
Chromium	0.174 U	0.174	0.800
Copper	0.107 U	0.107	0.800
Vanadium	0.115 J	0.0426	0.200
Batch number: 17314667632A	Sample number(s): 9291199-9291200,9291202-9291206		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9291199-9291201,9291203-9291206								
Perfluorobutanesulfonate	1.20	1.26			105		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.37			101		70-130		
Perfluorododecanoic acid	1.36	1.43			105		70-130		
Perfluoroheptanoic acid	1.36	1.47			108		70-130		
Perfluorohexanesulfonate	1.29	1.20			93		70-130		
Perfluorohexanoic acid	1.36	1.49			109		70-130		
Perfluorononanoic acid	1.36	1.37			101		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	1.30	1.38			106		70-130		
Perfluorooctanoic acid	1.36	1.27			93		70-130		
Perfluoropentanoic acid	1.36	1.52			112		70-130		
Perfluorotetradecanoic acid	1.36	1.47			108		70-130		
Perfluorotridecanoic acid	1.36	1.61			119		70-130		
Perfluoroundecanoic acid	1.36	1.51			111		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17310003	Sample number(s): 9291197-9291198								
Perfluorobutanesulfonate	4.81	4.89	4.81	6.06	102	126	70-130	21	30
Perfluorobutanoic acid	5.44	5.65	5.44	6.50	104	119	70-130	14	30
Perfluorodecanoic acid	5.44	5.61	5.44	6.78	103	125	70-130	19	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.37	106	117	70-130	10	30
Perfluoroheptanoic acid	5.44	6.48	5.44	6.80	119	125	70-130	5	30
Perfluorohexanesulfonate	5.14	5.28	5.14	5.97	103	116	70-130	12	30
Perfluorohexanoic acid	5.44	5.32	5.44	5.59	98	103	70-130	5	30
Perfluorononanoic acid	5.44	5.42	5.44	5.20	100	96	70-130	4	30
Perfluoro-octanesulfonate	5.20	3.99	5.20	5.69	77	109	70-130	35*	30
Perfluorooctanoic acid	5.44	5.78	5.44	5.84	106	107	70-130	1	30
Perfluoropentanoic acid	5.44	5.67	5.44	6.31	104	116	70-130	11	30
Perfluorotetradecanoic acid	5.44	5.71	5.44	6.71	105	123	70-130	16	30
Perfluorotridecanoic acid	5.44	5.32	5.44	7.18	98	132*	70-130	30	30
Perfluoroundecanoic acid	5.44	5.49	5.44	6.18	101	114	70-130	12	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173061063701	Sample number(s): 9291199-9291206								
Aluminum	200	217.43			109		80-120		
Magnesium	200	240.01			120		80-120		
Manganese	50	52.41			105		80-120		
Potassium	1000	1072.25			107		80-120		
Sodium	1000	1039.34			104		80-120		
Batch number: 173061063701A	Sample number(s): 9291199-9291206								
Antimony	0.600	0.584			97		80-120		
Arsenic	1.00	0.992			99		80-120		
Beryllium	0.400	0.434			109		80-120		
Cadmium	0.500	0.555			111		80-120		
Cobalt	25	24.94			100		80-120		
Lead	1.50	1.58			105		80-120		
Nickel	5.00	5.35			107		80-120		
Silver	5.00	5.14			103		80-120		
Thallium	0.200	0.202			101		80-120		
Batch number: 173061063701B	Sample number(s): 9291199-9291206								
Selenium	1.00	0.988			99		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 173061063701D	Sample number(s): 9291199-9291206								
Barium	5.00	5.23			105		80-120		
Batch number: 173111063701	Sample number(s): 9291199-9291206								
Calcium	400	407.9			102		80-120		
Iron	100	106.17			106		80-120		
Zinc	50	53.04			106		80-120		
Batch number: 173111063701A	Sample number(s): 9291199-9291206								
Chromium	5.00	5.59			112		80-120		
Copper	5.00	4.90			98		80-120		
Vanadium	5.00	5.66			113		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17314667632A	Sample number(s): 9291199-9291200,9291202-9291206								
TOC	7150	9713.86			136		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17305039401A	Sample number(s): 9291199,9291202-9291206								
pH	7.00	6.98			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17306820003B	Sample number(s): 9291199-9291206								
Moisture	89.5	89.38			100		99-101		
Moisture	89.5	89.38			100		99-101		
Moisture Duplicate	89.5	89.38			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9291199-9291201,9291203-9291206 UNSPK: 9291199									
Perfluorobutanesulfonate	0.15 U	1.05	1.01	0.962	0.955	96	99	70-130	5	30
Perfluorobutanoic acid	0.15 U	1.19	1.18	1.09	1.08	99	99	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.19	1.01	1.09	1.18	85	109	70-130	16	30
Perfluorododecanoic acid	0.15 U	1.19	1.15	1.09	1.18	97	109	70-130	3	30
Perfluoroheptanoic acid	0.15 U	1.19	1.26	1.09	1.33	105	123	70-130	6	30
Perfluorohexanesulfonate	0.15 U	1.13	1.16	1.03	1.15	103	112	70-130	1	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorohexanoic acid	0.076 U	1.19	1.21	1.09	1.14	101	105	70-130	6	30
Perfluorononanoic acid	0.076 U	1.19	1.10	1.09	1.11	92	102	70-130	0	30
Perfluoro-octanesulfonate	0.23 U	1.14	1.20	1.04	0.805	105	77	70-130	39*	30
Perfluorooctanoic acid	0.15 U	1.19	1.24	1.09	1.03	104	95	70-130	18	30
Perfluoropentanoic acid	0.15 U	1.19	1.15	1.09	1.16	96	107	70-130	1	30
Perfluorotetradecanoic acid	0.15 U	1.19	1.14	1.09	1.10	96	101	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.19	1.13	1.09	1.23	95	113	70-130	8	30
Perfluoroundecanoic acid	0.15 U	1.19	1.19	1.09	1.10	100	101	70-130	8	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 173061063701	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Aluminum	21653.3	169.49	25697.9	145.99	25418.76	2386 (2)	2579 (2)	75-125	1	20
Magnesium	5940.52	169.49	5537.14	145.99	6170.62	-238 (2)	158 (2)	75-125	11	20
Manganese	390.61	42.37	446.55	36.5	467.83	132 (2)	212 (2)	75-125	5	20
Potassium	4657.79	847.46	5427	729.93	5432.09	91 (2)	106 (2)	75-125	0	20
Sodium	18.23	847.46	762.5	729.93	643.53	88	86	75-125	17	20
Batch number: 173061063701A	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Antimony	0.131	1.02	0.954	0.876	0.734	81	69*	75-125	26*	20
Arsenic	7.85	1.69	9.48	1.46	9.68	96 (2)	126 (2)	75-125	2	20
Beryllium	1.68	0.678	2.65	0.584	2.50	143*	141*	75-125	6	20
Cadmium	0.173	0.847	1.18	0.730	0.922	119	103	75-125	24*	20
Cobalt	12.31	42.37	63.92	36.5	56.44	122	121	75-125	12	20
Lead	6.56	2.54	10.04	2.19	9.95	137*	155*	75-125	1	20
Nickel	19.15	8.47	31.41	7.30	29.88	145*	147*	75-125	5	20
Silver	0.0345	8.47	9.16	7.30	7.54	108	103	75-125	19	20
Thallium	1.28	0.339	1.72	0.292	1.55	130*	93 (2)	75-125	10	20
Batch number: 173061063701B	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Selenium	0.0943 U	1.69	1.93	1.46	1.63	114	112	75-125	17	20
Batch number: 173061063701D	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Barium	68.4	8.47	80.02	7.30	78.92	137 (2)	144 (2)	75-125	1	20
Batch number: 173111063701	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Calcium	562.04	392.16	877.22	400	950.14	80	97	75-125	8	20
Iron	29586.92	98.04	27327.69	100	29557.75	-2304 (2)	-29 (2)	75-125	8	20
Zinc	43.85	49.02	83.56	50	89.35	81	91	75-125	7	20
Batch number: 173111063701A	Sample number(s): 9291199-9291206 UNSPK: 9291199									
Chromium	11.24	9.80	21.25	10	22.84	102	116	75-125	7	20
Copper	30.24	9.80	45.25	10	45	153*	148*	75-125	1	20
Vanadium	17.15	9.80	29.71	10	29.02	128*	119	75-125	2	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17314667632A	Sample number(s): 9291199-9291200,9291202-9291206 UNSPK: 9291199									
TOC	314.87	14250	17056.03			117		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 173061063701	Sample number(s): 9291199-9291206 BKG: 9291199			
Aluminum	21653.3	22751.99	5	20
Magnesium	5940.52	7198.73	19	20
Manganese	390.61	357.15	9	20
Potassium	4657.79	5338.84	14	20
Sodium	18.23	17.29	5 (1)	20
Batch number: 173061063701A	Sample number(s): 9291199-9291206 BKG: 9291199			
Antimony	0.131	0.153	15 (1)	20
Arsenic	7.85	7.29	7	20
Beryllium	1.68	1.80	7	20
Cadmium	0.173	0.147	16 (1)	20
Cobalt	12.31	13.17	7	20
Lead	6.56	6.38	3	20
Nickel	19.15	20.82	8	20
Silver	0.0345	0.0396	14 (1)	20
Thallium	1.28	1.40	9	20
Batch number: 173061063701B	Sample number(s): 9291199-9291206 BKG: 9291199			
Selenium	0.0943 U	0.0952 U	0 (1)	20
Batch number: 173061063701D	Sample number(s): 9291199-9291206 BKG: 9291199			
Barium	68.4	68.69	0	20
Batch number: 173111063701	Sample number(s): 9291199-9291206 BKG: 9291199			
Calcium	562.04	535.48	5	20
Iron	29586.92	26892.59	10	20
Zinc	43.85	41.54	5	20
Batch number: 173111063701A	Sample number(s): 9291199-9291206 BKG: 9291199			
Chromium	11.24	10.76	4	20
Copper	30.24	31.54	4	20
Vanadium	17.15	16.64	3	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
	mg/kg	mg/kg		
Batch number: 17314667632A	Sample number(s): 9291199-9291200,9291202-9291206 BKG: 9291199			
TOC	314.87	306.29	3 (1)	7
	Std. Units	Std. Units		
Batch number: 17305039401A	Sample number(s): 9291199,9291202-9291206 BKG: 9291199			
pH	7.57	7.54	0	3
	%	%		
Batch number: 17306820003B	Sample number(s): 9291199-9291206 BKG: 9291199, P291199			
Moisture	14.34	14.57	2	5
Moisture	14.34	14.57	2	5
Moisture Duplicate	14.34	14.57	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17307011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9291199	45	47*	73	49	82	50
9291200	42	40*	61	44	77	43*
9291201	36*	33*	56	36*	61	31*
9291203	57	55*	70	53	77	61
9291204	62	58*	71	47	75	55
9291205	56	52*	58	55	69	53
9291206	55	50*	70	59	81	58
Blank	91	89	77	81	84	79
LCS	109*	97	97	112	115	110
MS	42	40*	61	44	77	43*
MSD	36*	33*	56	36*	61	31*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17307011

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9291199	50	74	53	52	51	60
9291200	48	78	45	45	44	47
9291201	35*	63	32*	39	38	44
9291203	60	82	48	58	59	60
9291204	52	89	67	61	68	71
9291205	53	72	54	54	56	60
9291206	55	85	60	51	54	56
Blank	79	93	95	85	107	106
LCS	119*	107	102	112	110	124
MS	48	78	45	45	44	47
MSD	35*	63	32*	39	38	44
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9291199	62
9291200	47
9291201	45
9291203	60
9291204	71
9291205	62
9291206	57
Blank	110
LCS	120
MS	47
MSD	45
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 17310003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9291197	77	76	64	71	75	72
9291198	82	81	78	77	76	72
Blank	97	89	88	78	95	89
LCS	83	76	66	76	70	68
LCSD	73	70	61	65	63	65
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 10:34

Group Number: 1869094

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFAS Compounds
Batch number: 17310003

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9291197	79	59	62	65	63	55
9291198	74	67	78	69	65	60
Blank	89	93	87	90	91	83
LCS	81	77	76	69	78	68
LCSD	67	69	84	67	68	65
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9291197	61
9291198	60
Blank	69
LCS	54
LCSD	54
Limits:	26-119

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1869094 *SAMPLES SPLIT INTO TWO COOLERS*
S-929197-1206

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52699
COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Road
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP Remington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250ml Trip Blanks	Soil: 250ml poly PFCs (4)	Soil: 4oz. gls - TOC, pH, metals, moist.	% Solids
Preservative Code										A	A	
Field Filtered Y/N										N	N	
1. SG3-LTB97-171030	—	—	—	10/30/2017	PM	W	N	2	2			
2. SG3-LTB98-171030	—	—	—	10/30/2017	PM	W	N	2	2			
3. SG3-MW-BR4-261-262'	261	262	ft.	10/30/2017	1200	S	Y	6		3	3	
4. SG3-FDS17-171030	—	—	—	10/30/2017	—	S	N	2		1	1	
5. SG3-MW-BR4-271-272'	271	272	ft.	10/30/2017	1240	S	N	2		1	1	
6. SG3-MW-BR4-281-282'	281	282	ft.	10/30/2017	1440	S	N	2		1	1	
7. SG3-MW-BR4-291-292'	291	292	ft.	10/30/2017	1530	S	N	2		1	1	
8.												
9.												
10.												

7-DAY TAT

BARR USE ONLY	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by: RQM	[signature]	Y	10-30-17	1430			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD					[signature]	10-31-17	09:45
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.7 | 1.6			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 199359

Group Number(s): 1864094

Client: Barr Engineering Co.

SGPP Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/31/2017 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved

Unpacked by Nicole Reiff (25684) at 10:54 on 10/31/2017

Samples Chilled Details: SGPP Bennington

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.7	DT	Wet	Y	Bagged	N
2	DT146	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 02, 2017 11:34

Project: SGPP - Bennington

Account #: 37191
Group Number: 1869543
SDG: SNB22
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-D21-171031 Grab Groundwater	10/31/2017 10:25	9292936

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1869543

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-D21-171031 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 10:25
SDG#: SNB22-01

C. T. Male Associates
ELLE Sample #: GW 9292936
ELLE Group #: 1869543
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17306022601A	11/02/2017 00:25	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/02/2017 11:34

Group Number: 1869543

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 17306022601A	Sample number(s): 9292936		
Ortho-Phosphate as P	0.030 U	0.030	0.090

LCS/LCSD

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17306022601A	Sample number(s): 9292936								
Ortho-Phosphate as P	0.400	0.410	0.400	0.398	102	100	95-105	3	4

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 17306022601A	Sample number(s): 9292936 BKG: P293787			
Ortho-Phosphate as P	0.528	0.511	3	6

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1869543 Sample # 9292936

COC # 564579

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP-N. Bennington	PWSID #:
Project Manager: MDD	P.O. #: 16.6131
Sampler: D. King	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation and Filtration Codes

F

Orthophosphate

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

1 of 1

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers		
SG3-DZI-171031	10/31/17	10:25	✓		1	1	1x250 mL plastic-unpres. (OUTSIDE CANOPY)

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: mdupay@bart.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	10/31/17	1545			
			[signature]	11.1.17	950

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes (No)

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.5 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 199502

Group Number(s): 1869543

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/01/2017 9:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:28 on 11/01/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.5	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 16:19

Project: SGPP - Bennington

Account #: 37191
Group Number: 1869944
SDG: SNB23
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB99-171031 Water	10/31/2017	9294598
SG3-LTB100-171031 Water	10/31/2017	9294599
SG3-AFTERPOETA-171031 Water	10/31/2017 10:30	9294600
SG3-MWBR4-301-302' Soil	10/31/2017 08:00	9294601
SG3-MWBR4-311-312' Soil	10/31/2017 08:30	9294602
SG3-MWBR4-321-322' Soil	10/31/2017 11:30	9294603
SG3-MWBR4-331-332' Soil	10/31/2017 15:00	9294604
SG3-MWBR4-341-342' Soil	10/31/2017 15:30	9294605
SG3-MWBR4-351-352' Soil	10/31/2017 16:00	9294606

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1869944

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9294601, 9294602, 9294603, 9294604, 9294605, 9294606

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9294598, 9294599, 9294600

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Batch #: 17306003 (Sample number(s): 9294598-9294600)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9294598, 9294599, 9294600, Blank, LCS, LCSD

Batch #: 17307011 (Sample number(s): 9294601-9294606 UNSPK: P291199)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoro-octanesulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9294601, 9294602, 9294603, 9294604, 9294605, 9294606, MS, MSD

SW-846 6010C, Metals

Batch #: 173101063701 (Sample number(s): 9294601-9294606 UNSPK: 9294601 BKG: 9294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium, Potassium

SW-846 6020A, Metals

Batch #: 173101063701A (Sample number(s): 9294601-9294606 UNSPK: 9294601 BKG: 9294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Beryllium, Arsenic, Copper, Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Copper, Lead, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Silver

Batch #: 173101063701D (Sample number(s): 9294601-9294606 UNSPK: 9294601 BKG: 9294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9294601, 9294602, 9294603, 9294606

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

Batch #: 17317667631B (Sample number(s): 9294601-9294605 UNSPK: P294448 BKG: P294448)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: TOC Solids/Sludges Combustion

SW-846 9045D modified, Wet Chemistry

Sample #s: 9294606

The pH was measured in water at 19.9 C.

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Sample #s: 9294604, 9294605

The pH was measured in water at 20.2 C.

Sample #s: 9294603

The pH was measured in water at 20.4 C.

Sample #s: 9294601

The pH was measured in water at 20.5 C.

Sample #s: 9294602

The pH was measured in water at 20.6 C.

Sample Description: **SG3-LTB99-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017
SDG#: SNB23-01TB

C. T. Male Associates
ELLE Sample #: **WW 9294598**
ELLE Group #: **1869944**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 UZ	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB99-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017
SDG#: SNB23-01TB

C. T. Male Associates
ELLE Sample #: WW 9294598
ELLE Group #: 1869944
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17306003	11/03/2017 21:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17306003	11/02/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB100-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017
SDG#: SNB23-02TB

C. T. Male Associates
ELLE Sample #: WW 9294599
ELLE Group #: 1869944
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 UZ	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB100-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017
SDG#: SNB23-02TB

C. T. Male Associates
ELLE Sample #: WW 9294599
ELLE Group #: 1869944
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17306003	11/03/2017 21:35	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17306003	11/02/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETA-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 10:30
SDG#: SNB23-03

C. T. Male Associates
ELLE Sample #: GW 9294600
ELLE Group #: 1869944
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 UZ	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The recovery for native compound PFTrDA is outside of QC acceptance limits in the closing calibration verification standard (CCV). Since the result is high and PFTrDA is not detected, the data is reported.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration standard verification (CCV) associated with the LCS/LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETA-171031 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 10:30
SDG#: SNB23-03

C. T. Male Associates
ELLE Sample #: GW 9294600
ELLE Group #: 1869944
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17306003	11/03/2017 21:56	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17306003	11/02/2017 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-301-302' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:00
SDG#: SNB23-04

C. T. Male Associates
ELLE Sample #: SW 9294601
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.24 U	0.24	0.71	1
14027	Perfluorobutanoic acid	375-22-4	0.24 U	0.24	0.71	1
14027	Perfluorodecanoic acid	335-76-2	0.24 U	0.24	0.71	1
14027	Perfluorododecanoic acid	307-55-1	0.24 U	0.24	0.71	1
14027	Perfluoroheptanoic acid	375-85-9	0.24 U	0.24	0.71	1
14027	Perfluorohexanesulfonate	355-46-4	0.24 U	0.24	0.71	1
14027	Perfluorohexanoic acid	307-24-4	0.12 U	0.12	0.48	1
14027	Perfluorononanoic acid	375-95-1	0.12 U	0.12	0.48	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.36 U	0.36	1.1	1
14027	Perfluorooctanoic acid	335-67-1	0.24 U	0.24	0.71	1
14027	Perfluoropentanoic acid	2706-90-3	0.24 U	0.24	0.71	1
14027	Perfluorotetradecanoic acid	376-06-7	0.24 U	0.24	0.71	1
14027	Perfluorotridecanoic acid	72629-94-8	0.24 U	0.24	0.71	1
14027	Perfluoroundecanoic acid	2058-94-8	0.24 U	0.24	0.71	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**9,730**	39.6	177	5
01650	**Calcium**	7440-70-2	**626**	14.8	177	5
01654	**Iron**	7439-89-6	**50,500**	35.7	177	5
01657	**Magnesium**	7439-95-4	**1,140**	2.16	17.7	1
06958	**Manganese**	7439-96-5	**1,020**	0.0736	0.887	1
01662	**Potassium**	7440-09-7	**749**	14.8	88.7	1
01667	Sodium	7440-23-5	14.8 U	14.8	177	1
06972	**Zinc**	7440-66-6	**60.5**	1.06	17.7	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	Antimony	7440-36-0	0.0827 U	0.0827	0.355	2
06125	**Arsenic**	7440-38-2	**4.60**	0.114	0.710	2
06126	**Barium**	7440-39-3	**90.2**	0.161	0.710	2
06127	**Beryllium**	7440-41-7	**2.29**	0.0093	0.177	2
06128	**Cadmium**	7440-43-9	**0.189**	0.0305	0.177	2
06131	**Chromium**	7440-47-3	**1.63**	0.154	0.710	2
06132	**Cobalt**	7440-48-4	**19.3**	0.0277	0.177	2
06133	**Copper**	7440-50-8	**36.0**	0.0951	0.710	2
06135	**Lead**	7439-92-1	**39.0**	0.0197	0.355	2
06139	**Nickel**	7440-02-0	**26.0**	0.177	0.710	2
06141	**Selenium**	7782-49-2	**0.176 J**	0.0887	0.710	2
06142	**Silver**	7440-22-4	**0.0273 J**	0.0259	0.177	2
06145	**Thallium**	7440-28-0	**0.176 J**	0.0222	0.177	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-301-302' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:00
SDG#: SNB23-04

C. T. Male Associates
ELLE Sample #: SW 9294601
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.37**		0.0378	0.177	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**313**	**J**	125	375	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.11**		0.0100	0.0100	1
	The pH was measured in water at 20.5 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**17.7**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 09:51	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:55	Eric L Eby	5
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:55	Eric L Eby	5
01654	Iron	SW-846 6010C	1	173101063701	11/08/2017 09:55	Eric L Eby	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 08:33	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 08:33	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 08:33	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 08:33	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:55	Eric L Eby	5
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:03	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:03	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-301-302' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:00
SDG#: SNB23-04

C. T. Male Associates
ELLE Sample #: SW 9294601
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:03	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 15:31	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 15:31	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667631B	11/14/2017 18:10	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401A	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-311-312' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:30
SDG#: SNB23-05

C. T. Male Associates
ELLE Sample #: SW 9294602
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.089 U	0.089	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.089 U	0.089	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.80	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**4,170**	8.90	39.8	1
01650	**Calcium**	7440-70-2	**1,150**	16.6	199	5
01654	**Iron**	7439-89-6	**181,000**	160	796	20
01657	**Magnesium**	7439-95-4	**1,030**	2.42	19.9	1
06958	**Manganese**	7439-96-5	**28,400**	1.65	19.9	20
01662	**Potassium**	7440-09-7	**519**	16.6	99.5	1
01667	**Sodium**	7440-23-5	**16.7 J**	16.6	199	1
06972	**Zinc**	7440-66-6	**237**	1.19	19.9	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.236 J**	0.0927	0.398	2
06125	**Arsenic**	7440-38-2	**28.6**	0.127	0.796	2
06126	**Barium**	7440-39-3	**4,080**	0.904	3.98	10
06127	**Beryllium**	7440-41-7	**5.23**	0.0104	0.199	2
06128	**Cadmium**	7440-43-9	**3.26**	0.0342	0.199	2
06131	**Chromium**	7440-47-3	**5.50**	0.173	0.796	2
06132	**Cobalt**	7440-48-4	**135**	0.0310	0.199	2
06133	**Copper**	7440-50-8	**24.9**	0.107	0.796	2
06135	**Lead**	7439-92-1	**17.1**	0.0221	0.398	2
06139	**Nickel**	7440-02-0	**145**	0.198	0.796	2
06141	**Selenium**	7782-49-2	**0.215 J**	0.0995	0.796	2
06142	**Silver**	7440-22-4	**1.36**	0.0291	0.199	2
06145	**Thallium**	7440-28-0	**4.61**	0.0249	0.199	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-311-312' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:30
SDG#: SNB23-05

C. T. Male Associates
ELLE Sample #: SW 9294602
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**10.7**		0.0424	0.199	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**337**	**J**	124	371	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.02**		0.0100	0.0100	1
	The pH was measured in water at 20.6 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**18.3**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 10:12	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 08:57	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/09/2017 21:10	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:14	Elaine F Stoltzfus	20
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 08:57	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/09/2017 21:14	Elaine F Stoltzfus	20
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 08:57	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 08:57	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/09/2017 21:10	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 17:11	Bradley M Berlot	10
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:20	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-311-312' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 08:30
SDG#: SNB23-05

C. T. Male Associates
ELLE Sample #: SW 9294602
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 15:53	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 15:53	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667631B	11/14/2017 18:23	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401A	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-321-322' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 11:30
SDG#: SNB23-06

C. T. Male Associates
ELLE Sample #: SW 9294603
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.27 U	0.27	0.80	1
14027	Perfluorobutanoic acid	375-22-4	0.27 U	0.27	0.80	1
14027	Perfluorodecanoic acid	335-76-2	0.27 U	0.27	0.80	1
14027	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.80	1
14027	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.80	1
14027	Perfluorohexanesulfonate	355-46-4	0.27 U	0.27	0.80	1
14027	Perfluorohexanoic acid	307-24-4	0.13 U	0.13	0.53	1
14027	Perfluorononanoic acid	375-95-1	0.13 U	0.13	0.53	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.40 U	0.40	1.2	1
14027	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.80	1
14027	Perfluoropentanoic acid	2706-90-3	0.27 U	0.27	0.80	1
14027	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.80	1
14027	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.80	1
14027	Perfluoroundecanoic acid	2058-94-8	0.27 U	0.27	0.80	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**2,270**	8.69	38.9	1
01650	**Calcium**	7440-70-2	**350**	3.24	38.9	1
01654	**Iron**	7439-89-6	**31,800**	39.1	194	5
01657	**Magnesium**	7439-95-4	**302**	2.36	19.4	1
06958	**Manganese**	7439-96-5	**3,120**	0.403	4.86	5
01662	**Potassium**	7440-09-7	**312**	16.2	97.2	1
01667	Sodium	7440-23-5	16.2 U	16.2	194	1
06972	**Zinc**	7440-66-6	**172**	0.233	3.89	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.160 J**	0.0905	0.389	2
06125	**Arsenic**	7440-38-2	**4.20**	0.124	0.777	2
06126	**Barium**	7440-39-3	**191**	0.176	0.777	2
06127	**Beryllium**	7440-41-7	**3.00**	0.0102	0.194	2
06128	**Cadmium**	7440-43-9	**3.17**	0.0334	0.194	2
06131	**Chromium**	7440-47-3	**1.62**	0.169	0.777	2
06132	**Cobalt**	7440-48-4	**6.36**	0.0303	0.194	2
06133	**Copper**	7440-50-8	**10.8**	0.104	0.777	2
06135	**Lead**	7439-92-1	**24.8**	0.0216	0.389	2
06139	**Nickel**	7440-02-0	**71.1**	0.194	0.777	2
06141	**Selenium**	7782-49-2	**0.133 J**	0.0972	0.777	2
06142	**Silver**	7440-22-4	**0.0550 J**	0.0284	0.194	2
06145	**Thallium**	7440-28-0	**0.252**	0.0243	0.194	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-321-322' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 11:30
SDG#: SNB23-06

C. T. Male Associates
ELLE Sample #: SW 9294603
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**8.76**		0.0414	0.194	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**267**	**J**	145	436	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.89**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**27.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 10:33	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:24	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/09/2017 21:24	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:07	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:23	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:23	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-321-322' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 11:30
SDG#: SNB23-06

C. T. Male Associates
ELLE Sample #: SW 9294603
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:23	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:02	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:02	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667631B	11/14/2017 18:36	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401A	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-331-332' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:00
SDG#: SNB23-07

C. T. Male Associates
ELLE Sample #: SW 9294604
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.21 U	0.21	0.62	1
14027	Perfluorobutanoic acid	375-22-4	0.21 U	0.21	0.62	1
14027	Perfluorodecanoic acid	335-76-2	0.21 U	0.21	0.62	1
14027	Perfluorododecanoic acid	307-55-1	0.21 U	0.21	0.62	1
14027	Perfluoroheptanoic acid	375-85-9	0.21 U	0.21	0.62	1
14027	Perfluorohexanesulfonate	355-46-4	0.21 U	0.21	0.62	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.41	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.41	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.31 U	0.31	0.92	1
14027	Perfluorooctanoic acid	335-67-1	0.21 U	0.21	0.62	1
14027	Perfluoropentanoic acid	2706-90-3	0.21 U	0.21	0.62	1
14027	Perfluorotetradecanoic acid	376-06-7	0.21 U	0.21	0.62	1
14027	Perfluorotridecanoic acid	72629-94-8	0.21 U	0.21	0.62	1
14027	Perfluoroundecanoic acid	2058-94-8	0.21 U	0.21	0.62	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,640**	7.35	32.9	1
01650	**Calcium**	7440-70-2	**419**	13.7	164	5
01654	**Iron**	7439-89-6	**51,200**	33.1	164	5
01657	**Magnesium**	7439-95-4	**502**	2.00	16.4	1
06958	**Manganese**	7439-96-5	**1,650**	0.341	4.11	5
01662	**Potassium**	7440-09-7	**485**	13.7	82.2	1
01667	Sodium	7440-23-5	13.7 U	13.7	164	1
06972	**Zinc**	7440-66-6	**199**	0.986	16.4	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.166 J**	0.0766	0.329	2
06125	**Arsenic**	7440-38-2	**3.64**	0.105	0.658	2
06126	**Barium**	7440-39-3	**105**	0.149	0.658	2
06127	**Beryllium**	7440-41-7	**2.50**	0.0086	0.164	2
06128	**Cadmium**	7440-43-9	**1.38**	0.0283	0.164	2
06131	**Chromium**	7440-47-3	**3.40**	0.143	0.658	2
06132	**Cobalt**	7440-48-4	**10.4**	0.0256	0.164	2
06133	**Copper**	7440-50-8	**50.2**	0.0881	0.658	2
06135	**Lead**	7439-92-1	**16.5**	0.0182	0.329	2
06139	**Nickel**	7440-02-0	**41.9**	0.164	0.658	2
06141	**Selenium**	7782-49-2	**0.114 J**	0.0822	0.658	2
06142	**Silver**	7440-22-4	**0.0372 J**	0.0240	0.164	2
06145	**Thallium**	7440-28-0	**0.153 J**	0.0206	0.164	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-331-332' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:00
SDG#: SNB23-07

C. T. Male Associates
ELLE Sample #: SW 9294604
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**15.0**	0.0350	0.164	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**382 J**	129	388	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.03**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**18.9**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 10:53	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:10	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/09/2017 21:27	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:27	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:10	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/09/2017 21:27	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:10	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:10	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/09/2017 21:27	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:31	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:31	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:31	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-331-332' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:00
SDG#: SNB23-07

C. T. Male Associates
ELLE Sample #: SW 9294604
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:05	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:05	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667631B	11/14/2017 18:48	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401A	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-341-342' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:30
SDG#: SNB23-08

C. T. Male Associates
ELLE Sample #: SW 9294605
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,290**	7.44	33.3	1
01650	**Calcium**	7440-70-2	**624**	2.77	33.3	1
01654	**Iron**	7439-89-6	**25,100**	33.5	166	5
01657	**Magnesium**	7439-95-4	**1,780**	2.02	16.6	1
06958	**Manganese**	7439-96-5	**125**	0.0691	0.832	1
01662	**Potassium**	7440-09-7	**1,430**	13.9	83.2	1
01667	Sodium	7440-23-5	13.9 U	13.9	166	1
06972	**Zinc**	7440-66-6	**28.8**	0.200	3.33	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.400**	0.0775	0.333	2
06125	**Arsenic**	7440-38-2	**6.95**	0.106	0.666	2
06126	**Barium**	7440-39-3	**27.2**	0.151	0.666	2
06127	**Beryllium**	7440-41-7	**1.42**	0.0087	0.166	2
06128	**Cadmium**	7440-43-9	**0.180**	0.0286	0.166	2
06131	**Chromium**	7440-47-3	**5.17**	0.145	0.666	2
06132	**Cobalt**	7440-48-4	**8.64**	0.0260	0.166	2
06133	**Copper**	7440-50-8	**46.1**	0.0892	0.666	2
06135	**Lead**	7439-92-1	**14.7**	0.0185	0.333	2
06139	**Nickel**	7440-02-0	**19.6**	0.166	0.666	2
06141	**Selenium**	7782-49-2	**0.113 J**	0.0832	0.666	2
06142	Silver	7440-22-4	0.0243 U	0.0243	0.166	2
06145	**Thallium**	7440-28-0	**0.0661 J**	0.0208	0.166	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-341-342' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:30
SDG#: SNB23-08

C. T. Male Associates
ELLE Sample #: SW 9294605
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**	**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**9.43**	0.0354	0.166	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**1,420**	147	441	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.17**	0.0100	0.0100	1
	The pH was measured in water at 20.2 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**6.1**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 11:14	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:30	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:13	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 18:52	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:34	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:34	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-341-342' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 15:30
SDG#: SNB23-08

C. T. Male Associates
ELLE Sample #: SW 9294605
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:08	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:08	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667631B	11/14/2017 19:01	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401A	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-351-352' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 16:00
SDG#: SNB23-09

C. T. Male Associates
ELLE Sample #: SW 9294606
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.090 U	0.090	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.090 U	0.090	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.81	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**3,220**	7.14	32.0	1
01650	**Calcium**	7440-70-2	**364**	13.3	160	5
01654	**Iron**	7439-89-6	**59,300**	32.2	160	5
01657	**Magnesium**	7439-95-4	**606**	1.94	16.0	1
06958	**Manganese**	7439-96-5	**1,880**	0.332	3.99	5
01662	**Potassium**	7440-09-7	**637**	13.3	79.9	1
01667	Sodium	7440-23-5	13.3 U	13.3	160	1
06972	**Zinc**	7440-66-6	**230**	0.959	16.0	5
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.269 J**	0.0745	0.320	2
06125	**Arsenic**	7440-38-2	**7.98**	0.102	0.639	2
06126	**Barium**	7440-39-3	**104**	0.145	0.639	2
06127	**Beryllium**	7440-41-7	**2.39**	0.0084	0.160	2
06128	**Cadmium**	7440-43-9	**1.85**	0.0275	0.160	2
06131	**Chromium**	7440-47-3	**3.15**	0.139	0.639	2
06132	**Cobalt**	7440-48-4	**13.9**	0.0249	0.160	2
06133	**Copper**	7440-50-8	**26.2**	0.0857	0.639	2
06135	**Lead**	7439-92-1	**16.7**	0.0177	0.320	2
06139	**Nickel**	7440-02-0	**41.8**	0.159	0.639	2
06141	Selenium	7782-49-2	0.0799 U	0.0799	0.639	2
06142	**Silver**	7440-22-4	**0.0423 J**	0.0233	0.160	2
06145	**Thallium**	7440-28-0	**0.358**	0.0200	0.160	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-351-352' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 16:00
SDG#: SNB23-09

C. T. Male Associates
ELLE Sample #: SW 9294606
ELLE Group #: 1869944
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.0**		0.0340	0.160	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**330**	**J**	120	361	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.67**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.0**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 11:34	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:16	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/09/2017 21:33	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:33	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:16	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/09/2017 21:33	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:16	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:16	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/09/2017 21:33	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:37	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:37	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-351-352' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/01/2017 09:50
Collection Date/Time: 10/31/2017 16:00
SDG#: SNB23-09

C. T. Male Associates
ELLE Sample #: SW 9294606
ELLE Group #: 1869944
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:37	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:11	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:11	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632A	11/15/2017 10:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401B	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820001B	11/02/2017 15:23	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17307011	Sample number(s): 9294601-9294606		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17306003	Sample number(s): 9294598-9294600		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 173101063701	Sample number(s): 9294601-9294606		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Aluminum	8.94 U	8.94	40.0
Calcium	3.57 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.327 J	0.240	4.00
Batch number: 173101063701A	Sample number(s): 9294601-9294606		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 173101063701B	Sample number(s): 9294601-9294606		
Selenium	0.100 U	0.100	0.800
Batch number: 173101063701D	Sample number(s): 9294601-9294606		
Barium	0.182 U	0.182	0.800
Batch number: 17317667631B	Sample number(s): 9294601-9294605		
TOC	100 U	100	300
Batch number: 17317667632A	Sample number(s): 9294606		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9294601-9294606								
Perfluorobutanesulfonate	1.20	1.26			105		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.37			101		70-130		

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(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorododecanoic acid	1.36	1.43			105		70-130		
Perfluoroheptanoic acid	1.36	1.47			108		70-130		
Perfluorohexanesulfonate	1.29	1.20			93		70-130		
Perfluorohexanoic acid	1.36	1.49			109		70-130		
Perfluorononanoic acid	1.36	1.37			101		70-130		
Perfluoro-octanesulfonate	1.30	1.38			106		70-130		
Perfluorooctanoic acid	1.36	1.27			93		70-130		
Perfluoropentanoic acid	1.36	1.52			112		70-130		
Perfluorotetradecanoic acid	1.36	1.47			108		70-130		
Perfluorotridecanoic acid	1.36	1.61			119		70-130		
Perfluoroundecanoic acid	1.36	1.51			111		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17306003	Sample number(s): 9294598-9294600								
6:2 fluorotelomersulfonate	15.17	16.82	15.17	16.77	111	111	70-130	0	30
8:2 fluorotelomersulfonate	15.33	15.5	15.33	15.64	101	102	70-130	1	30
NEtFOSAA	5.44	7.23	5.44	6.49	133*	119	70-130	11	30
NMeFOSAA	5.44	7.92	5.44	6.35	146*	117	70-130	22	30
Perfluorobutanesulfonate	4.81	5.41	4.81	5.33	112	111	70-130	2	30
Perfluorobutanoic acid	5.44	6.08	5.44	5.94	112	109	70-130	2	30
Perfluorodecanoic acid	5.44	6.36	5.44	6.34	117	117	70-130	0	30
Perfluorododecanoic acid	5.44	6.49	5.44	6.78	119	125	70-130	4	30
Perfluoroheptanoic acid	5.44	6.19	5.44	5.87	114	108	70-130	5	30
Perfluorohexanesulfonate	5.14	5.45	5.14	5.63	106	109	70-130	3	30
Perfluorohexanoic acid	5.44	5.55	5.44	5.66	102	104	70-130	2	30
Perfluorononanoic acid	5.44	5.35	5.44	5.49	98	101	70-130	3	30
Perfluorooctanesulfonamide	5.44	6.32	5.44	5.73	116	105	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.00	5.20	5.31	96	102	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.42	109	118	70-130	8	30
Perfluoropentanoic acid	5.44	5.79	5.44	6.07	106	112	70-130	5	30
Perfluorotetradecanoic acid	5.44	6.22	5.44	5.97	114	110	70-130	4	30
Perfluorotridecanoic acid	5.44	6.14	5.44	6.00	113	110	70-130	2	30
Perfluoroundecanoic acid	5.44	5.50	5.44	6.27	101	115	70-130	13	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9294601-9294606								
Aluminum	200	196.66			98		80-120		
Calcium	400	388.51			97		80-120		
Iron	100	102.49			102		80-120		
Magnesium	200	201.46			101		80-120		
Manganese	50	52.23			104		80-120		
Potassium	1000	989.21			99		80-120		
Sodium	1000	985.1			99		80-120		
Zinc	50	51.11			102		80-120		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 173101063701A	Sample number(s): 9294601-9294606								
Antimony	0.600	0.598			100		80-120		
Arsenic	1.00	0.920			92		80-120		
Beryllium	0.400	0.379			95		80-120		
Cadmium	0.500	0.532			106		80-120		
Chromium	5.00	5.04			101		80-120		
Cobalt	25	23.32			93		80-120		
Copper	5.00	5.01			100		80-120		
Lead	1.50	1.46			98		80-120		
Nickel	5.00	4.97			99		80-120		
Silver	5.00	4.85			97		80-120		
Thallium	0.200	0.174			87		80-120		
Vanadium	5.00	5.23			105		80-120		
Batch number: 173101063701B	Sample number(s): 9294601-9294606								
Selenium	1.00	1.00			100		80-120		
Batch number: 173101063701D	Sample number(s): 9294601-9294606								
Barium	5.00	4.90			98		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17317667631B	Sample number(s): 9294601-9294605								
TOC	7150	6930.69			97		47-143		
Batch number: 17317667632A	Sample number(s): 9294606								
TOC	7150	7240.85			101		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17308039401A	Sample number(s): 9294601-9294605								
pH	7.00	6.98			100		95-105		
Batch number: 17308039401B	Sample number(s): 9294606								
pH	7.00	6.98			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17306820001B	Sample number(s): 9294601-9294606								
Moisture	89.5	89.38			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9294601-9294606 UNSPK: P291199									
Perfluorobutanesulfonate	0.15 U	1.05	1.01	0.962	0.955	96	99	70-130	5	30
Perfluorobutanoic acid	0.15 U	1.19	1.18	1.09	1.08	99	99	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.19	1.01	1.09	1.18	85	109	70-130	16	30
Perfluorododecanoic acid	0.15 U	1.19	1.15	1.09	1.18	97	109	70-130	3	30
Perfluoroheptanoic acid	0.15 U	1.19	1.26	1.09	1.33	105	123	70-130	6	30
Perfluorohexanesulfonate	0.15 U	1.13	1.16	1.03	1.15	103	112	70-130	1	30
Perfluorohexanoic acid	0.076 U	1.19	1.21	1.09	1.14	101	105	70-130	6	30
Perfluorononanoic acid	0.076 U	1.19	1.10	1.09	1.11	92	102	70-130	0	30
Perfluoro-octanesulfonate	0.23 U	1.14	1.20	1.04	0.805	105	77	70-130	39*	30
Perfluorooctanoic acid	0.15 U	1.19	1.24	1.09	1.03	104	95	70-130	18	30
Perfluoropentanoic acid	0.15 U	1.19	1.15	1.09	1.16	96	107	70-130	1	30
Perfluorotetradecanoic acid	0.15 U	1.19	1.14	1.09	1.10	96	101	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.19	1.13	1.09	1.23	95	113	70-130	8	30
Perfluoroundecanoic acid	0.15 U	1.19	1.19	1.09	1.10	100	101	70-130	8	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9294601-9294606 UNSPK: 9294601									
Aluminum	8009.39	134.23	12300.58	139.86	13294.98	3197 (2)	3779 (2)	75-125	8	20
Calcium	515.21	268.46	707.18	279.72	749.76	72*	84	75-125	6	20
Iron	41591.07	67.11	38851.73	69.93	41565.97	-4082 (2)	-36 (2)	75-125	7	20
Magnesium	941.44	134.23	1162.45	139.86	1241.46	165 (2)	215 (2)	75-125	7	20
Manganese	843.18	33.56	882.49	34.97	874.85	117 (2)	91 (2)	75-125	1	20
Potassium	616.08	671.14	1339.09	699.3	1443.45	108	118	75-125	8	20
Sodium	12.2 U	671.14	548.43	699.3	571.14	82	82	75-125	4	20
Zinc	49.76	33.56	76.8	34.97	81.42	81	91	75-125	6	20
Batch number: 173101063701A	Sample number(s): 9294601-9294606 UNSPK: 9294601									
Antimony	0.0680 U	0.805	0.512	0.839	0.528	64*	63*	75-125	3	20
Arsenic	3.78	1.34	4.27	1.40	5.68	36*	136*	75-125	28*	20
Beryllium	1.88	0.537	1.74	0.559	2.22	-27*	60*	75-125	24*	20
Cadmium	0.155	0.671	0.781	0.699	0.921	93	110	75-125	16	20
Chromium	1.34	6.71	7.62	6.99	7.92	94	94	75-125	4	20
Cobalt	15.85	33.56	46.02	34.97	52.59	90	105	75-125	13	20
Copper	29.6	6.71	25.66	6.99	36.17	-59 (2)	94 (2)	75-125	34*	20
Lead	32.09	2.01	25.25	2.10	35.07	-340 (2)	142 (2)	75-125	33*	20
Nickel	21.41	6.71	21.86	6.99	28.81	7*	106	75-125	27*	20
Silver	0.0225	6.71	6.73	6.99	7.50	100	107	75-125	11	20
Thallium	0.145	0.268	0.361	0.280	0.396	81	90	75-125	9	20
Vanadium	6.89	6.71	12.54	6.99	13.74	84	98	75-125	9	20
Batch number: 173101063701B	Sample number(s): 9294601-9294606 UNSPK: 9294601									
Selenium	0.145	1.34	1.40	1.40	1.55	93	100	75-125	10	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 173101063701D	Sample number(s): 9294601-9294606 UNSPK: 9294601									
Barium	74.24	6.71	63.14	6.99	91.71	-165 (2)	250 (2)	75-125	37*	20
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 17317667631B	Sample number(s): 9294601-9294605 UNSPK: P294448									
TOC	557.52	9420	12865.22			131		47-143		
Batch number: 17317667632A	Sample number(s): 9294606 UNSPK: P296922									
TOC	294.24	11700	13872.22			116		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 173101063701	Sample number(s): 9294601-9294606 BKG: 9294601			
Aluminum	8009.39	7861.55	2	20
Calcium	515.21	514.2	0 (1)	20
Iron	41591.07	39389.7	5	20
Magnesium	941.44	1208.78	25*	20
Manganese	843.18	874.59	4	20
Potassium	616.08	807.61	27*	20
Sodium	12.2 U	15.2 U	0 (1)	20
Zinc	49.76	49.11	1 (1)	20
Batch number: 173101063701A	Sample number(s): 9294601-9294606 BKG: 9294601			
Antimony	0.0680 U	0.0847 U	0 (1)	20
Arsenic	3.78	3.33	13 (1)	20
Beryllium	1.88	1.85	2	20
Cadmium	0.155	0.153	2 (1)	20
Chromium	1.34	1.76	27* (1)	20
Cobalt	15.85	15.75	1	20
Copper	29.6	28.19	5	20
Lead	32.09	27.93	14	20
Nickel	21.41	22.31	4	20
Silver	0.0225	0.0265 U	200* (1)	20
Thallium	0.145	0.131	10 (1)	20
Vanadium	6.89	7.64	10	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 173101063701B	Sample number(s): 9294601-9294606 BKG: 9294601			
Selenium	0.145	0.135	7 (1)	20
Batch number: 173101063701D	Sample number(s): 9294601-9294606 BKG: 9294601			
Barium	74.24	69.05	7	20
	mg/kg	mg/kg		
Batch number: 17317667631B	Sample number(s): 9294601-9294605 BKG: P294448			
TOC	557.52	514.05	8* (1)	7
Batch number: 17317667632A	Sample number(s): 9294606 BKG: P296922			
TOC	294.24	314.82	7 (1)	7
	Std. Units	Std. Units		
Batch number: 17308039401A	Sample number(s): 9294601-9294605 BKG: P298846			
pH	8.22	8.27	1	3
Batch number: 17308039401B	Sample number(s): 9294606 BKG: 9294606			
pH	7.67	7.72	1	3
	%	%		
Batch number: 17306820001B	Sample number(s): 9294601-9294606 BKG: P293476			
Moisture	97.46	97.45	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17306003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9294598	80	73	81	84	89	83
9294599	85	78	85	94	95	89
9294600	82	76	72	87	88	82
Blank	78	70	67	92	87	82
LCS	80	74	67	86	81	76
LCSD	80	73	70	81	77	74

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17306003

Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9294598	60	81	77	72	67	59
9294599	78	89	83	72	75	52
9294600	63	81	79	77	76	70
Blank	59	82	69	63	78	46
LCS	65	83	80	73	82	55
LCSD	56	79	79	72	74	55
Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9294598	54	70	64	77	77	36*
9294599	57	89	72	89	88	47*
9294600	67	86	78	85	88	37*
Blank	68	80	81	92	86	37*
LCS	64	82	68	75	69	31*
LCSD	71	70	76	75	75	43*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17307011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9294601	51	50*	59	57	84	64
9294602	62	57*	65	63	66	57
9294603	70	68*	62	68	74	66
9294604	55	53*	53	57	72	54
9294605	68	65*	78	77	93	79
9294606	57	51*	64	63	75	60
Blank	91	89	77	81	84	79
LCS	109*	97	97	112	115	110
MS	42	40*	61	44	77	43*
MSD	36*	33*	56	36*	61	31*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 16:19

Group Number: 1869944

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17307011

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9294601	52	71	44	53	55	60
9294602	61	70	57	61	75	69
9294603	72	71	75	69	76	78
9294604	63	77	59	58	59	65
9294605	78	87	73	64	73	75
9294606	60	61	52	59	63	61
Blank	79	93	95	85	107	106
LCS	119*	107	102	112	110	124
MS	48	78	45	45	44	47
MSD	35*	63	32*	39	38	44
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9294601	60
9294602	72
9294603	84
9294604	60
9294605	70
9294606	66
Blank	110
LCS	120
MS	47
MSD	45
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1869944 9294598-C06

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47450

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL Plastic HNO3	Water: Trip blank	Water: 250 mL plastic / PFCs (14)	Soil: 250 mL plastic / PFCs (14)	Soil: 4 oz glass / TOC, pH, Moist, metals	% Solids
									2	2	2	2A	2	
									N	N	N	N	N	
1. SG3-LTB99-171031	—	—	—	—	AM	W	N	2	2					
2. SG3-LTB100-171031	—	—	—	—	AM	W	N	2	2					
3. SG3-AFTERPOET A-171031	—	—	—	10-31-17	1030	W	N	2			2			
4. SG3-MWBR4-301-302'	301	302	ft	10.31.17	0800	S	N	2				1	1	
5. SG3-MWBR4-311-312'	311	312	ft	10.31.17	0830	S	N	2				1	1	
6. SG3-MWBR4-321-322'	321	322	ft	10.31.17	1130	S	N	2				1	1	
7. SG3-MWBR4-331-332'	331	332	ft	10.31.17	1500	S	N	2				1	1	
8. SG3-MWBR4-341-342'	341	342	ft	10.31.17	1530	S	N	2				1	1	
9. SG3-MWBR4-351-352'	351	352	ft	10.31.17	1600	S	N	2				1	1	
10.														

Preservative Code

Field Filtered Y/N

7 Day TAT

Samples in 2 coolers

BARR USE ONLY	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by: DJE / RAK	Robert Kuzisky	Y	10.31.17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						11.1.17	0950
Lab Name: ELE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 0.8 / 1.0			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 7 day TAT (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 199504

Group Number(s): 1869944

Client: Barr Engineering Co.

SGPP Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/01/2017 9:50
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 10:36 on 11/01/2017

Samples Chilled Details: SGPP Bennington

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 03, 2017 13:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1870175
SDG: SNB24
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDWATERTKA-171101 Grab Water	11/01/2017 08:30	9295630

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1870175

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9295630

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verifcation (CCV).

Batch #: 17306008 (Sample number(s): 9295630)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9295630, Blank, LCS, LCSD

Sample Description: **SG3-FILTEREDWATERTKA-171101 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 08:30
SDG#: SNB24-01

C. T. Male Associates
ELLE Sample #: GW 9295630
ELLE Group #: 1870175
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the closing calibration verifcation (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17306008	11/03/2017 06:31	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17306008	11/02/2017 12:40	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 13:17

Group Number: 1870175

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17306008	Sample number(s): 9295630		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17306008	Sample number(s): 9295630								
6:2 fluorotelomersulfonate	15.17	17.42	15.17	16.17	115	107	70-130	7	30
8:2 fluorotelomersulfonate	15.33	15.4	15.33	17.22	100	112	70-130	11	30
NEtFOSAA	5.44	6.59	5.44	6.56	121	121	70-130	0	30
NMeFOSAA	5.44	6.85	5.44	7.34	126	135*	70-130	7	30
Perfluorobutanesulfonate	4.81	5.21	4.81	5.45	108	113	70-130	5	30
Perfluorobutanoic acid	5.44	6.04	5.44	6.03	111	111	70-130	0	30
Perfluorodecanoic acid	5.44	6.67	5.44	6.53	123	120	70-130	2	30
Perfluorododecanoic acid	5.44	5.85	5.44	6.22	107	114	70-130	6	30
Perfluoroheptanoic acid	5.44	5.69	5.44	5.90	105	108	70-130	4	30
Perfluorohexanesulfonate	5.14	5.24	5.14	5.62	102	109	70-130	7	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/03/2017 13:17

Group Number: 1870175

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.61	5.44	6.01	103	110	70-130	7	30
Perfluorononanoic acid	5.44	5.50	5.44	5.41	101	99	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.67	5.44	5.25	104	96	70-130	8	30
Perfluoro-octanesulfonate	5.20	5.03	5.20	5.30	97	102	70-130	5	30
Perfluorooctanoic acid	5.44	5.40	5.44	6.28	99	115	70-130	15	30
Perfluoropentanoic acid	5.44	6.24	5.44	6.02	115	111	70-130	4	30
Perfluorotetradecanoic acid	5.44	6.05	5.44	6.46	111	119	70-130	7	30
Perfluorotridecanoic acid	5.44	6.31	5.44	6.39	116	117	70-130	1	30
Perfluoroundecanoic acid	5.44	5.71	5.44	5.91	105	109	70-130	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17306008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9295630	78	67	68	89	91	85
Blank	79	71	68	79	74	73
LCS	81	74	74	83	83	81
LCSD	81	76	70	79	77	79
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9295630	78	80	69	71	70	64
Blank	62	79	75	70	75	58
LCS	67	86	85	80	82	73
LCSD	67	82	76	67	75	58
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9295630	68	76	83	86	85	36*
Blank	76	81	86	80	89	42*
LCS	85	90	99	92	91	45*
LCSD	78	77	84	79	80	26*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1870175
Reported: 11/03/2017 13:17

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17306008

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-187475 * Results Needed ASAP * S-92956230

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47451
COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael DuPay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic / PFC (10)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-FILTERED WATER TKA-171101	—	—	—	11-01-17	0830	W	N	2	2			
2.												
3.												
4.											*	
5.											Results NEEDED	
6.											ASAP	
7.												
8.												
9.												
10.												

BARR USE ONLY		Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by:	DJZ	Robert Kolodny	(Y) N	11.1.17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	Y N	Date	Time	Received by:	Date 11/2/17	Time 940
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 3.8/5.2	Custody Seal Intact? ☒ Y ☐ N ☐ None				

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 199692

Group Number(s): 1870175

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/02/2017 9:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 10:28 on 11/02/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	5.2	IR	Wet	Y	Bagged	N
2	32170023	3.8	IR	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 13:51

Project: SGPP - Bennington

Account #: 37191
Group Number: 1870256
SDG: SNB25
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB101-171101 Water	11/01/2017	9295922
SG3-LTB102-171101 Water	11/01/2017	9295923
SG3-MWBR4-361-362' Grab Soil	11/01/2017 10:45	9295924
SG3-MWBR4-371-372' Grab Soil	11/01/2017 11:10	9295925
SG3-MWBR4-381-382' Grab Soil	11/01/2017 13:50	9295926
SG3-MWBR4-391-392' Grab Soil	11/01/2017 15:30	9295927

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1870256

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9295924

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17307011 (Sample number(s): 9295924-9295927 UNSPK: P291199)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoro-octanesulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9295924, MS, MSD

Batch #: 17310003 (Sample number(s): 9295922-9295923)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluoro-octanesulfonate. When the individual % recovery is within the acceptance limits, the data is reported.

SW-846 6010C, Metals

Batch #: 173101063701 (Sample number(s): 9295924-9295927 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium, Potassium

SW-846 6020A, Metals

Batch #: 173101063701A (Sample number(s): 9295924-9295927 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Beryllium, Arsenic, Copper, Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Copper, Lead, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Silver

Batch #: 173101063701D (Sample number(s): 9295924-9295927 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9295924, 9295926, 9295927

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9295926

The pH was measured in water at 19.9 C.

Sample #s: 9295927

The pH was measured in water at 20.2 C.

Sample #s: 9295924

The pH was measured in water at 20.4 C.

Sample #s: 9295925

The pH was measured in water at 20.5 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17306820012B (Sample number(s): 9295924, 9295926-9295927 BKG: P295925)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Batch #: 17310820004B (Sample number(s): 9295925 BKG: 9295925)

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The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **SG3-LTB101-171101 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017
SDG#: SNB25-01TB

C. T. Male Associates
ELLE Sample #: WW 9295922
ELLE Group #: 1870256
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310003	11/08/2017 02:36	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310003	11/06/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB102-171101 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017
SDG#: SNB25-02TB

C. T. Male Associates
ELLE Sample #: WW 9295923
ELLE Group #: 1870256
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	14 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310003	11/08/2017 02:57	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310003	11/06/2017 16:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-361-362' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 10:45
SDG#: SNB25-03

C. T. Male Associates
ELLE Sample #: SW 9295924
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.23 U	0.23	0.68	1
14027	Perfluorobutanoic acid	375-22-4	0.23 U	0.23	0.68	1
14027	Perfluorodecanoic acid	335-76-2	0.23 U	0.23	0.68	1
14027	Perfluorododecanoic acid	307-55-1	0.23 U	0.23	0.68	1
14027	Perfluoroheptanoic acid	375-85-9	0.23 U	0.23	0.68	1
14027	Perfluorohexanesulfonate	355-46-4	0.23 U	0.23	0.68	1
14027	Perfluorohexanoic acid	307-24-4	0.11 U	0.11	0.45	1
14027	Perfluorononanoic acid	375-95-1	0.11 U	0.11	0.45	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.34 U	0.34	1.0	1
14027	Perfluorooctanoic acid	335-67-1	0.23 U	0.23	0.68	1
14027	Perfluoropentanoic acid	2706-90-3	0.23 U	0.23	0.68	1
14027	Perfluorotetradecanoic acid	376-06-7	0.23 U	0.23	0.68	1
14027	Perfluorotridecanoic acid	72629-94-8	0.23 U	0.23	0.68	1
14027	Perfluoroundecanoic acid	2058-94-8	0.23 U	0.23	0.68	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**7,090**	9.98	44.7	1
01650	**Calcium**	7440-70-2	**423**	3.72	44.7	1
01654	**Iron**	7439-89-6	**42,700**	44.9	223	5
01657	**Magnesium**	7439-95-4	**3,180**	2.71	22.3	1
06958	**Manganese**	7439-96-5	**1,790**	0.0927	1.12	1
01662	**Potassium**	7440-09-7	**2,730**	18.6	112	1
01667	Sodium	7440-23-5	18.6 U	18.6	223	1
06972	**Zinc**	7440-66-6	**93.7**	0.268	4.47	1
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.266 J**	0.104	0.447	2
06125	**Arsenic**	7440-38-2	**9.79**	0.143	0.893	2
06126	**Barium**	7440-39-3	**162**	0.203	0.893	2
06127	**Beryllium**	7440-41-7	**1.46**	0.0117	0.223	2
06128	**Cadmium**	7440-43-9	**3.51**	0.0384	0.223	2
06131	**Chromium**	7440-47-3	**6.59**	0.194	0.893	2
06132	**Cobalt**	7440-48-4	**18.5**	0.0348	0.223	2
06133	**Copper**	7440-50-8	**37.5**	0.120	0.893	2
06135	**Lead**	7439-92-1	**16.7**	0.0248	0.447	2
06139	**Nickel**	7440-02-0	**37.2**	0.222	0.893	2
06141	**Selenium**	7782-49-2	**0.128 J**	0.112	0.893	2
06142	**Silver**	7440-22-4	**0.0397 J**	0.0326	0.223	2
06145	**Thallium**	7440-28-0	**0.288**	0.0279	0.223	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-361-362' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 10:45
SDG#: SNB25-03

C. T. Male Associates
ELLE Sample #: SW 9295924
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06148	**Vanadium**	7440-62-2	**13.4**		0.0476	0.223	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**349**	**J**	122	366	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.32**		0.0100	0.0100	1
	The pH was measured in water at 20.4 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**15.5**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 11:55	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:37	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:20	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:40	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:40	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-361-362' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 10:45
SDG#: SNB25-03

C. T. Male Associates
ELLE Sample #: SW 9295924
ELLE Group #: 1870256
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:40	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:14	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:14	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632A	11/14/2017 20:28	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401B	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820012B	11/03/2017 12:28	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-371-372' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 11:10
SDG#: SNB25-04

C. T. Male Associates
ELLE Sample #: SW 9295925
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.20 U	0.20	0.60	1
14027	Perfluorobutanoic acid	375-22-4	0.20 U	0.20	0.60	1
14027	Perfluorodecanoic acid	335-76-2	0.20 U	0.20	0.60	1
14027	Perfluorododecanoic acid	307-55-1	0.20 U	0.20	0.60	1
14027	Perfluoroheptanoic acid	375-85-9	0.20 U	0.20	0.60	1
14027	Perfluorohexanesulfonate	355-46-4	0.20 U	0.20	0.60	1
14027	Perfluorohexanoic acid	307-24-4	0.10 U	0.10	0.40	1
14027	Perfluorononanoic acid	375-95-1	0.10 U	0.10	0.40	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.30 U	0.30	0.90	1
14027	Perfluorooctanoic acid	335-67-1	0.20 U	0.20	0.60	1
14027	Perfluoropentanoic acid	2706-90-3	0.20 U	0.20	0.60	1
14027	Perfluorotetradecanoic acid	376-06-7	0.20 U	0.20	0.60	1
14027	Perfluorotridecanoic acid	72629-94-8	0.20 U	0.20	0.60	1
14027	Perfluoroundecanoic acid	2058-94-8	0.20 U	0.20	0.60	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**11,000**	7.96	35.6	1
01650	**Calcium**	7440-70-2	**700**	2.97	35.6	1
01654	**Iron**	7439-89-6	**31,400**	35.9	178	5
01657	**Magnesium**	7439-95-4	**7,460**	2.16	17.8	1
06958	**Manganese**	7439-96-5	**311**	0.0739	0.891	1
01662	**Potassium**	7440-09-7	**5,960**	14.9	89.1	1
01667	**Sodium**	7440-23-5	**16.9 J**	14.9	178	1
06972	**Zinc**	7440-66-6	**93.0**	0.214	3.56	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.107 J**	0.0830	0.356	2
06125	**Arsenic**	7440-38-2	**3.83**	0.114	0.713	2
06126	**Barium**	7440-39-3	**65.8**	0.162	0.713	2
06127	**Beryllium**	7440-41-7	**0.684**	0.0093	0.178	2
06128	**Cadmium**	7440-43-9	**0.295**	0.0306	0.178	2
06131	**Chromium**	7440-47-3	**10.6**	0.155	0.713	2
06132	**Cobalt**	7440-48-4	**11.4**	0.0278	0.178	2
06133	**Copper**	7440-50-8	**50.5**	0.0955	0.713	2
06135	**Lead**	7439-92-1	**9.88**	0.0198	0.356	2
06139	**Nickel**	7440-02-0	**24.9**	0.177	0.713	2
06141	**Selenium**	7782-49-2	**0.133 J**	0.0891	0.713	2
06142	Silver	7440-22-4	0.0260 U	0.0260	0.178	2
06145	**Thallium**	7440-28-0	**0.453**	0.0223	0.178	2
06148	**Vanadium**	7440-62-2	**13.7**	0.0379	0.178	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-371-372' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 11:10
SDG#: SNB25-04

C. T. Male Associates
ELLE Sample #: SW 9295925
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**	**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**561**	120	359	1
	SW-846 9045D modified		**Std. Units**	**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.25**	0.0100	0.0100	1
	The pH was measured in water at 20.5 C.					
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	
00111	**Moisture**	n.a.	**12.3**	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 12:15	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:40	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:23	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:43	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:43	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:43	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:17	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-371-372' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 11:10
SDG#: SNB25-04

C. T. Male Associates
ELLE Sample #: SW 9295925
ELLE Group #: 1870256
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:17	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632A	11/14/2017 20:41	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039402A	11/04/2017 15:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	2	17310820004B	11/06/2017 20:58	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-381-382' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 13:50
SDG#: SNB25-05

C. T. Male Associates
ELLE Sample #: SW 9295926
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.47	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.47	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.47	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.47	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.47	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.47	1
14027	Perfluorohexanoic acid	307-24-4	0.079 U	0.079	0.32	1
14027	Perfluorononanoic acid	375-95-1	0.079 U	0.079	0.32	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.24 U	0.24	0.71	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.47	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.47	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.47	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.47	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.47	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**8,800**	9.72	43.5	1
01650	**Calcium**	7440-70-2	**931**	3.62	43.5	1
01654	**Iron**	7439-89-6	**30,600**	43.8	218	5
01657	**Magnesium**	7439-95-4	**6,010**	2.64	21.8	1
06958	**Manganese**	7439-96-5	**732**	0.0903	1.09	1
01662	**Potassium**	7440-09-7	**3,490**	18.2	109	1
01667	Sodium	7440-23-5	18.2 U	18.2	218	1
06972	**Zinc**	7440-66-6	**56.2**	0.261	4.35	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.139 J**	0.101	0.435	2
06125	**Arsenic**	7440-38-2	**7.40**	0.139	0.870	2
06126	**Barium**	7440-39-3	**82.9**	0.198	0.870	2
06127	**Beryllium**	7440-41-7	**0.493**	0.0114	0.218	2
06128	**Cadmium**	7440-43-9	**0.428**	0.0374	0.218	2
06131	**Chromium**	7440-47-3	**4.71**	0.189	0.870	2
06132	**Cobalt**	7440-48-4	**10.0**	0.0339	0.218	2
06133	**Copper**	7440-50-8	**28.4**	0.117	0.870	2
06135	**Lead**	7439-92-1	**16.3**	0.0241	0.435	2
06139	**Nickel**	7440-02-0	**22.4**	0.217	0.870	2
06141	**Selenium**	7782-49-2	**0.132 J**	0.109	0.870	2
06142	Silver	7440-22-4	0.0318 U	0.0318	0.218	2
06145	**Thallium**	7440-28-0	**0.211 J**	0.0272	0.218	2
06148	**Vanadium**	7440-62-2	**7.08**	0.0463	0.218	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-381-382' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 13:50
SDG#: SNB25-05

C. T. Male Associates
ELLE Sample #: SW 9295926
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**218**	**J**	115	346	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**8.12**		0.0100	0.0100	1
	The pH was measured in water at 19.9 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**11.6**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 12:36	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:43	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:26	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:46	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:46	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:46	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-381-382' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 13:50
SDG#: SNB25-05

C. T. Male Associates
ELLE Sample #: SW 9295926
ELLE Group #: 1870256
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:20	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:20	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632A	11/14/2017 20:54	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401B	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820012B	11/03/2017 12:28	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-391-392' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 15:30
SDG#: SNB25-06

C. T. Male Associates
ELLE Sample #: SW 9295927
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.16 U	0.16	0.49	1
14027	Perfluorobutanoic acid	375-22-4	0.16 U	0.16	0.49	1
14027	Perfluorodecanoic acid	335-76-2	0.16 U	0.16	0.49	1
14027	Perfluorododecanoic acid	307-55-1	0.16 U	0.16	0.49	1
14027	Perfluoroheptanoic acid	375-85-9	0.16 U	0.16	0.49	1
14027	Perfluorohexanesulfonate	355-46-4	0.16 U	0.16	0.49	1
14027	Perfluorohexanoic acid	307-24-4	0.082 U	0.082	0.33	1
14027	Perfluorononanoic acid	375-95-1	0.082 U	0.082	0.33	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.25 U	0.25	0.74	1
14027	Perfluorooctanoic acid	335-67-1	0.16 U	0.16	0.49	1
14027	Perfluoropentanoic acid	2706-90-3	0.16 U	0.16	0.49	1
14027	Perfluorotetradecanoic acid	376-06-7	0.16 U	0.16	0.49	1
14027	Perfluorotridecanoic acid	72629-94-8	0.16 U	0.16	0.49	1
14027	Perfluoroundecanoic acid	2058-94-8	0.16 U	0.16	0.49	1
Metals	**SW-846 6010C**		**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**551**	7.73	34.6	1
01650	**Calcium**	7440-70-2	**219**	2.88	34.6	1
01654	**Iron**	7439-89-6	**18,100**	6.96	34.6	1
01657	**Magnesium**	7439-95-4	**278**	2.10	17.3	1
06958	**Manganese**	7439-96-5	**745**	0.0718	0.865	1
01662	**Potassium**	7440-09-7	**223**	14.4	86.5	1
01667	Sodium	7440-23-5	14.4 U	14.4	173	1
06972	**Zinc**	7440-66-6	**36.1**	0.208	3.46	1
	SW-846 6020A		**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.0827 J**	0.0806	0.346	2
06125	**Arsenic**	7440-38-2	**1.94**	0.111	0.692	2
06126	**Barium**	7440-39-3	**49.1**	0.157	0.692	2
06127	**Beryllium**	7440-41-7	**0.261**	0.0091	0.173	2
06128	**Cadmium**	7440-43-9	**0.348**	0.0297	0.173	2
06131	**Chromium**	7440-47-3	**0.727**	0.150	0.692	2
06132	**Cobalt**	7440-48-4	**2.53**	0.0270	0.173	2
06133	**Copper**	7440-50-8	**1.49**	0.0927	0.692	2
06135	**Lead**	7439-92-1	**14.4**	0.0192	0.346	2
06139	**Nickel**	7440-02-0	**9.65**	0.172	0.692	2
06141	Selenium	7782-49-2	0.0865 U	0.0865	0.692	2
06142	**Silver**	7440-22-4	**0.0401 J**	0.0252	0.173	2
06145	Thallium	7440-28-0	0.0216 U	0.0216	0.173	2
06148	**Vanadium**	7440-62-2	**2.50**	0.0368	0.173	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-391-392' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 15:30
SDG#: SNB25-06

C. T. Male Associates
ELLE Sample #: SW 9295927
ELLE Group #: 1870256
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**155**	**J**	127	382	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.84**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**16.8**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17307011	11/06/2017 12:56	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17307011	11/04/2017 08:40	Danielle D McCully	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
01650	Calcium	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
01654	Iron	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
01657	Magnesium	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
06958	Manganese	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
01662	Potassium	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
01667	Sodium	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
06972	Zinc	SW-846 6010C	1	173101063701	11/08/2017 09:29	Eric L Eby	1
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 16:48	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:48	Bradley M Berlot	2
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:48	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/13/2017 16:48	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-391-392' Grab Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/02/2017 09:40
Collection Date/Time: 11/01/2017 15:30
SDG#: SNB25-06

C. T. Male Associates
ELLE Sample #: SW 9295927
ELLE Group #: 1870256
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:24	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:24	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632A	11/14/2017 21:06	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17308039401B	11/04/2017 14:00	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17306820012B	11/03/2017 12:28	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17307011	Sample number(s): 9295924-9295927		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17310003	Sample number(s): 9295922-9295923		
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 173101063701	Sample number(s): 9295924-9295927		
Aluminum	8.94 U	8.94	40.0
Calcium	3.57 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.327 J	0.240	4.00
Batch number: 173101063701A	Sample number(s): 9295924-9295927		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 173101063701B	Sample number(s): 9295924-9295927		
Selenium	0.100 U	0.100	0.800
Batch number: 173101063701D	Sample number(s): 9295924-9295927		
Barium	0.182 U	0.182	0.800
Batch number: 17317667632A	Sample number(s): 9295924-9295927		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9295924-9295927								
Perfluorobutanesulfonate	1.20	1.26			105		70-130		
Perfluorobutanoic acid	1.36	1.39			102		70-130		
Perfluorodecanoic acid	1.36	1.37			101		70-130		
Perfluorododecanoic acid	1.36	1.43			105		70-130		
Perfluoroheptanoic acid	1.36	1.47			108		70-130		
Perfluorohexanesulfonate	1.29	1.20			93		70-130		
Perfluorohexanoic acid	1.36	1.49			109		70-130		
Perfluorononanoic acid	1.36	1.37			101		70-130		
Perfluoro-octanesulfonate	1.30	1.38			106		70-130		
Perfluorooctanoic acid	1.36	1.27			93		70-130		
Perfluoropentanoic acid	1.36	1.52			112		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotetradecanoic acid	1.36	1.47			108		70-130		
Perfluorotridecanoic acid	1.36	1.61			119		70-130		
Perfluoroundecanoic acid	1.36	1.51			111		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17310003	Sample number(s): 9295922-9295923								
Perfluorobutanesulfonate	4.81	4.89	4.81	6.06	102	126	70-130	21	30
Perfluorobutanoic acid	5.44	5.65	5.44	6.50	104	119	70-130	14	30
Perfluorodecanoic acid	5.44	5.61	5.44	6.78	103	125	70-130	19	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.37	106	117	70-130	10	30
Perfluoroheptanoic acid	5.44	6.48	5.44	6.80	119	125	70-130	5	30
Perfluorohexanesulfonate	5.14	5.28	5.14	5.97	103	116	70-130	12	30
Perfluorohexanoic acid	5.44	5.32	5.44	5.59	98	103	70-130	5	30
Perfluorononanoic acid	5.44	5.42	5.44	5.20	100	96	70-130	4	30
Perfluoro-octanesulfonate	5.20	3.99	5.20	5.69	77	109	70-130	35*	30
Perfluorooctanoic acid	5.44	5.78	5.44	5.84	106	107	70-130	1	30
Perfluoropentanoic acid	5.44	5.67	5.44	6.31	104	116	70-130	11	30
Perfluorotetradecanoic acid	5.44	5.71	5.44	6.71	105	123	70-130	16	30
Perfluorotridecanoic acid	5.44	5.32	5.44	7.18	98	132*	70-130	30	30
Perfluoroundecanoic acid	5.44	5.49	5.44	6.18	101	114	70-130	12	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9295924-9295927								
Aluminum	200	196.66			98		80-120		
Calcium	400	388.51			97		80-120		
Iron	100	102.49			102		80-120		
Magnesium	200	201.46			101		80-120		
Manganese	50	52.23			104		80-120		
Potassium	1000	989.21			99		80-120		
Sodium	1000	985.1			99		80-120		
Zinc	50	51.11			102		80-120		
Batch number: 173101063701A	Sample number(s): 9295924-9295927								
Antimony	0.600	0.598			100		80-120		
Arsenic	1.00	0.920			92		80-120		
Beryllium	0.400	0.379			95		80-120		
Cadmium	0.500	0.532			106		80-120		
Chromium	5.00	5.04			101		80-120		
Cobalt	25	23.32			93		80-120		
Copper	5.00	5.01			100		80-120		
Lead	1.50	1.46			98		80-120		
Nickel	5.00	4.97			99		80-120		
Silver	5.00	4.85			97		80-120		
Thallium	0.200	0.174			87		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Vanadium	5.00	5.23			105		80-120		
Batch number: 173101063701B	Sample number(s): 9295924-9295927								
Selenium	1.00	1.00			100		80-120		
Batch number: 173101063701D	Sample number(s): 9295924-9295927								
Barium	5.00	4.90			98		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17317667632A	Sample number(s): 9295924-9295927								
TOC	7150	7240.85			101		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17308039401B	Sample number(s): 9295924,9295926-9295927								
pH	7.00	6.98			100		95-105		
Batch number: 17308039402A	Sample number(s): 9295925								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17306820012B	Sample number(s): 9295924,9295926-9295927								
Moisture	89.5	89.38			100		99-101		
Batch number: 17310820004B	Sample number(s): 9295925								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17307011	Sample number(s): 9295924-9295927 UNSPK: P291199									
Perfluorobutanesulfonate	0.15 U	1.05	1.01	0.962	0.955	96	99	70-130	5	30
Perfluorobutanoic acid	0.15 U	1.19	1.18	1.09	1.08	99	99	70-130	9	30
Perfluorodecanoic acid	0.15 U	1.19	1.01	1.09	1.18	85	109	70-130	16	30
Perfluorododecanoic acid	0.15 U	1.19	1.15	1.09	1.18	97	109	70-130	3	30
Perfluoroheptanoic acid	0.15 U	1.19	1.26	1.09	1.33	105	123	70-130	6	30
Perfluorohexanesulfonate	0.15 U	1.13	1.16	1.03	1.15	103	112	70-130	1	30
Perfluorohexanoic acid	0.076 U	1.19	1.21	1.09	1.14	101	105	70-130	6	30
Perfluorononanoic acid	0.076 U	1.19	1.10	1.09	1.11	92	102	70-130	0	30
Perfluoro-octanesulfonate	0.23 U	1.14	1.20	1.04	0.805	105	77	70-130	39*	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluorooctanoic acid	0.15 U	1.19	1.24	1.09	1.03	104	95	70-130	18	30
Perfluoropentanoic acid	0.15 U	1.19	1.15	1.09	1.16	96	107	70-130	1	30
Perfluorotetradecanoic acid	0.15 U	1.19	1.14	1.09	1.10	96	101	70-130	4	30
Perfluorotridecanoic acid	0.15 U	1.19	1.13	1.09	1.23	95	113	70-130	8	30
Perfluoroundecanoic acid	0.15 U	1.19	1.19	1.09	1.10	100	101	70-130	8	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9295924-9295927 UNSPK: P294601									
Aluminum	8009.39	134.23	12300.58	139.86	13294.98	3197 (2)	3779 (2)	75-125	8	20
Calcium	515.21	268.46	707.18	279.72	749.76	72*	84	75-125	6	20
Iron	41591.07	67.11	38851.73	69.93	41565.97	-4082 (2)	-36 (2)	75-125	7	20
Magnesium	941.44	134.23	1162.45	139.86	1241.46	165 (2)	215 (2)	75-125	7	20
Manganese	843.18	33.56	882.49	34.97	874.85	117 (2)	91 (2)	75-125	1	20
Potassium	616.08	671.14	1339.09	699.3	1443.45	108	118	75-125	8	20
Sodium	12.2 U	671.14	548.43	699.3	571.14	82	82	75-125	4	20
Zinc	49.76	33.56	76.8	34.97	81.42	81	91	75-125	6	20
Batch number: 173101063701A	Sample number(s): 9295924-9295927 UNSPK: P294601									
Antimony	0.0680 U	0.805	0.512	0.839	0.528	64*	63*	75-125	3	20
Arsenic	3.78	1.34	4.27	1.40	5.68	36*	136*	75-125	28*	20
Beryllium	1.88	0.537	1.74	0.559	2.22	-27*	60*	75-125	24*	20
Cadmium	0.155	0.671	0.781	0.699	0.921	93	110	75-125	16	20
Chromium	1.34	6.71	7.62	6.99	7.92	94	94	75-125	4	20
Cobalt	15.85	33.56	46.02	34.97	52.59	90	105	75-125	13	20
Copper	29.6	6.71	25.66	6.99	36.17	-59 (2)	94 (2)	75-125	34*	20
Lead	32.09	2.01	25.25	2.10	35.07	-340 (2)	142 (2)	75-125	33*	20
Nickel	21.41	6.71	21.86	6.99	28.81	7*	106	75-125	27*	20
Silver	0.0225	6.71	6.73	6.99	7.50	100	107	75-125	11	20
Thallium	0.145	0.268	0.361	0.280	0.396	81	90	75-125	9	20
Vanadium	6.89	6.71	12.54	6.99	13.74	84	98	75-125	9	20
Batch number: 173101063701B	Sample number(s): 9295924-9295927 UNSPK: P294601									
Selenium	0.145	1.34	1.40	1.40	1.55	93	100	75-125	10	20
Batch number: 173101063701D	Sample number(s): 9295924-9295927 UNSPK: P294601									
Barium	74.24	6.71	63.14	6.99	91.71	-165 (2)	250 (2)	75-125	37*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17317667632A	Sample number(s): 9295924-9295927 UNSPK: P296922									
TOC	294.24	11700	13872.22			116		47-143		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
Batch number: 173101063701	Sample number(s): 9295924-9295927 BKG: P294601			
Aluminum	8009.39	7861.55	2	20
Calcium	515.21	514.2	0 (1)	20
Iron	41591.07	39389.7	5	20
Magnesium	941.44	1208.78	25*	20
Manganese	843.18	874.59	4	20
Potassium	616.08	807.61	27*	20
Sodium	12.2 U	15.2 U	0 (1)	20
Zinc	49.76	49.11	1 (1)	20
Batch number: 173101063701A	Sample number(s): 9295924-9295927 BKG: P294601			
Antimony	0.0680 U	0.0847 U	0 (1)	20
Arsenic	3.78	3.33	13 (1)	20
Beryllium	1.88	1.85	2	20
Cadmium	0.155	0.153	2 (1)	20
Chromium	1.34	1.76	27* (1)	20
Cobalt	15.85	15.75	1	20
Copper	29.6	28.19	5	20
Lead	32.09	27.93	14	20
Nickel	21.41	22.31	4	20
Silver	0.0225	0.0265 U	200* (1)	20
Thallium	0.145	0.131	10 (1)	20
Vanadium	6.89	7.64	10	20
Batch number: 173101063701B	Sample number(s): 9295924-9295927 BKG: P294601			
Selenium	0.145	0.135	7 (1)	20
Batch number: 173101063701D	Sample number(s): 9295924-9295927 BKG: P294601			
Barium	74.24	69.05	7	20
	mg/kg	mg/kg		
Batch number: 17317667632A	Sample number(s): 9295924-9295927 BKG: P296922			
TOC	294.24	314.82	7 (1)	7
	Std. Units	Std. Units		
Batch number: 17308039401B	Sample number(s): 9295924,9295926-9295927 BKG: P294606			
pH	7.67	7.72	1	3
Batch number: 17308039402A	Sample number(s): 9295925 BKG: P296254			
pH	9.49	9.53	0	3
	%	%		
Batch number: 17306820012B	Sample number(s): 9295924,9295926-9295927 BKG: P295925			
Moisture	10.13	12.53	21*	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 17310820004B	Sample number(s): 9295925 BKG: 9295925			
Moisture	12.35	11.37	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17307011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9295924	70	63*	69	63	78	73
9295925	89	84	80	92	99	89
9295926	84	78	77	85	98	93
9295927	77	76	67	80	74	71
Blank	91	89	77	81	84	79
LCS	109*	97	97	112	115	110
MS	42	40*	61	44	77	43*
MSD	36*	33*	56	36*	61	31*
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9295924	75	67	60	68	72	75
9295925	90	107	85	84	92	101
9295926	89	85	73	84	89	88
9295927	71	70	83	81	83	84
Blank	79	93	95	85	107	106
LCS	119*	107	102	112	110	124
MS	48	78	45	45	44	47
MSD	35*	63	32*	39	38	44
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9295924	82
9295925	97
9295926	89
9295927	79

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 13:51

Group Number: 1870256

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 14 PFCs
Batch number: 17307011

	13C2-PFTeDA
Blank	110
LCS	120
MS	47
MSD	45
Limits:	20-127

Analysis Name: 14 PFAS Compounds
Batch number: 17310003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9295922	73	63	64	76	77	75
9295923	79	74	66	69	73	68
Blank	97	89	88	78	95	89
LCS	83	76	66	76	70	68
LCSD	73	70	61	65	63	65
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9295922	82	70	73	77	77	75
9295923	74	77	81	78	75	69
Blank	89	93	87	90	91	83
LCS	81	77	76	69	78	68
LCSD	67	69	84	67	68	65
Limits:	43-112	43-115	32-134	40-115	30-128	28-127

	13C2-PFTeDA
9295922	74
9295923	67
Blank	69
LCS	54
LCSD	54
Limits:	26-119

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A - 37191 G-1870256 S-9295922 -27

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: № 47452

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: C.T. Male Assoc.
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250ml Plastic	Soil 250ml Plastic	Soil 4oz Glass	% Solids	Preservative Code	Field Filtered Y/N	Comments
										A	A				
										N	N				
1. SG3-LTB101-171101	–	–	–	11.1.17	411	W	N	2	2						Samples in two coolers
2. SG3-LTB102-171101	–	–	–	11.1.17	411	W	N	2	2						
3. SG3-MWBR4-361-362'	~~360~~ 361	362	ft	11.1.17	1045	S	N	2		1	1				
4. SG3-MWBR4-371-372'	371	372	ft.	11.1.17	1110	S	N	2		1	1				
5. SG3-MWBR4-381-382'	381	382	ft	11.1.17	1350	S	N	2		1	1				
6. SG3-MWBR4-391-392'	391	392	ft	11.1.17	1530	S	N	2		1	1				
7.															
8.															
9.															
10.															

BARR USE ONLY

Sampled by: RAK/DJE

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kuskusky — On Ice? (Y) N — Date 11.1.17 — Time 1700 — Received by:

Relinquished by: — On Ice? (Y) N — Date — Time — Received by: — Date 11/2/17 — Time 940

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 3.8/5.2 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 199692

Group Number(s): 1870256

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/02/2017 9:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL plastic bottles)

Unpacked by Wyatt Shiffler (12792) at 10:28 on 11/02/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	5.2	IR	Wet	Y	Bagged	N
2	32170023	3.8	IR	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 14:04

Project: SGPP - Bennington

Account #: 37191
Group Number: 1871096
SDG: SNB26
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AFTERPOET B-171102 Water	11/02/2017 12:45	9299616
SG3-LTB103-171102 Water	11/02/2017	9299617
SG3-LTB104-171102 Water	11/02/2017	9299618
SG3-MWBR4-395-396' Soil	11/02/2017 14:20	9299619

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1871096

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9299619

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9299616, 9299617, 9299618

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Batch #: 17310004 (Sample number(s): 9299616-9299618)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, NMeFOSAA, Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9299616, 9299617, 9299618, Blank, LCS, LCSD

Batch #: 17311004 (Sample number(s): 9299619 UNSPK: 9299619)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9299619,

Blank, MS

SW-846 6010C, Metals

Sample #s: 9299619

Reporting limits for metals were raised due to interference from the sample matrix.

Batch #: 173101063701 (Sample number(s): 9299619 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Aluminum, Magnesium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Iron, Calcium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Magnesium, Potassium

SW-846 6020A, Metals

Batch #: 173101063701A (Sample number(s): 9299619 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic, Lead

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Beryllium, Arsenic, Copper, Lead, Nickel

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Copper, Lead, Nickel

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Silver

Batch #: 173101063701D (Sample number(s): 9299619 UNSPK: P294601 BKG: P294601)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 5310 B modified-2000, Wet Chemistry

Sample #s: 9299619

Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.

SW-846 9045D modified, Wet Chemistry

Sample #s: 9299619

The pH was measured in water at 20.2 C.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 17311820006B (Sample number(s): 9299619 BKG: P299297)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **SG3-AFTERPOET B-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017 12:45
SDG#: SNB26-01

C. T. Male Associates
ELLE Sample #: GW 9299616
ELLE Group #: 1871096
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 13:45	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-AFTERPOET B-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017 12:45
SDG#: SNB26-01

C. T. Male Associates
ELLE Sample #: GW 9299616
ELLE Group #: 1871096
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB103-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017
SDG#: SNB26-02TB

C. T. Male Associates
ELLE Sample #: WW 9299617
ELLE Group #: 1871096
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 14:05	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB103-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017
SDG#: SNB26-02TB

C. T. Male Associates
ELLE Sample #: WW 9299617
ELLE Group #: 1871096
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB104-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017
SDG#: SNB26-03TB

C. T. Male Associates
ELLE Sample #: WW 9299618
ELLE Group #: 1871096
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 14:26	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB104-171102 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017
SDG#: SNB26-03TB

C. T. Male Associates
ELLE Sample #: WW 9299618
ELLE Group #: 1871096
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-395-396' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017 14:20
SDG#: SNB26-04

C. T. Male Associates
ELLE Sample #: SW 9299619
ELLE Group #: 1871096
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	Perfluorobutanesulfonate	375-73-5	0.18 U	0.18	0.54	1
14027	Perfluorobutanoic acid	375-22-4	0.18 U	0.18	0.54	1
14027	Perfluorodecanoic acid	335-76-2	0.18 U	0.18	0.54	1
14027	Perfluorododecanoic acid	307-55-1	0.18 U	0.18	0.54	1
14027	Perfluoroheptanoic acid	375-85-9	0.18 U	0.18	0.54	1
14027	Perfluorohexanesulfonate	355-46-4	0.18 U	0.18	0.54	1
14027	Perfluorohexanoic acid	307-24-4	0.090 U	0.090	0.36	1
14027	Perfluorononanoic acid	375-95-1	0.090 U	0.090	0.36	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.27 U	0.27	0.81	1
14027	Perfluorooctanoic acid	335-67-1	0.18 U	0.18	0.54	1
14027	Perfluoropentanoic acid	2706-90-3	0.18 U	0.18	0.54	1
14027	Perfluorotetradecanoic acid	376-06-7	0.18 U	0.18	0.54	1
14027	Perfluorotridecanoic acid	72629-94-8	0.18 U	0.18	0.54	1
14027	Perfluoroundecanoic acid	2058-94-8	0.18 U	0.18	0.54	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/kg**	**mg/kg**	**mg/kg**	
01643	**Aluminum**	7429-90-5	**1,600**	52.3	234	5
01650	**Calcium**	7440-70-2	**4,410**	19.5	234	5
01654	**Iron**	7439-89-6	**24,500**	47.1	234	5
01657	**Magnesium**	7439-95-4	**510**	14.2	117	5
06958	**Manganese**	7439-96-5	**1,000**	0.485	5.85	5
01662	**Potassium**	7440-09-7	**365 J**	97.7	585	5
01667	Sodium	7440-23-5	97.7 U	97.7	1,170	5
	Reporting limits for metals were raised due to interference from the sample matrix.					
06972	**Zinc**	7440-66-6	**95.8**	1.40	23.4	5
		SW-846 6020A	**mg/kg**	**mg/kg**	**mg/kg**	
06124	**Antimony**	7440-36-0	**0.118 J**	0.109	0.468	2
06125	**Arsenic**	7440-38-2	**4.39**	0.150	0.936	2
06126	**Barium**	7440-39-3	**56.7**	0.212	0.936	2
06127	**Beryllium**	7440-41-7	**0.400**	0.0123	0.234	2
06128	**Cadmium**	7440-43-9	**1.36**	0.0402	0.234	2
06131	**Chromium**	7440-47-3	**1.73**	0.204	0.936	2
06132	**Cobalt**	7440-48-4	**4.41**	0.0365	0.234	2
06133	**Copper**	7440-50-8	**2.53**	0.125	0.936	2
06135	**Lead**	7439-92-1	**22.9**	0.0260	0.468	2
06139	**Nickel**	7440-02-0	**13.9**	0.233	0.936	2
06141	**Selenium**	7782-49-2	**0.234 J**	0.117	0.936	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-395-396' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017 14:20
SDG#: SNB26-04

C. T. Male Associates
ELLE Sample #: SW 9299619
ELLE Group #: 1871096
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/kg**		**mg/kg**	**mg/kg**	
06142	Silver	7440-22-4	0.0342 U		0.0342	0.234	2
06145	Thallium	7440-28-0	0.0292 U		0.0292	0.234	2
06148	**Vanadium**	7440-62-2	**4.33**		0.0498	0.234	2
Wet Chemistry	**SM 5310 B modified-2000**		**mg/kg**		**mg/kg**	**mg/kg**	
02079	**TOC**	n.a.	**379**	**J**	129	387	1
	Due to the nature of this sample matrix, the sample cup was filled to capacity with less than 1000 mg of sample being used. The lowered sample weight has resulted in a raised reporting limit.						
	SW-846 9045D modified		**Std. Units**		**Std. Units**	**Std. Units**	
00394	**pH**	n.a.	**7.38**		0.0100	0.0100	1
	The pH was measured in water at 20.2 C.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	
00111	**Moisture**	n.a.	**20.1**		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	14 PFCs	EPA 537 Version 1.1 Modified	1	17311004	11/08/2017 16:18	Jason W Knight	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17311004	11/07/2017 09:25	Pamela Rothharpt	1
01643	Aluminum	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
01650	Calcium	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
01654	Iron	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
01657	Magnesium	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
06958	Manganese	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
01662	Potassium	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
01667	Sodium	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
06972	Zinc	SW-846 6010C	1	173101063701	11/09/2017 21:50	Elaine F Stoltzfus	5
06124	Antimony	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06125	Arsenic	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06126	Barium	SW-846 6020A	1	173101063701D	11/13/2017 18:54	Bradley M Berlot	2
06127	Beryllium	SW-846 6020A	1	173101063701A	11/13/2017 16:51	Bradley M Berlot	2

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-395-396' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/03/2017 09:45
Collection Date/Time: 11/02/2017 14:20
SDG#: SNB26-04

C. T. Male Associates
ELLE Sample #: SW 9299619
ELLE Group #: 1871096
Matrix: Soil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06128	Cadmium	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06131	Chromium	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06132	Cobalt	SW-846 6020A	1	173101063701A	11/13/2017 16:51	Bradley M Berlot	2
06133	Copper	SW-846 6020A	1	173101063701A	11/13/2017 16:51	Bradley M Berlot	2
06135	Lead	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06139	Nickel	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06141	Selenium	SW-846 6020A	1	173101063701B	11/10/2017 16:27	Bradley M Berlot	2
06142	Silver	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06145	Thallium	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
06148	Vanadium	SW-846 6020A	1	173101063701A	11/10/2017 16:27	Bradley M Berlot	2
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	173101063701	11/07/2017 07:05	Lisa J Cooke	1
02079	TOC	SM 5310 B modified-2000	1	17317667632B	11/14/2017 23:03	Drew M Gerhart	1
00394	pH	SW-846 9045D modified	1	17312039401A	11/08/2017 21:40	Luz M Groff	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	17311820006B	11/07/2017 22:46	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17311004	Sample number(s): 9299619		
Perfluorobutanesulfonate	0.20 U	0.20	0.60
Perfluorobutanoic acid	0.20 U	0.20	0.60
Perfluorodecanoic acid	0.20 U	0.20	0.60
Perfluorododecanoic acid	0.20 U	0.20	0.60
Perfluoroheptanoic acid	0.20 U	0.20	0.60
Perfluorohexanesulfonate	0.20 U	0.20	0.60
Perfluorohexanoic acid	0.10 U	0.10	0.40
Perfluorononanoic acid	0.10 U	0.10	0.40
Perfluoro-octanesulfonate	0.30 U	0.30	0.90
Perfluorooctanoic acid	0.20 U	0.20	0.60
Perfluoropentanoic acid	0.20 U	0.20	0.60
Perfluorotetradecanoic acid	0.20 U	0.20	0.60
Perfluorotridecanoic acid	0.20 U	0.20	0.60
Perfluoroundecanoic acid	0.20 U	0.20	0.60
	ng/l	ng/l	ng/l
Batch number: 17310004	Sample number(s): 9299616-9299618		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/kg	mg/kg	mg/kg
Batch number: 173101063701	Sample number(s): 9299619		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/kg	mg/kg	mg/kg
Aluminum	8.94 U	8.94	40.0
Calcium	3.57 J	3.33	40.0
Iron	8.05 U	8.05	40.0
Magnesium	2.43 U	2.43	20.0
Manganese	0.0830 U	0.0830	1.00
Potassium	16.7 U	16.7	100
Sodium	16.7 U	16.7	200
Zinc	0.327 J	0.240	4.00
Batch number: 173101063701A	Sample number(s): 9299619		
Antimony	0.0932 U	0.0932	0.400
Arsenic	0.128 U	0.128	0.800
Beryllium	0.0105 U	0.0105	0.200
Cadmium	0.0344 U	0.0344	0.200
Chromium	0.174 U	0.174	0.800
Cobalt	0.0312 U	0.0312	0.200
Copper	0.107 U	0.107	0.800
Lead	0.0222 U	0.0222	0.400
Nickel	0.199 U	0.199	0.800
Silver	0.0292 U	0.0292	0.200
Thallium	0.0250 U	0.0250	0.200
Vanadium	0.0426 U	0.0426	0.200
Batch number: 173101063701B	Sample number(s): 9299619		
Selenium	0.100 U	0.100	0.800
Batch number: 173101063701D	Sample number(s): 9299619		
Barium	0.182 U	0.182	0.800
Batch number: 17317667632B	Sample number(s): 9299619		
TOC	100 U	100	300

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17311004	Sample number(s): 9299619								
Perfluorobutanesulfonate	1.20	1.24	1.20	1.33	103	111	70-130	7	30
Perfluorobutanoic acid	1.36	1.44	1.36	1.45	106	107	70-130	1	30
Perfluorodecanoic acid	1.36	1.31	1.36	1.69	97	124	70-130	25	30
Perfluorododecanoic acid	1.36	1.57	1.36	1.48	115	109	70-130	6	30
Perfluoroheptanoic acid	1.36	1.45	1.36	1.57	106	115	70-130	8	30
Perfluorohexanesulfonate	1.29	1.38	1.29	1.57	107	122	70-130	13	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	1.36	1.36	1.36	1.48	100	109	70-130	9	30
Perfluorononanoic acid	1.36	1.20	1.36	1.36	89	100	70-130	12	30
Perfluoro-octanesulfonate	1.30	1.34	1.30	1.36	103	104	70-130	1	30
Perfluorooctanoic acid	1.36	1.65	1.36	1.35	122	99	70-130	20	30
Perfluoropentanoic acid	1.36	1.36	1.36	1.50	100	110	70-130	9	30
Perfluorotetradecanoic acid	1.36	1.53	1.36	1.38	113	102	70-130	10	30
Perfluorotridecanoic acid	1.36	1.59	1.36	1.67	117	123	70-130	5	30
Perfluoroundecanoic acid	1.36	1.34	1.36	1.35	98	99	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17310004	Sample number(s): 9299616-9299618								
6:2 fluorotelomersulfonate	15.17	17.34	15.17	17.56	114	116	70-130	1	30
8:2 fluorotelomersulfonate	15.33	17.04	15.33	15.84	111	103	70-130	7	30
NEtFOSAA	5.44	6.00	5.44	6.87	110	126	70-130	13	30
NMeFOSAA	5.44	7.13	5.44	7.35	131*	135*	70-130	3	30
Perfluorobutanesulfonate	4.81	5.69	4.81	5.81	118	121	70-130	2	30
Perfluorobutanoic acid	5.44	6.34	5.44	6.47	116	119	70-130	2	30
Perfluorodecanoic acid	5.44	7.18	5.44	6.98	132*	128	70-130	3	30
Perfluorododecanoic acid	5.44	6.63	5.44	6.42	122	118	70-130	3	30
Perfluoroheptanoic acid	5.44	6.34	5.44	6.48	117	119	70-130	2	30
Perfluorohexanesulfonate	5.14	5.65	5.14	6.01	110	117	70-130	6	30
Perfluorohexanoic acid	5.44	6.29	5.44	6.30	116	116	70-130	0	30
Perfluorononanoic acid	5.44	5.94	5.44	6.53	109	120	70-130	10	30
Perfluorooctanesulfonamide	5.44	6.23	5.44	5.81	115	107	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.99	5.20	6.07	115	117	70-130	1	30
Perfluorooctanoic acid	5.44	7.31	5.44	7.23	134*	133*	70-130	1	30
Perfluoropentanoic acid	5.44	6.76	5.44	6.63	124	122	70-130	2	30
Perfluorotetradecanoic acid	5.44	6.51	5.44	6.64	120	122	70-130	2	30
Perfluorotridecanoic acid	5.44	6.41	5.44	6.85	118	126	70-130	7	30
Perfluoroundecanoic acid	5.44	5.84	5.44	6.94	107	128	70-130	17	30
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9299619								
Aluminum	200	196.66			98		80-120		
Calcium	400	388.51			97		80-120		
Iron	100	102.49			102		80-120		
Magnesium	200	201.46			101		80-120		
Manganese	50	52.23			104		80-120		
Potassium	1000	989.21			99		80-120		
Sodium	1000	985.1			99		80-120		
Zinc	50	51.11			102		80-120		
Batch number: 173101063701A	Sample number(s): 9299619								
Antimony	0.600	0.598			100		80-120		

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/kg	LCS Conc mg/kg	LCSD Spike Added mg/kg	LCSD Conc mg/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Arsenic	1.00	0.920			92		80-120		
Beryllium	0.400	0.379			95		80-120		
Cadmium	0.500	0.532			106		80-120		
Chromium	5.00	5.04			101		80-120		
Cobalt	25	23.32			93		80-120		
Copper	5.00	5.01			100		80-120		
Lead	1.50	1.46			98		80-120		
Nickel	5.00	4.97			99		80-120		
Silver	5.00	4.85			97		80-120		
Thallium	0.200	0.174			87		80-120		
Vanadium	5.00	5.23			105		80-120		
Batch number: 173101063701B	Sample number(s): 9299619								
Selenium	1.00	1.00			100		80-120		
Batch number: 173101063701D	Sample number(s): 9299619								
Barium	5.00	4.90			98		80-120		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 17317667632B	Sample number(s): 9299619								
TOC	7150	7240.85			101		47-143		
	Std. Units	**Std. Units**	**Std. Units**	**Std. Units**					
Batch number: 17312039401A	Sample number(s): 9299619								
pH	7.00	6.97			100		95-105		
	%	**%**	**%**	**%**					
Batch number: 17311820006B	Sample number(s): 9299619								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17311004	Sample number(s): 9299619 UNSPK: 9299619									
Perfluorobutanesulfonate	0.14 U	0.801	0.916			114		70-130		
Perfluorobutanoic acid	0.14 U	0.907	1.04			114		70-130		
Perfluorodecanoic acid	0.14 U	0.907	1.01			112		70-130		
Perfluorododecanoic acid	0.14 U	0.907	1.00			111		70-130		

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	0.14 U	0.907	1.13			125		70-130		
Perfluorohexanesulfonate	0.14 U	0.857	1.02			119		70-130		
Perfluorohexanoic acid	0.072 U	0.907	0.867			96		70-130		
Perfluorononanoic acid	0.072 U	0.907	1.01			111		70-130		
Perfluoro-octanesulfonate	0.22 U	0.867	1.02			117		70-130		
Perfluorooctanoic acid	0.14 U	0.907	0.987			109		70-130		
Perfluoropentanoic acid	0.14 U	0.907	0.949			105		70-130		
Perfluorotetradecanoic acid	0.14 U	0.907	0.982			108		70-130		
Perfluorotridecanoic acid	0.14 U	0.907	1.18			131*		70-130		
Perfluoroundecanoic acid	0.14 U	0.907	0.914			101		70-130		
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					
Batch number: 173101063701	Sample number(s): 9299619 UNSPK: P294601									
Aluminum	8009.39	134.23	12300.58	139.86	13294.98	3197 (2)	3779 (2)	75-125	8	20
Calcium	515.21	268.46	707.18	279.72	749.76	72*	84	75-125	6	20
Iron	41591.07	67.11	38851.73	69.93	41565.97	-4082 (2)	-36 (2)	75-125	7	20
Magnesium	941.44	134.23	1162.45	139.86	1241.46	165 (2)	215 (2)	75-125	7	20
Manganese	843.18	33.56	882.49	34.97	874.85	117 (2)	91 (2)	75-125	1	20
Potassium	616.08	671.14	1339.09	699.3	1443.45	108	118	75-125	8	20
Sodium	12.2 U	671.14	548.43	699.3	571.14	82	82	75-125	4	20
Zinc	49.76	33.56	76.8	34.97	81.42	81	91	75-125	6	20
Batch number: 173101063701A	Sample number(s): 9299619 UNSPK: P294601									
Antimony	0.0680 U	0.805	0.512	0.839	0.528	64*	63*	75-125	3	20
Arsenic	3.78	1.34	4.27	1.40	5.68	36*	136*	75-125	28*	20
Beryllium	1.88	0.537	1.74	0.559	2.22	-27*	60*	75-125	24*	20
Cadmium	0.155	0.671	0.781	0.699	0.921	93	110	75-125	16	20
Chromium	1.34	6.71	7.62	6.99	7.92	94	94	75-125	4	20
Cobalt	15.85	33.56	46.02	34.97	52.59	90	105	75-125	13	20
Copper	29.6	6.71	25.66	6.99	36.17	-59 (2)	94 (2)	75-125	34*	20
Lead	32.09	2.01	25.25	2.10	35.07	-340 (2)	142 (2)	75-125	33*	20
Nickel	21.41	6.71	21.86	6.99	28.81	7*	106	75-125	27*	20
Silver	0.0225	6.71	6.73	6.99	7.50	100	107	75-125	11	20
Thallium	0.145	0.268	0.361	0.280	0.396	81	90	75-125	9	20
Vanadium	6.89	6.71	12.54	6.99	13.74	84	98	75-125	9	20
Batch number: 173101063701B	Sample number(s): 9299619 UNSPK: P294601									
Selenium	0.145	1.34	1.40	1.40	1.55	93	100	75-125	10	20
Batch number: 173101063701D	Sample number(s): 9299619 UNSPK: P294601									
Barium	74.24	6.71	63.14	6.99	91.71	-165 (2)	250 (2)	75-125	37*	20
	mg/kg	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**					

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/kg	MS Spike Added mg/kg	MS Conc mg/kg	MSD Spike Added mg/kg	MSD Conc mg/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17317667632B	Sample number(s): 9299619 UNSPK: P299868									
TOC	1038.95	14700	18574.23			119		47-143		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 173101063701	Sample number(s): 9299619 BKG: P294601			
Aluminum	8009.39	7861.55	2	20
Calcium	515.21	514.2	0 (1)	20
Iron	41591.07	39389.7	5	20
Magnesium	941.44	1208.78	25*	20
Manganese	843.18	874.59	4	20
Potassium	616.08	807.61	27*	20
Sodium	12.2 U	15.2 U	0 (1)	20
Zinc	49.76	49.11	1 (1)	20
Batch number: 173101063701A	Sample number(s): 9299619 BKG: P294601			
Antimony	0.0680 U	0.0847 U	0 (1)	20
Arsenic	3.78	3.33	13 (1)	20
Beryllium	1.88	1.85	2	20
Cadmium	0.155	0.153	2 (1)	20
Chromium	1.34	1.76	27* (1)	20
Cobalt	15.85	15.75	1	20
Copper	29.6	28.19	5	20
Lead	32.09	27.93	14	20
Nickel	21.41	22.31	4	20
Silver	0.0225	0.0265 U	200* (1)	20
Thallium	0.145	0.131	10 (1)	20
Vanadium	6.89	7.64	10	20
Batch number: 173101063701B	Sample number(s): 9299619 BKG: P294601			
Selenium	0.145	0.135	7 (1)	20
Batch number: 173101063701D	Sample number(s): 9299619 BKG: P294601			
Barium	74.24	69.05	7	20
	mg/kg	**mg/kg**		
Batch number: 17317667632B	Sample number(s): 9299619 BKG: P299868			

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/kg	mg/kg		
TOC	1038.95	1030.7	1 (1)	7
	Std. Units	Std. Units		
Batch number: 17312039401A	Sample number(s): 9299619 BKG: P299790			
pH	4.84	4.83	0	3
	%	%		
Batch number: 17311820006B	Sample number(s): 9299619 BKG: P299297			
Moisture	4.60	4.26	8*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17310004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9299616	79	72	66	89	94	85
9299617	79	73	64	85	87	82
9299618	86	78	75	88	85	88
Blank	77	67	66	85	85	82
LCS	81	68	67	80	82	78
LCSD	80	74	69	82	81	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9299616	64	90	65	69	72	45
9299617	67	80	77	66	69	46
9299618	64	82	72	75	79	52
Blank	61	86	78	71	71	42
LCS	61	78	74	74	76	58
LCSD	58	82	75	75	79	57
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 14:04

Group Number: 1871096

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17310004

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9299616	77	68	86	70	71	31*
9299617	74	72	75	68	67	49*
9299618	66	75	81	74	68	48*
Blank	69	69	74	70	64	25*
LCS	78	87	90	81	77	48*
LCSD	84	71	91	83	80	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 14 PFCs
Batch number: 17311004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9299619	72	66*	62	75	79	73
Blank	77	68*	66	76	84	77
LCS	81	76	71	73	76	75
LCSD	85	76	74	79	84	77
MS	68	65*	62	70	77	72
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C7-PFUnDA	13C2-PFDoDA
9299619	73	81	74	68	73	57
Blank	79	71	79	75	84	77
LCS	78	69	76	85	89	75
LCSD	87	90	87	78	88	76
MS	70	71	67	65	75	64
Limits:	44-115	42-118	37-124	36-121	25-134	15-135

	13C2-PFTeDA
9299619	65
Blank	75
LCS	74
LCSD	81
MS	64
Limits:	20-127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1871096 929616-19

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☐ Duluth ☐ Jefferson City
☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State:
☐ KS ☐ MO ☐ WI
☐ MI ☐ ND Other: VT
☐ MN ☐ SD

COC Number: № 47453

COC 1 of 1

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co	Company:	CT Male Assoc
Address:	4300 Marketpointe Dr	Address:	50 Century Hill Rd Latham NY
Name:	Michael Dupay	Name:	
email:	mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	SGPP Bennington	Barr Project No:	45021004.00

Analysis Requested — Water: 250 mL plastic / Anions PFC(?) ; 250 mL plastic triphosphate/thiamine(?) — Soil: 250ml Plastic; 4oz Glass; % Solids

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250 mL plastic	Water: 250 mL plastic	Soil: 250ml Plastic	Soil: 4oz Glass	% Solids
Preservative Code									A	A	A	A	
Field Filtered Y/N									N	N	N	N	
1. SG3-AFTERPOST B -171102	—	—	—	11/02/17	1245	W	N	2	2				
2. SG3-LTB103-171102	—	—	—	11-2-17	AM	W	N	2		2			
3. SG3-LTB104-171102	—	—	—	11·2·17	AM	W	N	2		2			
4. SG3-MWBR4-395-396'	395	396	ft.	11·2·17	1420	S	N	2			1	1	
5.													
6.													
7.													
8.													
9.													
10.													

Matrix Code:
GW = Groundwater
SW = Surface Water
WW = Waste Water
DW = Drinking Water
S = Soil/Solid
SD = Sediment
O = Other

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
I = Ascorbic Acid
J = NH_4Cl
K = Zn Acetate
O = Other

BARR USE ONLY	
Sampled by:	DJZ / RAK
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Robert Koslosky	(Y) N	11·2·17	1700	~~Received by:~~	~~Date~~	
Relinquished by:	Y N			3	11·3·17	945

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 1.3-5.8 Custody Seal Intact? ☑Y ☐N ☐None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow** Copy: Include in Field Documents; **Pink** Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 199876

Group Number(s): 1871096

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/03/2017 9:45
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:31 on 11/03/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.3	DT	Wet	Y	Bagged	N
2	DT131	5.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 06, 2017 10:55

Project: SGPP - Bennington

Account #: 37191
Group Number: 1871339
SDG: SNB27
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDWATERTKB-171103 Water	11/03/2017 09:50	9300638

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1871339

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9300638

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17308005 (Sample number(s): 9300638)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9300638, Blank, LCS, LCSD

Sample Description: **SG3-FILTEREDWATERTKB-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 09:50
SDG#: SNB27-01

C. T. Male Associates
ELLE Sample #: GW 9300638
ELLE Group #: 1871339
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17308005	11/06/2017 08:59	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17308005	11/05/2017 09:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 10:55

Group Number: 1871339

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17308005	Sample number(s): 9300638		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17308005	Sample number(s): 9300638								
6:2 fluorotelomersulfonate	15.17	19.57	15.17	17.08	129	113	70-130	14	30
8:2 fluorotelomersulfonate	15.33	16.51	15.33	17.86	108	117	70-130	8	30
NEtFOSAA	5.44	6.65	5.44	6.57	122	121	70-130	1	30
NMeFOSAA	5.44	6.99	5.44	6.87	129	126	70-130	2	30
Perfluorobutanesulfonate	4.81	5.19	4.81	5.27	108	109	70-130	1	30
Perfluorobutanoic acid	5.44	6.45	5.44	5.97	119	110	70-130	8	30
Perfluorodecanoic acid	5.44	6.29	5.44	6.10	116	112	70-130	3	30
Perfluorododecanoic acid	5.44	6.52	5.44	6.34	120	117	70-130	3	30
Perfluoroheptanoic acid	5.44	6.08	5.44	6.24	112	115	70-130	3	30
Perfluorohexanesulfonate	5.14	5.22	5.14	5.10	101	99	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/06/2017 10:55

Group Number: 1871339

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.97	5.44	6.08	110	112	70-130	2	30
Perfluorononanoic acid	5.44	5.65	5.44	5.64	104	104	70-130	0	30
Perfluorooctanesulfonamide	5.44	5.79	5.44	5.72	106	105	70-130	1	30
Perfluoro-octanesulfonate	5.20	5.68	5.20	4.96	109	95	70-130	14	30
Perfluorooctanoic acid	5.44	6.34	5.44	6.07	116	112	70-130	4	30
Perfluoropentanoic acid	5.44	6.17	5.44	6.51	113	120	70-130	5	30
Perfluorotetradecanoic acid	5.44	6.44	5.44	6.53	118	120	70-130	1	30
Perfluorotridecanoic acid	5.44	6.12	5.44	6.66	113	122	70-130	8	30
Perfluoroundecanoic acid	5.44	6.20	5.44	6.50	114	119	70-130	5	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17308005

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9300638	90	82	79	89	87	83
Blank	84	85	74	102	97	96
LCS	95	91	84	100	102	100
LCSD	91	79	76	94	99	96
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9300638	79	77	73	65	79	70
Blank	97	85	79	71	86	72
LCS	85	99	95	87	96	78
LCSD	84	92	85	78	98	64
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9300638	78	73	100	68	38	41*
Blank	91	91	105	99	89	44*
LCS	106	85	119	105	94	58*
LCSD	99	87	114	91	90	39*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1871339
Reported: 11/06/2017 10:55

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17308005

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1871339 9300638-

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No. 47454

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic trizma pH<2	Water: 250 mL plastic trizma pH>9	Water: AFC(19)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-FILTERED WATER TK-B-171103	—	—	—	11-03-17	0950	W	N	2	2					AFC(19)
2. SG3-LTB105-171103	—	—	—	—	AM	W	N	2		2				
3. SG3-CITYWATERTRUCK-171103	—	—	—	11-3-17	1255	W	N	2	2					
4. SG3-CITYWATERTRUCK HOSE-171103	—	—	—	11-3-17	1300	W	N	2	2					
5. SG3-CITYWATERTANK 2-171103	—	—	—	11-3-17	1315	W	N	2	2					
6.														
7.														
8.														
9.														
10.														

SG3-FILTERED WATER TANK

Results needed ASAP

7 DAY TAT

BARR USE ONLY	Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by: DJZ	Derek Zander	Y	11-3-17	1700			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						11-4-17	0800
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Location: Lancaster	Lab WO:				Temperature on Receipt (°C): 3.4	Custody Seal Intact? ☐ Y ☐ N ☒ None	

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 200027

Group Number(s): 1871339

Client: BARR Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/04/2017 10:00
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 11:08 on 11/04/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.4	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 14, 2017 15:23

Project: SGPP - Bennington

Account #: 37191
Group Number: 1871343
SDG: SNB28
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB105-171103 Water	11/03/2017	9300642
SG3-CITYWATERTRUCK-171103 Water	11/03/2017 12:55	9300643
SG3-CITYWATERTRUCKHOSE-171103 Water	11/03/2017 13:00	9300644
SG3-CITYWATERTANK2-171103 Water	11/03/2017 13:15	9300645

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1871343

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9300645

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for labeled compound used as extraction standards 13C2-8:2-FTS, d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the opening calibration standard (CCV).

Sample #s: 9300642, 9300643, 9300644

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Batch #: 17310004 (Sample number(s): 9300642-9300645)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, NMeFOSAA, Perfluorodecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9300642, 9300643, 9300644, 9300645, Blank, LCS, LCSD

Sample Description: **SG3-LTB105-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017
SDG#: SNB28-01TB

C. T. Male Associates
ELLE Sample #: WW 9300642
ELLE Group #: 1871343
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 14:46	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-LTB105-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017
SDG#: SNB28-01TB

C. T. Male Associates
ELLE Sample #: WW 9300642
ELLE Group #: 1871343
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 12:55
SDG#: SNB28-02

C. T. Male Associates
ELLE Sample #: GW 9300643
ELLE Group #: 1871343
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**0.4 J**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.6 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**5**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 15:07	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-CITYWATERTRUCK-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 12:55
SDG#: SNB28-02

C. T. Male Associates
ELLE Sample #: GW 9300643
ELLE Group #: 1871343
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCKHOSE-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 13:00
SDG#: SNB28-03

C. T. Male Associates
ELLE Sample #: GW 9300644
ELLE Group #: 1871343
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**5**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the opening and closing calibration standard (CCV).

The recoveries for labeled compound used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the closing calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 15:27	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCKHOSE-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 13:00
SDG#: SNB28-03

C. T. Male Associates
ELLE Sample #: GW 9300644
ELLE Group #: 1871343
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTANK2-171103 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/03/2017 13:15
SDG#: SNB28-04

C. T. Male Associates
ELLE Sample #: GW 9300645
ELLE Group #: 1871343
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**4**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for labeled compound used as extraction standards 13C2-8:2-FTS, d3-NMeFOSAA and d5-NEtFOSAA are outside of QC acceptance limits in the opening calibration standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17310004	11/09/2017 16:29	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17310004	11/06/2017 16:15	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 15:23

Group Number: 1871343

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17310004	Sample number(s): 9300642-9300645		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17310004	Sample number(s): 9300642-9300645								
6:2 fluorotelomersulfonate	15.17	17.34	15.17	17.56	114	116	70-130	1	30
8:2 fluorotelomersulfonate	15.33	17.04	15.33	15.84	111	103	70-130	7	30
NEtFOSAA	5.44	6.00	5.44	6.87	110	126	70-130	13	30
NMeFOSAA	5.44	7.13	5.44	7.35	131*	135*	70-130	3	30
Perfluorobutanesulfonate	4.81	5.69	4.81	5.81	118	121	70-130	2	30
Perfluorobutanoic acid	5.44	6.34	5.44	6.47	116	119	70-130	2	30
Perfluorodecanoic acid	5.44	7.18	5.44	6.98	132*	128	70-130	3	30
Perfluorododecanoic acid	5.44	6.63	5.44	6.42	122	118	70-130	3	30
Perfluoroheptanoic acid	5.44	6.34	5.44	6.48	117	119	70-130	2	30
Perfluorohexanesulfonate	5.14	5.65	5.14	6.01	110	117	70-130	6	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 15:23

Group Number: 1871343

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.29	5.44	6.30	116	116	70-130	0	30
Perfluorononanoic acid	5.44	5.94	5.44	6.53	109	120	70-130	10	30
Perfluorooctanesulfonamide	5.44	6.23	5.44	5.81	115	107	70-130	7	30
Perfluoro-octanesulfonate	5.20	5.99	5.20	6.07	115	117	70-130	1	30
Perfluorooctanoic acid	5.44	7.31	5.44	7.23	134*	133*	70-130	1	30
Perfluoropentanoic acid	5.44	6.76	5.44	6.63	124	122	70-130	2	30
Perfluorotetradecanoic acid	5.44	6.51	5.44	6.64	120	122	70-130	2	30
Perfluorotridecanoic acid	5.44	6.41	5.44	6.85	118	126	70-130	7	30
Perfluoroundecanoic acid	5.44	5.84	5.44	6.94	107	128	70-130	17	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17310004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9300642	77	71	65	88	82	80
9300643	68	82	96	62	68	69
9300644	77	93	105	71	75	72
9300645	73	85	106	64	69	68
Blank	77	67	66	85	85	82
LCS	81	68	67	80	82	78
LCSD	80	74	69	82	81	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9300642	65	82	74	67	75	48
9300643	63	67	57	65	60	44
9300644	72	72	67	74	65	47
9300645	75	73	71	75	64	44
Blank	61	86	78	71	71	42
LCS	61	78	74	74	76	58
LCSD	58	82	75	75	79	57
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/14/2017 15:23

Group Number: 1871343

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17310004

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9300642	75	79	79	75	76	47*
9300643	58	58	60	54	49	25*
9300644	60	59	60	55	55	17*
9300645	64	62	59	59	52	24*
Blank	69	69	74	70	64	25*
LCS	78	87	90	81	77	48*
LCSD	84	71	91	83	80	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1871343 9300642-45

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No. 47454

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic unpres	Water: 250 mL plastic HNO3 pH<2	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-FILTERED WATER TKB-171103	—	—	—	11-03-17	0950	W	N	2	2				AFC(19)
2. SG3-LTBIOS-171103	—	—	—	—	AM	W	N	2		2			
3. SG3-CITYWATERTRUCK-171103	—	—	—	11-3-17	1255	W	N	2	2				SG3-FILTERED WATER TANK
4. SG3-CITYWATERTRUCK HOSE-171103	—	—	—	11-3-17	1300	W	N	2	2				Results needed ASAP
5. SG3-CITYWATERTANK 2-171103	—	—	—	11-3-17	1315	W	N	2	2				
6.													
7.													
8.													7 DAY TAT
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DJZ	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager:	JTC						11-7-17	0900
Barr DQ Manager:	MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP (mm/dd/yyyy)	
Lab Name:	ELLE							
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 3.9	Custody Seal Intact? ☐ Y ☐ N ☑ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 200027

Group Number(s): 1871343

Client: BARR Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/04/2017 10:00
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 11:08 on 11/04/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.4	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 11, 2017 12:02

Project: SGPP - Bennington

Account #: 37191
Group Number: 1871378
SDG: SNB29
PO Number: 16.6131
State of Sample Origin: VT

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Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MW-BR4-0.3-2.2' Soil	10/21/2017 15:00	9300767
SG3-MW-BR4-29-67' Soil	10/21/2017 15:10	9300768
SG3-MW-BR4-67-80' Soil	10/21/2017 15:15	9300769
SG3-MW-BR4-84-92' Soil	10/21/2017 15:20	9300770
SG3-MW-BR4-92-97' Soil	10/22/2017 10:30	9300771
SG3-MW-BR4-97-167' Soil	10/30/2017 14:50	9300772
SG3-MW-BR4-167-207' Soil	10/30/2017 14:55	9300773
SG3-MW-BR4-207-287' Soil	10/30/2017 15:00	9300774
SG3-MWBR3-0-7.5' Soil	10/23/2017	9300775
SG3-MWBR3-7.5-40' Soil	10/23/2017	9300776
SG3-MWBR3-40-83' Soil	10/23/2017	9300777
SG3-MWBR3-83-90' Soil	10/24/2017	9300778
SG3-MWBR3-90-96' Soil	10/24/2017	9300779
SG3-MWBR3-96-106' Soil	10/24/2017	9300780
SG3-MWBR4-334-335' Soil	11/01/2017	9300781
SG3-MWBR4-353-354' Soil	11/01/2017	9300782
SG3-MWBR4-374-375' Soil	11/01/2017	9300783
SG3-MWBR4-394-395' Soil	11/02/2017	9300784

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1871378

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-MW-BR4-0.3-2.2' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/21/2017 15:00
SDG#: SNB29-01

C. T. Male Associates
ELLE Sample #: SW 9300767
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**87.6**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**43.1**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**35.4**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**29.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**22.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**18.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**15.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**12.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**9.7**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**2.0**	0.50	0.50	1
07103	0.005 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.002 mm	n.a.	0.50 U	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-29-67' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/21/2017 15:10
SDG#: SNB29-02

C. T. Male Associates
ELLE Sample #: SW 9300768
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**96.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**82.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**78.6**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**76.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**72.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**67.2**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**62.0**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**53.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**45.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-67-80' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/21/2017 15:15
SDG#: SNB29-03

C. T. Male Associates
ELLE Sample #: SW 9300769
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**100**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**100**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**99.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**99.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**78.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**55.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**16.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**5.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-84-92' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/21/2017 15:20
SDG#: SNB29-04

C. T. Male Associates
ELLE Sample #: SW 9300770
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**93.0**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**81.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**76.0**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**71.0**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**66.9**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**59.2**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**42.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**34.1**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**28.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**27.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**22.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**9.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**7.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**6.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-92-97' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/22/2017 10:30
SDG#: SNB29-05

C. T. Male Associates
ELLE Sample #: SW 9300771
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**100**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**99.2**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**99.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**99.1**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**98.7**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**98.5**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**97.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**96.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**95.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**85.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**16.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-97-167' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/30/2017 14:50
SDG#: SNB29-06

C. T. Male Associates
ELLE Sample #: SW 9300772
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**99.7**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**99.6**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**99.1**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**98.6**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**96.8**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**93.5**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**89.5**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**83.3**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**82.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**78.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**66.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**36.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**17.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-167-207' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/30/2017 14:55
SDG#: SNB29-07

C. T. Male Associates
ELLE Sample #: SW 9300773
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.7**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.5**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**99.3**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**98.4**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**91.3**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**80.1**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**71.6**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**60.4**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**58.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**13.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MW-BR4-207-287' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/30/2017 15:00
SDG#: SNB29-08

C. T. Male Associates
ELLE Sample #: SW 9300774
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**90.9**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**87.3**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**82.5**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**81.0**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**77.8**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**75.2**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**73.2**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**65.8**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**63.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**58.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**41.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**18.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**10.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-0-7.5' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/23/2017
SDG#: SNB29-09

C. T. Male Associates
ELLE Sample #: SW 9300775
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**93.3**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**58.7**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**53.8**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**49.3**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**42.2**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**31.7**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**21.7**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**16.1**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**12.1**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**11.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**10.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**6.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**1.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**0.50**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**0.50**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-7.5-40' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/23/2017
SDG#: SNB29-10

C. T. Male Associates
ELLE Sample #: SW 9300776
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**96.4**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**88.8**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**85.8**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**80.8**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**77.5**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**73.6**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**68.1**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**63.0**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**55.6**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**53.5**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**49.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**34.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**18.5**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**5.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-40-83' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/23/2017
SDG#: SNB29-11

C. T. Male Associates
ELLE Sample #: SW 9300777
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**92.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**86.5**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**83.9**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**80.5**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**77.0**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**72.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**66.8**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**61.2**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**53.2**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**50.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**46.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**32.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**17.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**14.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**13.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-83-90' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/24/2017
SDG#: SNB29-12

C. T. Male Associates
ELLE Sample #: SW 9300778
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**98.8**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**98.5**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**98.1**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**97.8**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**97.1**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**96.2**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**95.3**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**93.6**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**93.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**90.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**79.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**54.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**39.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**27.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-90-96' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/24/2017
SDG#: SNB29-13

C. T. Male Associates
ELLE Sample #: SW 9300779
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**99.7**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**99.5**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**99.1**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**98.1**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**94.1**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**82.6**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**70.1**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**57.9**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**55.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**48.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**38.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**20.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**17.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**17.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-96-106' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 10/24/2017
SDG#: SNB29-14

C. T. Male Associates
ELLE Sample #: SW 9300780
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**99.9**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**99.8**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**99.2**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**95.5**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**85.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**70.3**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**55.3**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**53.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**48.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**15.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**8.5**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**7.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-334-335' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/01/2017
SDG#: SNB29-15

C. T. Male Associates
ELLE Sample #: SW 9300781
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**95.4**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**76.6**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**68.6**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**61.4**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**54.7**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**47.9**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**43.3**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**39.9**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**36.0**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**35.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**30.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**23.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**3.0**	0.50	0.50	1
07103	0.001 mm	n.a.	0.50 U	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-353-354' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/01/2017
SDG#: SNB29-16

C. T. Male Associates
ELLE Sample #: SW 9300782
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**93.6**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**91.2**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**88.1**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**84.5**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**81.3**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**78.0**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**74.4**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**69.8**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**69.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**64.5**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**54.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**29.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**13.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**4.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-374-375' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/01/2017
SDG#: SNB29-17

C. T. Male Associates
ELLE Sample #: SW 9300783
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry		**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**		n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**		n.a.	**100**	0.50	0.50	1
07103	**19 mm**		n.a.	**90.0**	0.50	0.50	1
07103	**4.75 mm**		n.a.	**64.2**	0.50	0.50	1
07103	**3.35 mm**		n.a.	**53.1**	0.50	0.50	1
07103	**2.36 mm**		n.a.	**43.2**	0.50	0.50	1
07103	**1.18 mm**		n.a.	**37.5**	0.50	0.50	1
07103	**0.6 mm**		n.a.	**33.4**	0.50	0.50	1
07103	**0.3 mm**		n.a.	**30.5**	0.50	0.50	1
07103	**0.15 mm**		n.a.	**28.6**	0.50	0.50	1
07103	**0.075 mm**		n.a.	**26.9**	0.50	0.50	1
07103	**0.064 mm**		n.a.	**27.0**	0.50	0.50	1
07103	**0.05 mm**		n.a.	**25.0**	0.50	0.50	1
07103	**0.02 mm**		n.a.	**18.0**	0.50	0.50	1
07103	**0.005 mm**		n.a.	**8.0**	0.50	0.50	1
07103	**0.002 mm**		n.a.	**5.0**	0.50	0.50	1
07103	**0.001 mm**		n.a.	**3.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Joshua P Trost	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-394-395' Soil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/04/2017 10:00
Collection Date/Time: 11/02/2017
SDG#: SNB29-18

C. T. Male Associates
ELLE Sample #: SW 9300784
ELLE Group #: 1871378
Matrix: Soil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**ASTM D422**		% Passing	% Passing	% Passing	
07103	**75 mm**	n.a.	**100**	0.50	0.50	1
07103	**37.5 mm**	n.a.	**100**	0.50	0.50	1
07103	**19 mm**	n.a.	**100**	0.50	0.50	1
07103	**4.75 mm**	n.a.	**100**	0.50	0.50	1
07103	**3.35 mm**	n.a.	**100**	0.50	0.50	1
07103	**2.36 mm**	n.a.	**100**	0.50	0.50	1
07103	**1.18 mm**	n.a.	**93.5**	0.50	0.50	1
07103	**0.6 mm**	n.a.	**63.6**	0.50	0.50	1
07103	**0.3 mm**	n.a.	**49.0**	0.50	0.50	1
07103	**0.15 mm**	n.a.	**38.8**	0.50	0.50	1
07103	**0.075 mm**	n.a.	**27.6**	0.50	0.50	1
07103	**0.064 mm**	n.a.	**25.0**	0.50	0.50	1
07103	**0.05 mm**	n.a.	**20.0**	0.50	0.50	1
07103	**0.02 mm**	n.a.	**12.0**	0.50	0.50	1
07103	**0.005 mm**	n.a.	**3.0**	0.50	0.50	1
07103	**0.002 mm**	n.a.	**1.0**	0.50	0.50	1
07103	**0.001 mm**	n.a.	**1.0**	0.50	0.50	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07103	Grain Size to 1 um	ASTM D422	1	17336710302A	12/02/2017 10:30	Luz M Groff	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1871378
Reported: 12/11/2017 12:02

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

GRAIN SIZE ANALYSIS 3719 (1871378 9300767-84

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52329

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd., NY
Name: Michael Dupay	Name:
email: MDD@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Grain Size Analysis	Soil: % Solids
Preservative Code										A	
Field Filtered Y/N										N	
1. SG3-MW-BR4-0.3-22'	0.3	22	ft.	10/21/2017	1500	S	N	1		1	
2. SG3-MW-BR4-29-67'	29	67	ft.	10/21/2017	1510	S	N	1		1	
3. SG3-MW-BR4-67-80'	67	80	ft.	10/21/2017	1515	S	N	1		1	
4. SG3-MW-BR4-84-92'	84	92	ft.	10/21/2017	1520	S	N	1		1	
5. SG3-MW-BR4-92-97'	92	97	ft.	10/22/2017	1030	S	N	1		1	
6. SG3-MW-BR4-97-167'	97	167	ft.	10/30/2017	1450	S	N	1		1	
7. SG3-MW-BR4-167-207'	167	207	ft.	10/30/2017	1455	S	N	1		1	
8. SG3-MW-BR4-207-287'	207	287	ft.	10/30/2017	1500	S	N	1		1	
9.											
10.											

BARR USE ONLY		Relinquished by	On Ice? Y / N	Date	Time	Received by	Date	Time
Sampled by:	RQM		Y ○ N	11-31-17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: MB	Date 11/1/17	Time 1000
Barr DQ Manager:	MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C): N/A	Custody Seal Intact? ☐ Y ☐ N ☐ None				
Lab Location:	Lancaster, PA							

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37191 1871378 9300767-84

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: No 47449

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Assoc
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water	Soil: Sediment Grain Size	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-MWBR3-0-7.5'	0	7.5	ft	10/23/2017		Soil	N	1		1		A	N	Sediment grain size analysis
2. SG3-MWBR3-7.5-40'	7.5	40	ft	10-23-17		S	N	1		1				
3. SG3-MWBR3-40-83'	40	83	ft	10-23-17		S	N	1		1				
4. SG3-MWBR3-83-90'	83	90	ft	10-24-17		S	N	1		1				
5. SG3-MWBR3-90-96'	90	96	ft	10-24-17		S	N	1		1				
6. SG3-MWBR3-96-106'	96	106	ft	10-24-17		S	N	1		1				
7. SG3-MWBR3-334-335	334	335	ft	11-1-17		S	N	1		1				
8. SG3-MWBR3-353-354	353	354	ft	11-1-17		S	N	1		1				
9. SG3-MWBR3-374-375	374	375	ft	11-1-17		S	N	1		1				
10. SG3-MWBR3-394-395	394	395	ft	11-2-17		S	N	1		1				

BARR USE ONLY

Sampled by: DJE

Barr Proj. Manager: JTC

Barr DQ Manager: MDP

Lab Name: ELLE

Lab Location: Lancaster

Relinquished by: [signature] On Ice? Y (N) Date 11-3-17 Time 1700

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 11/4/17 Time 1000

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): N/A Custody Seal Intact? ☐ Y ☐ N ☒ None

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37191 18713378 9300767-84

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 47449

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: GT Male Assoc
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd
Name: Michael Day	Name: Latham NY
email: mday@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGAP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water	Soil: Sediment Grain Size	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR3-0-7.5'	0	7.5	ft	10/23/2017		Soil	N	1		1		Sediment grain size analysis	
2. SG3-MWBR3-7.5-40'	7.5	40	ft	10-23-17		S	N	1		1			
3. SG3-MWBR3-40-83'	40	83	ft	10-23-17		S	N	1		1			
4. SG3-MWBR3-83-90'	83	90	ft	10-24-17		S	N	1		1			
5. SG3-MWBR3-90-96'	90	96	ft	10-24-17		S	N	1		1			
6. SG3-MWBR3-96-106'	96	106	ft	10-24-17		S	N	1		1			
7. SG3-~~MWBR3~~ 3 MWBR4	334	335	ft	11-1-17		S	N	1		1			
8. ~~DSE~~ MWBR4 SG3-~~MWBR3~~-353-354	353	354	ft	11-1-17		S	N	1		1			
9. ~~DSE~~ MWBR4 SG3-~~MWBR3~~-374-375	374	375	ft	11-1-17		S	N	1		1			
10. ~~DSE~~ MWBR4 SG3-~~MWBR3~~-394-395	394	395	ft	11-2-17		S	N	1		1			

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	DSE							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Manchester	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

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Sample Administration Receipt Documentation Log

Doc Log ID: 200032

Group Number(s): 1871378

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/04/2017 10:00
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 12:15 on 11/04/2017

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Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 09, 2017 09:38

Project: SGPP - Bennington

Account #: 37191
Group Number: 1872652
SDG: SNB30
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDFRACTKD-171107 Grab Water	11/07/2017 10:35	9305656

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1872652

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9305656

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the LCS/LCSD and sample as noted on the QC Summary. The client was contacted and the data reported.

Batch #: 17312010 (Sample number(s): 9305656)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window:
Perfluorotridecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9305656, Blank, LCS, LCSD

Sample Description: **SG3-FILTEREDFRACTKD-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:35
SDG#: SNB30-01

C. T. Male Associates
ELLE Sample #: GW 9305656
ELLE Group #: 1872652
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the LCS/LCSD and sample as noted on the QC Summary. The client was contacted and the data reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFRACTKD-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:35
SDG#: SNB30-01

C. T. Male Associates
ELLE Sample #: GW 9305656
ELLE Group #: 1872652
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17312010	11/09/2017 00:31	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17312010	11/08/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/09/2017 09:38

Group Number: 1872652

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17312010	Sample number(s): 9305656		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17312010	Sample number(s): 9305656								
6:2 fluorotelomersulfonate	15.17	16.33	15.17	15.85	108	105	70-130	3	30
8:2 fluorotelomersulfonate	15.33	14.75	15.33	17.63	96	115	70-130	18	30
NEtFOSAA	5.44	5.80	5.44	6.36	107	117	70-130	9	30
NMeFOSAA	5.44	5.97	5.44	6.24	110	115	70-130	5	30
Perfluorobutanesulfonate	4.81	5.62	4.81	5.25	117	109	70-130	7	30
Perfluorobutanoic acid	5.44	5.91	5.44	6.06	109	111	70-130	3	30
Perfluorodecanoic acid	5.44	6.08	5.44	6.20	112	114	70-130	2	30
Perfluorododecanoic acid	5.44	5.95	5.44	6.17	109	113	70-130	4	30
Perfluoroheptanoic acid	5.44	6.35	5.44	6.17	117	113	70-130	3	30
Perfluorohexanesulfonate	5.14	5.19	5.14	5.79	101	113	70-130	11	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/09/2017 09:38

Group Number: 1872652

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.52	5.44	6.54	102	120	70-130	17	30
Perfluorononanoic acid	5.44	5.66	5.44	4.94	104	91	70-130	14	30
Perfluorooctanesulfonamide	5.44	4.90	5.44	5.02	90	92	70-130	2	30
Perfluoro-octanesulfonate	5.20	6.43	5.20	6.71	124	129	70-130	4	30
Perfluorooctanoic acid	5.44	6.25	5.44	5.82	115	107	70-130	7	30
Perfluoropentanoic acid	5.44	6.34	5.44	5.80	116	107	70-130	9	30
Perfluorotetradecanoic acid	5.44	5.82	5.44	6.22	107	114	70-130	7	30
Perfluorotridecanoic acid	5.44	3.48	5.44	3.43	64*	63*	70-130	1	30
Perfluoroundecanoic acid	5.44	4.95	5.44	5.75	91	106	70-130	15	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17312010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9305656	90	93	86	92	102	104
Blank	92	87	82	86	96	90
LCS	108	97	95	89	94	86
LCSD	100	99	93	85	94	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9305656	76	98	80	93	74	64
Blank	76	89	81	83	80	70
LCS	80	90	102	109	92	96
LCSD	76	88	97	109	93	88
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9305656	74	78	83	51	17*	35*
Blank	80	86	89	77	65	22*
LCS	87	93	101	67	17*	43*
LCSD	81	94	98	76	17*	49*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/09/2017 09:38

Group Number: 1872652

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17312010

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Environmental Services Analysis Request/Chain of Custody

Page 1 of 1

Acct. #: 37191 Group #: 1872652 Sample #: 9305656 COC#: 17791

Client:	C.T. Male Associates
Project Name/#:	SGPP - Bennington
Site ID:	
Project Manager:	Kirk Moline, Jon Carter
P.O. #:	16.6131
Sampler:	JD, ~~BK, CD, KM~~ (JD)
Phone #:	578-786-7400
Quote #:	214135
State where sample(s) were collected:	NY

Matrix: Water – Ground ☒

Preservation Codes: H, N, , , , P, B

Sample Identification	Collection Date	Collection Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCL VOAs (8260C) + TICs	TAL Metals	TCL Pesticides (8081B)	PCBs (8082A)	TCL SVs (8270D) + TICs	TOC (5310 C)	CN (9012A)	Cl-, SO4- (300.0)	Alk, Bicarb, Carb. (2320 B)	~~12~~ 14 PFAS (EPA 537 mod.)			Remarks
SG3-FILTEREDFRACTKD-171107	11/7/17	1035	X			X		2										X			RUSH

For Lab Use Only

SF#:

SCR#: 212933

Preservation Codes
H = HCl, T = Thiosulfate
N = HNO_3, B = NaOH
S = H_2SO_4, P = H_3PO_4
O = Other

Turnaround Time Requested (TAT) (please check): Standard ☐ RUSH ☒

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed: 24 hrs

E-mail address to send RUSH results: MDUPAY@BARR.COM

Data Package Options (please check if required)

Type I (Validation/non-CLP)	☐	MA MCP	☐	TX TRRP - 13	☐
Type III (Reduced non-CLP)	☐	CT RCP	☐		
Type IV (CLP SOW)	☐	ASP Type A	☐		
Type VI (Raw Data Only)	☐	ASP Type B	☑ (JD)		

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	11/7/17	1605			
			[signature]	11.8.17	1005

Airbill No.:
Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 1.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 200314

Group Number(s):

Client: C.T. Male

1872652

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/08/2017 10:05
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:56 on 11/08/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F : 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 08:58

Project: SGPP - Bennington

Account #: 37191
Group Number: 1872696
SDG: SNB31
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-HAMMER-EZ-171107 Other Solid	11/07/2017 09:45	9305845
SG3-COMPRESSOR OIL-171107 Oil	11/07/2017 10:00	9305846

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1872696

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9305845, 9305846

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank and LCS/LCSD associated with this sample.

Batch #: 17338016 (Sample number(s): 9305845-9305846)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9305845

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9305845, 9305846, Blank, LCS, LCSD

REVISED

Sample Description: **SG3-HAMMER-EZ-171107 Other Solid**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 09:45
SDG#: SNB31-01

C. T. Male Associates
ELLE Sample #: SW 9305845
ELLE Group #: 1872696
Matrix: Other Solid

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	6:2 fluorotelomersulfonate	27619-97-2	0.93 U	0.93	0.93	1
14027	8:2 fluorotelomersulfonate	39108-34-4	0.93 U	0.93	0.93	1
14027	NEtFOSAA	2991-50-6	0.93 U	0.93	0.93	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14027	NMeFOSAA	2355-31-9	0.93 U	0.93	0.93	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14027	Perfluorobutanesulfonate	375-73-5	0.28 U	0.28	0.28	1
14027	**Perfluorobutanoic acid**	375-22-4	**1.2**	0.28	0.28	1
14027	Perfluorodecanoic acid	335-76-2	0.28 U	0.28	0.28	1
14027	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.28	1
14027	Perfluoroheptanoic acid	375-85-9	0.28 U	0.28	0.28	1
14027	Perfluorohexanesulfonate	355-46-4	0.28 U	0.28	0.28	1
14027	Perfluorohexanoic acid	307-24-4	0.28 U	0.28	0.28	1
14027	Perfluorononanoic acid	375-95-1	0.28 U	0.28	0.28	1
14027	Perfluorooctanesulfonamide	754-91-6	0.28 U	0.28	0.28	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.42 U	0.42	0.42	1
14027	Perfluorooctanoic acid	335-67-1	0.28 U	0.28	0.28	1
14027	Perfluoropentanoic acid	2706-90-3	0.28 U	0.28	0.28	1
14027	**Perfluorotetradecanoic acid**	376-06-7	**0.36**	0.28	0.28	1
14027	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.28	1
14027	Perfluoroundecanoic acid	2058-94-8	0.28 U	0.28	0.28	1

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank and LCS/LCSD associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-HAMMER-EZ-171107 Other Solid**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 09:45
SDG#: SNB31-01

C. T. Male Associates
ELLE Sample #: SW 9305845
ELLE Group #: 1872696
Matrix: Other Solid

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17338016	12/12/2017 17:14	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17338016	12/04/2017 10:00	Robert Brown	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-COMPRESSOR OIL-171107 Oil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:00
SDG#: SNB31-02

C. T. Male Associates
ELLE Sample #: SW 9305846
ELLE Group #: 1872696
Matrix: Oil

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	6:2 fluorotelomersulfonate	27619-97-2	0.99 U	0.99	0.99	1
14027	8:2 fluorotelomersulfonate	39108-34-4	0.99 U	0.99	0.99	1
14027	NEtFOSAA	2991-50-6	0.99 U	0.99	0.99	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14027	NMeFOSAA	2355-31-9	0.99 U	0.99	0.99	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14027	Perfluorobutanesulfonate	375-73-5	0.30 U	0.30	0.30	1
14027	Perfluorobutanoic acid	375-22-4	0.30 U	0.30	0.30	1
14027	Perfluorodecanoic acid	335-76-2	0.30 U	0.30	0.30	1
14027	Perfluorododecanoic acid	307-55-1	0.30 U	0.30	0.30	1
14027	Perfluoroheptanoic acid	375-85-9	0.30 U	0.30	0.30	1
14027	Perfluorohexanesulfonate	355-46-4	0.30 U	0.30	0.30	1
14027	Perfluorohexanoic acid	307-24-4	0.30 U	0.30	0.30	1
14027	Perfluorononanoic acid	375-95-1	0.30 U	0.30	0.30	1
14027	Perfluorooctanesulfonamide	754-91-6	0.30 U	0.30	0.30	1
14027	Perfluoro-octanesulfonate	1763-23-1	0.45 U	0.45	0.45	1
14027	Perfluorooctanoic acid	335-67-1	0.30 U	0.30	0.30	1
14027	Perfluoropentanoic acid	2706-90-3	0.30 U	0.30	0.30	1
14027	Perfluorotetradecanoic acid	376-06-7	0.30 U	0.30	0.30	1
14027	Perfluorotridecanoic acid	72629-94-8	0.30 U	0.30	0.30	1
14027	Perfluoroundecanoic acid	2058-94-8	0.30 U	0.30	0.30	1

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits due to the matrix of the sample.

Reporting limits were raised due to interference from the sample matrix.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank and LCS/LCSD associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-COMPRESSOR OIL-171107 Oil**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:00
SDG#: SNB31-02

C. T. Male Associates
ELLE Sample #: SW 9305846
ELLE Group #: 1872696
Matrix: Oil

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17338016	12/12/2017 17:34	Marissa C Drexinger	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	17338016	12/04/2017 10:00	Robert Brown	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 08:58

Group Number: 1872696

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 17338016	Sample number(s): 9305845-9305846		
6:2 fluorotelomersulfonate	1.0 U	1.0	1.0
8:2 fluorotelomersulfonate	1.0 U	1.0	1.0
NEtFOSAA	1.0 U	1.0	1.0
NMeFOSAA	1.0 U	1.0	1.0
Perfluorobutanesulfonate	0.30 U	0.30	0.30
Perfluorobutanoic acid	0.30 U	0.30	0.30
Perfluorodecanoic acid	0.30 U	0.30	0.30
Perfluorododecanoic acid	0.30 U	0.30	0.30
Perfluoroheptanoic acid	0.30 U	0.30	0.30
Perfluorohexanesulfonate	0.30 U	0.30	0.30
Perfluorohexanoic acid	0.30 U	0.30	0.30
Perfluorononanoic acid	0.30 U	0.30	0.30
Perfluorooctanesulfonamide	0.30 U	0.30	0.30
Perfluoro-octanesulfonate	0.45 U	0.45	0.45
Perfluorooctanoic acid	0.30 U	0.30	0.30
Perfluoropentanoic acid	0.30 U	0.30	0.30
Perfluorotetradecanoic acid	0.30 U	0.30	0.30
Perfluorotridecanoic acid	0.30 U	0.30	0.30
Perfluoroundecanoic acid	0.30 U	0.30	0.30

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17338016	Sample number(s): 9305845-9305846								
6:2 fluorotelomersulfonate	3.79	4.14	3.79	4.29	109	113	70-130	4	30
8:2 fluorotelomersulfonate	3.83	3.30	3.83	3.59	86	94	70-130	8	30
NEtFOSAA	1.36	1.78	1.36	1.76	131*	129	70-130	1	30
NMeFOSAA	1.36	1.80	1.36	1.72	133*	126	70-130	5	30
Perfluorobutanesulfonate	1.20	1.15	1.20	1.10	96	92	70-130	4	30
Perfluorobutanoic acid	1.36	1.47	1.36	1.49	108	110	70-130	2	30
Perfluorodecanoic acid	1.36	1.33	1.36	1.42	98	104	70-130	6	30
Perfluorododecanoic acid	1.36	1.36	1.36	1.42	100	104	70-130	4	30
Perfluoroheptanoic acid	1.36	1.45	1.36	1.33	106	98	70-130	8	30
Perfluorohexanesulfonate	1.29	1.29	1.29	1.29	100	100	70-130	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 08:58

Group Number: 1872696

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	1.36	1.42	1.36	1.26	104	93	70-130	12	30
Perfluorononanoic acid	1.36	1.53	1.36	1.43	112	105	70-130	7	30
Perfluorooctanesulfonamide	1.36	1.44	1.36	1.29	106	95	70-130	11	30
Perfluoro-octanesulfonate	1.30	1.40	1.30	1.26	107	97	70-130	10	30
Perfluorooctanoic acid	1.36	1.36	1.36	1.35	100	99	70-130	1	30
Perfluoropentanoic acid	1.36	1.44	1.36	1.34	106	99	70-130	7	30
Perfluorotetradecanoic acid	1.36	1.42	1.36	1.42	105	104	70-130	0	30
Perfluorotridecanoic acid	1.36	1.34	1.36	1.14	98	84	70-130	16	30
Perfluoroundecanoic acid	1.36	1.52	1.36	1.52	112	111	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17338016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9305845	6*	11*	40	18*	61	36*
9305846	77	68*	76	68	67	78
Blank	85	86	85	88	82	93
LCS	84	86	84	83	82	89
LCSD	85	86	84	87	78	96
Limits:	37-107	70-130	34-118	43-115	32-125	45-114

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9305845	89	48	91	47	62	208*
9305846	93	61	47	60	18*	64
Blank	73	90	69	85	70	63
LCS	74	86	79	69	90	76
LCSD	75	85	78	79	78	70
Limits:	70-130	44-115	42-118	37-124	36-121	10-168

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9305845	31*	21*	17*	2*	4*	16*
9305846	5*	9*	4*	5*	4*	2*
Blank	30*	61	23*	59	43	2*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 08:58

Group Number: 1872696

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17338016

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	38*	85	31*	82	78	2*
LCSD	27*	74	21*	72	63	2*
Limits:	40-118	25-134	37-139	15-135	20-127	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1872696 S-9305845-46

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52725

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Eng. Co	Company: CT [illegible]
Address: 4300 MarketPointe Dr	Address: 50 [illegible] Hill Dr.
Name: M. Dupay	Name: Lat[illegible] NH
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: [illegible]0004.02

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 ml Plast.	Water Tube	Soil % Solids	Preservative Code	Field Filtered Y/N
									A	A		A	N
1. SG3-RAS ASSEM. Packer-171107				11/07/2017	13:15	water	N	2	2			PFCs 19	
2. SG3-RAS GRN winch-171107				11/07/2017	13:25	water	N	2	2				
3. SG3-RAS BL winch-171107				11/07/2017	13:35	water	N	2	2				
4. SG3-SONIC BARREL-171106				11/06/2017	16:00	water	N	2	2				
5. SG3-HAMMER-EZ-171107				11/07/2017	09:45	SOLID	N	1		1			
6. SG3-COMPRESSOR OIL-171107				11/07/2017	10:00	OIL	N	2	2				
7. SG3-LTB01-171107				11/07/2017	—	water	N	2	2				
8. SG3-CITYWATERTRUCK-171107				11/07/2017	09:55	water	N	2	2				
9. SG3-AFTERPORTD-171107				11/07/2017	10:25	water	N	2	2				
10. SG3-CITYWATERHOSE-171107				11/07/2017	10:05	water	N	2	2				
11. SG3-CITYWATERTK1-171107				11/07/2017	11:15	water	N	2	2				

BARR USE ONLY

Sampled by: KDM, JTD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster PA

Relinquished by: [signature] On Ice? (Y) N Date 11/7/17 Time 14:00

Received by: [signature] Date 11/7/17 Time 1400

Relinquished by: [signature] On Ice? (Y) N Date 11/7/17 Time 1605

Received by: [signature] Date 11-8-17 Time 1005

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number: _____

Lab WO: _____ Temperature on Receipt (°C): 1.8 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

BARR Chain of Custody Form 2015 RIG Rev 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 200314

Group Number(s):

Client: C.T. Male

1872696

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/08/2017 10:05
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL plastic TRIZ

Unpacked by Timothy Cubberley (6520) at 10:56 on 11/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 21, 2017 09:57

Project: SGPP - Bennington

Account #: 37191
Group Number: 1872697
SDG: SNB32
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RASASSEM. PACKER-171107 Grab Water	11/07/2017 13:15	9305847
SG3-RAS GRN Winch-171107 Grab Water	11/07/2017 13:25	9305848
SG3-RAS BL Winch-171107 Grab Water	11/07/2017 13:35	9305849
SG3-SONICBARREL-171106 Grab Water	11/06/2017 16:00	9305850
SG3-LTB01-171107 Water	11/07/2017	9305851
SG3-CITYWATERTRUCK-171107 Grab Water	11/07/2017 09:55	9305852
SG3-AFTERPOETD-171107 Grab Water	11/07/2017 10:25	9305853
SG3-CITYWATERHOSE-171107 Grab Water	11/07/2017 10:05	9305854
SG3-CITYWATERTK1-171107 Grab Water	11/07/2017 11:15	9305855

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1872697

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9305854

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted within the method holding time and again target analytes were detected in the method blank. The results reported are from the initial trial and comparable results were observed. Both sets of data are provided in the data package.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits due to the matrix of the sample.

Sample #s: 9305851, 9305853

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration

verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9305852, 9305855

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted within the method holding time and again target analytes were detected in the method blank. The results reported are from the initial trial and comparable results were observed. Both sets of data are provided in the data package.

Sample #s: 9305847

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data is not impacted by this result.

Sample #s: 9305848

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and

the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound NMeFOSAA is not detected, the data is reported.

Sample #s: 9305849

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 8:2-FTS is not detected, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample #s: 9305850

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and the associated native compounds are not detected, the data is reported.

Batch #: 17317002 (Sample number(s): 9305847-9305855)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9305848, 9305849, 9305850, 9305854, Blank, LCSD

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The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9305847, 9305848, 9305849, 9305850, 9305851, 9305852, 9305853, 9305854, 9305855, LCS, LCSD

Sample Description: **SG3-RASASSEM. PACKER-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:15
SDG#: SNB32-01

C. T. Male Associates
ELLE Sample #: GW 9305847
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The data is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RASASSEM. PACKER-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:15
SDG#: SNB32-01

C. T. Male Associates
ELLE Sample #: GW 9305847
ELLE Group #: 1872697
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 23:02	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RAS GRN Winch-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:25
SDG#: SNB32-02

C. T. Male Associates
ELLE Sample #: GW 9305848
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound NMeFOSAA is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RAS GRN Winch-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:25
SDG#: SNB32-02

C. T. Male Associates
ELLE Sample #: GW 9305848
ELLE Group #: 1872697
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 23:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RAS BL Winch-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:35
SDG#: SNB32-03

C. T. Male Associates
ELLE Sample #: GW 9305849
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.3 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 8:2-FTS is not detected, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RAS BL Winch-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 13:35
SDG#: SNB32-03

C. T. Male Associates
ELLE Sample #: GW 9305849
ELLE Group #: 1872697
Matrix: Water

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 23:43	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-SONICBARREL-171106 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/06/2017 16:00
SDG#: SNB32-04

C. T. Male Associates
ELLE Sample #: GW 9305850
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and the associated native compounds are not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-SONICBARREL-171106 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/06/2017 16:00
SDG#: SNB32-04

C. T. Male Associates
ELLE Sample #: GW 9305850
ELLE Group #: 1872697
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 00:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171107 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017
SDG#: SNB32-05TB

C. T. Male Associates
ELLE Sample #: WW 9305851
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171107 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017
SDG#: SNB32-05TB

C. T. Male Associates
ELLE Sample #: WW 9305851
ELLE Group #: 1872697
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 00:24	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 09:55
SDG#: SNB32-06

C. T. Male Associates
ELLE Sample #: GW 9305852
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 JB**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted within the method holding time and again target analytes were detected in the method blank. The results reported are from the initial trial and comparable results were observed. Both sets of data are provided in the data package.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 09:55
SDG#: SNB32-06

C. T. Male Associates
ELLE Sample #: GW 9305852
ELLE Group #: 1872697
Matrix: Water

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 00:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETD-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:25
SDG#: SNB32-07

C. T. Male Associates
ELLE Sample #: GW 9305853
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETD-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:25
SDG#: SNB32-07

C. T. Male Associates
ELLE Sample #: GW 9305853
ELLE Group #: 1872697
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 01:05	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:05
SDG#: SNB32-08

C. T. Male Associates
ELLE Sample #: GW 9305854
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 JB**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted within the method holding time and again target analytes were detected in the method blank. The results reported are from the initial trial and comparable results were observed. Both sets of data are provided in the data package.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits due to the matrix of the sample.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 10:05
SDG#: SNB32-08

C. T. Male Associates
ELLE Sample #: GW 9305854
ELLE Group #: 1872697
Matrix: Water

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 14:47	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK1-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 11:15
SDG#: SNB32-08

C. T. Male Associates
ELLE Sample #: GW 9305855
ELLE Group #: 1872697
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 UZ	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.3 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.3 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 JB**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The response for 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported.

Z = The recovery for native compounds 6:2-FTS and 8:2-FTS is outside of QC acceptance limits in the opening calibration verification standard (CCV). Since the result is high and the native compounds were not detected in the sample, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
This sample was re-extracted within the method holding time and again target analytes were detected in the method blank. The results reported are from the initial trial and comparable results were observed. Both sets of data are provided in the data package.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK1-171107 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/08/2017 10:05
Collection Date/Time: 11/07/2017 11:15
SDG#: SNB32-08

C. T. Male Associates
ELLE Sample #: GW 9305855
ELLE Group #: 1872697
Matrix: Water

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 01:47	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/21/2017 09:57

Group Number: 1872697

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17317002	Sample number(s): 9305847-9305855		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	5	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17317002	Sample number(s): 9305847-9305855								
6:2 fluorotelomersulfonate	15.17	14.54	15.17	15.7	96	104	70-130	8	30
8:2 fluorotelomersulfonate	15.33	12.64	15.33	10.83	82	71	70-130	15	30
NEtFOSAA	5.44	5.99	5.44	5.83	110	107	70-130	3	30
NMeFOSAA	5.44	4.67	5.44	5.03	86	92	70-130	7	30
Perfluorobutanesulfonate	4.81	4.87	4.81	4.60	101	96	70-130	6	30
Perfluorobutanoic acid	5.44	5.62	5.44	5.26	103	97	70-130	7	30
Perfluorodecanoic acid	5.44	5.69	5.44	6.21	105	114	70-130	9	30
Perfluorododecanoic acid	5.44	5.87	5.44	5.69	108	105	70-130	3	30
Perfluoroheptanoic acid	5.44	5.45	5.44	5.20	100	96	70-130	5	30
Perfluorohexanesulfonate	5.14	4.81	5.14	4.97	94	97	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/21/2017 09:57

Group Number: 1872697

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.62	5.44	4.75	103	87	70-130	17	30
Perfluorononanoic acid	5.44	5.15	5.44	4.84	95	89	70-130	6	30
Perfluorooctanesulfonamide	5.44	5.68	5.44	5.85	104	108	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.25	5.20	4.40	101	85	70-130	18	30
Perfluorooctanoic acid	5.44	5.19	5.44	6.25	95	115	70-130	18	30
Perfluoropentanoic acid	5.44	5.49	5.44	5.01	101	92	70-130	9	30
Perfluorotetradecanoic acid	5.44	5.48	5.44	4.87	101	89	70-130	12	30
Perfluorotridecanoic acid	5.44	4.23	5.44	4.21	78	77	70-130	0	30
Perfluoroundecanoic acid	5.44	5.03	5.44	5.28	92	97	70-130	5	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17317002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9305847	88	78	74	94	82	90
9305848	93	87	90	80	81	84
9305849	78	72	69	71	66	70
9305850	74	76	71	67	68	71
9305851	87	82	83	76	83	78
9305852	85	113	138	70	75	76
9305853	91	86	82	88	88	100
9305854	89	121	149*	80	79	95
9305855	88	118	140	81	80	84
Blank	114	108	112	102	104	103
LCS	85	85	77	79	86	85
LCSD	110	113	109	105	100	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9305847	84	90	64	73	78	76
9305848	94	83	98	110	91	91
9305849	116	74	71	83	76	193*
9305850	141*	74	85	110	81	206*
9305851	114	88	80	85	91	93

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/21/2017 09:57

Group Number: 1872697

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17317002

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9305852	106	76	72	84	73	104
9305853	120	101	93	91	101	110
9305854	115	91	97	102	83	105
9305855	113	87	78	100	85	100
Blank	138	105	109	105	130*	145*
LCS	90	92	76	82	83	92
LCSD	137	109	108	105	114	164*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9305847	103	67	97	45	18*	45*
9305848	126*	97	99	97	82	65*
9305849	110	66	121	68	56	45*
9305850	97	81	104	68	65	38*
9305851	72	81	85	92	78	60*
9305852	83	84	90	72	67	38*
9305853	94	86	93	96	96	31*
9305854	87	86	93	73	48	48*
9305855	80	80	89	64	37	44*
Blank	132*	125	159*	130*	105	89
LCS	89	88	86	68	33	40*
LCSD	99	110	125	94	47	63*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1872697 S-9305847-855

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52725

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Eng. Co	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr.
Name: M. Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SG3PP	Barr Project No: 4502/004.02

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	250 mL Dist. H2O	Tube	% Solids	Preservative Code	Field Filtered Y/N
									A	A			
									N	N			
1. SG3 - RAS ASSEM. Packer - 171107				11/07/2017	13:15	water	N	2	2			PFCs 19	
2. SG3 - RAS GRN winch - 171107				11/07/2017	13:25	water	N	2	2				
3. SG3 - RAS BL winch - 171107				11/07/2017	13:35	water	N	2	2				
4. SG3 - SONIC BARREL - 171106				11/06/2017	16:00	water	N	2	2				
5. SG3 - HAMMER - EZ - 171107				11/07/2017	09:45	SOLID	N	1		1			
6. SG3 - COMPRESSOR OIL - 171107				11/07/2017	10:00	OIL	N	2	2				
7. SG3 - LTB01 - 171107				11/07/2017	—	water	N	2	2				
8. SG3 - CITY WATER TRUCK - 171107				11/07/2017	09:55	water	N	2	2				
9. SG3 - AFTER PIPE TD - 171107				11/07/2017	10:25	water	N	2	2				
10. SG3 - CITY WATER HOSE - 171107				11/07/2017	10:05	water	N	2	2				
11. SG3 - CITY WATER TK 1 - 171107				11/07/2017	11:15	water	N	2	2				

BARR USE ONLY	
Sampled by:	KDM, JTD
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster, PA

		On Ice?	Date	Time		Date	Time
Relinquished by:		(Y) N	11/7/17	14:00	Received by:	11/7/17	1400
Relinquished by:		On Ice? (Y) N	Date 11/7/17	Time 1605	Received by:	Date 11/8/17	Time 1005

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____ Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.8 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 200314

Group Number(s):

Client: C.T. Male

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/08/2017 10:05
Number of Packages:	1	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 250mL plastic TRIZ

Unpacked by Timothy Cubberley (6520) at 10:56 on 11/08/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 10, 2017 12:55

Project: SGPP - Bennington

Account #: 37191
Group Number: 1873255
SDG: SNB33
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FilteredFracTKA-171108 Grab Water	11/08/2017 14:45	9308296
Trip Blank Water	11/08/2017	9308297

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1873255

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9308296, 9308297

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Batch #: 17313011 (Sample number(s): 9308296-9308297)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9308296, 9308297, Blank, LCS, LCSD

Sample Description: **SG3-FilteredFracTKA-171108 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/09/2017 09:45
Collection Date/Time: 11/08/2017 14:45
SDG#: SNB33-01

C. T. Male Associates
ELLE Sample #: GW 9308296
ELLE Group #: 1873255
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17313011	11/10/2017 00:42	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17313011	11/09/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/09/2017 09:45
Collection Date/Time: 11/08/2017
SDG#: SNB33-02TB

C. T. Male Associates
ELLE Sample #: WW 9308297
ELLE Group #: 1873255
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-8:2-FTS is outside of QC acceptance limits in the closing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17313011	11/10/2017 01:03	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17313011	11/09/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:55

Group Number: 1873255

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17313011	Sample number(s): 9308296-9308297		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17313011	Sample number(s): 9308296-9308297								
6:2 fluorotelomersulfonate	15.17	19.02	15.17	17.21	125	113	70-130	10	30
8:2 fluorotelomersulfonate	15.33	16.08	15.33	14.85	105	97	70-130	8	30
NEtFOSAA	5.44	6.37	5.44	6.44	117	118	70-130	1	30
NMeFOSAA	5.44	6.51	5.44	7.01	120	129	70-130	7	30
Perfluorobutanesulfonate	4.81	5.22	4.81	5.40	109	112	70-130	3	30
Perfluorobutanoic acid	5.44	6.15	5.44	5.97	113	110	70-130	3	30
Perfluorodecanoic acid	5.44	7.06	5.44	6.76	130	124	70-130	4	30
Perfluorododecanoic acid	5.44	6.75	5.44	5.98	124	110	70-130	12	30
Perfluoroheptanoic acid	5.44	5.59	5.44	6.14	103	113	70-130	9	30
Perfluorohexanesulfonate	5.14	5.50	5.14	5.59	107	109	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/10/2017 12:55

Group Number: 1873255

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.69	5.44	5.83	123	107	70-130	14	30
Perfluorononanoic acid	5.44	5.75	5.44	5.98	106	110	70-130	4	30
Perfluorooctanesulfonamide	5.44	6.16	5.44	5.66	113	104	70-130	8	30
Perfluoro-octanesulfonate	5.20	5.05	5.20	5.49	97	106	70-130	9	30
Perfluorooctanoic acid	5.44	8.80	5.44	6.71	162*	123	70-130	27	30
Perfluoropentanoic acid	5.44	6.44	5.44	5.89	118	108	70-130	9	30
Perfluorotetradecanoic acid	5.44	6.18	5.44	6.15	114	113	70-130	0	30
Perfluorotridecanoic acid	5.44	6.05	5.44	6.25	111	115	70-130	3	30
Perfluoroundecanoic acid	5.44	6.45	5.44	5.89	119	108	70-130	9	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17313011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9308296	90	82	82	91	86	82
9308297	96	84	79	94	96	89
Blank	90	80	76	94	86	99
LCS	88	82	76	84	89	89
LCSD	85	81	71	92	85	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9308296	68	89	85	88	81	64
9308297	90	96	92	83	89	63
Blank	68	87	83	79	85	60
LCS	68	83	86	74	88	63
LCSD	74	90	79	70	80	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9308296	76	88	98	79	74	62*
9308297	75	85	94	91	79	32*
Blank	82	85	93	86	78	18*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1873255
Reported: 11/10/2017 12:55

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17313011

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	90	85	107	88	72	56*
LCSD	82	81	89	85	82	24*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Rush - 24 hr TAT A-37191 G-1873255

S-930896-2017

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52726

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 4502/004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic / Trizma	Water: Trip blank / Trizma	Soil	% Solids	Preservative Code	Field Filtered Y/N
									D	D				
									N	N				
1. SG3-Filtered for TKA-171108				11/08/2017	14:45	water		2	2	2				PFC's (19)
2. Trip blank						water QC		2		2				
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Rush

24 hr. TAT

BARR USE ONLY							
Sampled by: Kim	Relinquished by:	On Ice? Y N	Date	Time 15:30	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 11/9/17	Time 945
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 Hr TAT (mm/dd/yyyy)	
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 1.6		Custody Seal Intact? ☑ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 200485

Group Number(s): 1873255

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/09/2017 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:03 on 11/09/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 11, 2017 08:51

Project: SGPP - Bennington

Account #: 37191
Group Number: 1873987
SDG: SNB34
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-Cooler/BagH2O-171109 Grab Water	11/09/2017 10:20	9311674
SG3-CompressorTestH2O-171109 Grab Water	11/09/2017 10:40	9311675
Trip Blank Water	11/09/2017	9311676

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1873987

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9311674, 9311675, 9311676

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank. The data quality is not impacted by this result.

Batch #: 17314009 (Sample number(s): 9311674-9311676)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorotridecanoic acid, Perfluorotetradecanoic acid, Perfluoroheptanoic acid, Perfluoropentanoic acid, NEtFOSAA, NMeFOSAA

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9311674, 9311675, 9311676, Blank, LCS, LCSD

Sample Description: **SG3-Cooler/BagH2O-171109 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/10/2017 09:40
Collection Date/Time: 11/09/2017 10:20
SDG#: SNB34-01

C. T. Male Associates
ELLE Sample #: GW 9311674
ELLE Group #: 1873987
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 19:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 13:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CompressorTestH2O-171109 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/10/2017 09:40
Collection Date/Time: 11/09/2017 10:40
SDG#: SNB34-02

C. T. Male Associates
ELLE Sample #: GW 9311675
ELLE Group #: 1873987
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.7 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 20:07	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 13:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/10/2017 09:40
Collection Date/Time: 11/09/2017
SDG#: SNB34-03TB

C. T. Male Associates
ELLE Sample #: WW 9311676
ELLE Group #: 1873987
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank. The data quality is not impacted by this result.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 20:27	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17314009	11/10/2017 13:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 08:51

Group Number: 1873987

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17314009	Sample number(s): 9311674-9311676		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17314009	Sample number(s): 9311674-9311676								
6:2 fluorotelomersulfonate	15.17	18.11	15.17	17.16	119	113	70-130	5	30
8:2 fluorotelomersulfonate	15.33	17.29	15.33	17.79	113	116	70-130	3	30
NEtFOSAA	5.44	7.74	5.44	6.44	142*	118	70-130	18	30
NMeFOSAA	5.44	7.46	5.44	6.68	137*	123	70-130	11	30
Perfluorobutanesulfonate	4.81	5.96	4.81	5.54	124	115	70-130	7	30
Perfluorobutanoic acid	5.44	6.69	5.44	6.32	123	116	70-130	6	30
Perfluorodecanoic acid	5.44	6.54	5.44	6.58	120	121	70-130	1	30
Perfluorododecanoic acid	5.44	7.04	5.44	7.00	129	129	70-130	0	30
Perfluoroheptanoic acid	5.44	7.18	5.44	6.69	132*	123	70-130	7	30
Perfluorohexanesulfonate	5.14	6.06	5.14	6.01	118	117	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 08:51

Group Number: 1873987

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.55	5.44	5.94	120	109	70-130	10	30
Perfluorononanoic acid	5.44	6.07	5.44	5.86	112	108	70-130	4	30
Perfluorooctanesulfonamide	5.44	6.51	5.44	6.97	120	128	70-130	7	30
Perfluoro-octanesulfonate	5.20	6.38	5.20	5.96	123	115	70-130	7	30
Perfluorooctanoic acid	5.44	7.03	5.44	6.09	129	112	70-130	14	30
Perfluoropentanoic acid	5.44	7.23	5.44	6.62	133*	122	70-130	9	30
Perfluorotetradecanoic acid	5.44	7.16	5.44	6.52	132*	120	70-130	9	30
Perfluorotridecanoic acid	5.44	7.82	5.44	7.19	144*	132*	70-130	8	30
Perfluoroundecanoic acid	5.44	6.73	5.44	6.10	124	112	70-130	10	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17314009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9311674	82	73	79	88	83	87
9311675	72	71	72	61	67	69
9311676	81	73	79	92	87	84
Blank	82	73	68	85	81	81
LCS	79	69	70	87	89	81
LCSD	82	72	67	82	83	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9311674	70	85	77	77	80	54
9311675	89	73	74	85	64	55
9311676	82	84	77	80	79	56
Blank	66	84	78	80	78	53
LCS	75	87	80	83	82	49
LCSD	65	87	78	74	74	50
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/11/2017 08:51

Group Number: 1873987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17314009

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9311674	81	88	97	69	38	25*
9311675	58	70	72	58	40	20*
9311676	63	76	72	72	66	48*
Blank	79	65	77	51	13*	38*
LCS	92	77	95	73	63	38*
LCSD	81	84	90	74	73	36*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

★ Rush - 24 hr TAT ★ 37191 1873987 9311674-76

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **52727**

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Eng. Co	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill D.
Name: Michael Dupay	Name: Latham NY
email: Mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.100

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Trizma	Water: Trip blank	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3 - Cooler/emg H2O - 171109				11/09/2017	10:20	Water		2	2					
2. SG3 - Compressor Rest H2O - 171109				11/09/2017	10:40	water		2	2					
3. Trip blank						water QC		2		2				
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

PFC's (19)

Rush - 24 hr. T.A.T

BARR USE ONLY							
Sampled by: KAM / KD	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	11/10/17	0940
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: Client				Air Bill Number:		
Lab Name: ELLE							
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 1.2.3			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr. (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 200659

Group Number(s): 1873987

Client: BARR Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/10/2017 9:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Unpr.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Carolyn Cyms (964) at 12:26 on 11/10/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
2	DT42-02	2.3	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 15, 2017 07:16

Project: SGPP - Bennington

Account #: 37191
Group Number: 1874450
SDG: SNB35
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDFRACTKB-171110 Water	11/10/2017 13:20	9313910

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1874450

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9313910

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated sample, the data is reported.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the recovery is high and the associated native compound is not detected, the data is reported.

The LCS/LCSD labeled compounds used as extraction standards recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Batch #: 17317002 (Sample number(s): 9313910)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9313910, LCS, LCSD

Sample Description: **SG3-FILTEREDFRACTKB-171110 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/11/2017 10:05
Collection Date/Time: 11/10/2017 13:20
SDG#: SNB35-01

C. T. Male Associates
ELLE Sample #: GW 9313910
ELLE Group #: 1874450
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The response for native compound 6:2-FTS in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated sample, the data is reported.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits in the method blank. Since the recovery is high and the associated native compound is not detected, the data is reported.

The LCS/LCSD labeled compounds used as extraction standards recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFRACTKB-171110 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/11/2017 10:05
Collection Date/Time: 11/10/2017 13:20
SDG#: SNB35-01

C. T. Male Associates
ELLE Sample #: GW 9313910
ELLE Group #: 1874450
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17317002	11/14/2017 02:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17317002	11/13/2017 08:05	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 07:16

Group Number: 1874450

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17317002	Sample number(s): 9313910		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	5	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17317002	Sample number(s): 9313910								
6:2 fluorotelomersulfonate	15.17	14.54	15.17	15.7	96	104	70-130	8	30
8:2 fluorotelomersulfonate	15.33	12.64	15.33	10.83	82	71	70-130	15	30
NEtFOSAA	5.44	5.99	5.44	5.83	110	107	70-130	3	30
NMeFOSAA	5.44	4.67	5.44	5.03	86	92	70-130	7	30
Perfluorobutanesulfonate	4.81	4.87	4.81	4.60	101	96	70-130	6	30
Perfluorobutanoic acid	5.44	5.62	5.44	5.26	103	97	70-130	7	30
Perfluorodecanoic acid	5.44	5.69	5.44	6.21	105	114	70-130	9	30
Perfluorododecanoic acid	5.44	5.87	5.44	5.69	108	105	70-130	3	30
Perfluoroheptanoic acid	5.44	5.45	5.44	5.20	100	96	70-130	5	30
Perfluorohexanesulfonate	5.14	4.81	5.14	4.97	94	97	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/15/2017 07:16

Group Number: 1874450

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.62	5.44	4.75	103	87	70-130	17	30
Perfluorononanoic acid	5.44	5.15	5.44	4.84	95	89	70-130	6	30
Perfluorooctanesulfonamide	5.44	5.68	5.44	5.85	104	108	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.25	5.20	4.40	101	85	70-130	18	30
Perfluorooctanoic acid	5.44	5.19	5.44	6.25	95	115	70-130	18	30
Perfluoropentanoic acid	5.44	5.49	5.44	5.01	101	92	70-130	9	30
Perfluorotetradecanoic acid	5.44	5.48	5.44	4.87	101	89	70-130	12	30
Perfluorotridecanoic acid	5.44	4.23	5.44	4.21	78	77	70-130	0	30
Perfluoroundecanoic acid	5.44	5.03	5.44	5.28	92	97	70-130	5	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17317002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9313910	80	76	71	76	72	83
Blank	114	108	112	102	104	103
LCS	85	85	77	79	86	85
LCSD	110	113	109	105	100	103
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9313910	75	85	75	87	90	96
Blank	138	105	109	105	130*	145*
LCS	90	92	76	82	83	92
LCSD	137	109	108	105	114	164*
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9313910	83	89	97	81	47	53*
Blank	132*	125	159*	130*	105	89
LCS	89	88	86	68	33	40*
LCSD	99	110	125	94	47	63*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1874450
Reported: 11/15/2017 07:16

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17317002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1874450 9313910

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☐ MN ☐ SD

COC Number: 52728

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 mL plastic Tizma / PFC	% Solids	Preservative Code	Field Filtered Y/N
1.	SG3-CITYWATERTRUCK-171110	–	–	–	11/10/2017	13:10	W	N	2	2		STANDARD TURNAROUND	
2.	SG3-CITYWATERHOSE-171110	–	–	–	11/10/2017	13:15	W	N	2	2		STANDARD TURNAROUND	
3.*	SG3-FILTEREDFRACTKB-171110	–	–	–	11/10/2017	13:20	W	N	2	2		RUSH RESULTS FOR THIS SAMPLE ONLY *	
4.													
5.													
6.													
7.													
8.													
9.													
10.													

Analysis Requested: Water / Soil

BARR USE ONLY

Sampled by: KD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 11/10/17 Time 1500

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 11/11/17 Time 1005

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.3-2.1 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush ASAP (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 200784

Group Number(s): 1874450

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/11/2017 10:05
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:			

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 11:34 on 11/11/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.3	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N
3	DT42-01	2.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 29, 2017 11:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1874451
SDG: SNB36
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK-171110 Water	11/10/2017 13:10	9313911
SG3-CITYWATERHOSE-171110 Water	11/10/2017 13:15	9313912

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1874451

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9313912

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9313911

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 17325012 (Sample number(s): 9313911-9313912)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9313911

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9313911, 9313912, Blank, LCS, LCSD

Sample Description: **SG3-CITYWATERTRUCK-171110 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/11/2017 10:05
Collection Date/Time: 11/10/2017 13:10
SDG#: SNB36-01

C. T. Male Associates
ELLE Sample #: GW 9313911
ELLE Group #: 1874451
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 16:01	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171110 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/11/2017 10:05
Collection Date/Time: 11/10/2017 13:15
SDG#: SNB36-02

C. T. Male Associates
ELLE Sample #: GW 9313912
ELLE Group #: 1874451
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 16:22	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:17

Group Number: 1874451

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17325012	Sample number(s): 9313911-9313912		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17325012	Sample number(s): 9313911-9313912								
6:2 fluorotelomersulfonate	15.17	19.29	15.17	18.85	127	124	70-130	2	30
8:2 fluorotelomersulfonate	15.33	15.12	15.33	15.75	99	103	70-130	4	30
NEtFOSAA	5.44	5.26	5.44	5.10	97	94	70-130	3	30
NMeFOSAA	5.44	5.45	5.44	5.36	100	99	70-130	2	30
Perfluorobutanesulfonate	4.81	4.83	4.81	4.65	100	97	70-130	4	30
Perfluorobutanoic acid	5.44	5.60	5.44	5.73	103	105	70-130	2	30
Perfluorodecanoic acid	5.44	6.47	5.44	6.27	119	115	70-130	3	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.24	106	115	70-130	8	30
Perfluoroheptanoic acid	5.44	5.65	5.44	5.58	104	103	70-130	1	30
Perfluorohexanesulfonate	5.14	5.11	5.14	4.40	99	85	70-130	15	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:17

Group Number: 1874451

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	70-130	1	30
Perfluorononanoic acid	5.44	5.54	5.44	5.70	102	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.20	5.44	5.80	96	107	70-130	11	30
Perfluoro-octanesulfonate	5.20	4.80	5.20	5.06	92	97	70-130	5	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.15	111	113	70-130	2	30
Perfluoropentanoic acid	5.44	5.46	5.44	5.40	100	99	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.52	100	101	70-130	2	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.11	95	94	70-130	1	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.62	103	103	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9313911	93	129	152*	87	98	94
9313912	91	125	146	79	88	88
Blank	87	92	90	87	92	93
LCS	103	102	104	99	96	107
LCSD	91	92	95	97	96	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9313911	111	90	87	87	89	90
9313912	111	90	87	100	83	80
Blank	119	89	89	96	95	91
LCS	114	105	102	98	93	94
LCSD	101	98	101	94	93	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9313911	86	87	95	81	52	22*
9313912	97	91	101	88	82	27*
Blank	106	98	112	105	93	34*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1874451
Reported: 11/29/2017 11:17

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	101	104	121	108	94	26*
LCSD	103	102	121	109	108	42*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1874451 9313911-12

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☐ MN ☐ SD

COC Number: 52728

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic Trizma / PFC	Soil: % Solids	Preservative Code	Field Filtered Y/N
1.	SG3-CITYWATERTRUCK-171110	–	–	–	11/10/2017	13:10	W	N	2	2			STANDARD TURNAROUND
2.	SG3-CITYWATERHOSE-171110	–	–	–	11/10/2017	13:15	W	N	2	2			STANDARD TURNAROUND
* 3.	SG3-FILTEREDFRACTKB-171110	–	–	–	11/10/2017	13:20	W	N	2	2			OR RUSH RESULTS FOR THIS SAMPLE * ONLY
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY		Relinquished by	On Ice? (Y) N	Date	Time	Received by	Date	Time
Sampled by:	KD							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 11/11/17	Time 1005
Barr DQ Manager:	MDD							
Lab Name:	ELE	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.3-2.1			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush ASAP (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 200784

Group Number(s): 1674451

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/11/2017 10:05
Number of Packages:	3	Number of Projects:	2
State/Province of Origin:			

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 11:34 on 11/11/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.3	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N
3	DT42-01	2.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 29, 2017 11:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1875199
SDG: SNB37
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB01-171111 Grab Rinse Water	11/11/2017 10:25	9317160
SG3-RB02-171111 Grab Rinse Water	11/11/2017 11:50	9317161

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1875199

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9317160, 9317161

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Batch #: 17325012 (Sample number(s): 9317160-9317161)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9317160, 9317161

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9317160, 9317161, Blank, LCS, LCSD

Sample Description: **SG3-RB01-171111 Grab Rinse Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/14/2017 09:40
Collection Date/Time: 11/11/2017 10:25
SDG#: SNB37-01

C. T. Male Associates
ELLE Sample #: GW 9317160
ELLE Group #: 1875199
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.6 J**	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.7 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 16:42	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RB02-171111 Grab Rinse Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/14/2017 09:40
Collection Date/Time: 11/11/2017 11:50
SDG#: SNB37-02

C. T. Male Associates
ELLE Sample #: GW 9317161
ELLE Group #: 1875199
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted in holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 17:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:17

Group Number: 1875199

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17325012	Sample number(s): 9317160-9317161		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17325012	Sample number(s): 9317160-9317161								
6:2 fluorotelomersulfonate	15.17	19.29	15.17	18.85	127	124	70-130	2	30
8:2 fluorotelomersulfonate	15.33	15.12	15.33	15.75	99	103	70-130	4	30
NEtFOSAA	5.44	5.26	5.44	5.10	97	94	70-130	3	30
NMeFOSAA	5.44	5.45	5.44	5.36	100	99	70-130	2	30
Perfluorobutanesulfonate	4.81	4.83	4.81	4.65	100	97	70-130	4	30
Perfluorobutanoic acid	5.44	5.60	5.44	5.73	103	105	70-130	2	30
Perfluorodecanoic acid	5.44	6.47	5.44	6.27	119	115	70-130	3	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.24	106	115	70-130	8	30
Perfluoroheptanoic acid	5.44	5.65	5.44	5.58	104	103	70-130	1	30
Perfluorohexanesulfonate	5.14	5.11	5.14	4.40	99	85	70-130	15	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 11:17

Group Number: 1875199

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	70-130	1	30
Perfluorononanoic acid	5.44	5.54	5.44	5.70	102	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.20	5.44	5.80	96	107	70-130	11	30
Perfluoro-octanesulfonate	5.20	4.80	5.20	5.06	92	97	70-130	5	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.15	111	113	70-130	2	30
Perfluoropentanoic acid	5.44	5.46	5.44	5.40	100	99	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.52	100	101	70-130	2	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.11	95	94	70-130	1	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.62	103	103	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9317160	72	87	104	93	91	99
9317161	99	98	100	93	92	98
Blank	87	92	90	87	92	93
LCS	103	102	104	99	96	107
LCSD	91	92	95	97	96	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9317160	236*	69	96	110	71	266*
9317161	153*	99	94	113	93	139*
Blank	119	89	89	96	95	91
LCS	114	105	102	98	93	94
LCSD	101	98	101	94	93	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9317160	40	98	80	73	35	24*
9317161	97	113	121	106	87	36*
Blank	106	98	112	105	93	34*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1875199
Reported: 11/29/2017 11:17

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	101	104	121	108	94	26*
LCSD	103	102	121	109	108	42*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1875199 Sample # 9317160-161

COC # 555835

Client Information

Client: C.T. Male Associates	Acct. #:
Project Name/#: SGPP - North Bennington	PWSID #:
Project Manager: Kirk Moline / Michael Dupay	P.O. #: 16.6131
Sampler: Cliff Bondi	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐ / Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Rinse water	Total # of Containers	Analysis Requested: 19 PFAS	Remarks
~~SG3-LTB01 CB 11/13/17~~ SG3-RB01-171111	11/11/17	1025	X		X	2	X	New Casing
SG3-RB02-171111	11/11/17	1150	X		X	2	X	New Drill Bit

Turnaround Time (TAT) Requested (please circle)
(Standard) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: MDuPay@Barr.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Cliff Bondi	11/13/17	1600			
				11/14/17	940

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx ✓ Other

Temperature upon receipt 1.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 200960

Group Number(s): 1875199

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/14/2017 9:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 10:38 on 11/14/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 15, 2017 14:41

Project: SGPP - Bennington

Account #: 37191
Group Number: 1875623
SDG: SNB38
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-WINDSHIELDFLUID-171113 Water	11/13/2017 14:30	9318919
SG3-AFTERPOETD-171113 Water	11/13/2017 17:15	9318920
SG3-CITYWATERTK1-171113 Water	11/13/2017 14:40	9318921
SG3-CITYWATERTRUCK-171114 Water	11/14/2017 10:30	9318922
SG3-CITYWATERHOSE-171114 Water	11/14/2017 10:35	9318923
SG3-CITYWATERTK1-171114 Water	11/14/2017 11:35	9318924

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1875623

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9318920, 9318921, 9318924

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9318919

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9318922, 9318923

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for labeled compounds used as extraction standards 13C5-PFPeA and 13C3-PFBS are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 17325012 (Sample number(s): 9318920-9318924)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9318922, 9318923

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9318920, 9318921, 9318922, 9318923, 9318924, Blank, LCS, LCSD

Batch #: 17334007 (Sample number(s): 9318919)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9318919, Blank, LCS, LCSD

December 14, 2017

Mr. Kirk Moline
C. T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Dear Mr. Moline:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: SGPP - Bennington
Group No.: 1875623 **SDG No.: SNB38**

ELLE Sample No.	Client Sample Identification	Collection Date
9318919	SG3-WINDSHIELDFLUID-171113 Water	11/13/2017

The correction to the data affects the PFAS in Water by LC/MS/MS analysis only.

During an additional review of the data by Environmental Standards, Inc., it was determined that an incorrect dilution factor was applied to the results reported for ELLE Sample No. 9318919. Refer to the initial analysis reports for the prior reported results.

The revised analytical report reflects this correction and is enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1203. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Manager
Specialty Services

CMR/mc
Enclosures

cc: Nancy Bornholm

REVISED

Sample Description: SG3-WINDSHIELDFLUID-171113 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/13/2017 14:30
SDG#: SNB38-01

C. T. Male Associates
ELLE Sample #: GW 9318919
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	2,000 U	2,000	4,000	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1,000 U	1,000	4,000	1
14473	NEtFOSAA	2991-50-6	300 U	300	1,000	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	300 U	300	1,000	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	200 U	200	600	1
14473	Perfluorobutanoic acid	375-22-4	1,000 U	1,000	3,000	1
14473	Perfluorodecanoic acid	335-76-2	300 U	300	1,000	1
14473	Perfluorododecanoic acid	307-55-1	200 U	200	600	1
14473	Perfluoroheptanoic acid	375-85-9	200 U	200	600	1
14473	Perfluorohexanesulfonate	355-46-4	300 U	300	1,000	1
14473	Perfluorohexanoic acid	307-24-4	200 U	200	600	1
14473	Perfluorononanoic acid	375-95-1	200 U	200	600	1
14473	Perfluorooctanesulfonamide	754-91-6	200 U	200	600	1
14473	Perfluoro-octanesulfonate	1763-23-1	500 U	500	2,000	1
14473	Perfluorooctanoic acid	335-67-1	200 U	200	600	1
14473	Perfluoropentanoic acid	2706-90-3	200 U	200	600	1
14473	Perfluorotetradecanoic acid	376-06-7	200 U	200	600	1
14473	Perfluorotridecanoic acid	72629-94-8	200 U	200	600	1
14473	Perfluoroundecanoic acid	2058-94-8	300 U	300	1,000	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/05/2017 05:14	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-AFTERPOETD-171113 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/13/2017 17:15
SDG#: SNB38-02

C. T. Male Associates
ELLE Sample #: GW 9318920
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.4 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.8 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 17:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERTK1-171113 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/13/2017 14:40
SDG#: SNB38-03

C. T. Male Associates
ELLE Sample #: GW 9318921
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.6 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 18:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERTRUCK-171114 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/14/2017 10:30
SDG#: SNB38-04

C. T. Male Associates
ELLE Sample #: GW 9318922
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**0.6 J**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for labeled compounds used as extraction standards 13C5-PFPeA and 13C3-PFBS are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 20:07	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERHOSE-171114 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/14/2017 10:35
SDG#: SNB38-05

C. T. Male Associates
ELLE Sample #: GW 9318923
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recoveries for labeled compounds used as extraction standards 13C5-PFPeA and 13C3-PFBS are outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 20:28	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-CITYWATERTK1-171114 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 09:50
Collection Date/Time: 11/14/2017 11:35
SDG#: SNB38-06

C. T. Male Associates
ELLE Sample #: GW 9318924
ELLE Group #: 1875623
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 20:48	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/15/2017 14:41

Group Number: 1875623

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17325012	Sample number(s): 9318920-9318924		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17334007	Sample number(s): 9318919		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/15/2017 14:41

Group Number: 1875623

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17325012	Sample number(s): 9318920-9318924								
6:2 fluorotelomersulfonate	15.17	19.29	15.17	18.85	127	124	70-130	2	30
8:2 fluorotelomersulfonate	15.33	15.12	15.33	15.75	99	103	70-130	4	30
NEtFOSAA	5.44	5.26	5.44	5.10	97	94	70-130	3	30
NMeFOSAA	5.44	5.45	5.44	5.36	100	99	70-130	2	30
Perfluorobutanesulfonate	4.81	4.83	4.81	4.65	100	97	70-130	4	30
Perfluorobutanoic acid	5.44	5.60	5.44	5.73	103	105	70-130	2	30
Perfluorodecanoic acid	5.44	6.47	5.44	6.27	119	115	70-130	3	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.24	106	115	70-130	8	30
Perfluoroheptanoic acid	5.44	5.65	5.44	5.58	104	103	70-130	1	30
Perfluorohexanesulfonate	5.14	5.11	5.14	4.40	99	85	70-130	15	30
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	70-130	1	30
Perfluorononanoic acid	5.44	5.54	5.44	5.70	102	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.20	5.44	5.80	96	107	70-130	11	30
Perfluoro-octanesulfonate	5.20	4.80	5.20	5.06	92	97	70-130	5	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.15	111	113	70-130	2	30
Perfluoropentanoic acid	5.44	5.46	5.44	5.40	100	99	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.52	100	101	70-130	2	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.11	95	94	70-130	1	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.62	103	103	70-130	0	30
Batch number: 17334007	Sample number(s): 9318919								
6:2 fluorotelomersulfonate	15.17	17.2	15.17	15.57	113	103	70-130	10	30
8:2 fluorotelomersulfonate	15.33	14.97	15.33	17.16	98	112	70-130	14	30
NEtFOSAA	5.44	5.34	5.44	5.05	98	93	70-130	6	30
NMeFOSAA	5.44	4.64	5.44	5.17	85	95	70-130	11	30
Perfluorobutanesulfonate	4.81	4.99	4.81	4.80	104	100	70-130	4	30
Perfluorobutanoic acid	5.44	5.63	5.44	5.23	104	96	70-130	8	30
Perfluorodecanoic acid	5.44	5.45	5.44	4.96	100	91	70-130	10	30
Perfluorododecanoic acid	5.44	5.45	5.44	5.74	100	105	70-130	5	30
Perfluoroheptanoic acid	5.44	5.88	5.44	5.54	108	102	70-130	6	30
Perfluorohexanesulfonate	5.14	5.37	5.14	4.89	104	95	70-130	10	30
Perfluorohexanoic acid	5.44	5.43	5.44	5.20	100	96	70-130	4	30
Perfluorononanoic acid	5.44	5.21	5.44	5.50	96	101	70-130	5	30
Perfluorooctanesulfonamide	5.44	5.51	5.44	5.60	101	103	70-130	2	30

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/15/2017 14:41

Group Number: 1875623

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.54	5.20	5.30	107	102	70-130	4	30
Perfluorooctanoic acid	5.44	5.64	5.44	5.41	104	100	70-130	4	30
Perfluoropentanoic acid	5.44	5.51	5.44	5.47	101	101	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.28	5.44	5.59	116	103	70-130	12	30
Perfluorotridecanoic acid	5.44	5.98	5.44	5.98	110	110	70-130	0	30
Perfluoroundecanoic acid	5.44	5.74	5.44	5.18	105	95	70-130	10	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9318920	94	92	93	86	90	86
9318921	84	117	144	72	78	78
9318922	101	143*	176*	93	102	102
9318923	101	144*	181*	89	99	103
9318924	88	124	147	91	86	97
Blank	87	92	90	87	92	93
LCS	103	102	104	99	96	107
LCSD	91	92	95	97	96	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9318920	102	94	81	84	94	100
9318921	90	76	84	87	84	98
9318922	122	100	92	102	93	99
9318923	124	99	100	107	93	102
9318924	113	90	88	99	86	81
Blank	119	89	89	96	95	91
LCS	114	105	102	98	93	94
LCSD	101	98	101	94	93	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/15/2017 14:41

Group Number: 1875623

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9318920	95	103	107	98	93	22*
9318921	88	87	90	87	78	14*
9318922	99	89	109	79	37	35*
9318923	90	90	113	86	53	38*
9318924	84	79	90	75	68	29*
Blank	106	98	112	105	93	34*
LCS	101	104	121	108	94	26*
LCSD	103	102	121	109	108	42*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17334007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9318919	71	70	68	82	75	77
Blank	78	82	84	86	82	88
LCS	89	95	86	91	86	87
LCSD	84	81	77	88	80	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9318919	66	75	70	71	73	61
Blank	73	78	76	82	76	70
LCS	96	87	89	95	87	91
LCSD	94	85	86	85	86	70
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9318919	62	77	71	72	68	62*
Blank	92	84	115	89	89	31*
LCS	106	91	112	92	97	65*
LCSD	101	79	114	92	90	58*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1875623 S-9318919-924

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☑ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52731

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGRP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 19 PFAS (250 mL)	Water: 19 PFAS (TRIZMA 250 mL)	Soil: % Solids	Preservative Code	Field Filtered Y/N
												A	N
												O	N
1. SG3-WINDSHIELDFLUID-171113	–	–	–	11/13/2017	1430	O	N	2	2				
2. SG3-AFTERPOETD-171113	–	–	–	11/13/2017	1715	W	N	2		2			
3. SG3-CITYWATERTK1-171113	–	–	–	11/13/2017	1440	W	N	2		2			
4. SG3-CITYWATERTRUCK-171114	–	–	–	11/14/2017	1030	W	N	2		2			
5. SG3-CITYWATERHOSE-171114	–	–	–	11/14/2017	1035	W	N	2		2			
6. SG3-CITYWATERTK1-171114	–	–	–	11/14/2017	1135	W	N	2		2			
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: KD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? ☑ Y ☐ N Date 11/14/17 Time 1515 Received by:

Relinquished by: On Ice? ☐ Y ☐ N Date Time Received by: [signature] Date 11/15/17 Time 950

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 06/1.1 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 201105

Group Number(s):

Client: CT MALE ASSOCIATES

BARR ENGINEERING · 1875623

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/15/2017 9:50
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:53 on 11/15/2017

Samples Chilled Details: BARR ENGINEERING

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.6	DT	Wet	Y	Bagged	N
2	DT42-01	1.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 29, 2017 15:39

Project: SGPP - Bennington

Account #: 37191
Group Number: 1875630
SDG: SNB39
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDFRACTKD-171114 Water	11/14/2017 11:30	9318946

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1875630

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9318946

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17325012 (Sample number(s): 9318946)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9318946, Blank, LCS, LCSD

Sample Description: **SG3-FILTEREDFRACTKD-171114 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/15/2017 11:05
Collection Date/Time: 11/14/2017 11:30
SDG#: SNB39-01

C. T. Male Associates
ELLE Sample #: GW 9318946
ELLE Group #: 1875630
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17325012	11/27/2017 21:09	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17325012	11/22/2017 06:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 15:39

Group Number: 1875630

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17325012	Sample number(s): 9318946		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17325012	Sample number(s): 9318946								
6:2 fluorotelomersulfonate	15.17	19.29	15.17	18.85	127	124	70-130	2	30
8:2 fluorotelomersulfonate	15.33	15.12	15.33	15.75	99	103	70-130	4	30
NEtFOSAA	5.44	5.26	5.44	5.10	97	94	70-130	3	30
NMeFOSAA	5.44	5.45	5.44	5.36	100	99	70-130	2	30
Perfluorobutanesulfonate	4.81	4.83	4.81	4.65	100	97	70-130	4	30
Perfluorobutanoic acid	5.44	5.60	5.44	5.73	103	105	70-130	2	30
Perfluorodecanoic acid	5.44	6.47	5.44	6.27	119	115	70-130	3	30
Perfluorododecanoic acid	5.44	5.78	5.44	6.24	106	115	70-130	8	30
Perfluoroheptanoic acid	5.44	5.65	5.44	5.58	104	103	70-130	1	30
Perfluorohexanesulfonate	5.14	5.11	5.14	4.40	99	85	70-130	15	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/29/2017 15:39

Group Number: 1875630

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.17	5.44	5.14	95	94	70-130	1	30
Perfluorononanoic acid	5.44	5.54	5.44	5.70	102	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.20	5.44	5.80	96	107	70-130	11	30
Perfluoro-octanesulfonate	5.20	4.80	5.20	5.06	92	97	70-130	5	30
Perfluorooctanoic acid	5.44	6.04	5.44	6.15	111	113	70-130	2	30
Perfluoropentanoic acid	5.44	5.46	5.44	5.40	100	99	70-130	1	30
Perfluorotetradecanoic acid	5.44	5.43	5.44	5.52	100	101	70-130	2	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.11	95	94	70-130	1	30
Perfluoroundecanoic acid	5.44	5.62	5.44	5.62	103	103	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9318946	86	89	91	88	87	90
Blank	87	92	90	87	92	93
LCS	103	102	104	99	96	107
LCSD	91	92	95	97	96	95
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9318946	92	82	80	92	80	72
Blank	119	89	89	96	95	91
LCS	114	105	102	98	93	94
LCSD	101	98	101	94	93	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9318946	72	80	85	70	53	30*
Blank	106	98	112	105	93	34*
LCS	101	104	121	108	94	26*
LCSD	103	102	121	109	108	42*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1875630
Reported: 11/29/2017 15:39

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17325012

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 Lg-1875630 S-9318946

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: ☐ MN ☐ SD

COC Number: 52732

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering Co	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Rupay	Name: Latham, NY
email: mdupaya barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bannington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water (PFAS (19))	Soil: % Solids	Preservative Code	Field Filtered Y/N
1.	SG3-FILTEREDFRACTKD-171114	-	-	-	11/14/2017	1130	W	N	2	2			*RUSH SAMPLES*
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KD		Y	11/14/17	1515			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						11/15/17	950
Lab Name:	ELLE	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.6/1.1			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ASAP - 24 hr (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 201105

Group Number(s):

Client: CT MALE ASSOCIATES

BARR ENGINEERING

1875620

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/15/2017 9:50
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 10:53 on 11/15/2017

Samples Chilled Details: BARR ENGINEERING

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.6	DT	Wet	Y	Bagged	N
2	DT42-01	1.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: November 20, 2017 14:04

Project: SGPP - Bennington

Account #: 37191
Group Number: 1876845
SDG: SNB40
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FILTEREDFRACTKA-171116 Grab Water	11/16/2017 14:30	9324285

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1876845

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9324285

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17322020 (Sample number(s): 9324285)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9324285

Sample Description: **SG3-FILTEREDFRACTKA-171116 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 14:30
SDG#: SNB40-01

C. T. Male Associates
ELLE Sample #: GW 9324285
ELLE Group #: 1876845
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the closing calibration verification standard (CCV).

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/20/2017 10:38	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFRACTKA-171116 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 14:30
SDG#: SNB40-01

C. T. Male Associates
ELLE Sample #: GW 9324285
ELLE Group #: 1876845
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 14:04

Group Number: 1876845

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17322020	Sample number(s): 9324285		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17322020	Sample number(s): 9324285								
6:2 fluorotelomersulfonate	15.17	17.19	15.17	16.52	113	109	70-130	4	30
8:2 fluorotelomersulfonate	15.33	15.87	15.33	17.92	104	117	70-130	12	30
NEtFOSAA	5.44	6.61	5.44	7.36	122	135*	70-130	11	30
NMeFOSAA	5.44	7.19	5.44	7.36	132*	135*	70-130	2	30
Perfluorobutanesulfonate	4.81	4.93	4.81	5.69	102	118	70-130	14	30
Perfluorobutanoic acid	5.44	6.10	5.44	6.08	112	112	70-130	0	30
Perfluorodecanoic acid	5.44	6.16	5.44	6.19	113	114	70-130	0	30
Perfluorododecanoic acid	5.44	6.55	5.44	6.01	120	110	70-130	9	30
Perfluoroheptanoic acid	5.44	6.17	5.44	6.17	113	113	70-130	0	30
Perfluorohexanesulfonate	5.14	5.46	5.14	5.52	106	107	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 14:04

Group Number: 1876845

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.30	5.44	6.15	116	113	70-130	2	30
Perfluorononanoic acid	5.44	6.71	5.44	6.13	123	113	70-130	9	30
Perfluorooctanesulfonamide	5.44	7.23	5.44	7.59	133*	140*	70-130	5	30
Perfluoro-octanesulfonate	5.20	5.85	5.20	5.56	113	107	70-130	5	30
Perfluorooctanoic acid	5.44	6.03	5.44	6.22	111	114	70-130	3	30
Perfluoropentanoic acid	5.44	6.25	5.44	6.19	115	114	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.23	5.44	6.26	115	115	70-130	0	30
Perfluorotridecanoic acid	5.44	5.62	5.44	6.14	103	113	70-130	9	30
Perfluoroundecanoic acid	5.44	5.65	5.44	6.01	104	111	70-130	6	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17322020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9324285	86	87	84	91	80	84
Blank	89	94	84	110	93	100
LCS	88	84	82	85	81	80
LCSD	93	96	89	81	76	78
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9324285	90	82	85	98	83	83
Blank	103	97	91	87	93	87
LCS	93	90	83	85	93	91
LCSD	88	78	84	83	84	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9324285	92	78	102	78	58	57*
Blank	128*	98	145*	99	113	84
LCS	122*	105	142*	114	116	83
LCSD	118	88	126	101	110	71

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 11/20/2017 14:04

Group Number: 1876845

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17322020

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1876645 S-9324285

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ SD ☐ MN Other: VT

COC Number: 52729

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	250 mL (PFC-19) TELZNA	0	2	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-FILTEREDFRACTHA-171116	—	—		11/16/2017	14:30	W	N	2	2					* RUSH SAMPLES *
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Analysis Requested: Water | Soil

BARR USE ONLY

Sampled by: KD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y N Date 11/16/17 Time 1630

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 11.17.17 Time 9415

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 5.1 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 201479

Group Number(s): 1876845

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/17/2017 9:45
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:29 on 11/17/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 11, 2017 13:39

Project: SGPP - Bennington

Account #: 37191
Group Number: 1876855
SDG: SNB41
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB-BLADDERPUMP-RAS Blank Water	11/16/2017 10:45	9324335
SG3-STANDPIPE-RAS Blank Water	11/16/2017 10:50	9324336
SG3-BLADDERINSERT-RAS Blank Water	11/16/2017 10:50	9324337
SG3-AIR-DISCHARGE-RAS Blank Water	11/16/2017 11:00	9324338
SG3-AFTERPOETA-171116 Water	11/16/2017 12:00	9324339
SG3-LTB01-171116 Trip Blank Water	11/16/2017	9324340

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Project Name: SGPP - Bennington
ELLE Group #: 1876855

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9324336, 9324337, 9324338, 9324339, 9324340

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9324335

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

Batch #: 17322020 (Sample number(s): 9324335-9324340)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window

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indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9324335, Blank, LCS

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9324335

Sample Description: **SG3-RB-BLADDERPUMP-RAS Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 10:45
SDG#: SNB41-01RB

C. T. Male Associates
ELLE Sample #: WW 9324335
ELLE Group #: 1876855
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.3 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The sample injection standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-RB-BLADDERPUMP-RAS Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 10:45
SDG#: SNB41-01RB

C. T. Male Associates
ELLE Sample #: WW 9324335
ELLE Group #: 1876855
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 10:10	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-STANDPIPE-RAS Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 10:50
SDG#: SNB41-02RB

C. T. Male Associates
ELLE Sample #: WW 9324336
ELLE Group #: 1876855
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 10:31	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-BLADDERINSERT-RAS Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 10:50
SDG#: SNB41-03RB

C. T. Male Associates
ELLE Sample #: WW 9324337
ELLE Group #: 1876855
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 10:51	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AIR-DISCHARGE-RAS Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 11:00
SDG#: SNB41-04RB

C. T. Male Associates
ELLE Sample #: WW 9324338
ELLE Group #: 1876855
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 11:12	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETA-171116 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017 12:00
SDG#: SNB41-05

C. T. Male Associates
ELLE Sample #: WW 9324339
ELLE Group #: 1876855
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 11:33	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171116 Trip Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/17/2017 09:45
Collection Date/Time: 11/16/2017
SDG#: SNB41-06TB

C. T. Male Associates
ELLE Sample #: WW 9324340
ELLE Group #: 1876855
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSSA is outside of QC acceptance limits in the method blank and laboratory control spike sample (LCS). The data quality is not impacted by these results.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17322020	11/28/2017 11:53	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17322020	11/19/2017 08:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 13:39

Group Number: 1876855

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17322020	Sample number(s): 9324335-9324340		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17322020	Sample number(s): 9324335-9324340								
6:2 fluorotelomersulfonate	15.17	17.19	15.17	16.52	113	109	70-130	4	30
8:2 fluorotelomersulfonate	15.33	15.87	15.33	17.92	104	117	70-130	12	30
NEtFOSAA	5.44	6.61	5.44	7.36	122	135*	70-130	11	30
NMeFOSAA	5.44	7.19	5.44	7.36	132*	135*	70-130	2	30
Perfluorobutanesulfonate	4.81	4.93	4.81	5.69	102	118	70-130	14	30
Perfluorobutanoic acid	5.44	6.10	5.44	6.08	112	112	70-130	0	30
Perfluorodecanoic acid	5.44	6.16	5.44	6.19	113	114	70-130	0	30
Perfluorododecanoic acid	5.44	6.55	5.44	6.01	120	110	70-130	9	30
Perfluoroheptanoic acid	5.44	6.17	5.44	6.17	113	113	70-130	0	30
Perfluorohexanesulfonate	5.14	5.46	5.14	5.52	106	107	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 13:39

Group Number: 1876855

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.30	5.44	6.15	116	113	70-130	2	30
Perfluorononanoic acid	5.44	6.71	5.44	6.13	123	113	70-130	9	30
Perfluorooctanesulfonamide	5.44	7.23	5.44	7.59	133*	140*	70-130	5	30
Perfluoro-octanesulfonate	5.20	5.85	5.20	5.56	113	107	70-130	5	30
Perfluorooctanoic acid	5.44	6.03	5.44	6.22	111	114	70-130	3	30
Perfluoropentanoic acid	5.44	6.25	5.44	6.19	115	114	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.23	5.44	6.26	115	115	70-130	0	30
Perfluorotridecanoic acid	5.44	5.62	5.44	6.14	103	113	70-130	9	30
Perfluoroundecanoic acid	5.44	5.65	5.44	6.01	104	111	70-130	6	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17322020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9324335	92	92	96	74	69	80
9324336	84	84	82	80	78	82
9324337	85	84	89	88	86	82
9324338	92	91	88	91	83	85
9324339	89	89	90	93	90	89
9324340	90	93	87	94	89	91
Blank	89	94	84	110	93	100
LCS	88	84	82	85	81	80
LCSD	93	96	89	81	76	78
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9324335	146*	78	86	114	76	129
9324336	71	86	87	82	82	70
9324337	81	89	93	94	88	84
9324338	97	86	93	94	101	91
9324339	73	91	70	82	87	65
9324340	78	81	90	89	89	78
Blank	103	97	91	87	93	87
LCS	93	90	83	85	93	91

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/11/2017 13:39

Group Number: 1876855

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17322020

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
LCSD	88	78	84	83	84	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9324335	65	92	86	81	77	54*
9324336	78	96	94	88	84	80
9324337	75	94	95	84	82	83
9324338	72	103	101	91	81	81
9324339	74	95	85	86	39	73
9324340	92	99	107	103	96	88
Blank	128*	98	145*	99	113	84
LCS	122*	105	142*	114	116	83
LCSD	118	88	126	101	110	71
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1876855 S-932435-340

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52734

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Lathum NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: 250 mL TRIZMA (PFC-ng)	250 mL TRIZMA blank (PFC-ng)	250 mL rinse blank (PFC-ng)	% Solids	Preservative Code	Field Filtered Y/N	Comments
									Water	Water	Water	Soil			
1. SG3-RB-BLADDERPUMP-RAS	—	—	—	11/16/2017	10:45	W	N	2			2				RINSE BLANK OF GEOPHYSICAL EQUIPMENT
2. SG3-STANDPIPE-RAS	—	—	—	11/16/2017	10:50	W	N	2			2				
3. SG3-BLADDERINSERT-RAS	—	—	—	11/16/2017	10:50	W	N	2			2				
4. SG3-AIR-DISCHARGE-RAS	—	—	—	11/16/2017	11:00	W	N	2			2				
5. SG3-AFTERPEETA-171116	—	—	—	11/16/2017	12:00	W	N	2	2						
6. SG3-LTB01-171116	—	—	—	11/16/2017	—	W	N	2		2					LAB TRIP BLANK
7.															
8.															
9.															
10.															

Preservative Code: 0 | 0 | A

Field Filtered Y/N: 2 | 2 | 2

BARR USE ONLY	
Sampled by:	KD
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDP
Lab Name:	ELLE
Lab Location:	Lancaster, PA

	On Ice?	Date	Time	Received by:	Date	Time
Relinquished by: KB	(Y) N	11/16/17	1630			
Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 11-17-17	Time 945

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 5.3 Custody Seal Intact? ☑ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 201479

Group Number(s): 1876855

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/17/2017 9:45
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:29 on 11/17/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 04, 2017 11:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1878666
SDG: SNB42
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-RB-INDUCTIONTOOL-171121 Blank Water	11/21/2017 13:45	9332446
SG3-PVC-171121 Blank Water	11/21/2017 09:20	9332447
SG3-AFTERPOETB-171121 Grab Water	11/21/2017 07:15	9332448
SG3-CITYWATERTK2-171117 Grab Water	11/17/2017 10:45	9332449
SG3-CITYWATERHOSE-171117 Grab Water	11/17/2017 10:05	9332450
SG3-CITYWATERTK1-171117 Grab Water	11/17/2017 10:50	9332451
SG3-CITYWATERTRUCK-171117 Grab Water	11/17/2017 10:00	9332452
SG3-FILTEREDFRACTKB-171121 Grab Water	11/21/2017 14:00	9332453

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1878666

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9332446, 9332450, 9332451, 9332452, 9332453

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9332449

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Batch #: 17332002 (Sample number(s): 9332447-9332448)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9332447, 9332448, LCS, LCSD

Batch #: 17333004 (Sample number(s): 9332446, 9332449-9332453)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9332449

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9332446, 9332449, 9332450, 9332451, 9332452, 9332453, Blank, LCS, LCSD

Sample Description: **SG3-RB-INDUCTIONTOOL-171121 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/21/2017 13:45
SDG#: SNB42-01RB

C. T. Male Associates
ELLE Sample #: WW 9332446
ELLE Group #: 1878666
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.7 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.8 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**5**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**0.3 J**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 09:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-PVC-171121 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/21/2017 09:20
SDG#: SNB42-02RB

C. T. Male Associates
ELLE Sample #: WW 9332447
ELLE Group #: 1878666
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**0.4 J**	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17332002	11/28/2017 18:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17332002	11/28/2017 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETB-171121 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/21/2017 07:15
SDG#: SNB42-03

C. T. Male Associates
ELLE Sample #: GW 9332448
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17332002	11/28/2017 19:05	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17332002	11/28/2017 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK2-171117 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/17/2017 10:45
SDG#: SNB42-04

C. T. Male Associates
ELLE Sample #: GW 9332449
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 10:06	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171117 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/17/2017 10:05
SDG#: SNB42-05

C. T. Male Associates
ELLE Sample #: GW 9332450
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 10:27	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK1-171117 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/17/2017 10:50
SDG#: SNB42-06

C. T. Male Associates
ELLE Sample #: GW 9332451
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 10:47	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171117 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/17/2017 10:00
SDG#: SNB42-07

C. T. Male Associates
ELLE Sample #: GW 9332452
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**2**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 11:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFRACTKB-171121 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/22/2017 10:00
Collection Date/Time: 11/21/2017 14:00
SDG#: SNB42-08

C. T. Male Associates
ELLE Sample #: GW 9332453
ELLE Group #: 1878666
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**3 J**	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.3 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**1**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**0.3 J**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333004	11/30/2017 11:28	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17333004	11/29/2017 07:30	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/04/2017 11:17

Group Number: 1878666

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17332002	Sample number(s): 9332447-9332448			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.8	J	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	1		0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17333004	Sample number(s): 9332446,9332449-9332453			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/04/2017 11:17

Group Number: 1878666

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17332002	Sample number(s): 9332447-9332448								
6:2 fluorotelomersulfonate	15.17	18.6	15.17	16.19	123	107	70-130	14	30
8:2 fluorotelomersulfonate	15.33	16.83	15.33	15.89	110	104	70-130	6	30
NEtFOSAA	5.44	5.37	5.44	5.22	99	96	70-130	3	30
NMeFOSAA	5.44	5.86	5.44	4.75	108	87	70-130	21	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.78	100	99	70-130	0	30
Perfluorobutanoic acid	5.44	6.04	5.44	5.50	111	101	70-130	9	30
Perfluorodecanoic acid	5.44	6.55	5.44	5.09	120	94	70-130	25	30
Perfluorododecanoic acid	5.44	6.14	5.44	5.19	113	95	70-130	17	30
Perfluoroheptanoic acid	5.44	5.69	5.44	5.29	105	97	70-130	7	30
Perfluorohexanesulfonate	5.14	5.01	5.14	5.23	97	102	70-130	4	30
Perfluorohexanoic acid	5.44	5.47	5.44	5.04	101	93	70-130	8	30
Perfluorononanoic acid	5.44	5.38	5.44	5.34	99	98	70-130	1	30
Perfluorooctanesulfonamide	5.44	5.48	5.44	5.60	101	103	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.63	5.20	4.73	108	91	70-130	17	30
Perfluorooctanoic acid	5.44	6.29	5.44	5.55	116	102	70-130	12	30
Perfluoropentanoic acid	5.44	5.74	5.44	5.20	106	96	70-130	10	30
Perfluorotetradecanoic acid	5.44	5.64	5.44	5.24	104	96	70-130	7	30
Perfluorotridecanoic acid	5.44	5.40	5.44	4.83	99	89	70-130	11	30
Perfluoroundecanoic acid	5.44	5.90	5.44	4.95	108	91	70-130	17	30
Batch number: 17333004	Sample number(s): 9332446,9332449-9332453								
6:2 fluorotelomersulfonate	15.17	20.25	15.17	17.56	133*	116	70-130	14	30
8:2 fluorotelomersulfonate	15.33	18.38	15.33	17.63	120	115	70-130	4	30
NEtFOSAA	5.44	4.75	5.44	5.32	87	98	70-130	11	30
NMeFOSAA	5.44	5.39	5.44	5.14	99	94	70-130	5	30
Perfluorobutanesulfonate	4.81	4.83	4.81	4.80	100	100	70-130	0	30
Perfluorobutanoic acid	5.44	6.06	5.44	6.01	111	110	70-130	1	30
Perfluorodecanoic acid	5.44	6.64	5.44	6.05	122	111	70-130	9	30
Perfluorododecanoic acid	5.44	5.93	5.44	6.02	109	111	70-130	2	30
Perfluoroheptanoic acid	5.44	5.86	5.44	5.57	108	102	70-130	5	30
Perfluorohexanesulfonate	5.14	5.53	5.14	5.03	108	98	70-130	9	30
Perfluorohexanoic acid	5.44	5.85	5.44	5.83	108	107	70-130	0	30
Perfluorononanoic acid	5.44	5.81	5.44	5.23	107	96	70-130	10	30
Perfluorooctanesulfonamide	5.44	6.11	5.44	5.82	112	107	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/04/2017 11:17

Group Number: 1878666

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.01	5.20	5.01	96	96	70-130	0	30
Perfluorooctanoic acid	5.44	6.68	5.44	6.72	123	124	70-130	1	30
Perfluoropentanoic acid	5.44	5.65	5.44	5.96	104	110	70-130	5	30
Perfluorotetradecanoic acid	5.44	5.80	5.44	5.47	107	101	70-130	6	30
Perfluorotridecanoic acid	5.44	6.28	5.44	6.13	115	113	70-130	2	30
Perfluoroundecanoic acid	5.44	5.30	5.44	5.58	98	103	70-130	5	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17332002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9332447	84	83	86	80	79	73
9332448	82	81	76	85	76	83
Blank	87	87	89	87	83	80
LCS	79	82	81	89	76	81
LCSD	84	87	84	83	82	89
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9332447	77	84	79	90	73	64
9332448	77	78	73	80	64	59
Blank	73	82	81	83	88	80
LCS	86	83	82	93	82	77
LCSD	83	80	86	90	91	76
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9332447	67	83	84	75	68	20*
9332448	62	66	67	69	61	26*
Blank	93	98	103	97	100	71
LCS	78	85	87	86	82	63*
LCSD	92	97	98	99	94	29*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/04/2017 11:17

Group Number: 1878666

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17332002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17333004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9332446	84	90	88	83	76	82
9332449	90	121	150*	76	76	78
9332450	88	121	147	69	72	73
9332451	86	121	146	84	91	92
9332452	78	108	138	66	69	73
9332453	75	78	81	84	81	80
Blank	74	75	73	73	61	70
LCS	81	80	79	83	74	79
LCSD	84	85	86	87	84	89
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9332446	91	85	81	95	73	73
9332449	104	79	84	108	81	81
9332450	105	77	91	96	88	86
9332451	114	86	80	86	80	77
9332452	85	68	84	84	73	71
9332453	80	81	87	85	78	70
Blank	76	72	73	69	70	61
LCS	77	81	84	90	79	67
LCSD	86	79	78	89	81	65
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9332446	108	84	113	97	77	66*
9332449	85	92	102	86	65	36*
9332450	88	80	87	70	39	39*
9332451	81	77	89	78	61	42*
9332452	79	77	83	76	64	34*
9332453	94	87	90	88	85	43*
Blank	79	82	104	93	82	63*
LCS	96	74	92	85	84	60*
LCSD	96	83	108	90	93	59*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/04/2017 11:17

Group Number: 1878666

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17333004

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1878666 S-933244-453

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52735

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested Water: 250 mL (PFC-19)	250 mL TRIZMA (PFC-19)	Soil: % Solids	Preservative Code	Field Filtered Y/N	
										A	O				
								N	N						
1.	SG3-RB-INOVCTIONTOOL-171121	—	—	—	11/21/17	1345	W	N	2	2					RINSE BLANK
2.	SG3-PVC-171121	—	—	—	11/21/17	0920	W	N	2	2					RINSE BLANK
3.	SG3-AFTERPOETB-171121	—	—	—	11/21/17	0715	W	N	2		2				
4.	SG3-CITYWATERTK2-171117	—	—	—	11/17/17	1045	W	N	2		2				
5.	SG3-CITYWATERHOSE-171117	—	—	—	11/17/17	1005	W	N	2		2				
6.	SG3-CITYWATERTK1-171117	—	—	—	11/17/17	1050	W	N	2		2				
7.	SG3-CITYWATERTRUCK-171117	—	—	—	11/17/17	1600	W	N	2	2	2				
* 8.	SG3-FILTEREDFRACTKB-171121	—	—	—	11/21/17	1400	W	N	2		2				*RUSH-24 HR*
9.															
10.															

BARR USE ONLY

Sampled by: KMD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: _____ On Ice? (Y) N Date 11/21/17 Time 1530

Relinquished by: _____ On Ice? Y N Date _____ Time _____

Received by: _____ Date _____ Time _____

Received by: _____ Date 11/22/17 Time 1000

Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.6/4.5 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☒ Rush 24 hr for item 8 (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 201942

Group Number(s):

Client: Barr Engineering

18786606

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/22/2017 10:00
Number of Packages:	2	Number of Projects:	2
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wyatt Shiffler (12792) at 10:49 on 11/22/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.6	DT	Wet	Y	Bagged	N
2	DT146	4.5	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 07, 2017 12:19

Project: SGPP - Bennington

Account #: 37191
Group Number: 1880275
SDG: SNB43
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CAMERA-171127 Blank Water	11/27/2017 08:00	9338546
SG3-PUMP171128 Blank Water	11/28/2017 11:00	9338547
SG3-CITYWATERTRUCK-171128 Groundwater	11/28/2017 12:00	9338548
SG3-CITYWATERHOSE-171128 Groundwater	11/28/2017 12:05	9338549
SG3-CITYWATERTK1-171128 Groundwater	11/28/2017 12:45	9338550
SG3-FILTEREDFRACTKD-171128 Groundwater	11/28/2017 12:10	9338551
SG3-LTB01-171128 Water	11/28/2017	9338552
SG3-LTB02-171128 Water	11/28/2017	9338553

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1880275

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9338547, 9338548, 9338549, 9338550, 9338551, 9338552, 9338553

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17333019 (Sample number(s): 9338551)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 8:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9338551, Blank, LCS, LCSD

Batch #: 17334007 (Sample number(s): 9338546-9338550, 9338552-9338553)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9338547, 9338548, 9338549, 9338550, 9338552, 9338553, Blank, LCS, LCSD

Sample Description: **SG3-CAMERA-171127 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/27/2017 08:00
SDG#: SNB43-01RB

C. T. Male Associates
ELLE Sample #: WW 9338546
ELLE Group #: 1880275
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 08:40	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-PUMP171128 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017 11:00
SDG#: SNB43-02RB

C. T. Male Associates
ELLE Sample #: WW 9338547
ELLE Group #: 1880275
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	**NMeFOSAA**	2355-31-9	**0.6 J**	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**0.9 J**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 09:01	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171128 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017 12:00
SDG#: SNB43-03

C. T. Male Associates
ELLE Sample #: GW 9338548
ELLE Group #: 1880275
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	5 U	5	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	10	1
14473	NEtFOSAA	2991-50-6	0.7 U	0.7	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.7 U	0.7	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.5 U	0.5	2	1
14473	Perfluorobutanoic acid	375-22-4	3 U	3	8	1
14473	Perfluorodecanoic acid	335-76-2	0.7 U	0.7	3	1
14473	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.5	2	1
14473	Perfluorohexanesulfonate	355-46-4	0.7 U	0.7	3	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.5	2	1
14473	Perfluorononanoic acid	375-95-1	0.5 U	0.5	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.5 U	0.5	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	5	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.5	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 J**	0.5	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
14473	Perfluoroundecanoic acid	2058-94-8	0.7 U	0.7	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 09:21	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171128 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017 12:05
SDG#: SNB43-04

C. T. Male Associates
ELLE Sample #: GW 9338549
ELLE Group #: 1880275
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/05/2017 05:34	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK1-171128 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017 12:45
SDG#: SNB43-05

C. T. Male Associates
ELLE Sample #: GW 9338550
ELLE Group #: 1880275
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	5 U	5	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	10	1
14473	NEtFOSAA	2991-50-6	0.7 U	0.7	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.7 U	0.7	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.5 U	0.5	2	1
14473	Perfluorobutanoic acid	375-22-4	3 U	3	8	1
14473	Perfluorodecanoic acid	335-76-2	0.7 U	0.7	3	1
14473	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1 J**	0.5	2	1
14473	Perfluorohexanesulfonate	355-46-4	0.7 U	0.7	3	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.5	2	1
14473	Perfluorononanoic acid	375-95-1	0.5 U	0.5	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.5 U	0.5	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	5	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.5	2	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 J**	0.5	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
14473	Perfluoroundecanoic acid	2058-94-8	0.7 U	0.7	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 10:02	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFRACTKD-171128 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017 12:10
SDG#: SNB43-06

C. T. Male Associates
ELLE Sample #: GW 9338551
ELLE Group #: 1880275
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17333019	11/30/2017 02:55	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17333019	11/29/2017 16:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171128 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017
SDG#: SNB43-07TB

C. T. Male Associates
ELLE Sample #: WW 9338552
ELLE Group #: 1880275
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 10:23	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171128 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/29/2017 10:15
Collection Date/Time: 11/28/2017
SDG#: SNB43-08TB

C. T. Male Associates
ELLE Sample #: WW 9338553
ELLE Group #: 1880275
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17334007	12/02/2017 10:43	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17334007	11/30/2017 14:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 12:19

Group Number: 1880275

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17333019	Sample number(s): 9338551		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 17334007	Sample number(s): 9338546-9338550,9338552-9338553		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 12:19

Group Number: 1880275

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17333019	Sample number(s): 9338551								
6:2 fluorotelomersulfonate	15.17	15.47	15.17	17.03	102	112	70-130	10	30
8:2 fluorotelomersulfonate	15.33	20.26	15.33	16.97	132*	111	70-130	18	30
NEtFOSAA	5.44	5.21	5.44	5.22	96	96	70-130	0	30
NMeFOSAA	5.44	4.96	5.44	5.23	91	96	70-130	5	30
Perfluorobutanesulfonate	4.81	4.99	4.81	4.99	104	104	70-130	0	30
Perfluorobutanoic acid	5.44	5.51	5.44	6.03	101	111	70-130	9	30
Perfluorodecanoic acid	5.44	5.01	5.44	5.83	92	107	70-130	15	30
Perfluorododecanoic acid	5.44	5.53	5.44	6.13	102	113	70-130	10	30
Perfluoroheptanoic acid	5.44	5.66	5.44	6.24	104	115	70-130	10	30
Perfluorohexanesulfonate	5.14	5.21	5.14	5.34	101	104	70-130	3	30
Perfluorohexanoic acid	5.44	4.97	5.44	5.55	91	102	70-130	11	30
Perfluorononanoic acid	5.44	5.59	5.44	5.74	103	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.03	5.44	5.90	92	109	70-130	16	30
Perfluoro-octanesulfonate	5.20	4.98	5.20	5.69	96	110	70-130	13	30
Perfluorooctanoic acid	5.44	5.72	5.44	5.69	105	105	70-130	1	30
Perfluoropentanoic acid	5.44	5.25	5.44	5.97	97	110	70-130	13	30
Perfluorotetradecanoic acid	5.44	5.69	5.44	5.89	105	108	70-130	3	30
Perfluorotridecanoic acid	5.44	6.45	5.44	6.18	119	114	70-130	4	30
Perfluoroundecanoic acid	5.44	5.39	5.44	6.22	99	114	70-130	14	30
Batch number: 17334007	Sample number(s): 9338546-9338550,9338552-9338553								
6:2 fluorotelomersulfonate	15.17	17.2	15.17	15.57	113	103	70-130	10	30
8:2 fluorotelomersulfonate	15.33	14.97	15.33	17.16	98	112	70-130	14	30
NEtFOSAA	5.44	5.34	5.44	5.05	98	93	70-130	6	30
NMeFOSAA	5.44	4.64	5.44	5.17	85	95	70-130	11	30
Perfluorobutanesulfonate	4.81	4.99	4.81	4.80	104	100	70-130	4	30
Perfluorobutanoic acid	5.44	5.63	5.44	5.23	104	96	70-130	8	30
Perfluorodecanoic acid	5.44	5.45	5.44	4.96	100	91	70-130	10	30
Perfluorododecanoic acid	5.44	5.45	5.44	5.74	100	105	70-130	5	30
Perfluoroheptanoic acid	5.44	5.88	5.44	5.54	108	102	70-130	6	30
Perfluorohexanesulfonate	5.14	5.37	5.14	4.89	104	95	70-130	10	30
Perfluorohexanoic acid	5.44	5.43	5.44	5.20	100	96	70-130	4	30
Perfluorononanoic acid	5.44	5.21	5.44	5.50	96	101	70-130	5	30
Perfluorooctanesulfonamide	5.44	5.51	5.44	5.60	101	103	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 12:19

Group Number: 1880275

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	5.54	5.20	5.30	107	102	70-130	4	30
Perfluorooctanoic acid	5.44	5.64	5.44	5.41	104	100	70-130	4	30
Perfluoropentanoic acid	5.44	5.51	5.44	5.47	101	101	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.28	5.44	5.59	116	103	70-130	12	30
Perfluorotridecanoic acid	5.44	5.98	5.44	5.98	110	110	70-130	0	30
Perfluoroundecanoic acid	5.44	5.74	5.44	5.18	105	95	70-130	10	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17333019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9338551	74	80	74	78	73	74
Blank	76	76	70	76	73	79
LCS	70	72	65	70	67	64
LCSD	72	70	70	80	68	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9338551	70	79	77	69	66	56
Blank	79	71	75	75	67	59
LCS	73	72	68	66	71	60
LCSD	82	74	74	76	72	60
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9338551	71	72	86	73	55	50*
Blank	82	69	82	75	68	49*
LCS	90	76	101	77	85	59*
LCSD	80	65	98	71	75	51*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17334007

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 12:19

Group Number: 1880275

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17334007

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9338546	81	87	82	89	75	78
9338547	82	85	72	91	86	87
9338548	86	105	116	90	87	88
9338549	75	106	126	68	65	69
9338550	91	107	120	80	79	85
9338552	79	81	84	81	75	83
9338553	89	92	89	88	84	92
Blank	78	82	84	86	82	88
LCS	89	95	86	91	86	87
LCSD	84	81	77	88	80	88
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9338546	88	81	85	97	81	79
9338547	91	84	76	86	90	82
9338548	85	89	82	92	86	88
9338549	82	72	72	80	70	74
9338550	112	85	94	86	91	93
9338552	88	76	79	74	80	74
9338553	105	86	79	77	80	73
Blank	73	78	76	82	76	70
LCS	96	87	89	95	87	91
LCSD	94	85	86	85	86	70
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9338546	105	94	120	102	103	73
9338547	114	98	121	98	109	68*
9338548	113	87	123	98	99	47*
9338549	54	65	62	63	63	29*
9338550	97	93	118	91	98	66*
9338552	78	85	81	83	72	45*
9338553	77	80	85	75	36	19*
Blank	92	84	115	89	89	31*
LCS	106	91	112	92	97	65*
LCSD	101	79	114	92	90	58*

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1880275
Reported: 12/07/2017 12:19

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17334007

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
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A-31191 G-1880275 8-9338546-553

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52733

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Associates
Address: 4300 Market Point Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Lab trip blank - 250 mL (PFC19)	Rinse Blanks - 250mL (TRIZMA) (PFC19)	250 mL - (TRIZMA) (PFC19)	% Solids	Preservative Code	Field Filtered Y/N	Analysis Requested
									Water			Soil			
1. SG3-CAMERA-171127	—	—	—	11/27/2017	0800	W	N	2		2			N	N	Rinse Blanks
2. SG3-PUMP-171128	—	—	—	11/28/2017	1100	W	N	2		2			N	N	Rinse Blanks
3. SG3-CITYWATERTRUCK-171128	—	—	—	11/28/2017	1200	W	N	2			2		N	N	
4. SG3-CITYWATERHOSE-171128	—	—	—	11/28/2017	1205	W	N	2			2		N	N	
5. SG3-CITYWATERTK1-171128	—	—	—	11/28/2017	1245	W	N	2			2		N	N	
6. ~~SG3-CITYWATER~~															
* 7. SG3-FILTEREDFRACTKD-171128	—	—	—	11/28/2017	1210	W	N	2			2		N	N	* RUSH RESULTS *
8. SG3-LTB01-171128	—	—	—	11/28/2017	—	W	—	1	1				A	N	
9. SG3-LTB02-171128	—	—	—	11/28/2017	—	W	—	1	1				A	N	
10.															

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? (Y) N	Date 11/28/17	Time 1545	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 11/29/17	Time 1015
Barr DQ Manager: MDP	Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☒ Rush 24 hr - (SAMPLE 7) (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 3.6	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 202293

Group Number(s): 1880275

Client: Barr Engineering Co.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/29/2017 10:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:13 on 11/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	3.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 07, 2017 22:19

Project: SGPP - Bennington

Account #: 37191
Group Number: 1880994
SDG: SNB44
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR1-171129 Groundwater	11/29/2017 09:40	9341302
SG3-LTB107-171129 Blank Water	11/29/2017	9341303
SG3-LTB108-171129 Blank Water	11/29/2017	9341304
SG3-Trilene-171129 Water	11/29/2017 15:40	9341305
SG3-Troll-171129 Water	11/29/2017 15:45	9341306

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1880994

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9341302

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17339WAE026 (Sample number(s): 9341302)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9341302, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9341302, 9341303, 9341304, 9341305, 9341306

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).
The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

Batch #: 17335013 (Sample number(s): 9341302-9341306)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9341302, 9341303, 9341304, 9341305, 9341306, Blank, LCS

SW-846 6010C, Metals

Batch #: 173381063501 (Sample number(s): 9341302 UNSPK: P333763 BKG: P333763)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Sodium

SW-846 6020A, Metals

Batch #: 173381063901A (Sample number(s): 9341302 UNSPK: P341635 BKG: P341635)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Arsenic

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper, Lead, Nickel

Batch #: 173381063901D (Sample number(s): 9341302 UNSPK: P341635 BKG: P341635)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

SW-846 7470A, Metals

Batch #: 173350571305 (Sample number(s): 9341302 UNSPK: P342587 BKG: P342587)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Mercury

EPA 300.0, Wet Chemistry

Batch #: 17334987112A (Sample number(s): 9341302 UNSPK: 9341302 BKG: 9341302)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Chloride, Nitrate Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 17335108101B (Sample number(s): 9341302 UNSPK: P333769 BKG: P333769)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Kjeldahl Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17335002202A (Sample number(s): 9341302 UNSPK: P341978 BKG: P341978, P341989)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Alkalinity to pH 4.5

Sample Description: **SG3-MWBR1-171129 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 09:40
SDG#: SNB44-01

C. T. Male Associates
ELLE Sample #: GW 9341302
ELLE Group #: 1880994
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171129 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 09:40
SDG#: SNB44-01

C. T. Male Associates
ELLE Sample #: GW 9341302
ELLE Group #: 1880994
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.050 U	0.050	0.20	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.7 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.4 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**13**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171129 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 09:40
SDG#: SNB44-01

C. T. Male Associates
ELLE Sample #: GW 9341302
ELLE Group #: 1880994
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV). The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).						
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0117 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**33.1**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**11.5**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0842**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**17.1**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**13.2**	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0013 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0587**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.00097 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00067 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.00063 J**	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00026 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00024 J**	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**12.0**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**8.7**	1.5	5.0	5
		EPA 350.1	**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171129 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 09:40
SDG#: SNB44-01

C. T. Male Associates
ELLE Sample #: GW 9341302
ELLE Group #: 1880994
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
Wet Chemistry	**EPA 351.2**		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**107**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**94.4**	1.7	5.0	1
12148	**Carbonate Alkalinity**	n.a.	**13.1**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.051 J**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5173391AA	12/05/2017 19:12	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5173391AA	12/05/2017 19:12	Daniel H Heller	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17339WAE026	12/07/2017 10:32	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	2	17339WAE026	12/06/2017 08:00	Kayla A Yuditsky	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17335013	12/06/2017 18:53	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17335013	12/03/2017 10:45	Danielle D McCully	1
01743	Aluminum	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	173381063501	12/05/2017 06:35	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171129 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 09:40
SDG#: SNB44-01

C. T. Male Associates
ELLE Sample #: GW 9341302
ELLE Group #: 1880994
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06026	Barium	SW-846 6020A	1	173381063901D	12/06/2017 14:15	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	173381063901B	12/06/2017 14:15	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	173381063901A	12/06/2017 14:15	Bradley M Berlot	1
00259	Mercury	SW-846 7470A	1	173350571305	12/05/2017 06:57	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173381063501	12/04/2017 22:15	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173381063901	12/04/2017 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173350571305	12/04/2017 16:35	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17334987112A	12/01/2017 00:07	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17334987112A	12/01/2017 00:07	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17334987112A	12/01/2017 00:07	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17334987112A	12/01/2017 00:07	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17334987112A	12/01/2017 00:07	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17340107103B	12/06/2017 13:20	Brianna A White	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17335108101B	12/03/2017 20:01	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17338117101A	12/05/2017 17:53	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17335108101B	12/01/2017 09:20	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17338117101A	12/04/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17335002202A	12/02/2017 01:18	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17335002202A	12/02/2017 01:18	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17335002202A	12/02/2017 01:18	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17334022601A	11/30/2017 21:35	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB107-171129 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017
SDG#: SNB44-02TB

C. T. Male Associates
ELLE Sample #: WW 9341303
ELLE Group #: 1880994
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).
The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17335013	12/06/2017 19:14	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17335013	12/03/2017 10:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB108-171129 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017
SDG#: SNB44-03TB

C. T. Male Associates
ELLE Sample #: WW 9341304
ELLE Group #: 1880994
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).
The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17335013	12/06/2017 19:34	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17335013	12/03/2017 10:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Trilene-171129 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 15:40
SDG#: SNB44-04

C. T. Male Associates
ELLE Sample #: WW 9341305
ELLE Group #: 1880994
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).
The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17335013	12/06/2017 19:55	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17335013	12/03/2017 10:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Troll-171129 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 11/30/2017 09:50
Collection Date/Time: 11/29/2017 15:45
SDG#: SNB44-05

C. T. Male Associates
ELLE Sample #: WW 9341306
ELLE Group #: 1880994
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).
The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17335013	12/06/2017 20:15	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17335013	12/03/2017 10:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5173391AA	Sample number(s): 9341302		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17339WAE026	Sample number(s): 9341302		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17335013	Sample number(s): 9341302-9341306		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173350571305	Sample number(s): 9341302		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173381063501	Sample number(s): 9341302		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173381063901A	Sample number(s): 9341302		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173381063901B	Sample number(s): 9341302		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173381063901D	Sample number(s): 9341302		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17334987112A	Sample number(s): 9341302		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17335108101B	Sample number(s): 9341302		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17338117101A	Sample number(s): 9341302		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17340107103B	Sample number(s): 9341302		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17334022601A	Sample number(s): 9341302		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17335002202A	Sample number(s): 9341302		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5173391AA	Sample number(s): 9341302								
Acetone	150	185.75			124		44-177		
Benzene	20	20.13			101		78-120		
Bromochloromethane	20	20.97			105		80-125		
Bromodichloromethane	20	19.71			99		71-120		
Bromoform	20	17.73			89		59-120		
Bromomethane	20	17.77			89		44-139		
2-Butanone	150	160.86			107		53-140		
Carbon Disulfide	20	19.68			98		65-128		
Carbon Tetrachloride	20	20.92			105		68-128		
Chlorobenzene	20	20.01			100		80-120		
Chloroethane	20	17.24			86		52-127		
Chloroform	20	20.85			104		80-120		
Chloromethane	20	15.97			80		57-120		
Cyclohexane	20	19.38			97		67-121		
1,2-Dibromo-3-chloropropane	20	18.37			92		64-120		
Dibromochloromethane	20	19.82			99		71-120		
1,2-Dibromoethane	20	20.17			101		75-120		
1,2-Dichlorobenzene	20	19.56			98		80-120		
1,3-Dichlorobenzene	20	19.43			97		80-120		
1,4-Dichlorobenzene	20	19.68			98		80-120		
Dichlorodifluoromethane	20	16.56			83		47-124		
1,1-Dichloroethane	20	20.05			100		80-120		
1,2-Dichloroethane	20	20.63			103		73-124		
1,1-Dichloroethene	20	22.28			111		76-124		
cis-1,2-Dichloroethene	20	21.11			106		80-120		
trans-1,2-Dichloroethene	20	21.11			106		80-120		
1,2-Dichloropropane	20	20.22			101		80-120		
cis-1,3-Dichloropropene	20	19.09			95		75-120		
trans-1,3-Dichloropropene	20	18.75			94		76-120		
Ethylbenzene	20	20.12			101		78-120		
Freon 113	20	22.54			113		68-137		
2-Hexanone	100	112.17			112		60-134		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	20.56			103		80-120		
Methyl Acetate	20	20.28			101		61-137		
Methyl Tertiary Butyl Ether	20	20.66			103		75-120		
4-Methyl-2-pentanone	100	114.75			115		67-128		
Methylcyclohexane	20	20.44			102		66-126		
Methylene Chloride	20	19.98			100		80-120		
Styrene	20	21.21			106		80-120		
1,1,2,2-Tetrachloroethane	20	19.32			97		72-120		
Tetrachloroethene	20	19.91			100		80-129		
Toluene	20	19.76			99		80-120		
1,2,3-Trichlorobenzene	20	18.33			92		66-120		
1,2,4-Trichlorobenzene	20	18			90		70-120		
1,1,1-Trichloroethane	20	22.42			112		67-120		
1,1,2-Trichloroethane	20	20.28			101		80-120		
Trichloroethene	20	19.97			100		80-120		
Trichlorofluoromethane	20	19.28			96		52-143		
Vinyl Chloride	20	16.76			84		63-121		
m+p-Xylene	40	40.88			102		80-120		
o-Xylene	20	20.12			101		80-120		
Xylene (Total)	60	61			102		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17339WAE026	Sample number(s): 9341302								
1,4-Dioxane	1.00	1.21	1.00	1.16	121	116	70-130	4	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17335013	Sample number(s): 9341302-9341306								
6:2 fluorotelomersulfonate	15.17	14.04	15.17	17.05	93	112	70-130	19	30
8:2 fluorotelomersulfonate	15.33	16.25	15.33	16.67	106	109	70-130	3	30
NEtFOSAA	5.44	6.95	5.44	7.25	128	133*	70-130	4	30
NMeFOSAA	5.44	7.52	5.44	7.65	138*	141*	70-130	2	30
Perfluorobutanesulfonate	4.81	4.85	4.81	4.88	101	101	70-130	1	30
Perfluorobutanoic acid	5.44	5.83	5.44	5.64	107	104	70-130	3	30
Perfluorodecanoic acid	5.44	5.30	5.44	5.45	97	100	70-130	3	30
Perfluorododecanoic acid	5.44	5.57	5.44	5.82	102	107	70-130	4	30
Perfluoroheptanoic acid	5.44	5.78	5.44	5.41	106	99	70-130	7	30
Perfluorohexanesulfonate	5.14	4.76	5.14	5.49	93	107	70-130	14	30
Perfluorohexanoic acid	5.44	5.31	5.44	5.82	98	107	70-130	9	30
Perfluorononanoic acid	5.44	5.45	5.44	5.60	100	103	70-130	3	30
Perfluorooctanesulfonamide	5.44	8.18	5.44	7.97	150*	147*	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.45	5.20	4.83	105	93	70-130	12	30
Perfluorooctanoic acid	5.44	6.08	5.44	5.27	112	97	70-130	14	30
Perfluoropentanoic acid	5.44	5.58	5.44	5.48	103	101	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.63	5.44	6.00	103	110	70-130	6	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.45	5.44	5.30	100	97	70-130	3	30
Perfluoroundecanoic acid	5.44	5.65	5.44	5.81	104	107	70-130	3	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173350571305	Sample number(s): 9341302								
Mercury	0.00100	0.000881			88		80-120		
Batch number: 173381063501	Sample number(s): 9341302								
Aluminum	2.00	2.00			100		80-120		
Boron	2.00	1.93			96		80-120		
Calcium	4.00	3.95			99		80-120		
Iron	1.00	0.984			98		80-120		
Magnesium	2.00	2.01			100		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	9.96			100		80-120		
Sodium	10	9.99			100		80-120		
Zinc	0.500	0.500			100		80-120		
Batch number: 173381063901A	Sample number(s): 9341302								
Antimony	0.00600	0.00531			88		80-120		
Arsenic	0.0100	0.0104			104		80-120		
Beryllium	0.00400	0.00405			101		80-120		
Cadmium	0.00500	0.00510			102		80-120		
Chromium	0.0500	0.0483			97		80-120		
Cobalt	0.250	0.237			95		80-120		
Copper	0.0500	0.0488			98		80-120		
Lead	0.0150	0.0151			100		80-120		
Nickel	0.0500	0.0511			102		80-120		
Silver	0.0500	0.0513			103		80-120		
Thallium	0.00200	0.00204			102		80-120		
Vanadium	0.0500	0.0476			95		80-120		
Batch number: 173381063901B	Sample number(s): 9341302								
Selenium	0.0100	0.00993			99		80-120		
Batch number: 173381063901D	Sample number(s): 9341302								
Barium	0.0500	0.0498			100		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17334987112A	Sample number(s): 9341302								
Bromide	7.50	7.32	7.50	7.33	98	98	90-110	0	20
Chloride	3.00	2.89	3.00	2.88	96	96	90-110	0	20
Nitrate Nitrogen	0.750	0.697	0.750	0.699	93	93	90-110	0	20
Nitrite Nitrogen	0.750	0.705	0.750	0.704	94	94	90-110	0	20
Sulfate	7.50	7.34	7.50	7.34	98	98	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17335108101B	Sample number(s): 9341302								
Kjeldahl Nitrogen	5.00	5.13			103		90-110		
Batch number: 17338117101A	Sample number(s): 9341302								
Total Cyanide	0.200	0.196			98		90-110		
Batch number: 17340107103B	Sample number(s): 9341302								
Ammonia Nitrogen	1.50	1.60			107		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17334022601A	Sample number(s): 9341302								
Ortho-Phosphate as P	0.400	0.403			101		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17335002202A	Sample number(s): 9341302								
Total Alkalinity to pH 4.5	188	176.79			94		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5173391AA	Sample number(s): 9341302 UNSPK: P336754									
Acetone	30 U	750	931.68	750	968.7	124	129	44-177	4	30
Benzene	170.33	100	266.76	100	268.22	96	98	78-120	1	30
Bromochloromethane	5 U	100	101.72	100	102.92	102	103	80-125	1	30
Bromodichloromethane	3 U	100	99.34	100	100.95	99	101	71-120	2	30
Bromoform	3 U	100	84.56	100	87.16	85	87	59-120	3	30
Bromomethane	3 U	100	91.73	100	92.44	92	92	44-139	1	30
2-Butanone	15 U	750	838.74	750	826.17	112	110	53-140	2	30
Carbon Disulfide	5 U	100	97.32	100	98.05	97	98	65-128	1	30
Carbon Tetrachloride	3 U	100	101.29	100	103.07	101	103	68-128	2	30
Chlorobenzene	3 U	100	100.72	100	102.45	101	102	80-120	2	30
Chloroethane	3 U	100	89.97	100	91.08	90	91	52-127	1	30
Chloroform	3 U	100	104.54	100	105.96	105	106	80-120	1	30
Chloromethane	3 U	100	85.58	100	87.27	86	87	57-120	2	30
Cyclohexane	10 U	100	102.55	100	105.75	103	106	67-121	3	30
1,2-Dibromo-3-chloropropane	10 U	100	97	100	97.34	97	97	64-120	0	30
Dibromochloromethane	3 U	100	97.57	100	101.55	98	102	71-120	4	30
1,2-Dibromoethane	3 U	100	102.34	100	104.63	102	105	75-120	2	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	5 U	100	99.44	100	102.29	99	102	80-120	3	30
1,3-Dichlorobenzene	5 U	100	99.04	100	101.34	99	101	80-120	2	30
1,4-Dichlorobenzene	5 U	100	98.84	100	102.7	99	103	80-120	4	30
Dichlorodifluoromethane	3 U	100	83.98	100	84.25	84	84	47-124	0	30
1,1-Dichloroethane	3 U	100	102.42	100	104.9	102	105	80-120	2	30
1,2-Dichloroethane	3 U	100	102.03	100	102.16	102	102	73-124	0	30
1,1-Dichloroethene	3 U	100	110.47	100	111.05	110	111	76-124	1	30
cis-1,2-Dichloroethene	3 U	100	107.73	100	107.77	108	108	80-120	0	30
trans-1,2-Dichloroethene	3 U	100	106.85	100	107.83	107	108	80-120	1	30
1,2-Dichloropropane	3 U	100	104.3	100	104.79	104	105	80-120	0	30
cis-1,3-Dichloropropene	3 U	100	95.05	100	97.15	95	97	75-120	2	30
trans-1,3-Dichloropropene	3 U	100	93.03	100	96.39	93	96	76-120	4	30
Ethylbenzene	7.49	100	110.64	100	112.3	103	105	78-120	1	30
Freon 113	10 U	100	109.64	100	106.94	110	107	68-137	2	30
2-Hexanone	15 U	500	577.99	500	588.02	116	118	60-134	2	30
Isopropylbenzene	5 U	100	109.6	100	110.64	110	111	80-120	1	30
Methyl Acetate	5 U	100	98.47	100	102.37	98	102	61-137	4	30
Methyl Tertiary Butyl Ether	119.83	100	223.58	100	229.54	104	110	75-120	3	30
4-Methyl-2-pentanone	15 U	500	584.44	500	586.41	117	117	67-128	0	30
Methylcyclohexane	5 U	100	95.93	100	98.2	96	98	66-126	2	30
Methylene Chloride	3 U	100	102.46	100	102.04	102	102	80-120	0	30
Styrene	5 U	100	108.18	100	110.31	108	110	80-120	2	30
1,1,2,2-Tetrachloroethane	3 U	100	97.09	100	101.8	97	102	72-120	5	30
Tetrachloroethene	3 U	100	100.9	100	101.6	101	102	80-129	1	30
Toluene	3 U	100	102.42	100	105.27	102	105	80-120	3	30
1,2,3-Trichlorobenzene	5 U	100	95.7	100	98.39	96	98	66-120	3	30
1,2,4-Trichlorobenzene	5 U	100	97.6	100	99.38	98	99	70-120	2	30
1,1,1-Trichloroethane	3 U	100	110.11	100	109.15	110	109	67-120	1	30
1,1,2-Trichloroethane	3 U	100	104.85	100	109.67	105	110	80-120	4	30
Trichloroethene	3 U	100	102.2	100	101.74	102	102	80-120	0	30
Trichlorofluoromethane	3 U	100	95.88	100	95.44	96	95	52-143	0	30
Vinyl Chloride	3 U	100	85.74	100	88.03	86	88	63-121	3	30
m+p-Xylene	2.83	200	211.4	200	213.75	104	105	80-120	1	30
o-Xylene	3 U	100	103.41	100	104.69	103	105	80-120	1	30
Xylene (Total)	2.83	300	314.81	300	318.44	104	105	80-120	1	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173350571305	Sample number(s): 9341302 UNSPK: P342587									
Mercury	0.000050 U	0.00100	0.000962	0.00100	0.000919	96	92	80-120	5	20
Batch number: 173381063501	Sample number(s): 9341302 UNSPK: P333763									
Aluminum	0.0894 U	2.00	1.96	2.00	2.01	98	100	75-125	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.267	2.00	2.22	2.00	2.22	98	98	75-125	0	20
Calcium	18.54	4.00	22.89	4.00	22.84	109 (2)	107 (2)	75-125	0	20
Iron	0.109	1.00	1.07	1.00	1.05	97	95	75-125	2	20
Magnesium	4.96	2.00	7.06	2.00	7.02	105	103	75-125	0	20
Manganese	0.0127	0.500	0.512	0.500	0.510	100	99	75-125	0	20
Potassium	4.16	10	14.35	10	14.39	102	102	75-125	0	20
Sodium	277.78	10	291.71	10	293.79	139 (2)	160 (2)	75-125	1	20
Zinc	0.0792	0.500	0.580	0.500	0.576	100	99	75-125	1	20
Batch number: 173381063901A	Sample number(s): 9341302 UNSPK: P341635									
Antimony	0.00045 U	0.00600	0.00583	0.00600	0.00597	97	99	75-125	2	20
Arsenic	0.235	0.0100	0.263	0.0100	0.265	277 (2)	298 (2)	75-125	1	20
Beryllium	0.00129	0.00400	0.00470	0.00400	0.00463	85	84	75-125	2	20
Cadmium	0.000363	0.00500	0.00524	0.00500	0.00501	98	93	75-125	4	20
Chromium	0.00475	0.0500	0.0510	0.0500	0.0512	93	93	75-125	0	20
Cobalt	0.00949	0.250	0.240	0.250	0.245	92	94	75-125	2	20
Copper	0.000905	0.0500	0.0512	0.0500	0.0514	101	101	75-125	0	20
Lead	0.0101	0.0150	0.0268	0.0150	0.0248	112	98	75-125	8	20
Nickel	0.0175	0.0500	0.0636	0.0500	0.0635	92	92	75-125	0	20
Silver	0.00015 U	0.0500	0.0502	0.0500	0.0510	100	102	75-125	2	20
Thallium	0.00012 U	0.00200	0.00216	0.00200	0.00211	108	105	75-125	2	20
Vanadium	0.0230	0.0500	0.0648	0.0500	0.0625	84	79	75-125	4	20
Batch number: 173381063901B	Sample number(s): 9341302 UNSPK: P341635									
Selenium	0.00050 U	0.0100	0.00959	0.0100	0.0104	96	104	75-125	8	20
Batch number: 173381063901D	Sample number(s): 9341302 UNSPK: P341635									
Barium	0.542	0.0500	0.414	0.0500	0.396	-255 (2)	-291 (2)	75-125	4	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17334987112A	Sample number(s): 9341302 UNSPK: 9341302									
Bromide	1.3 U	25	26.55	25	26.63	106	107	90-110	0	20
Chloride	12.03	10	23.46	10	23.44	114*	114*	90-110	0	20
Nitrate Nitrogen	0.25 U	2.50	2.74	2.50	2.77	110	111*	90-110	1	20
Nitrite Nitrogen	0.25 U	2.50	2.54	2.50	2.54	101	102	90-110	0	20
Sulfate	8.73	25	35.5	25	35.54	107	107	90-110	0	20
Batch number: 17335108101B	Sample number(s): 9341302 UNSPK: P333769									
Kjeldahl Nitrogen	0.866	5.00	6.26			108		90-110		
Batch number: 17338117101A	Sample number(s): 9341302 UNSPK: P339866									
Total Cyanide	0.0050 U	0.200	0.184			92		72-114		
Batch number: 17340107103B	Sample number(s): 9341302 UNSPK: P335758									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Ammonia Nitrogen	0.050 U	1.00	1.08			108		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17334022601A	Sample number(s): 9341302 UNSPK: P341244									
Ortho-Phosphate as P	2.47	2.00	4.27	2.00	4.18	90	86	69-131	2	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17335002202A	Sample number(s): 9341302 UNSPK: P341978									
Total Alkalinity to pH 4.5	16.03	188	178.57			86		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 173350571305	Sample number(s): 9341302 BKG: P342587			
Mercury	0.000050 U	0.0000548	200* (1)	20
Batch number: 173381063501	Sample number(s): 9341302 BKG: P333763			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.267	0.269	1 (1)	20
Calcium	18.54	18.95	2	20
Iron	0.109	0.0896	19 (1)	20
Magnesium	4.96	5.07	2	20
Manganese	0.0127	0.0130	2 (1)	20
Potassium	4.16	4.33	4 (1)	20
Sodium	277.78	282.92	2	20
Zinc	0.0792	0.0806	2 (1)	20
Batch number: 173381063901A	Sample number(s): 9341302 BKG: P341635			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.235	0.255	8	20
Beryllium	0.00129	0.00139	8 (1)	20
Cadmium	0.000363	0.000438	19 (1)	20
Chromium	0.00475	0.00565	17 (1)	20
Cobalt	0.00949	0.0111	15	20
Copper	0.000905	0.00239	90* (1)	20
Lead	0.0101	0.0136	30*	20
Nickel	0.0175	0.0218	22* (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.0230	0.0265	14	20
Batch number: 173381063901B	Sample number(s): 9341302 BKG: P341635			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173381063901D	Sample number(s): 9341302 BKG: P341635			
Barium	0.542	0.584	8	20
	mg/l	mg/l		
Batch number: 17334987112A	Sample number(s): 9341302 BKG: 9341302			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	12.03	11.96	1	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	8.73	8.71	0 (1)	15
Batch number: 17335108101B	Sample number(s): 9341302 BKG: P333769			
Kjeldahl Nitrogen	0.866	0.638	30* (1)	20
Batch number: 17338117101A	Sample number(s): 9341302 BKG: P339866			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17340107103B	Sample number(s): 9341302 BKG: P335758			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17334022601A	Sample number(s): 9341302 BKG: P341244			
Ortho-Phosphate as P	2.47	2.49	1	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17335002202A	Sample number(s): 9341302 BKG: P341978			
Total Alkalinity to pH 4.5	16.03	12.58	24* (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5173391AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9341302	100	106	100	95
Blank	102	106	98	95
LCS	103	104	101	102
MS	102	106	100	102
MSD	101	102	101	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17339WAE026

	1,4-Dioxane-d8
9341302	35*
Blank	52*
LCS	46*
LCSD	44*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17335013

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9341302	80	81	72	77	75	72
9341303	79	81	77	80	72	76
9341304	88	88	84	90	81	92
9341305	70	72	68	78	70	70
9341306	82	79	79	81	72	73
Blank	71	72	71	68	59	62
LCS	74	73	65	80	77	75
LCSD	81	84	74	79	79	85
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9341302	76	82	80	95	72	63
9341303	82	81	77	80	75	70
9341304	92	88	86	89	87	85
9341305	70	76	74	73	69	53
9341306	88	84	83	108	80	72
Blank	61	66	68	76	72	60

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/07/2017 22:19

Group Number: 1880994

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17335013

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
LCS	74	74	69	77	76	59
LCSD	77	87	84	85	83	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9341302	82	74	94	71	78	61*
9341303	82	78	87	81	78	59*
9341304	81	85	96	83	77	63*
9341305	85	72	97	75	73	58*
9341306	92	90	108	87	88	61*
Blank	85	70	101	75	75	57*
LCS	85	67	93	75	80	55*
LCSD	103	81	109	85	89	73
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1880994/9341302-06

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52730

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic - Unpres.	250ml Plastic - Trizma	250ml Plastic - Filtered	250ml Plastic - HNO_3	250ml Plastic - NaOH/Asc	250ml Plastic - Unpres	Soil: 250ml Glass - Unpres	250ml Plastic - H_2SO_4	40ml Glass - HCl	40ml Glass - Unpres	% Solids
Preservative Code									A	O	AC		IA	A	A	D	B	A	
Field Filtered Y/N									N	N	Y	N	N	N	N	N	N	N	
1. SG3-MWBR1-171129	-	-	-	11/29/17	0940	GW	N	14		2	1	1	1	1	2	1	3	2	
2. SG3-LTB107-171129	-	-	-	11/29/17	AM	W	N	2	2										
3. SG3-LTB105-171129	-	-	-	11/29/17	AM	W	N	2	2										
4. SG3-Trilene-171129	-	-	-	11/29/17	1540	W	N	2											
5. SG3-Troll-171129	-	-	-	11/29/17	1545	W	N	2											
6.																			
7.																			
8.																			
9.																			
10.																			

PFC's, Orthophosphate, Metals & Hg, Cyanide, Alkalinity, Dioxane, Ammonia/Nitrogen, VOCs, Br/Cl/N. "Troll" & "Trilene" for PFC's only. Samples in 2 Coolers

BARR USE ONLY	
Sampled by:	RAK
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	LANCASTER

Relinquished by: Robert Kozlosky — On Ice? ○ Y N — Date: 11.29.17 — Time: 1700 — Received by:

Relinquished by: — On Ice? Y N — Date — Time — Received by: — Date: 11.30.17 — Time: 950

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other: — Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Lab WO: — Temperature on Receipt (°C): — Custody Seal Intact? ☒ Y ☐ N ☐ None

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 202431

Group Number(s): 1880994

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	11/30/2017 9:50
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:11 on 11/30/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	3.0	DT	Wet	Y	Bagged	N
2	DT42-03	3.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 12, 2017 10:24

Project: SGPP - Bennington

Account #: 37191
Group Number: 1881700
SDG: SNB45
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTK2-171130 Grab Groundwater	11/30/2017 16:00	9344819
SG3-CITYWATERHOSE-171130 Grab Groundwater	11/30/2017 15:30	9344820
SG3-CITYWATERTRUCK-171130 Grab Groundwater	11/30/2017 15:15	9344821
SG3-LTB01-171130 Water	11/30/2017	9344822
SG3-LTB02-171130 Water	11/30/2017	9344823
SG3-AFTERPOETA-171130 Grab Groundwater	11/30/2017 17:00	9344824

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1881700

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9344819, 9344820, 9344821, 9344822, 9344823, 9344824

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17340003 (Sample number(s): 9344819-9344824)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9344819, 9344820, 9344821, 9344822, 9344823, 9344824, Blank, LCS, LCSD

Sample Description: **SG3-CITYWATERTK2-171130 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017 16:00
SDG#: SNB45-01

C. T. Male Associates
ELLE Sample #: GW 9344819
ELLE Group #: 1881700
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.7 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.8 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.3 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 19:32	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171130 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017 15:30
SDG#: SNB45-02

C. T. Male Associates
ELLE Sample #: GW 9344820
ELLE Group #: 1881700
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 J**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 19:53	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171130 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017 15:15
SDG#: SNB45-03

C. T. Male Associates
ELLE Sample #: GW 9344821
ELLE Group #: 1881700
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.3 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 20:13	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171130 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017
SDG#: SNB45-04TB

C. T. Male Associates
ELLE Sample #: WW 9344822
ELLE Group #: 1881700
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 20:34	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171130 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017
SDG#: SNB45-05TB

C. T. Male Associates
ELLE Sample #: WW 9344823
ELLE Group #: 1881700
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 21:35	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETA-171130 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/01/2017 09:50
Collection Date/Time: 11/30/2017 17:00
SDG#: SNB45-06

C. T. Male Associates
ELLE Sample #: GW 9344824
ELLE Group #: 1881700
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	1	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340003	12/08/2017 21:56	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340003	12/06/2017 07:40	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 10:24

Group Number: 1881700

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17340003	Sample number(s): 9344819-9344824		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17340003	Sample number(s): 9344819-9344824								
6:2 fluorotelomersulfonate	15.17	15.46	15.17	15.25	102	101	70-130	1	30
8:2 fluorotelomersulfonate	15.33	13.65	15.33	14.52	89	95	70-130	6	30
NEtFOSAA	5.44	7.26	5.44	7.18	134*	132*	70-130	1	30
NMeFOSAA	5.44	5.90	5.44	7.43	109	137*	70-130	23	30
Perfluorobutanesulfonate	4.81	4.26	4.81	4.52	89	94	70-130	6	30
Perfluorobutanoic acid	5.44	5.43	5.44	5.42	100	100	70-130	0	30
Perfluorodecanoic acid	5.44	4.95	5.44	5.17	91	95	70-130	4	30
Perfluorododecanoic acid	5.44	5.04	5.44	5.54	93	102	70-130	9	30
Perfluoroheptanoic acid	5.44	5.54	5.44	5.55	102	102	70-130	0	30
Perfluorohexanesulfonate	5.14	4.53	5.14	4.53	88	88	70-130	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 10:24

Group Number: 1881700

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.17	5.44	5.33	95	98	70-130	3	30
Perfluorononanoic acid	5.44	5.21	5.44	5.89	96	108	70-130	12	30
Perfluorooctanesulfonamide	5.44	6.93	5.44	7.52	127	138*	70-130	8	30
Perfluoro-octanesulfonate	5.20	5.18	5.20	4.51	100	87	70-130	14	30
Perfluorooctanoic acid	5.44	5.47	5.44	5.48	101	101	70-130	0	30
Perfluoropentanoic acid	5.44	5.19	5.44	5.00	95	92	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.17	5.44	5.42	95	100	70-130	5	30
Perfluorotridecanoic acid	5.44	4.94	5.44	5.30	91	97	70-130	7	30
Perfluoroundecanoic acid	5.44	4.99	5.44	5.19	92	95	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17340003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9344819	79	111	119	72	75	82
9344820	82	108	127	68	70	71
9344821	76	102	116	73	75	73
9344822	84	86	81	83	76	79
9344823	87	90	86	86	80	81
9344824	77	78	76	74	74	81
Blank	90	93	82	88	80	87
LCS	82	81	72	80	76	81
LCSD	77	79	74	77	71	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9344819	95	79	78	97	74	80
9344820	96	77	76	82	80	83
9344821	91	79	72	85	68	78
9344822	95	80	83	85	76	79
9344823	93	86	80	88	80	81
9344824	74	77	72	81	79	69
Blank	86	93	96	97	93	81
LCS	87	82	79	94	83	71

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 10:24

Group Number: 1881700

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17340003

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
LCSD	79	81	78	81	81	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9344819	73	67	83	67	73	46*
9344820	90	84	100	84	78	35*
9344821	74	69	85	73	66	18*
9344822	84	81	92	83	53	21*
9344823	87	77	89	81	48	49*
9344824	83	80	93	82	68	19*
Blank	118	94	130	103	99	34*
LCS	109	82	114	84	76	61*
LCSD	95	84	108	83	94	18*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1881700 S-9344819-24

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52738

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL CTRIZMA PFC 14	Water: 250 mL Trip Blank - PFC 14	Soil: % Solids	Preservative Code	Field Filtered Y/N
							N	2	0	0			N
1. SG3-CITYWATERTK2-171130	—	—	—	11/30/2017	1600	W	N	2	2				
2. SG3-CITYWATERHOSE-171130	—	—	—	11/30/2017	1530	W	N	2	2				
3. SG3-CITYWATERTRUCK-171130	—	—	—	11/30/2017	1515	W	N	2	2				
4. SG3-LTB01-171130	—	—	—	11/30/2017	—	W	N	1		1			
5. SG3-LTB02-171130	—	—	—	11/30/2017	—	W	N	1		1			
6. SG3-AFTERPCETA-171130				11/30/2017	1700	W	N	2	2				
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: KMD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? (Y) N Date 11/30/17 Time 1730

Relinquished by: On Ice? Y N Date Time

Received by: Date Time

Received by: [signature] Date 12/1/17 Time 950

Samples Shipped VIA: ☑ Courier ☑ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 1.5 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 202621

Group Number(s): 1881700

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/01/2017 9:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (2, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 13:21 on 12/01/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	1.5	IR	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 12, 2017 19:53

Project: SGPP - Bennington

Account #: 37191
Group Number: 1882416
SDG: SNB46
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-Rig4-171201 Groundwater	12/01/2017 14:00	9348779
SG3-LTB109-171201 Water	12/01/2017	9348780
SG3-FilteredFracTankA-171202 Groundwater	12/02/2017 09:00	9348781
SG3-FilteredFracTankB-171202 Groundwater	12/02/2017 11:00	9348782
SG3-Pump14E14-171203 Groundwater	12/03/2017 09:35	9348783
SG3-Pump06J18-171203 Groundwater	12/03/2017 09:40	9348784
SG3-WIRE-171203 Groundwater	12/03/2017 09:45	9348785
SG3-PIPE-171203 Groundwater	12/03/2017 09:50	9348786
SG3-FilteredFracTankD-171203 Groundwater	12/03/2017 14:40	9348787

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1882416

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9348781

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank and LCS associated with this sample.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9348780

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken: This sample was re-extracted within the method holding time and the recovery for labeled compound used as extraction standard 13C2-PFTeDA is within QC acceptance limits. The data reported is from the initial trial and comparable results were not observed. Both sets of data are provided in the data package.

Sample #s: 9348782

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits

in the opening continuing calibration verification standard (CCV).

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample #s: 9348783

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample #s: 9348784

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound NMeFOSAA is not detected, the data is reported.

Sample #s: 9348785, 9348787

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample #s: 9348786

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

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Sample #s: 9348779

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank and LCS associated with this sample.

Batch #: 17339016 (Sample number(s): 9348779-9348781)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide, NMeFOSAA

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: Perfluorotridecanoic acid

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: Perfluorotridecanoic acid. When the individual % recovery is within the acceptance limits, the data is reported.

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9348779

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9348779, 9348780, 9348781, Blank, LCS, LCSD

Batch #: 17340008 (Sample number(s): 9348782-9348787)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9348783, 9348784, LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9348782, 9348783, 9348784, 9348786, 9348787, LCS, LCSD

Sample Description: **SG3-Rig4-171201 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/01/2017 14:00
SDG#: SNB46-01

C. T. Male Associates
ELLE Sample #: GW 9348779
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery of several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank and LCS associated with this sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17339016	12/06/2017 05:11	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17339016	12/05/2017 11:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB109-171201 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/01/2017
SDG#: SNB46-02TB

C. T. Male Associates
ELLE Sample #: WW 9348780
ELLE Group #: 1882416
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	5	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	4	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken: This sample was re-extracted within the method holding time and the recovery for labeled compound used as extraction standard 13C2-PFTeDA is within QC acceptance limits. The data reported is from the initial trial and comparable results were not observed. Both sets of data are provided in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17339016	12/06/2017 05:32	Jason W Knight	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB109-171201 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/01/2017
SDG#: SNB46-02TB

C. T. Male Associates
ELLE Sample #: WW 9348780
ELLE Group #: 1882416
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17339016	12/05/2017 11:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FilteredFracTankA-171202 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/02/2017 09:00
SDG#: SNB46-03

C. T. Male Associates
ELLE Sample #: GW 9348781
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	7	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	7	1
14473	NEtFOSAA	2991-50-6	0.5 U	0.5	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.5 U	0.5	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.4 U	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	1	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.4 U	0.4	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	4	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.4	1	1
14473	Perfluoropentanoic acid	2706-90-3	0.4 U	0.4	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary in the method blank and LCS associated with this sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17339016	12/06/2017 05:53	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17339016	12/05/2017 11:55	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FilteredFracTankB-171202 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/02/2017 11:00
SDG#: SNB46-04

C. T. Male Associates
ELLE Sample #: GW 9348782
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	7	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	7	1
14473	NEtFOSAA	2991-50-6	0.5 U	0.5	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.5 U	0.5	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.5 U	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.4	1	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.4	1	1
14473	Perfluorooctanesulfonamide	754-91-6	0.4 U	0.4	1	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	4	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.4	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1 J**	0.4	1	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 10:38	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FilteredFracTankB-171202 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/02/2017 11:00
SDG#: SNB46-04

C. T. Male Associates
ELLE Sample #: GW 9348782
ELLE Group #: 1882416
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Pump14E14-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:35
SDG#: SNB46-05

C. T. Male Associates
ELLE Sample #: GW 9348783
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Pump14E14-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:35
SDG#: SNB46-05

C. T. Male Associates
ELLE Sample #: GW 9348783
ELLE Group #: 1882416
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 11:19	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Pump06J18-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:40
SDG#: SNB46-06

C. T. Male Associates
ELLE Sample #: GW 9348784
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound NMeFOSAA is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 12:02	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Pump06J18-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:40
SDG#: SNB46-06

C. T. Male Associates
ELLE Sample #: GW 9348784
ELLE Group #: 1882416
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-WIRE-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:45
SDG#: SNB46-07

C. T. Male Associates
ELLE Sample #: GW 9348785
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 13:25	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-PIPE-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:50
SDG#: SNB46-08

C. T. Male Associates
ELLE Sample #: GW 9348786
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	**NEtFOSAA**	2991-50-6	**0.6 J**	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.3 J**	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 13:45	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-PIPE-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 09:50
SDG#: SNB46-08

C. T. Male Associates
ELLE Sample #: GW 9348786
ELLE Group #: 1882416
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FilteredFracTankD-171203 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/05/2017 09:40
Collection Date/Time: 12/03/2017 14:40
SDG#: SNB46-09

C. T. Male Associates
ELLE Sample #: GW 9348787
ELLE Group #: 1882416
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 10:59	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	2	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 19:53

Group Number: 1882416

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ng/l		ng/l	ng/l
Batch number: 17339016	Sample number(s): 9348779-9348781			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1
Perfluoroundecanoic acid	0.4	U	0.4	2
Batch number: 17340008	Sample number(s): 9348782-9348787			
6:2 fluorotelomersulfonate	3	U	3	6
8:2 fluorotelomersulfonate	2	U	2	6
NEtFOSAA	0.4	U	0.4	2
NMeFOSAA	0.4	U	0.4	2
Perfluorobutanesulfonate	0.3	U	0.3	1
Perfluorobutanoic acid	2	U	2	5
Perfluorodecanoic acid	0.4	U	0.4	2
Perfluorododecanoic acid	0.3	U	0.3	1
Perfluoroheptanoic acid	0.3	U	0.3	1
Perfluorohexanesulfonate	0.4	U	0.4	2
Perfluorohexanoic acid	0.3	U	0.3	1
Perfluorononanoic acid	0.3	U	0.3	1
Perfluorooctanesulfonamide	0.3	U	0.3	1
Perfluoro-octanesulfonate	0.8	U	0.8	3
Perfluorooctanoic acid	0.3	U	0.3	1
Perfluoropentanoic acid	0.3	U	0.3	1
Perfluorotetradecanoic acid	0.3	U	0.3	1
Perfluorotridecanoic acid	0.3	U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 19:53

Group Number: 1882416

Method Blank (continued)

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17339016	Sample number(s): 9348779-9348781								
6:2 fluorotelomersulfonate	15.17	14.4	15.17	13.93	95	92	70-130	3	30
8:2 fluorotelomersulfonate	15.33	15.39	15.33	16.43	100	107	70-130	7	30
NEtFOSAA	5.44	6.39	5.44	6.63	118	122	70-130	4	30
NMeFOSAA	5.44	7.17	5.44	6.91	132*	127	70-130	4	30
Perfluorobutanesulfonate	4.81	4.91	4.81	4.70	102	98	70-130	4	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.25	98	97	70-130	1	30
Perfluorodecanoic acid	5.44	5.47	5.44	5.59	101	103	70-130	2	30
Perfluorododecanoic acid	5.44	5.84	5.44	5.56	107	102	70-130	5	30
Perfluoroheptanoic acid	5.44	5.26	5.44	5.15	97	95	70-130	2	30
Perfluorohexanesulfonate	5.14	5.39	5.14	5.19	105	101	70-130	4	30
Perfluorohexanoic acid	5.44	5.31	5.44	5.09	98	94	70-130	4	30
Perfluorononanoic acid	5.44	5.64	5.44	5.38	104	99	70-130	5	30
Perfluorooctanesulfonamide	5.44	8.36	5.44	7.46	154*	137*	70-130	11	30
Perfluoro-octanesulfonate	5.20	4.65	5.20	4.73	89	91	70-130	2	30
Perfluorooctanoic acid	5.44	5.46	5.44	5.75	100	106	70-130	5	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.08	100	93	70-130	7	30
Perfluorotetradecanoic acid	5.44	5.02	5.44	5.37	92	99	70-130	7	30
Perfluorotridecanoic acid	5.44	2.45	5.44	5.06	45*	93	70-130	70*	30
Perfluoroundecanoic acid	5.44	5.36	5.44	5.37	98	99	70-130	0	30
Batch number: 17340008	Sample number(s): 9348782-9348787								
6:2 fluorotelomersulfonate	15.17	15.81	15.17	17.91	104	118	70-130	12	30
8:2 fluorotelomersulfonate	15.33	17.24	15.33	14.07	112	92	70-130	20	30
NEtFOSAA	5.44	7.37	5.44	6.42	135*	118	70-130	14	30
NMeFOSAA	5.44	6.51	5.44	7.10	120	130	70-130	9	30
Perfluorobutanesulfonate	4.81	4.55	4.81	4.35	94	90	70-130	4	30
Perfluorobutanoic acid	5.44	5.21	5.44	5.75	96	106	70-130	10	30
Perfluorodecanoic acid	5.44	5.63	5.44	5.89	103	108	70-130	4	30
Perfluorododecanoic acid	5.44	5.29	5.44	5.27	97	97	70-130	0	30
Perfluoroheptanoic acid	5.44	5.69	5.44	5.44	105	100	70-130	5	30
Perfluorohexanesulfonate	5.14	4.91	5.14	4.73	95	92	70-130	4	30
Perfluorohexanoic acid	5.44	5.13	5.44	5.16	94	95	70-130	0	30
Perfluorononanoic acid	5.44	5.45	5.44	5.35	100	98	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.29	5.44	7.06	134*	130	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 19:53

Group Number: 1882416

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	4.48	5.20	5.45	86	105	70-130	20	30
Perfluorooctanoic acid	5.44	5.62	5.44	5.47	103	100	70-130	3	30
Perfluoropentanoic acid	5.44	5.66	5.44	5.49	104	101	70-130	3	30
Perfluorotetradecanoic acid	5.44	5.04	5.44	5.62	93	103	70-130	11	30
Perfluorotridecanoic acid	5.44	5.34	5.44	5.40	98	99	70-130	1	30
Perfluoroundecanoic acid	5.44	5.69	5.44	5.68	105	104	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17339016

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9348779	193*	190*	202*	225*	192*	207*
9348780	91	99	91	93	86	95
9348781	91	91	87	91	76	84
Blank	97	98	96	101	94	100
LCS	93	96	85	92	83	90
LCSD	94	100	88	105	93	100
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9348779	188*	206*	163*	194*	142*	134
9348780	87	92	82	95	85	66
9348781	82	81	89	93	88	82
Blank	90	95	86	102	74	63
LCS	96	90	80	81	78	69
LCSD	103	94	95	103	97	73
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9348779	134*	87	111	40	5*	98
9348780	73	66	67	51	15*	38*
9348781	93	86	101	94	94	30*
Blank	67	56	67	33	4*	62*

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 19:53

Group Number: 1882416

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17339016

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	68	57	61	31	6*	53*
LCSD	85	89	90	92	71	49*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17340008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9348782	88	109	118	90	86	86
9348783	85	87	84	75	70	87
9348784	95	98	88	86	86	95
9348785	91	86	83	93	86	88
9348786	87	87	79	81	70	80
9348787	88	120	142	84	78	77
Blank	85	86	81	94	89	99
LCS	87	87	84	104	95	100
LCSD	88	86	87	100	91	101
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9348782	96	86	80	91	85	76
9348783	158*	81	81	110	78	119
9348784	105	96	100	118	94	120
9348785	85	89	83	87	90	68
9348786	109	81	95	109	81	104
9348787	111	85	92	103	83	83
Blank	79	92	83	92	92	69
LCS	94	97	93	93	91	65
LCSD	87	95	92	95	91	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9348782	100	86	110	85	93	58*
9348783	93	80	104	78	77	45*
9348784	145*	96	134	85	102	67*
9348785	114	94	119	97	106	80
9348786	90	95	115	81	86	63*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1882416
Reported: 12/12/2017 19:53

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17340008

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9348787	100	87	107	85	85	43*
Blank	119	89	133	106	101	80
LCS	113	90	119	93	101	59*
LCSD	122*	97	133	100	102	69*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/ 1882416 /9348779-87

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☐ Duluth ☐ Jefferson City
☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State:
☐ KS ☐ MO ☐ WI
☐ MI ☐ ND Other:
☐ MN ☐ SD VT

COC Number: 52740
COC 1 of ____

REPORT TO		INVOICE TO	
Company:	BARR Engineering	Company:	C.T. Male
Address:	4300 Market Pointe Dr.	Address:	50 Century Hill Dr.
Name:	Michael Dupay	Name:	Latham, NY
email:	mdupay@barr.com	email:	
Copy to:	datamgt@barr.com	P.O.	
Project Name:	St. Gobain Bennington	Barr Project No:	

Analysis Requested: Water: 250mL Plastic-Unpres; 250mL Plastic-Trizma; ↳PFC-19. Soil: % Solids

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Preservative Code: A (250mL Plastic-Unpres), O (250mL Plastic-Trizma)
Field Filtered Y/N: N, N

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250mL Plastic-Unpres	250mL Plastic-Trizma		Remarks
1. SG3-Rig4-171201	—	—	—	12/01/17	1400	W	N	2	2			PFC's
2. SG3-LTB109-171201	—	—	—	12/01/17	AM	W	N	2		2		☆ RUSH ALL 24-hour TAT ☆
3. SG3-FILTEREDFRAKTANKA-171202	—	—	—	12/02/17	0900	W	N	2		2		
4. SG3-FILTEREDFRAKTANKB-171202	—	—	—	12/02/17	1100	W	N	2		2		
5. SG3-PUMP14E14-171203	—	—	—	12/03/17	0935	W	N	2	2	~~2~~		PFC's
6. SG3-PUMP06J18-171203	—	—	—	12/03/17	0940	W	N	2	2	~~2~~		PFC's
7. SG3-WIRE-171203	-	-	-	12/03/17	0945	W	N	2	2			
8. SG3-PIPE-171203	-	-	-	12/03/17	0950	W	N	2	2			
9. SG3 FILTERED FRACTANKD-171203	-	-	-	12/03/17	1440	W	N	2		2		
10.												

BARR USE ONLY	
Sampled by:	RAK, MRD
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	Ⓨ N	12/04/17	1730			
	Y N			[signature]	12-5-17	940

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: ____

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 5.0 Custody Seal Intact? ☑Y ☐N ☐None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 202836

Group Number(s): 1882416

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/05/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	Yes		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:09 on 12/05/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.0	DT	Wet	Y	Bagged	N

Missing Sample Details

Sample ID on COC	Comments
SG3-LTB01-171204	
SG3-LTB02-171204	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 12, 2017 09:49

Project: SGPP - Bennington

Account #: 37191
Group Number: 1883129
SDG: SNB47
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-TOTE1-171205 Water	12/05/2017 11:00	9352020
SG3-TOTE2-171205 Water	12/05/2017 11:05	9352021
SG3-Rig4CLNH2OPump-171205 Water	12/05/2017 12:00	9352022
SG3-LTB01-171205 Water	12/05/2017	9352023
SG3-LTB02-171205 Water	12/05/2017	9352024
SG3-FILTEREDFracTkE171205 Water	12/05/2017 09:00	9352025

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1883129

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9352021

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed.
The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Sample #s: 9352023, 9352024, 9352025

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample #s: 9352022

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

Reporting limits were raised due to interference from the sample matrix.

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The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample #s: 9352020

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Batch #: 17340008 (Sample number(s): 9352020-9352025)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9352020, 9352021, 9352022, 9352025, LCS, LCSD

Sample Description: **SG3-TOTE1-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017 11:00
SDG#: SNB47-01

C. T. Male Associates
ELLE Sample #: GW 9352020
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**4 J**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 J**	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**3**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**2**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**1**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**3**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed.
The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 07:54	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-TOTE2-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017 11:05
SDG#: SNB47-02

C. T. Male Associates
ELLE Sample #: GW 9352021
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.8 U	0.8	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.3 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary.
The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed.
The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 08:14	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-Rig4CLNH2OPump-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017 12:00
SDG#: SNB47-03

C. T. Male Associates
ELLE Sample #: GW 9352022
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	5 U	5	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	10	1
14473	NEtFOSAA	2991-50-6	0.7 U	0.7	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.7 U	0.7	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.5 U	0.5	2	1
14473	Perfluorobutanoic acid	375-22-4	3 U	3	8	1
14473	Perfluorodecanoic acid	335-76-2	0.7 U	0.7	3	1
14473	Perfluorododecanoic acid	307-55-1	0.5 U	0.5	2	1
14473	Perfluoroheptanoic acid	375-85-9	0.5 U	0.5	2	1
14473	Perfluorohexanesulfonate	355-46-4	0.7 U	0.7	3	1
14473	Perfluorohexanoic acid	307-24-4	0.5 U	0.5	2	1
14473	Perfluorononanoic acid	375-95-1	0.5 U	0.5	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.5 U	0.5	2	1
14473	Perfluoro-octanesulfonate	1763-23-1	1 U	1	5	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.9 J**	0.5	2	1
14473	Perfluoropentanoic acid	2706-90-3	0.5 U	0.5	2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.5 U	0.5	2	1
14473	Perfluorotridecanoic acid	72629-94-8	0.5 U	0.5	2	1
14473	Perfluoroundecanoic acid	2058-94-8	0.7 U	0.7	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the opening continuing calibration verification standard (CCV).

Reporting limits were raised due to interference from the sample matrix.

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 13:04	Marissa C Drexinger	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-Rig4CLNH2OPump-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017 12:00
SDG#: SNB47-03

C. T. Male Associates
ELLE Sample #: GW 9352022
ELLE Group #: 1883129
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017
SDG#: SNB47-04TB

C. T. Male Associates
ELLE Sample #: WW 9352023
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 08:55	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017
SDG#: SNB47-05TB

C. T. Male Associates
ELLE Sample #: WW 9352024
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.3 U	0.3	0.9	1
14473	Perfluorononanoic acid	375-95-1	0.3 U	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.7 U	0.7	3	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	0.3 U	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 09:16	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FILTEREDFracTkE171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/06/2017 10:05
Collection Date/Time: 12/05/2017 09:00
SDG#: SNB47-06

C. T. Male Associates
ELLE Sample #: GW 9352025
ELLE Group #: 1883129
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	6	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.4 U	0.4	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.4 U	0.4	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.4 U	0.4	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.3	0.9	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.3	0.9	1
14473	Perfluorooctanesulfonamide	754-91-6	0.3 U	0.3	0.9	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.7	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**1**	0.3	0.9	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The recovery for labeled compounds used as extraction standards d3-NMeFOSAA and d5-NEtFOSAA is outside of QC acceptance limits in the closing continuing calibration verification standard (CCV).

The recovery for labeled compound used as extraction standard d3-NMeFOSAA is outside of QC acceptance limits in the LCSD.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17340008	12/07/2017 09:36	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17340008	12/06/2017 16:00	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 09:49

Group Number: 1883129

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17340008	Sample number(s): 9352020-9352025		
6:2 fluorotelomersulfonate	3 U	3	6
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	0.4 U	0.4	2
NMeFOSAA	0.4 U	0.4	2
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	5
Perfluorodecanoic acid	0.4 U	0.4	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.3 U	0.3	1
Perfluorononanoic acid	0.3 U	0.3	1
Perfluorooctanesulfonamide	0.3 U	0.3	1
Perfluoro-octanesulfonate	0.8 U	0.8	3
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	0.3 U	0.3	1
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17340008	Sample number(s): 9352020-9352025								
6:2 fluorotelomersulfonate	15.17	15.81	15.17	17.91	104	118	70-130	12	30
8:2 fluorotelomersulfonate	15.33	17.24	15.33	14.07	112	92	70-130	20	30
NEtFOSAA	5.44	7.37	5.44	6.42	135*	118	70-130	14	30
NMeFOSAA	5.44	6.51	5.44	7.10	120	130	70-130	9	30
Perfluorobutanesulfonate	4.81	4.55	4.81	4.35	94	90	70-130	4	30
Perfluorobutanoic acid	5.44	5.21	5.44	5.75	96	106	70-130	10	30
Perfluorodecanoic acid	5.44	5.63	5.44	5.89	103	108	70-130	4	30
Perfluorododecanoic acid	5.44	5.29	5.44	5.27	97	97	70-130	0	30
Perfluoroheptanoic acid	5.44	5.69	5.44	5.44	105	100	70-130	5	30
Perfluorohexanesulfonate	5.14	4.91	5.14	4.73	95	92	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 09:49

Group Number: 1883129

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.13	5.44	5.16	94	95	70-130	0	30
Perfluorononanoic acid	5.44	5.45	5.44	5.35	100	98	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.29	5.44	7.06	134*	130	70-130	3	30
Perfluoro-octanesulfonate	5.20	4.48	5.20	5.45	86	105	70-130	20	30
Perfluorooctanoic acid	5.44	5.62	5.44	5.47	103	100	70-130	3	30
Perfluoropentanoic acid	5.44	5.66	5.44	5.49	104	101	70-130	3	30
Perfluorotetradecanoic acid	5.44	5.04	5.44	5.62	93	103	70-130	11	30
Perfluorotridecanoic acid	5.44	5.34	5.44	5.40	98	99	70-130	1	30
Perfluoroundecanoic acid	5.44	5.69	5.44	5.68	105	104	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17340008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9352020	21*	80	87	78	70	79
9352021	27*	83	84	81	68	80
9352022	87	86	82	89	83	92
9352023	84	89	77	93	77	80
9352024	87	85	75	96	94	94
9352025	76	108	118	69	72	73
Blank	85	86	81	94	89	99
LCS	87	87	84	104	95	100
LCSD	88	86	87	100	91	101
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9352020	104	79	85	84	77	80
9352021	107	85	76	96	75	68
9352022	103	88	88	92	83	108
9352023	78	86	81	83	83	67
9352024	92	96	83	96	83	72
9352025	91	71	68	85	67	66
Blank	79	92	83	92	92	69
LCS	94	97	93	93	91	65

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/12/2017 09:49

Group Number: 1883129

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17340008

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
LCSD	87	95	92	95	91	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9352020	86	85	109	79	87	66*
9352021	80	77	101	72	68	71
9352022	108	54	47	31	84	67*
9352023	87	86	102	88	94	72
9352024	99	81	115	91	101	79
9352025	76	63	84	65	63	43*
Blank	119	89	133	106	101	80
LCS	113	90	119	93	101	59*
LCSD	122*	97	133	100	102	69*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 | 1883129 | 9352020 - ★ 25 RUSH - 24 Hr, TAT ★

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53510

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT MALE
Address: 4300 Market Pointe Dr,	Address: 50 Century Hill Dr,
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TV-12mM

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic (HNO3)	250 ml Lab Trip Blank (HNO3)	Soil	% Solids	Preservative Code	Field Filtered Y/N
									A	A				
									N	N				
1. SG3-TOTE1-171205				12/05/2017	11:00	Water	N	2						PFCs (19)
2. SG3-TOTE2-171205				12/05/2017	11:05	water	N	2						
3. SG3-RIGHT CHN H2O pump 171205				12/05/2017	12:00	water	N	2						★
4. SG3-LTB01-171205	—	—	—	12/05/2017	—	W	N	1						Rush
5. SG3-LTB02-171205	—	—	—	12/05/2017	—	W	N	1						24 Hr, T.A.T.
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KAM / KD							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 12/6/17	Time 1005
Barr DQ Manager:	MDD							
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA.	Lab WO:				Temperature on Receipt (°C): 1.6 Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 Hr (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 203046

Group Number(s): 1883129

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/06/2017 10:05
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 12:44 on 12/06/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FILTEREDFRACTKE-171205	2	12/05/2017 09:00	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 19, 2017 17:58

Project: SGPP - Bennington

Account #: 37191
Group Number: 1884735
SDG: SNB48
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR1-171206 Groundwater	12/06/2017 17:05	9358239
SG3-MWBR1-171206 MS Groundwater	12/06/2017 17:05	9358240
SG3-MWBR1-171206 MSD Groundwater	12/06/2017 17:05	9358241
SG3-MWBR1-171206 Dupl Groundwater	12/06/2017 17:05	9358242
SG3-LTB110-171206 Blank Water	12/06/2017	9358243
SG3-LTB111-171206 Blank Water	12/06/2017	9358244

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1884735

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9358239

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Batch #: 4173471AA (Sample number(s): 9358239-9358241 UNSPK: 9358239)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1-Dichloroethene, trans-1,2-Dichloroethene, Carbon Tetrachloride, Freon 113

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9358240, 9358241

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9358239

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank associated with the samples. The data is reported from the initial trial. Similar results were obtained in both trials.

Batch #: 17345WAJ026 (Sample number(s): 9358239-9358241 UNSPK: 9358239)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9358239, 9358240, 9358241, Blank, LCS, MS, MSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9358239, 9358240, 9358241, 9358243, 9358244

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17345003 (Sample number(s): 9358239-9358241, 9358243-9358244 UNSPK: 9358239)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9358239, 9358240, 9358241, 9358243, 9358244, Blank, MS, MSD

SW-846 6010C, Metals

Batch #: 173451063502 (Sample number(s): 9358239-9358242 UNSPK: 9358239 BKG: 9358239)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium

SW-846 6020A, Metals

Batch #: 173461063901A (Sample number(s): 9358239-9358242 UNSPK: 9358239 BKG: 9358239)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

EPA 300.0, Wet Chemistry

Sample #s: 9358239, 9358239, 9358240, 9358240, 9358242, 9358242

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Batch #: 17342987117B (Sample number(s): 9358239-9358240, 9358242 UNSPK: 9358239 BKG: 9358239)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Bromide, Nitrite Nitrogen

SW-846 9012A, Wet Chemistry

Batch #: 17346117101B (Sample number(s): 9358239-9358240, 9358242 UNSPK: 9358239 BKG: 9358239)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Total Cyanide (water)

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SM 2320 B-1997, Wet Chemistry

Batch #: 17345013204A (Sample number(s): 9358239-9358242 UNSPK: 9358239 BKG: 9358239)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window:
Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9358239, 9358240, 9358241, 9358242

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Description: **SG3-MWBR1-171206 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01BKG

C. T. Male Associates
ELLE Sample #: GW 9358239
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01BKG

C. T. Male Associates
ELLE Sample #: GW 9358239
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.10 J**	0.050	0.20	1

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank associated with the samples. The data is reported from the initial trial. Similar results were obtained in both trials.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01BKG

C. T. Male Associates
ELLE Sample #: GW 9358239
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**14**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**40.1**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.261 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**15.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.119**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.94**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**5.69**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0411**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0469**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0015 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00084 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0033 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0012 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0013 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00018 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00025 J**	0.00021	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01BKG

C. T. Male Associates
ELLE Sample #: GW 9358239
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**10.5**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.40 J**	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	**Sulfate**	14808-79-8	**6.4**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**161**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**161**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.077 J**	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	4173471AA	12/13/2017 12:24	Daniel H Heller	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01BKG

C. T. Male Associates
ELLE Sample #: GW 9358239
ELLE Group #: 1884735
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030C	1	4173471AA	12/13/2017 12:24	Daniel H Heller	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17345WAJ026	12/13/2017 09:03	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17345WAJ026	12/12/2017 08:30	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 13:07	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173451063502	12/12/2017 17:44	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173461063901D	12/19/2017 02:41	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	173461063901B	12/13/2017 18:59	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173461063901A	12/13/2017 18:59	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	173450571305	12/12/2017 20:46	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173451063502	12/12/2017 05:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173461063901	12/12/2017 17:10	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173450571305	12/12/2017 06:55	James L Mertz	1
01505	Bromide	EPA 300.0	1	17342987117B	12/08/2017 22:56	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17342987117B	12/08/2017 22:56	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 22:56	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 22:56	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17342987117B	12/08/2017 22:56	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17348107105B	12/14/2017 20:42	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17346108101A	12/14/2017 09:48	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	2	17346117101B	12/12/2017 13:38	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17346108101A	12/12/2017 08:55	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17346117101B	12/12/2017 07:40	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17345013204A	12/12/2017 06:35	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17345013204A	12/12/2017 06:35	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17345013204A	12/12/2017 06:35	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17343022602A	12/09/2017 10:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MWBR1-171206 MS Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MS

C. T. Male Associates
ELLE Sample #: GW 9358240
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**180**	6	20	1
11997	**Benzene**	71-43-2	**23**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**23**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**22**	0.5	1	1
11997	**Bromoform**	75-25-2	**21**	0.5	4	1
11997	**Bromomethane**	74-83-9	**21**	0.5	1	1
11997	**2-Butanone**	78-93-3	**160**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**24**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**26**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**23**	0.5	1	1
11997	**Chloroethane**	75-00-3	**20**	0.5	1	1
11997	**Chloroform**	67-66-3	**23**	0.5	1	1
11997	**Chloromethane**	74-87-3	**19**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**24**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**21**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**22**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**22**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**22**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**22**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**22**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**17**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**24**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**23**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**28**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**24**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**25**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**23**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**21**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**21**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**23**	0.5	1	1
11997	**Freon 113**	76-13-1	**28**	2	10	1
11997	**2-Hexanone**	591-78-6	**110**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**23**	1	5	1
11997	**Methyl Acetate**	79-20-9	**22**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**21**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**110**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**24**	1	5	1
11997	**Methylene Chloride**	75-09-2	**24**	0.5	1	1
11997	**Styrene**	100-42-5	**22**	1	5	1
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**20**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**25**	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MS Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MS

C. T. Male Associates
ELLE Sample #: GW 9358240
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	**Toluene**	108-88-3	**23**		0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**20**		1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**21**		1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**22**		0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**22**		0.5	1	1
11997	**Trichloroethene**	79-01-6	**23**		0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**25**		0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**21**		0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**46**		0.5	1	1
11997	**o-Xylene**	95-47-6	**22**		0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**68**		0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**1.4**		0.050	0.20	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**16**		3	9	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**14**		2	6	1
14473	**NEtFOSAA**	2991-50-6	**7**		1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	**NMeFOSAA**	2355-31-9	**7**		1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	**Perfluorobutanesulfonate**	375-73-5	**5**		0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**5**	**J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**5**		0.6	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**5**		0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**6**		0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**5**		0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**5**		0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**5**		0.4	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**7**		1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**5**		0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**20**		0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**5**	**J**	2	6	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**5**		0.3	1	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**5**		0.3	1	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**6**		0.4	2	1
	Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the						

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MS Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MS

C. T. Male Associates
ELLE Sample #: GW 9358240
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	data is reported.					
	The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.11**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**1.97**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**45.3**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.25**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**17.6**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.638**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**14.4**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**16.0**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.541**	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0059**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0114**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.102**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0043**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0043**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0511**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.243**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0549**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0167**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0512**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0103**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0480**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0023**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0497**	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00088**	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**31.4**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**23.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**3.3**	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
01506	**Nitrite Nitrogen**	14797-65-0	**3.0**	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	**Sulfate**	14808-79-8	**37.5**	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MS Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MS

C. T. Male Associates
ELLE Sample #: GW 9358240
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.0**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**5.1**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	**Total Cyanide**	57-12-5	**0.28**	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**261**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.49**	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	4173471AA	12/13/2017 12:46	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	4173471AA	12/13/2017 12:46	Daniel H Heller	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17345WAJ026	12/13/2017 09:16	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17345WAJ026	12/12/2017 08:30	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 12:26	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173451063502	12/12/2017 17:53	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173461063901A	12/19/2017 02:47	Sarah L Burt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MS Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MS

C. T. Male Associates
ELLE Sample #: GW 9358240
ELLE Group #: 1884735
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06026	Barium	SW-846 6020A	1	173461063901D	12/19/2017 02:47	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	173461063901B	12/13/2017 19:08	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173461063901A	12/13/2017 19:08	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	173450571305	12/12/2017 20:50	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173451063502	12/12/2017 05:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173461063901	12/12/2017 17:10	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173450571305	12/12/2017 06:55	James L Mertz	1
01505	Bromide	EPA 300.0	1	17342987117B	12/08/2017 23:30	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17342987117B	12/08/2017 23:30	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 23:30	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 23:30	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17342987117B	12/08/2017 23:30	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	2	17348107105B	12/15/2017 19:15	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17346108101A	12/14/2017 09:49	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	2	17346117101B	12/12/2017 13:42	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17346108101A	12/12/2017 08:55	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17346117101B	12/12/2017 07:40	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17345013204A	12/12/2017 06:42	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17343022602A	12/09/2017 10:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MSD Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MSD

C. T. Male Associates
ELLE Sample #: GW 9358241
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**180**	6	20	1
11997	**Benzene**	71-43-2	**23**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**22**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**22**	0.5	1	1
11997	**Bromoform**	75-25-2	**20**	0.5	4	1
11997	**Bromomethane**	74-83-9	**19**	0.5	1	1
11997	**2-Butanone**	78-93-3	**160**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**24**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**26**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**23**	0.5	1	1
11997	**Chloroethane**	75-00-3	**20**	0.5	1	1
11997	**Chloroform**	67-66-3	**23**	0.5	1	1
11997	**Chloromethane**	74-87-3	**18**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**24**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**21**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**22**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**22**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**22**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**22**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**22**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**16**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**24**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**23**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**27**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**24**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**25**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**23**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**21**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**21**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**23**	0.5	1	1
11997	**Freon 113**	76-13-1	**28**	2	10	1
11997	**2-Hexanone**	591-78-6	**110**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**23**	1	5	1
11997	**Methyl Acetate**	79-20-9	**22**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**21**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**110**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**24**	1	5	1
11997	**Methylene Chloride**	75-09-2	**24**	0.5	1	1
11997	**Styrene**	100-42-5	**22**	1	5	1
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**20**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**25**	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MSD Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MSD

C. T. Male Associates
ELLE Sample #: GW 9358241
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	**Toluene**	108-88-3	**23**		0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**20**		1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**21**		1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**22**		0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**22**		0.5	1	1
11997	**Trichloroethene**	79-01-6	**23**		0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**24**		0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**20**		0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**46**		0.5	1	1
11997	**o-Xylene**	95-47-6	**22**		0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**69**		0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**1.4**		0.053	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**		**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**14**		3	9	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**14**		2	6	1
14473	**NEtFOSAA**	2991-50-6	**8**		1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
14473	**NMeFOSAA**	2355-31-9	**6**		1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
14473	**Perfluorobutanesulfonate**	375-73-5	**5**		0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**6**		2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**5**		0.6	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**6**		0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**7**		0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**5**		0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**6**		0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**6**		0.4	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**8**		1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**5**		0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**20**		0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**6**	**J**	2	6	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**6**		0.3	1	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**5**		0.3	1	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**6**		0.4	2	1
	Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the						

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MSD Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MSD

C. T. Male Associates
ELLE Sample #: GW 9358241
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	data is reported.					
	The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.08**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**1.95**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**44.4**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.44**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**17.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.635**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**14.5**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**15.9**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.536**	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0059**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0107**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.102**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0043**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0049**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0541**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.244**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0578**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0185**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0506**	0.0010	0.0040	1
06041	**Selenium**	7782-49-2	**0.0106**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0470**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0023**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0514**	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00088**	0.000050	0.00020	1
Wet Chemistry		**EPA 350.1**	**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.0**	0.050	0.10	1
		SM 2320 B-1997	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**264**	1.7	5.0	1
		SM 4500-P E-1999	**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.50**	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 MSD Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01MSD

C. T. Male Associates
ELLE Sample #: GW 9358241
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	4173471AA	12/13/2017 13:09	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	4173471AA	12/13/2017 13:09	Daniel H Heller	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17345WAJ026	12/13/2017 09:30	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17345WAJ026	12/12/2017 08:30	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 12:47	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173451063502	12/12/2017 17:56	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173461063901D	12/19/2017 02:49	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	173461063901B	12/13/2017 19:11	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173461063901A	12/13/2017 19:11	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	173450571305	12/12/2017 20:52	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173451063502	12/12/2017 05:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173461063901	12/12/2017 17:10	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173450571305	12/12/2017 06:55	James L Mertz	1
12892	Ammonia Nitrogen	EPA 350.1	2	17348107105B	12/15/2017 19:17	Gregory Baldree	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17345013204A	12/12/2017 06:48	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17343022602A	12/09/2017 10:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Dupl Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01DUP

C. T. Male Associates
ELLE Sample #: GW 9358242
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**40.8**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.244 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**15.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.123**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**4.03**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**5.79**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0423**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0471**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0017 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00069 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0035 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0012 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0012 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00014 J**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00026 J**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**10.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.40 J**	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					
00228	**Sulfate**	14808-79-8	**6.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR1-171206 Dupl Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01DUP

C. T. Male Associates
ELLE Sample #: GW 9358242
ELLE Group #: 1884735
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 351.2**		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**162**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**162**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.077 J**	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
01750	Calcium	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
01754	Iron	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
01757	Magnesium	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
07058	Manganese	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
01762	Potassium	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
01767	Sodium	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
07072	Zinc	SW-846 6010C	1	173451063502	12/12/2017 17:50	Cindy M Gehman	1
06024	Antimony	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173461063901D	12/19/2017 02:45	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	173461063901B	12/13/2017 19:05	Sarah L Burt	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MWBR1-171206 Dupl Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017 17:05
SDG#: SNB48-01DUP

C. T. Male Associates
ELLE Sample #: GW 9358242
ELLE Group #: 1884735
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06042	Silver	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173461063901A	12/13/2017 19:05	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	173450571305	12/12/2017 20:48	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173451063502	12/12/2017 05:13	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173461063901	12/12/2017 17:10	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173450571305	12/12/2017 06:55	James L Mertz	1
01505	Bromide	EPA 300.0	1	17342987117B	12/08/2017 23:13	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17342987117B	12/08/2017 23:13	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 23:13	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17342987117B	12/08/2017 23:13	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17342987117B	12/08/2017 23:13	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17348107105B	12/14/2017 20:44	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17346108101A	12/14/2017 09:51	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	2	17346117101B	12/12/2017 13:43	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17346108101A	12/12/2017 08:55	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17346117101B	12/12/2017 07:40	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17345013204A	12/12/2017 06:54	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17345013204A	12/12/2017 06:54	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17345013204A	12/12/2017 06:54	Jeremy L Bolf	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17343022602A	12/09/2017 10:55	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB110-171206 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017
SDG#: SNB48-02TB

C. T. Male Associates
ELLE Sample #: WW 9358243
ELLE Group #: 1884735
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 14:29	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB111-171206 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/08/2017 10:00
Collection Date/Time: 12/06/2017
SDG#: SNB48-03TB

C. T. Male Associates
ELLE Sample #: WW 9358244
ELLE Group #: 1884735
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 14:50	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 4173471AA	Sample number(s): 9358239-9358241		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17345WAJ026	Sample number(s): 9358239-9358241		
1,4-Dioxane	0.090 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17345003	Sample number(s): 9358239-9358241,9358243-9358244		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	0.6 U	0.6	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173450571305	Sample number(s): 9358239-9358242		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173451063502	Sample number(s): 9358239-9358242		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0429 J	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173461063901A	Sample number(s): 9358239-9358242		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173461063901B	Sample number(s): 9358239-9358242		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173461063901D	Sample number(s): 9358239-9358242		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17342987117B	Sample number(s): 9358239-9358240,9358242		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17346108101A	Sample number(s): 9358239-9358240,9358242		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17346117101B	Sample number(s): 9358239-9358240,9358242		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17348107105B	Sample number(s): 9358239-9358242		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17343022602A	Sample number(s): 9358239-9358242		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17345013204A	Sample number(s): 9358239-9358242		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 4173471AA	Sample number(s): 9358239-9358241								
Acetone	150	167.74			112		44-177		
Benzene	20	20.58			103		78-120		
Bromochloromethane	20	21.45			107		80-125		
Bromodichloromethane	20	20.24			101		71-120		
Bromoform	20	19.81			99		59-120		
Bromomethane	20	18.25			91		44-139		
2-Butanone	150	151.4			101		53-140		
Carbon Disulfide	20	20.93			105		65-128		
Carbon Tetrachloride	20	22.58			113		68-128		
Chlorobenzene	20	21.22			106		80-120		
Chloroethane	20	18.71			94		52-127		
Chloroform	20	21.27			106		80-120		
Chloromethane	20	17.67			88		57-120		
Cyclohexane	20	19.54			98		67-121		
1,2-Dibromo-3-chloropropane	20	20.28			101		64-120		
Dibromochloromethane	20	20.68			103		71-120		
1,2-Dibromoethane	20	20.13			101		75-120		
1,2-Dichlorobenzene	20	20.49			102		80-120		
1,3-Dichlorobenzene	20	20.13			101		80-120		
1,4-Dichlorobenzene	20	20.53			103		80-120		
Dichlorodifluoromethane	20	16.86			84		47-124		
1,1-Dichloroethane	20	21.56			108		80-120		
1,2-Dichloroethane	20	21.44			107		73-124		
1,1-Dichloroethene	20	22.65			113		76-124		
cis-1,2-Dichloroethene	20	21.78			109		80-120		
trans-1,2-Dichloroethene	20	21.92			110		80-120		
1,2-Dichloropropane	20	20.8			104		80-120		
cis-1,3-Dichloropropene	20	19.52			98		75-120		
trans-1,3-Dichloropropene	20	19.39			97		76-120		
Ethylbenzene	20	20.58			103		78-120		
Freon 113	20	22.95			115		68-137		
2-Hexanone	100	104.92			105		60-134		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	20.99			105		80-120		
Methyl Acetate	20	21.13			106		61-137		
Methyl Tertiary Butyl Ether	20	19.58			98		75-120		
4-Methyl-2-pentanone	100	106.79			107		67-128		
Methylcyclohexane	20	20.85			104		66-126		
Methylene Chloride	20	21.5			108		80-120		
Styrene	20	20.17			101		80-120		
1,1,2,2-Tetrachloroethane	20	18.85			94		72-120		
Tetrachloroethene	20	21.84			109		80-129		
Toluene	20	20.63			103		80-120		
1,2,3-Trichlorobenzene	20	18.95			95		66-120		
1,2,4-Trichlorobenzene	20	19.64			98		70-120		
1,1,1-Trichloroethane	20	21.48			107		67-120		
1,1,2-Trichloroethane	20	20.79			104		80-120		
Trichloroethene	20	20.78			104		80-120		
Trichlorofluoromethane	20	21			105		52-143		
Vinyl Chloride	20	18.92			95		63-121		
m+p-Xylene	40	41.69			104		80-120		
o-Xylene	20	20.13			101		80-120		
Xylene (Total)	60	61.82			103		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17345WAJ026	Sample number(s): 9358239-9358241								
1,4-Dioxane	1.00	1.28			128		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17345003	Sample number(s): 9358239-9358241,9358243-9358244								
6:2 fluorotelomersulfonate	15.17	17.17			113		70-130		
8:2 fluorotelomersulfonate	15.33	13.41			87		70-130		
NEtFOSAA	5.44	7.30			134*		70-130		
NMeFOSAA	5.44	7.92			146*		70-130		
Perfluorobutanesulfonate	4.81	4.74			99		70-130		
Perfluorobutanoic acid	5.44	5.80			107		70-130		
Perfluorodecanoic acid	5.44	5.91			109		70-130		
Perfluorododecanoic acid	5.44	6.02			111		70-130		
Perfluoroheptanoic acid	5.44	5.92			109		70-130		
Perfluorohexanesulfonate	5.14	5.30			103		70-130		
Perfluorohexanoic acid	5.44	5.08			93		70-130		
Perfluorononanoic acid	5.44	6.11			112		70-130		
Perfluorooctanesulfonamide	5.44	7.76			143*		70-130		
Perfluoro-octanesulfonate	5.20	5.56			107		70-130		
Perfluorooctanoic acid	5.44	5.72			105		70-130		
Perfluoropentanoic acid	5.44	6.08			112		70-130		
Perfluorotetradecanoic acid	5.44	5.45			100		70-130		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	4.70			86		70-130		
Perfluoroundecanoic acid	5.44	6.08			112		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173450571305	Sample number(s): 9358239-9358242								
Mercury	0.00100	0.000851			85		80-120		
Batch number: 173451063502	Sample number(s): 9358239-9358242								
Aluminum	2.00	2.01			100		80-120		
Boron	2.00	1.88			94		80-120		
Calcium	4.00	3.89			97		80-120		
Iron	1.00	0.946			95		80-120		
Magnesium	2.00	1.96			98		80-120		
Manganese	0.500	0.502			100		80-120		
Potassium	10	9.63			96		80-120		
Sodium	10	9.60			96		80-120		
Zinc	0.500	0.489			98		80-120		
Batch number: 173461063901A	Sample number(s): 9358239-9358242								
Antimony	0.00600	0.00511			85		80-120		
Arsenic	0.0100	0.00890			89		80-120		
Beryllium	0.00400	0.00421			105		80-120		
Cadmium	0.00500	0.00480			96		80-120		
Chromium	0.0500	0.0539			108		80-120		
Cobalt	0.250	0.241			96		80-120		
Copper	0.0500	0.0494			99		80-120		
Lead	0.0150	0.0157			105		80-120		
Nickel	0.0500	0.0490			98		80-120		
Silver	0.0500	0.0482			96		80-120		
Thallium	0.00200	0.00189			95		80-120		
Vanadium	0.0500	0.0519			104		80-120		
Batch number: 173461063901B	Sample number(s): 9358239-9358242								
Selenium	0.0100	0.0102			102		80-120		
Batch number: 173461063901D	Sample number(s): 9358239-9358242								
Barium	0.0500	0.0530			106		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17342987117B	Sample number(s): 9358239-9358240,9358242								
Bromide	7.50	7.69	7.50	7.65	103	102	90-110	0	20
Chloride	3.00	3.03	3.00	3.01	101	100	90-110	1	20
Nitrate Nitrogen	0.750	0.752	0.750	0.745	100	99	90-110	1	20
Nitrite Nitrogen	0.750	0.738	0.750	0.728	98	97	90-110	1	20
Sulfate	7.50	7.70	7.50	7.61	103	101	90-110	1	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17346108101A	Sample number(s): 9358239-9358240,9358242								
Kjeldahl Nitrogen	5.00	5.32			106		90-110		
Batch number: 17346117101B	Sample number(s): 9358239-9358240,9358242								
Total Cyanide	0.200	0.216			108		90-110		
Batch number: 17348107105B	Sample number(s): 9358239-9358242								
Ammonia Nitrogen	1.50	1.43			95		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17343022602A	Sample number(s): 9358239-9358242								
Ortho-Phosphate as P	0.400	0.398			100		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17345013204A	Sample number(s): 9358239-9358242								
Total Alkalinity to pH 4.5	188	180.55			96		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 4173471AA	Sample number(s): 9358239-9358241 UNSPK: 9358239									
Acetone	6 U	150	175.95	150	176.44	117	118	44-177	0	30
Benzene	0.5 U	20	22.88	20	22.97	114	115	78-120	0	30
Bromochloromethane	1 U	20	22.79	20	22.43	114	112	80-125	2	30
Bromodichloromethane	0.5 U	20	21.78	20	21.95	109	110	71-120	1	30
Bromoform	0.5 U	20	20.55	20	20.42	103	102	59-120	1	30
Bromomethane	0.5 U	20	20.78	20	19.44	104	97	44-139	7	30
2-Butanone	3 U	150	161.62	150	160.43	108	107	53-140	1	30
Carbon Disulfide	1 U	20	23.74	20	23.81	119	119	65-128	0	30
Carbon Tetrachloride	0.5 U	20	26.27	20	26.47	131*	132*	68-128	1	30
Chlorobenzene	0.5 U	20	23.06	20	23.27	115	116	80-120	1	30
Chloroethane	0.5 U	20	20.46	20	19.54	102	98	52-127	5	30
Chloroform	0.5 U	20	23.41	20	23.12	117	116	80-120	1	30
Chloromethane	0.5 U	20	18.74	20	18.18	94	91	57-120	3	30
Cyclohexane	2 U	20	23.91	20	23.9	120	120	67-121	0	30
1,2-Dibromo-3-chloropropane	2 U	20	21.36	20	21.28	107	106	64-120	0	30
Dibromochloromethane	0.5 U	20	22.1	20	21.71	111	109	71-120	2	30
1,2-Dibromoethane	0.5 U	20	21.59	20	21.57	108	108	75-120	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	21.93	20	21.91	110	110	80-120	0	30
1,3-Dichlorobenzene	1 U	20	21.87	20	21.81	109	109	80-120	0	30
1,4-Dichlorobenzene	1 U	20	22.24	20	22.06	111	110	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	17.35	20	16.35	87	82	47-124	6	30
1,1-Dichloroethane	0.5 U	20	23.94	20	23.93	120	120	80-120	0	30
1,2-Dichloroethane	0.5 U	20	23.13	20	23.11	116	116	73-124	0	30
1,1-Dichloroethene	0.5 U	20	27.63	20	27.39	138*	137*	76-124	1	30
cis-1,2-Dichloroethene	0.5 U	20	23.92	20	23.82	120	119	80-120	0	30
trans-1,2-Dichloroethene	0.5 U	20	24.85	20	25.18	124*	126*	80-120	1	30
1,2-Dichloropropane	0.5 U	20	22.55	20	22.92	113	115	80-120	2	30
cis-1,3-Dichloropropene	0.5 U	20	21.02	20	21.18	105	106	75-120	1	30
trans-1,3-Dichloropropene	0.5 U	20	21.04	20	21.22	105	106	76-120	1	30
Ethylbenzene	0.5 U	20	22.66	20	22.85	113	114	78-120	1	30
Freon 113	2 U	20	28.05	20	28.03	140*	140*	68-137	0	30
2-Hexanone	3 U	100	109.42	100	109.89	109	110	60-134	0	30
Isopropylbenzene	1 U	20	23.36	20	23.49	117	117	80-120	1	30
Methyl Acetate	1 U	20	21.69	20	21.55	108	108	61-137	1	30
Methyl Tertiary Butyl Ether	0.5 U	20	20.96	20	20.91	105	105	75-120	0	30
4-Methyl-2-pentanone	3 U	100	109.47	100	109.84	109	110	67-128	0	30
Methylcyclohexane	1 U	20	24.28	20	23.89	121	119	66-126	2	30
Methylene Chloride	0.5 U	20	23.52	20	23.65	118	118	80-120	1	30
Styrene	1 U	20	21.94	20	22.08	110	110	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	19.97	20	19.64	100	98	72-120	2	30
Tetrachloroethene	0.5 U	20	24.55	20	24.5	123	123	80-129	0	30
Toluene	0.5 U	20	22.85	20	22.89	114	114	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	20.07	20	20.23	100	101	66-120	1	30
1,2,4-Trichlorobenzene	1 U	20	21.14	20	20.96	106	105	70-120	1	30
1,1,1-Trichloroethane	0.5 U	20	22.07	20	22.11	110	111	67-120	0	30
1,1,2-Trichloroethane	0.5 U	20	21.88	20	21.87	109	109	80-120	0	30
Trichloroethene	0.5 U	20	23.21	20	23.31	116	117	80-120	0	30
Trichlorofluoromethane	0.5 U	20	24.64	20	23.63	123	118	52-143	4	30
Vinyl Chloride	0.5 U	20	20.71	20	19.79	104	99	63-121	5	30
m+p-Xylene	0.5 U	40	46.21	40	46.31	116	116	80-120	0	30
o-Xylene	0.5 U	20	22.13	20	22.21	111	111	80-120	0	30
Xylene (Total)	0.5 U	60	68.33	60	68.52	114	114	80-120	0	30
	ug/l	**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17345WAJ026	Sample number(s): 9358239-9358241 UNSPK: 9358239									
1,4-Dioxane	0.103	1.01	1.43	1.05	1.41	132*	124	70-130	2	30
	ng/l	**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17345003	Sample number(s): 9358239-9358241,9358243-9358244 UNSPK: 9358239									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
6:2 fluorotelomersulfonate	3 U	14.43	15.88	14.64	14.37	110	98	70-130	10	30
8:2 fluorotelomersulfonate	2 U	14.59	13.8	14.79	14.25	95	96	70-130	3	30
NEtFOSAA	0.9 U	5.18	7.01	5.25	7.94	135*	151*	70-130	12	30
NMeFOSAA	0.9 U	5.18	6.74	5.25	6.30	130	120	70-130	7	30
Perfluorobutanesulfonate	0.3 U	4.58	4.59	4.64	4.92	100	106	70-130	7	30
Perfluorobutanoic acid	2 U	5.18	5.39	5.25	5.80	104	110	70-130	7	30
Perfluorodecanoic acid	0.6 U	5.18	4.85	5.25	5.35	94	102	70-130	10	30
Perfluorododecanoic acid	0.3 U	5.18	5.11	5.25	5.78	99	110	70-130	12	30
Perfluoroheptanoic acid	0.787	5.18	5.78	5.25	6.57	96	110	70-130	13	30
Perfluorohexanesulfonate	0.4 U	4.90	4.79	4.97	4.93	98	99	70-130	3	30
Perfluorohexanoic acid	0.4 U	5.18	5.00	5.25	5.89	97	112	70-130	16	30
Perfluorononanoic acid	0.4 U	5.18	5.34	5.25	5.89	103	112	70-130	10	30
Perfluorooctanesulfonamide	0.9 U	5.18	7.34	5.25	7.76	142*	148*	70-130	5	30
Perfluoro-octanesulfonate	0.4 U	4.95	4.67	5.02	5.24	94	104	70-130	11	30
Perfluorooctanoic acid	14.48	5.18	20.15	5.25	20.16	110	108	70-130	0	30
Perfluoropentanoic acid	2 U	5.18	5.02	5.25	5.61	97	107	70-130	11	30
Perfluorotetradecanoic acid	0.3 U	5.18	5.27	5.25	5.58	102	106	70-130	6	30
Perfluorotridecanoic acid	0.3 U	5.18	4.57	5.25	5.22	88	99	70-130	13	30
Perfluoroundecanoic acid	0.4 U	5.18	5.53	5.25	5.77	107	110	70-130	4	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173450571305	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Mercury	0.000050 U	0.00100	0.000878	0.00100	0.000878	88	88	80-120	0	20
Batch number: 173451063502	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Aluminum	0.0894 U	2.00	2.11	2.00	2.08	105	104	75-125	1	20
Boron	0.0101 U	2.00	1.97	2.00	1.95	98	98	75-125	1	20
Calcium	40.08	4.00	45.29	4.00	44.36	130 (2)	107 (2)	75-125	2	20
Iron	0.261	1.00	1.25	1.00	1.44	99	118	75-125	14	20
Magnesium	15.13	2.00	17.63	2.00	17.12	125 (2)	100 (2)	75-125	3	20
Manganese	0.119	0.500	0.638	0.500	0.635	104	103	75-125	1	20
Potassium	3.94	10	14.42	10	14.54	105	106	75-125	1	20
Sodium	5.69	10	15.96	10	15.88	103	102	75-125	1	20
Zinc	0.0411	0.500	0.541	0.500	0.536	100	99	75-125	1	20
Batch number: 173461063901A	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Antimony	0.00045 U	0.00600	0.00590	0.00600	0.00588	98	98	75-125	0	20
Arsenic	0.00072 U	0.0100	0.0114	0.0100	0.0107	114	107	75-125	7	20
Beryllium	0.000071 U	0.00400	0.00432	0.00400	0.00427	108	107	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00433	0.00500	0.00493	87	99	75-125	13	20
Chromium	0.00154	0.0500	0.0511	0.0500	0.0541	99	105	75-125	6	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Cobalt	0.000837	0.250	0.243	0.250	0.244	97	97	75-125	0	20
Copper	0.00332	0.0500	0.0549	0.0500	0.0578	103	109	75-125	5	20
Lead	0.00125	0.0150	0.0167	0.0150	0.0185	103	115	75-125	10	20
Nickel	0.00125	0.0500	0.0512	0.0500	0.0506	100	99	75-125	1	20
Silver	0.00015 U	0.0500	0.0480	0.0500	0.0470	96	94	75-125	2	20
Thallium	0.000183	0.00200	0.00232	0.00200	0.00227	107	104	75-125	2	20
Vanadium	0.000252	0.0500	0.0497	0.0500	0.0514	99	102	75-125	3	20
Batch number: 173461063901B	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Selenium	0.00050 U	0.0100	0.0103	0.0100	0.0106	103	106	75-125	3	20
Batch number: 173461063901D	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Barium	0.0469	0.0500	0.102	0.0500	0.102	109	110	75-125	0	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17342987117B	Sample number(s): 9358239-9358240,9358242 UNSPK: 9358239									
Bromide	1.3 U	25	31.39			126*		90-110		
Chloride	10.48	10	23.4			129*		90-110		
Nitrate Nitrogen	0.396	2.50	3.34			118*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.96			118*		90-110		
Sulfate	6.38	25	37.51			125*		90-110		
Batch number: 17346108101A	Sample number(s): 9358239-9358240,9358242 UNSPK: 9358239									
Kjeldahl Nitrogen	0.50 U	5.00	5.14			103		90-110		
Batch number: 17346117101B	Sample number(s): 9358239-9358240,9358242 UNSPK: 9358239									
Total Cyanide	0.0050 U	0.200	0.278			139*		72-114		
Batch number: 17348107105B	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Ammonia Nitrogen	0.050 U	1.00	1.02	1.00	1.05	102	105	90-110	2	8
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17343022602A	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Ortho-Phosphate as P	0.0768	0.400	0.491	0.400	0.496	104	105	69-131	1	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17345013204A	Sample number(s): 9358239-9358242 UNSPK: 9358239									
Total Alkalinity to pH 4.5	160.68	188	260.54	188	264.47	53*	55*	77-114	1	10

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 173450571305	Sample number(s): 9358239-9358242 BKG: 9358239			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173451063502	Sample number(s): 9358239-9358242 BKG: 9358239			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	40.08	40.78	2	20
Iron	0.261	0.244	7 (1)	20
Magnesium	15.13	15.44	2	20
Manganese	0.119	0.123	3	20
Potassium	3.94	4.03	2 (1)	20
Sodium	5.69	5.79	2 (1)	20
Zinc	0.0411	0.0423	3 (1)	20
Batch number: 173461063901A	Sample number(s): 9358239-9358242 BKG: 9358239			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00154	0.00171	10 (1)	20
Cobalt	0.000837	0.000691	19 (1)	20
Copper	0.00332	0.00354	7 (1)	20
Lead	0.00125	0.00121	3 (1)	20
Nickel	0.00125	0.00123	2 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.000183	0.000141	26* (1)	20
Vanadium	0.000252	0.000260	3 (1)	20
Batch number: 173461063901B	Sample number(s): 9358239-9358242 BKG: 9358239			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173461063901D	Sample number(s): 9358239-9358242 BKG: 9358239			
Barium	0.0469	0.0471	0	20
	mg/l	mg/l		
Batch number: 17342987117B	Sample number(s): 9358239-9358240,9358242 BKG: 9358239			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	10.48	10.44	0	15
Nitrate Nitrogen	0.396	0.402	1 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	6.38	6.59	3 (1)	15
Batch number: 17346108101A	Sample number(s): 9358239-9358240,9358242 BKG: 9358239			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 17346117101B	Sample number(s): 9358239-9358240,9358242 BKG: 9358239			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17348107105B	Sample number(s): 9358239-9358242 BKG: 9358239			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17343022602A	Sample number(s): 9358239-9358242 BKG: 9358239			
Ortho-Phosphate as P	0.0768	0.0773	1 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17345013204A	Sample number(s): 9358239-9358242 BKG: 9358239			
Total Alkalinity to pH 4.5	160.68	161.68	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 4173471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9358239	105	102	100	99
9358240	104	101	101	99
9358241	105	101	100	100
Blank	104	104	100	100
LCS	106	103	100	101
MS	104	101	101	99
MSD	105	101	100	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17345WAJ026

	1,4-Dioxane-d8
9358239	34*
9358240	40*
9358241	40*
Blank	45*

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:58

Group Number: 1884735

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 1,4-Dioxane
Batch number: 17345WAJ026

	1,4-Dioxane-d8
LCS	44*
MS	40*
MSD	40*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17345003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9358239	79	77	79	81	74	78
9358240	95	100	94	104	95	94
9358241	84	85	80	90	86	90
9358243	89	95	91	94	84	91
9358244	84	90	87	92	89	90
Blank	81	81	78	83	79	80
LCS	89	89	89	96	86	92
MS	95	100	94	104	95	94
MSD	84	85	80	90	86	90
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9358239	69	78	71	80	80	70
9358240	85	92	83	84	90	77
9358241	90	88	77	83	78	67
9358243	69	91	78	78	87	72
9358244	80	94	74	67	77	63
Blank	85	84	77	79	81	73
LCS	91	85	78	83	84	99
MS	85	92	83	84	90	77
MSD	90	88	77	83	78	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9358239	75	82	79	74	74	67*
9358240	78	87	88	93	80	68*
9358241	82	76	72	76	60	62*
9358243	82	86	80	91	86	51*

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1884735
Reported: 12/19/2017 17:58

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17345003

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9358244	76	83	83	81	84	58*
Blank	83	80	82	76	60	67*
LCS	83	87	96	90	64	78
MS	78	87	88	93	80	68*
MSD	82	76	72	76	60	62*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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37191 1864735 9358239-44

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53512

COC 1 of 4

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: 250 ml plastic – unpres (Kam)	250 ml plastic – Trizma	250 ml plastic – FILTERED – HNO_3	250 ml plastic – HNO_3	250 ml plastic – NaOH TAT	250 ml plastic – unpres	250 ml glass – unpres, Hydrosol	250 ml plastic – HCl	40 ml glass – unpres.	% Solids
									O	A	C	E	A	A	D	B	A	
									N	Y	N	N	N	N	N	N	N	
1. SG3-MWBR1-171206				12/06/2017	17:05	GW	Y	42	6	3	3	3	3	6	3	9	6	
2. SG3-LTB110-171206				12/06/2017	PM	W			2									
3. SG3-LTB111-171206				12/06/2017	PM	W			2									
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

Preservative Code

Field Filtered Y/N

PFCs (19), orthophosphate, metals & Hg, cyanide, Alkalinity, Dioxane, Ammonia/Nitrogen, VOCs, Br/Cl/N

Samples in 2 coolers

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: KAM/RAK		(Y) N	12/7	17:00			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 12/8/17	Time 1000
Barr DQ Manager: MPD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 0.4, 0.5			Custody Seal Intact? ☒ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 203365

Group Number(s): 1884735

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/08/2017 10:00
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:48 on 12/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.4	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 05, 2018 09:43

Project: SGPP - Bennington

Account #: 37191
Group Number: 1884990
SDG: SNB49
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-171208 Water	12/08/2017	9359458
SG3-LTB02-171208 Water	12/08/2017	9359459
SG3-FILTEREDFRACTKA-171208 Water	12/08/2017 15:10	9359460

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1884990

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9359458, 9359459, 9359460

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17345003 (Sample number(s): 9359458-9359460 UNSPK: P358239)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: NEtFOSAA, NMeFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: NEtFOSAA, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9359458, 9359459, 9359460, Blank, MS, MSD

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Analysis Report

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Sample Description: **SG3-LTB01-171208 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/09/2017 10:00
Collection Date/Time: 12/08/2017
SDG#: SNB49-01TB

C. T. Male Associates
ELLE Sample #: WW 9359458
ELLE Group #: 1884990
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 15:10	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB02-171208 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/09/2017 10:00
Collection Date/Time: 12/08/2017
SDG#: SNB49-02TB

C. T. Male Associates
ELLE Sample #: WW 9359459
ELLE Group #: 1884990
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6 J**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 15:31	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FILTEREDFRACTKA-171208 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/09/2017 10:00
Collection Date/Time: 12/08/2017 15:10
SDG#: SNB49-03

C. T. Male Associates
ELLE Sample #: GW 9359460
ELLE Group #: 1884990
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.3 J**	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.6 U	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.7 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.7 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.8 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were outside QC acceptance criteria in the laboratory control sample as noted on the QC Summary. Since the recoveries were above QC limits and the analytes were not detected in the sample, the data is reported.

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17345003	12/12/2017 13:28	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17345003	12/11/2017 08:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/05/2018 09:43

Group Number: 1884990

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17345003	Sample number(s): 9359458-9359460		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	0.6 U	0.6	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17345003	Sample number(s): 9359458-9359460								
6:2 fluorotelomersulfonate	15.17	17.17			113		70-130		
8:2 fluorotelomersulfonate	15.33	13.41			87		70-130		
NEtFOSAA	5.44	7.30			134*		70-130		
NMeFOSAA	5.44	7.92			146*		70-130		
Perfluorobutanesulfonate	4.81	4.74			99		70-130		
Perfluorobutanoic acid	5.44	5.80			107		70-130		
Perfluorodecanoic acid	5.44	5.91			109		70-130		
Perfluorododecanoic acid	5.44	6.02			111		70-130		
Perfluoroheptanoic acid	5.44	5.92			109		70-130		
Perfluorohexanesulfonate	5.14	5.30			103		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/05/2018 09:43

Group Number: 1884990

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.08			93		70-130		
Perfluorononanoic acid	5.44	6.11			112		70-130		
Perfluorooctanesulfonamide	5.44	7.76			143*		70-130		
Perfluoro-octanesulfonate	5.20	5.56			107		70-130		
Perfluorooctanoic acid	5.44	5.72			105		70-130		
Perfluoropentanoic acid	5.44	6.08			112		70-130		
Perfluorotetradecanoic acid	5.44	5.45			100		70-130		
Perfluorotridecanoic acid	5.44	4.70			86		70-130		
Perfluoroundecanoic acid	5.44	6.08			112		70-130		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17345003	Sample number(s): 9359458-9359460 UNSPK: P358239									
6:2 fluorotelomersulfonate	3 U	14.43	15.88	14.64	14.37	110	98	70-130	10	30
8:2 fluorotelomersulfonate	2 U	14.59	13.8	14.79	14.25	95	96	70-130	3	30
NEtFOSAA	0.9 U	5.18	7.01	5.25	7.94	135*	151*	70-130	12	30
NMeFOSAA	0.9 U	5.18	6.74	5.25	6.30	130	120	70-130	7	30
Perfluorobutanesulfonate	0.3 U	4.58	4.59	4.64	4.92	100	106	70-130	7	30
Perfluorobutanoic acid	2 U	5.18	5.39	5.25	5.80	104	110	70-130	7	30
Perfluorodecanoic acid	0.6 U	5.18	4.85	5.25	5.35	94	102	70-130	10	30
Perfluorododecanoic acid	0.3 U	5.18	5.11	5.25	5.78	99	110	70-130	12	30
Perfluoroheptanoic acid	0.787	5.18	5.78	5.25	6.57	96	110	70-130	13	30
Perfluorohexanesulfonate	0.4 U	4.90	4.79	4.97	4.93	98	99	70-130	3	30
Perfluorohexanoic acid	0.4 U	5.18	5.00	5.25	5.89	97	112	70-130	16	30
Perfluorononanoic acid	0.4 U	5.18	5.34	5.25	5.89	103	112	70-130	10	30
Perfluorooctanesulfonamide	0.9 U	5.18	7.34	5.25	7.76	142*	148*	70-130	5	30
Perfluoro-octanesulfonate	0.4 U	4.95	4.67	5.02	5.24	94	104	70-130	11	30
Perfluorooctanoic acid	14.48	5.18	20.15	5.25	20.16	110	108	70-130	0	30
Perfluoropentanoic acid	2 U	5.18	5.02	5.25	5.61	97	107	70-130	11	30
Perfluorotetradecanoic acid	0.3 U	5.18	5.27	5.25	5.58	102	106	70-130	6	30
Perfluorotridecanoic acid	0.3 U	5.18	4.57	5.25	5.22	88	99	70-130	13	30
Perfluoroundecanoic acid	0.4 U	5.18	5.53	5.25	5.77	107	110	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/05/2018 09:43

Group Number: 1884990

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17345003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9359458	86	86	88	96	88	93
9359459	76	81	79	88	82	87
9359460	81	108	124	90	84	87
Blank	81	81	78	83	79	80
LCS	89	89	89	96	86	92
MS	95	100	94	104	95	94
MSD	84	85	80	90	86	90
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9359458	77	89	73	76	84	60
9359459	73	85	68	69	78	55
9359460	80	82	77	81	81	73
Blank	85	84	77	79	81	73
LCS	91	85	78	83	84	99
MS	85	92	83	84	90	77
MSD	90	88	77	83	78	67
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9359458	87	89	89	98	94	57*
9359459	84	80	84	88	88	53*
9359460	79	84	79	77	55	37*
Blank	83	80	82	76	60	67*
LCS	83	87	96	90	64	78
MS	78	87	88	93	80	68*
MSD	82	76	72	76	60	62*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1884990 19 9359458-60

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **52746**

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, TRIZMA = O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: Lab Trip Blank 250 mL (PFC-19)	Analysis Requested: Water: 250 mL TRIZMA (PFC-19)	Analysis Requested: Soil: % Solids	Preservative Code	Field Filtered Y/N
												0	N
1. SGS-LBT01-171208	—	—	—	12/08/2017	—	W	N	1	1				STANDARD
2. SGS-LBT02-171208	—	—	—	12/08/2017	—	W	N	1	1				STANDARD
3. SGS-FILTERED FRACTKA-	1712	08	—	12/08/2017	15:10	W	N	2		2			#RUSH 24 HR
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KMD		☒	12/8/17	1530			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						12-9-17	1000
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 0.5			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

1884990 9359458-60

Barr Engineering Co. Chain of Custody

BARR

☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MI ☐ MN ☐ MO ☐ ND ☐ SD ☐ WI Other: VT

COC Number: 52746

COC ____ of ____

REPORT TO	
Company:	Barr Engineering
Address:	4300 Market Pointe Dr.
Name:	Michael Dupay
email:	mdupay@barr.com
Copy to:	datamgt@barr.com
Project Name:	SEVP - Bennington

INVOICE TO	
Company:	CT Male
Address:	50 Century Hill Dr.
Name:	Latham
email:	
P.O.	
Barr Project No:	45021004.00

Analysis Requested: Water / Soil
- Lab trip blank 250 mL (PFC 19)
- 250 mL Trizma (PFC 19)
- % Solids

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Lab trip blank 250 mL (PFC 19)	250 mL Trizma (PFC 19)	Remarks
Preservative Code									O	O	
Field Filtered Y/N									N	N	
1. LTB01 KR 01/03/18 SG3-~~LTB01~~-171208	—	—	—	12/08/2017	—	W	N	1	1		STANDARD
2. LTB02 KR 01/03/18 SG3-~~LTB02~~-171208	—	—	—	12/08/2017	—	W	N	1	1		STANDARD
3. SG5-FILTERED FRACTKA-[redacted]	1712	08	—	12/08/2017	1510	W	N	2		2	*RUSH 24 HR*
4.											
5.											
6.											
7.											
8.											
9.											
10.											

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; TRIZMA = O = Other

BARR USE ONLY	
Sampled by:	KMD
Barr Proj. Manager:	JTC
Barr DQ Manager:	MDD
Lab Name:	ELLE
Lab Location:	Lancaster

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
KR	(Y) N	12/8/17	1530			
	Y N					

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: ____

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush ____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

BLG:STDFORMS\Chain Of Custody Form 2015 BLG Rev. 06/26/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203500

Group Number(s): 1864990

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/09/2017 10:00
Number of Packages:	1	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2-250 mL plastic bottles (Trizma)

Unpacked by Melvin Sanchez (8943) at 10:23 on 12/09/2017

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.5	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LBT01-171208	SG3-LTB01-171208	
SG3-LBT02-171208	SG3-LTB02-171208	

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Lancaster, PA 17605-2425
T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 25, 2018 08:42

Project: SGPP - Bennington

Account #: 37191
Group Number: 1885685
SDG: SNB51
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FilteredFracTKE-171209 Grab Water	12/09/2017 16:30	9362174
SG3-LTB112-171209 Water	12/09/2017	9362175
SG3-FilteredFracTKB171210 Grab Water	12/10/2017 18:45	9362176
SG3-FilteredFracTKD171211 Grab Water	12/11/2017 12:30	9362177

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1885685

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9362176, 9362177

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Sample #s: 9362175

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Sample #s: 9362174

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the

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method blank. Comparable results were observed in the sample.

Reporting limits were raised due to interference from the sample matrix.

Batch #: 17346011 (Sample number(s): 9362174-9362177)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9362174, 9362176, 9362177, LCSD

REVISED

Sample Description: **SG3-FilteredFracTKE-171209 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/09/2017 16:30
SDG#: SNB51-01

C. T. Male Associates
ELLE Sample #: GW 9362174
ELLE Group #: 1885685
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	4 U	4	10	1
14473	8:2 fluorotelomersulfonate	39108-34-4	3 U	3	8	1
14473	NEtFOSAA	2991-50-6	1 U	1	4	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	4	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.4 U	0.4	1	1
14473	Perfluorobutanoic acid	375-22-4	3 U	3	8	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.8	3	1
14473	Perfluorododecanoic acid	307-55-1	0.4 U	0.4	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.4 U	0.4	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.5 U	0.5	3	1
14473	Perfluorohexanoic acid	307-24-4	0.5 U	0.5	3	1
14473	Perfluorononanoic acid	375-95-1	0.5 U	0.5	3	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	4	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.5 U	0.5	3	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.7 J**	0.4	1	1
14473	Perfluoropentanoic acid	2706-90-3	3 U	3	8	1
14473	Perfluorotetradecanoic acid	376-06-7	0.4 U	0.4	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.4 U	0.4	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.5 U	0.5	3	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17346011	12/13/2017 07:16	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17346011	12/12/2017 14:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **SG3-LTB112-171209 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/09/2017
SDG#: SNB51-02TB

C. T. Male Associates
ELLE Sample #: WW 9362175
ELLE Group #: 1885685
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 JB**	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17346011	12/13/2017 07:36	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17346011	12/12/2017 14:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FilteredFracTKB171210 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 18:45
SDG#: SNB51-03

C. T. Male Associates
ELLE Sample #: GW 9362176
ELLE Group #: 1885685
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.7 JB**	0.5	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17346011	12/13/2017 07:57	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FilteredFracTKB171210 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 18:45
SDG#: SNB51-03

C. T. Male Associates
ELLE Sample #: GW 9362176
ELLE Group #: 1885685
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17346011	12/12/2017 14:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FilteredFracTKD171211 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/11/2017 12:30
SDG#: SNB51-04

C. T. Male Associates
ELLE Sample #: GW 9362177
ELLE Group #: 1885685
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.8 JB**	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compound used as extraction standard 13C2-PFTeDA is outside of QC acceptance limits as noted on the QC Summary.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The sample was reextracted and perfluorodecanoic acid was again detected in the method blank. Comparable results were observed in the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17346011	12/13/2017 08:18	Mark Makowiecki	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-FilteredFracTKD171211 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/11/2017 12:30
SDG#: SNB51-04

C. T. Male Associates
ELLE Sample #: GW 9362177
ELLE Group #: 1885685
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17346011	12/12/2017 14:20	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 08:42

Group Number: 1885685

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17346011	Sample number(s): 9362174-9362177		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	0.9 J	0.6	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17346011	Sample number(s): 9362174-9362177								
6:2 fluorotelomersulfonate	15.17	17.83	15.17	17.11	118	113	70-130	4	30
8:2 fluorotelomersulfonate	15.33	12.67	15.33	13.75	83	90	70-130	8	30
NEtFOSAA	5.44	5.62	5.44	5.72	103	105	70-130	2	30
NMeFOSAA	5.44	5.70	5.44	5.08	105	93	70-130	11	30
Perfluorobutanesulfonate	4.81	4.65	4.81	4.49	97	93	70-130	3	30
Perfluorobutanoic acid	5.44	5.46	5.44	5.72	100	105	70-130	5	30
Perfluorodecanoic acid	5.44	6.30	5.44	5.70	116	105	70-130	10	30
Perfluorododecanoic acid	5.44	5.23	5.44	5.36	96	99	70-130	3	30
Perfluoroheptanoic acid	5.44	5.31	5.44	5.46	98	100	70-130	3	30
Perfluorohexanesulfonate	5.14	4.47	5.14	4.25	87	83	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 08:42

Group Number: 1885685

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.60	5.44	5.46	103	100	70-130	3	30
Perfluorononanoic acid	5.44	5.66	5.44	5.49	104	101	70-130	3	30
Perfluorooctanesulfonamide	5.44	5.28	5.44	5.43	97	100	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.01	5.20	5.00	96	96	70-130	0	30
Perfluorooctanoic acid	5.44	4.92	5.44	4.87	90	90	70-130	1	30
Perfluoropentanoic acid	5.44	5.22	5.44	4.99	96	92	70-130	5	30
Perfluorotetradecanoic acid	5.44	5.62	5.44	5.45	103	100	70-130	3	30
Perfluorotridecanoic acid	5.44	4.31	5.44	5.04	79	93	70-130	16	30
Perfluoroundecanoic acid	5.44	5.26	5.44	5.70	97	105	70-130	8	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17346011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9362174	81	93	94	91	87	89
9362175	91	101	100	113	97	105
9362176	82	91	85	90	84	86
9362177	92	103	103	103	89	98
Blank	81	90	85	84	79	72
LCS	94	104	101	88	88	85
LCSD	96	107	96	93	85	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9362174	86	87	82	92	80	70
9362175	96	97	89	85	105	84
9362176	84	93	77	83	87	69
9362177	94	95	90	94	91	77
Blank	81	87	76	76	88	81
LCS	90	95	92	96	94	95
LCSD	98	100	90	90	96	81
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 08:42

Group Number: 1885685

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17346011

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9362174	77	85	87	93	91	69*
9362175	100	100	109	112	100	70
9362176	93	74	80	60	10*	61*
9362177	101	84	97	72	19*	39*
Blank	81	91	85	90	88	70
LCS	90	100	89	98	61	70
LCSD	90	90	88	100	89	64*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-188568 ☆ Rush - 24 Hr. T.A.T S-936217 4-77

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53531

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No: 45021004

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	2-5oz ml plastic/Tizing	% Solids
1. SG3-filteredfracTKE-171209				12/09/2017	16:30	W	N	2	2	
2. SG3-LTB#12-171209				12/09/2017	AM	W	N	2	2	
3. SG3-FilteredfracTKB171210				12/10/2017	18:45	W	N	2	2	
4. SG3-filteredfracTKD171211				12/11/2017	12:30	W				
5.										
6.										
7.										
8.										
9.										
10.										

Analysis Requested — Water / Soil

Preservative Code

Field Filtered Y/N

PFC's (19)

☆ Rush 24 Hr. T.A.T

BARR USE ONLY							
Sampled by: KAM/BAW	Relinquished by:	On Ice? Y (N)	Date 12/11/17	Time 17:00	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 12/12/17	Time 1025
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ELLE						Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 HR (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.9/1.6			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203605

Group Number(s): 1885685

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/12/2017 10:25
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (4, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:52 on 12/12/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.4	DT	Wet	Y	Bagged	N
2	DT146	1.6	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LTB112-171209	No Lable	2 Plastic Bottles

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 19, 2017 17:59

Project: SGPP - Bennington

Account #: 37191
Group Number: 1885694
SDG: SNB52
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-171210 Grab Groundwater	12/10/2017 17:00	9362232
SG3-LTB113-171210 Blank Water	12/10/2017	9362233

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: SGPP - Bennington
ELLE Group #: 1885694

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Preservation requirements were not met.

Sample #: 9362232

Preservation requirements were not met. The pH preservation of all non-volatile containers was checked upon receipt at the laboratory. The container for the following analysis was not within specification and was adjusted accordingly by the laboratory: Total Cyanide (water)

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9362232

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted within the method required holding time and target analytes were again detected in the method blank associated with the samples. The data is reported from the initial trial. Similar results were obtained in both trials.

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17347WAL026 (Sample number(s): 9362232 UNSPK: P358239)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9362232, Blank, LCS, MS, MSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9362232, 9362233

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17347019 (Sample number(s): 9362232-9362233)

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The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9362232, 9362233, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 173481063503 (Sample number(s): 9362232 UNSPK: P361379 BKG: P361379)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Iron, Potassium, Sodium, Calcium, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Iron

SW-846 6020A, Metals

Batch #: 173481063903A (Sample number(s): 9362232 UNSPK: P359125 BKG: P359125)

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Antimony

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic, Copper

SM 2320 B-1997, Wet Chemistry

Batch #: 17352005203A (Sample number(s): 9362232 UNSPK: P364589 BKG: P352722, P364589)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9362232

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Description: **SG3-MWBR2-171210 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 17:00
SDG#: SNB52-01

C. T. Male Associates
ELLE Sample #: GW 9362232
ELLE Group #: 1885694
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-171210 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 17:00
SDG#: SNB52-01

C. T. Male Associates
ELLE Sample #: GW 9362232
ELLE Group #: 1885694
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.17 J**	0.050	0.20	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted within the method required holding time and target analytes were again detected in the method blank associated with the samples. The data is reported from the initial trial. Similar results were obtained in both trials.

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**11**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**22**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**46**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**3**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**41**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**5**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**3**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**180**	0.3	0.9	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-171210 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 17:00
SDG#: SNB52-01

C. T. Male Associates
ELLE Sample #: GW 9362232
ELLE Group #: 1885694
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**Perfluoropentanoic acid**	2706-90-3	**34**	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**58.6**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**23.9**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**1.19**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.41**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**2.19**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0611**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0461**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00030 J**	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0031**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0022 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00033 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0033 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00070 J**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**4.5**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-171210 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 17:00
SDG#: SNB52-01

C. T. Male Associates
ELLE Sample #: GW 9362232
ELLE Group #: 1885694
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**12.7**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.096 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**224**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**224**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Comments

This sample was field filtered for dissolved ortho-phosphate. Preservation requirements were not met. The pH preservation of all non-volatile containers was checked upon receipt at the laboratory. The container for the following analysis was not within specification and was adjusted accordingly by the laboratory: Total Cyanide (water)

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	4173482AA	12/14/2017 15:02	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	4173482AA	12/14/2017 15:02	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17347WAL026	12/15/2017 08:52	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17347WAL026	12/14/2017 07:30	Bradley W VanLeuven	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17347019	12/14/2017 07:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17347019	12/13/2017 15:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-171210 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017 17:00
SDG#: SNB52-01

C. T. Male Associates
ELLE Sample #: GW 9362232
ELLE Group #: 1885694
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	173481063503	12/18/2017 08:02	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	173481063503	12/15/2017 03:09	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	173481063903D	12/19/2017 11:02	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06041	Selenium	SW-846 6020A	1	173481063903B	12/19/2017 05:09	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173481063903A	12/19/2017 05:09	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	173470571304	12/19/2017 09:08	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173481063503	12/14/2017 16:40	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173481063903	12/14/2017 17:00	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173470571304	12/18/2017 16:50	JoElla L Rice	1
01505	Bromide	EPA 300.0	1	17346120115A	12/12/2017 15:14	Hallie A Burnett	5
00224	Chloride	EPA 300.0	1	17346120115A	12/12/2017 15:14	Hallie A Burnett	5
00368	Nitrate Nitrogen	EPA 300.0	1	17346120115A	12/12/2017 15:14	Hallie A Burnett	5
01506	Nitrite Nitrogen	EPA 300.0	1	17346120115A	12/12/2017 15:14	Hallie A Burnett	5
00228	Sulfate	EPA 300.0	1	17346120115A	12/12/2017 15:14	Hallie A Burnett	5
12892	Ammonia Nitrogen	EPA 350.1	1	17352107102A	12/19/2017 00:15	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17347108101B	12/14/2017 10:53	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17352117101A	12/19/2017 11:10	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17347108101B	12/13/2017 16:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17352117101A	12/18/2017 07:20	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17352005203A	12/19/2017 00:48	Nathan T Morgan	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17352005203A	12/19/2017 00:48	Nathan T Morgan	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17352005203A	12/19/2017 00:48	Nathan T Morgan	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17346022601A	12/12/2017 21:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB113-171210 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/12/2017 10:25
Collection Date/Time: 12/10/2017
SDG#: SNB52-02TB

C. T. Male Associates
ELLE Sample #: WW 9362233
ELLE Group #: 1885694
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.6	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits for 13C8-PFOSA are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17347019	12/14/2017 08:05	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17347019	12/13/2017 15:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 4173482AA	Sample number(s): 9362232		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17347WAL026	Sample number(s): 9362232		
1,4-Dioxane	0.093 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17347019	Sample number(s): 9362232-9362233		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173470571304	Sample number(s): 9362232		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173481063503	Sample number(s): 9362232		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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Quality Control Summary

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Reported: 12/19/2017 17:59

Group Number: 1885694

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173481063903A	Sample number(s): 9362232		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173481063903B	Sample number(s): 9362232		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173481063903D	Sample number(s): 9362232		
Barium	0.0021 J	0.00072	0.0040
Batch number: 17346120115A	Sample number(s): 9362232		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17347108101B	Sample number(s): 9362232		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17352107102A	Sample number(s): 9362232		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17352117101A	Sample number(s): 9362232		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17346022601A	Sample number(s): 9362232		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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Quality Control Summary

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Group Number: 1885694

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17352005203A	Sample number(s): 9362232		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 4173482AA	Sample number(s): 9362232								
Acetone	150	163.69			109		44-177		
Benzene	20	20.19			101		78-120		
Bromochloromethane	20	21.09			105		80-125		
Bromodichloromethane	20	19.85			99		71-120		
Bromoform	20	19.35			97		59-120		
Bromomethane	20	18.18			91		44-139		
2-Butanone	150	155.3			104		53-140		
Carbon Disulfide	20	21.39			107		65-128		
Carbon Tetrachloride	20	22.5			113		68-128		
Chlorobenzene	20	20.52			103		80-120		
Chloroethane	20	18.01			90		52-127		
Chloroform	20	20.55			103		80-120		
Chloromethane	20	19.65			98		57-120		
Cyclohexane	20	19.47			97		67-121		
1,2-Dibromo-3-chloropropane	20	20.22			101		64-120		
Dibromochloromethane	20	20.41			102		71-120		
1,2-Dibromoethane	20	19.79			99		75-120		
1,2-Dichlorobenzene	20	19.65			98		80-120		
1,3-Dichlorobenzene	20	19.42			97		80-120		
1,4-Dichlorobenzene	20	19.85			99		80-120		
Dichlorodifluoromethane	20	18.43			92		47-124		
1,1-Dichloroethane	20	20.74			104		80-120		
1,2-Dichloroethane	20	21.33			107		73-124		
1,1-Dichloroethene	20	22.88			114		76-124		
cis-1,2-Dichloroethene	20	21.04			105		80-120		
trans-1,2-Dichloroethene	20	21.66			108		80-120		
1,2-Dichloropropane	20	20.62			103		80-120		
cis-1,3-Dichloropropene	20	19.23			96		75-120		
trans-1,3-Dichloropropene	20	19.1			95		76-120		
Ethylbenzene	20	19.98			100		78-120		
Freon 113	20	22.89			114		68-137		
2-Hexanone	100	103.67			104		60-134		

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Client Name: C. T. Male Associates
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Group Number: 1885694

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	20.28			101		80-120		
Methyl Acetate	20	21.15			106		61-137		
Methyl Tertiary Butyl Ether	20	19.08			95		75-120		
4-Methyl-2-pentanone	100	103.53			104		67-128		
Methylcyclohexane	20	20.47			102		66-126		
Methylene Chloride	20	20.73			104		80-120		
Styrene	20	19.58			98		80-120		
1,1,2,2-Tetrachloroethane	20	18.28			91		72-120		
Tetrachloroethene	20	21.29			106		80-129		
Toluene	20	20.01			100		80-120		
1,2,3-Trichlorobenzene	20	18.08			90		66-120		
1,2,4-Trichlorobenzene	20	18.73			94		70-120		
1,1,1-Trichloroethane	20	20.7			104		67-120		
1,1,2-Trichloroethane	20	20.03			100		80-120		
Trichloroethene	20	20.38			102		80-120		
Trichlorofluoromethane	20	21.49			107		52-143		
Vinyl Chloride	20	19.62			98		63-121		
m+p-Xylene	40	40.87			102		80-120		
o-Xylene	20	19.46			97		80-120		
Xylene (Total)	60	60.33			101		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17347WAL026	Sample number(s): 9362232								
1,4-Dioxane	1.00	1.29			129		70-130		
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17347019	Sample number(s): 9362232-9362233								
6:2 fluorotelomersulfonate	15.17	19.52	15.17	19.17	129	126	70-130	2	30
8:2 fluorotelomersulfonate	15.33	16.69	15.33	16.49	109	108	70-130	1	30
NEtFOSAA	5.44	6.35	5.44	6.67	117	123	70-130	5	30
NMeFOSAA	5.44	6.41	5.44	6.37	118	117	70-130	1	30
Perfluorobutanesulfonate	4.81	4.82	4.81	5.02	100	104	70-130	4	30
Perfluorobutanoic acid	5.44	6.39	5.44	6.52	117	120	70-130	2	30
Perfluorodecanoic acid	5.44	6.60	5.44	6.99	121	129	70-130	6	30
Perfluorododecanoic acid	5.44	6.07	5.44	6.06	112	111	70-130	0	30
Perfluoroheptanoic acid	5.44	5.92	5.44	6.31	109	116	70-130	6	30
Perfluorohexanesulfonate	5.14	5.16	5.14	5.64	100	110	70-130	9	30
Perfluorohexanoic acid	5.44	5.67	5.44	6.25	104	115	70-130	10	30
Perfluorononanoic acid	5.44	6.17	5.44	6.69	113	123	70-130	8	30
Perfluorooctanesulfonamide	5.44	5.74	5.44	6.38	106	117	70-130	11	30
Perfluoro-octanesulfonate	5.20	5.58	5.20	5.59	107	107	70-130	0	30
Perfluorooctanoic acid	5.44	5.57	5.44	5.88	102	108	70-130	6	30
Perfluoropentanoic acid	5.44	6.00	5.44	5.50	110	101	70-130	9	30
Perfluorotetradecanoic acid	5.44	5.70	5.44	5.88	105	108	70-130	3	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.73	5.44	5.83	105	107	70-130	2	30
Perfluoroundecanoic acid	5.44	6.21	5.44	6.59	114	121	70-130	6	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173470571304	Sample number(s): 9362232								
Mercury	0.00100	0.000876			88		80-120		
Batch number: 173481063503	Sample number(s): 9362232								
Aluminum	2.00	2.19			110		80-120		
Boron	2.00	1.83			91		80-120		
Calcium	4.00	3.85			96		80-120		
Iron	1.00	0.961			96		80-120		
Magnesium	2.00	1.97			98		80-120		
Manganese	0.500	0.501			100		80-120		
Potassium	10	9.84			98		80-120		
Sodium	10	9.74			97		80-120		
Zinc	0.500	0.488			98		80-120		
Batch number: 173481063903A	Sample number(s): 9362232								
Antimony	0.00600	0.00627			105		80-120		
Arsenic	0.0100	0.0113			113		80-120		
Beryllium	0.00400	0.00413			103		80-120		
Cadmium	0.00500	0.00515			103		80-120		
Chromium	0.0500	0.0518			104		80-120		
Cobalt	0.250	0.260			104		80-120		
Copper	0.0500	0.0533			107		80-120		
Lead	0.0150	0.0149			100		80-120		
Nickel	0.0500	0.0523			105		80-120		
Silver	0.0500	0.0517			103		80-120		
Thallium	0.00200	0.00211			105		80-120		
Vanadium	0.0500	0.0519			104		80-120		
Batch number: 173481063903B	Sample number(s): 9362232								
Selenium	0.0100	0.0104			104		80-120		
Batch number: 173481063903D	Sample number(s): 9362232								
Barium	0.0500	0.0507			101		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17346120115A	Sample number(s): 9362232								
Bromide	7.50	7.77			104		90-110		
Chloride	3.00	3.09			103		90-110		
Nitrate Nitrogen	0.750	0.748			100		90-110		
Nitrite Nitrogen	0.750	0.742			99		90-110		
Sulfate	7.50	7.78			104		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17347108101B	Sample number(s): 9362232								
Kjeldahl Nitrogen	5.00	5.13			103		90-110		
Batch number: 17352107102A	Sample number(s): 9362232								
Ammonia Nitrogen	1.50	1.47			98		90-110		
Batch number: 17352117101A	Sample number(s): 9362232								
Total Cyanide	0.200	0.196			98		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17346022601A	Sample number(s): 9362232								
Ortho-Phosphate as P	0.400	0.399			100		95-105		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17352005203A	Sample number(s): 9362232								
Total Alkalinity to pH 4.5	188	179.73			96		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 4173482AA	Sample number(s): 9362232 UNSPK: P358886									
Acetone	6 U	150	155.06	150	160.19	103	107	44-177	3	30
Benzene	0.5 U	20	21.11	20	21.1	106	106	78-120	0	30
Bromochloromethane	1 U	20	20.93	20	21.65	105	108	80-125	3	30
Bromodichloromethane	0.5 U	20	20.19	20	20.35	101	102	71-120	1	30
Bromoform	0.5 U	20	19.19	20	19	96	95	59-120	1	30
Bromomethane	0.5 U	20	19.58	20	19.61	98	98	44-139	0	30
2-Butanone	3 U	150	151.84	150	151.14	101	101	53-140	0	30
Carbon Disulfide	1 U	20	21.71	20	21.77	109	109	65-128	0	30
Carbon Tetrachloride	0.5 U	20	23.97	20	24.3	120	121	68-128	1	30
Chlorobenzene	0.5 U	20	21.44	20	21.53	107	108	80-120	0	30
Chloroethane	0.5 U	20	18.95	20	18.97	95	95	52-127	0	30
Chloroform	0.5 U	20	21.76	20	22.04	109	110	80-120	1	30
Chloromethane	0.5 U	20	19.32	20	20.01	97	100	57-120	4	30
Cyclohexane	2 U	20	21.64	20	21.73	108	109	67-121	0	30
1,2-Dibromo-3-chloropropane	2 U	20	19.85	20	20.07	99	100	64-120	1	30
Dibromochloromethane	0.5 U	20	20.58	20	20.42	103	102	71-120	1	30
1,2-Dibromoethane	0.5 U	20	19.78	20	19.83	99	99	75-120	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	20.41	20	20.68	102	103	80-120	1	30
1,3-Dichlorobenzene	1 U	20	20.43	20	20.65	102	103	80-120	1	30
1,4-Dichlorobenzene	1 U	20	20.81	20	20.91	104	105	80-120	0	30
Dichlorodifluoromethane	0.5 U	20	19.32	20	19.29	97	96	47-124	0	30
1,1-Dichloroethane	0.5 U	20	21.92	20	22.24	110	111	80-120	1	30
1,2-Dichloroethane	0.5 U	20	21.54	20	21.49	108	107	73-124	0	30
1,1-Dichloroethene	0.5 U	20	24.76	20	24.83	124	124	76-124	0	30
cis-1,2-Dichloroethene	0.5 U	20	22.01	20	22.24	110	111	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	22.79	20	22.9	114	114	80-120	0	30
1,2-Dichloropropane	0.5 U	20	21.04	20	21.07	105	105	80-120	0	30
cis-1,3-Dichloropropene	0.5 U	20	19.09	20	19.35	95	97	75-120	1	30
trans-1,3-Dichloropropene	0.5 U	20	19.28	20	19.39	96	97	76-120	1	30
Ethylbenzene	0.5 U	20	21.26	20	21.47	106	107	78-120	1	30
Freon 113	2 U	20	25.52	20	25.62	128	128	68-137	0	30
2-Hexanone	3 U	100	103.1	100	102.68	103	103	60-134	0	30
Isopropylbenzene	1 U	20	21.83	20	21.88	109	109	80-120	0	30
Methyl Acetate	1 U	20	20.05	20	20.54	100	103	61-137	2	30
Methyl Tertiary Butyl Ether	0.5 U	20	19.09	20	19.4	95	97	75-120	2	30
4-Methyl-2-pentanone	3 U	100	102.24	100	102.01	102	102	67-128	0	30
Methylcyclohexane	1 U	20	22.49	20	23.17	112	116	66-126	3	30
Methylene Chloride	0.5 U	20	21.53	20	21.82	108	109	80-120	1	30
Styrene	1 U	20	20.43	20	20.63	102	103	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	18.48	20	18.45	92	92	72-120	0	30
Tetrachloroethene	0.5 U	20	23.42	20	23.36	117	117	80-129	0	30
Toluene	0.5 U	20	21.34	20	21.31	107	107	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	18.74	20	19.2	94	96	66-120	2	30
1,2,4-Trichlorobenzene	1 U	20	19.57	20	20.04	98	100	70-120	2	30
1,1,1-Trichloroethane	0.5 U	20	22.01	20	22.04	110	110	67-120	0	30
1,1,2-Trichloroethane	0.5 U	20	20.4	20	20.46	102	102	80-120	0	30
Trichloroethene	0.5 U	20	21.35	20	21.51	107	108	80-120	1	30
Trichlorofluoromethane	0.5 U	20	23.21	20	23.21	116	116	52-143	0	30
Vinyl Chloride	0.5 U	20	20.05	20	20.42	100	102	63-121	2	30
m+p-Xylene	0.5 U	40	42.77	40	43.26	107	108	80-120	1	30
o-Xylene	0.5 U	20	20.48	20	20.75	102	104	80-120	1	30
Xylene (Total)	0.5 U	60	63.25	60	64.01	105	107	80-120	1	30
	ug/l	**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17347WAL026	Sample number(s): 9362232 UNSPK: P358239									
1,4-Dioxane	0.134	1.00	1.33	1.01	1.20	119	106	70-130	10	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173470571304	Sample number(s): 9362232 UNSPK: P359650									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Mercury	0.000050 U	0.00100	0.000866	0.00100	0.000884	87	88	80-120	2	20
Batch number: 173481063503	Sample number(s): 9362232 UNSPK: P361379									
Aluminum	0.112	2.00	2.41	2.00	2.41	115	115	75-125	0	20
Boron	6.87	2.00	8.77	2.00	8.60	95	86	75-125	2	20
Calcium	152.61	4.00	159.53	4.00	155.99	173 (2)	85 (2)	75-125	2	20
Iron	4.19	1.00	6.80	1.00	6.63	261 (2)	244 (2)	75-125	2	20
Magnesium	70.63	2.00	74.27	2.00	72.99	182 (2)	118 (2)	75-125	2	20
Manganese	0.305	0.500	0.803	0.500	0.793	100	98	75-125	1	20
Potassium	291.18	10	318.12	10	311.75	269 (2)	206 (2)	75-125	2	20
Sodium	945.48	10	994.38	10	989.46	489 (2)	440 (2)	75-125	0	20
Zinc	0.0065 U	0.500	0.509	0.500	0.500	102	100	75-125	2	20
Batch number: 173481063903A	Sample number(s): 9362232 UNSPK: P359125									
Antimony	0.00045 U	0.00600	0.00689	0.00600	0.00560	115	93	75-125	21*	20
Arsenic	0.00103	0.0100	0.0129	0.0100	0.0116	119	106	75-125	11	20
Beryllium	0.000071 U	0.00400	0.00419	0.00400	0.00431	105	108	75-125	3	20
Cadmium	0.00015 U	0.00500	0.00485	0.00500	0.00500	97	100	75-125	3	20
Chromium	0.000873	0.0500	0.0484	0.0500	0.0498	95	98	75-125	3	20
Cobalt	0.000365	0.250	0.261	0.250	0.260	104	104	75-125	0	20
Copper	0.000734	0.0500	0.0507	0.0500	0.0513	100	101	75-125	1	20
Lead	0.000692	0.0150	0.0168	0.0150	0.0167	107	107	75-125	1	20
Nickel	0.0124	0.0500	0.0641	0.0500	0.0624	103	100	75-125	3	20
Silver	0.00015 U	0.0500	0.0432	0.0500	0.0455	86	91	75-125	5	20
Thallium	0.00012 U	0.00200	0.00218	0.00200	0.00205	109	102	75-125	6	20
Vanadium	0.00804	0.0500	0.0586	0.0500	0.0601	101	104	75-125	2	20
Batch number: 173481063903B	Sample number(s): 9362232 UNSPK: P359125									
Selenium	0.00050 U	0.0100	0.00805	0.0100	0.00784	80	78	75-125	3	20
Batch number: 173481063903D	Sample number(s): 9362232 UNSPK: P359125									
Barium	0.408	0.0500	0.465	0.0500	0.462	114 (2)	109 (2)	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17346120115A	Sample number(s): 9362232 UNSPK: 9362232									
Bromide	1.3 U	25	24.25			97		90-110		
Chloride	4.53	10	14.48			100		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.60			104		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.49			100		90-110		
Sulfate	12.68	25	39.37			107		90-110		
Batch number: 17347108101B	Sample number(s): 9362232 UNSPK: 9362232									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Kjeldahl Nitrogen	0.50 U	5.00	5.08			102		90-110		
Batch number: 17352107102A	Sample number(s): 9362232 UNSPK: P354182									
Ammonia Nitrogen	4.52	10	13.49			90		90-110		
Batch number: 17352117101A	Sample number(s): 9362232 UNSPK: P368061									
Total Cyanide	0.0050 U	0.200	0.199			99		72-114		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17346022601A	Sample number(s): 9362232 UNSPK: P362462									
Ortho-Phosphate as P	0.030 U	0.400	0.419	0.400	0.422	105	105	69-131	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17352005203A	Sample number(s): 9362232 UNSPK: P364589									
Total Alkalinity to pH 4.5	154.43	188	264.35	188	261.17	58*	57*	77-114	1	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 173470571304	Sample number(s): 9362232 BKG: P359650			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173481063503	Sample number(s): 9362232 BKG: P361379			
Aluminum	0.112	0.196	54* (1)	20
Boron	6.87	6.71	2	20
Calcium	152.61	152.01	0	20
Iron	4.19	5.68	30*	20
Magnesium	70.63	70.92	0	20
Manganese	0.305	0.302	1	20
Potassium	291.18	302.36	4	20
Sodium	945.48	968.45	2	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 173481063903A	Sample number(s): 9362232 BKG: P359125			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00103	0.00136	28* (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.000873	0.000968	10 (1)	20
Cobalt	0.000365	0.000346	5 (1)	20
Copper	0.000734	0.000907	21* (1)	20
Lead	0.000692	0.000825	18 (1)	20
Nickel	0.0124	0.0138	10 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00804	0.00804	0	20
Batch number: 173481063903B	Sample number(s): 9362232 BKG: P359125			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173481063903D	Sample number(s): 9362232 BKG: P359125			
Barium	0.408	0.434	6	20
	mg/l	mg/l		
Batch number: 17346120115A	Sample number(s): 9362232 BKG: 9362232			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	4.53	4.54	0 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	12.68	12.65	0 (1)	15
Batch number: 17347108101B	Sample number(s): 9362232 BKG: 9362232			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17352107102A	Sample number(s): 9362232 BKG: P354182			
Ammonia Nitrogen	4.52	4.55	1 (1)	20
Batch number: 17352117101A	Sample number(s): 9362232 BKG: P368061			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17346022601A	Sample number(s): 9362232 BKG: P362462			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17352005203A	Sample number(s): 9362232 BKG: P364589			
Total Alkalinity to pH 4.5	154.43	154.92	0	5

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/19/2017 17:59

Group Number: 1885694

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 4173482AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9362232	103	102	101	97
Blank	105	103	101	99
LCS	104	100	100	100
MS	104	100	101	100
MSD	104	100	101	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17347WAL026

	1,4-Dioxane-d8
9362232	42*
Blank	45*
LCS	43*
MS	48*
MSD	39*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17347019

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9362232	74	96	116	85	80	87
9362233	77	80	70	83	66	67
Blank	82	89	81	86	75	91
LCS	71	74	70	80	71	79
LCSD	69	78	70	81	66	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9362232	95	80	75	76	75	62
9362233	76	78	72	83	78	64
Blank	81	82	79	72	84	70
LCS	79	78	70	70	76	68
LCSD	71	75	71	70	76	64
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1885694
Reported: 12/19/2017 17:59

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17347019

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9362232	85	81	103	86	89	58*
9362233	96	84	108	85	92	68*
Blank	93	84	96	93	92	69*
LCS	74	72	77	79	81	63*
LCSD	89	79	89	83	87	64*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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A-37191 G-1885694 S-9362232-33

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53529

COC 3 of 3

REPORT TO	INVOICE TO
Company: Bracing Co.	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name:
email: Mdupay@bale.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: Supp - Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250 ml plastic / Teflon-lined	Water: 250 ml Plastic - filtered - HNO3	Water: 250 ml Plastic - NaOH/ASC	Water: 250 ml plastic - unpres	Water: 250 ml glass - unpres	Soil: 250 ml plastic - H2SO4	Soil: 40 ml glass - HCl	Soil: 40 ml glass - unpres	% Solids	Preservative Code	Field Filtered Y/N
																		O	N
																		A	Y
																		C	N
																		E/L	N
																		A	N
																		A	N
																		D	N
																		B	N
																		A	N
1. SG3-MWBR2-171210				12/10/2017	17:00	GW			2	1	1	1	1	2	1	3	2		
2. SG3-LTB113-171210				12/10/2017	PM	W	2	2	2										
3.																			
4.																			
5.																			
6.																			
7.																			
8.																			
9.																			
10.																			

PFC's (19)

Ortho Phosphate, metals & Hg, Cyanide, Alkalinity, Dioxane, Ammonia/Nitrogen, VOC's, BR/Cl/N

Samples in 2 coolers

5 Day TAT

BARR USE ONLY							
Sampled by: Kim	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 12/12/17	Time 1025
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 5 day TAT (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 0.4/1.6	Custody Seal Intact? ☐ Y ☐ N ☐ None				
Lab Location: Lancaster PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 203605

Group Number(s): 1885694

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/12/2017 10:25
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (4, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:52 on 12/12/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.4	DT	Wet	Y	Bagged	N
2	DT146	1.6	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LTB112-171209	No Lable	2 Plastic Bottles

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 29, 2017 10:11

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888121
SDG: SNB55
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AFTERPOETB-171202 Grab Water	12/02/2017 08:00	9373440
SG3-AFTERPOETD-171202 Grab Water	12/02/2017 13:00	9373441
SG3-CITYWATERTRUCK-171204 Grab Water	12/04/2017 11:15	9373442
SG3-CITYWATERHOSE-171204 Grab Water	12/04/2017 11:20	9373443
SG3-CITYWATERTK2-171204 Grab Water	12/04/2017 13:30	9373444

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888121

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9373440, 9373441, 9373442, 9373443, 9373444

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17353011 (Sample number(s): 9373440-9373444)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9373440, 9373441, 9373442, 9373443, 9373444, Blank, LCS, LCSD

Sample Description: **SG3-AFTERPOETB-171202 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/02/2017 08:00
SDG#: SNB55-01

C. T. Male Associates
ELLE Sample #: GW 9373440
ELLE Group #: 1888121
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.9 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/05/17 at 09:40. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 09:05	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETD-171202 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/02/2017 13:00
SDG#: SNB55-02

C. T. Male Associates
ELLE Sample #: GW 9373441
ELLE Group #: 1888121
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/05/17 at 09:40. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 09:25	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTRUCK-171204 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/04/2017 11:15
SDG#: SNB55-03

C. T. Male Associates
ELLE Sample #: GW 9373442
ELLE Group #: 1888121
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/05/17 at 09:40. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 09:46	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171204 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/04/2017 11:20
SDG#: SNB55-04

C. T. Male Associates
ELLE Sample #: GW 9373443
ELLE Group #: 1888121
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.8 J**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**2**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/05/17 at 09:40. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 10:48	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK2-171204 Grab Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/04/2017 13:30
SDG#: SNB55-05

C. T. Male Associates
ELLE Sample #: GW 9373444
ELLE Group #: 1888121
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**3 J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/05/17 at 09:40. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 11:08	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/29/2017 10:11

Group Number: 1888121

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17353011	Sample number(s): 9373440-9373444		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9373440-9373444								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/29/2017 10:11

Group Number: 1888121

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9373440	79	108	122	79	81	79
9373441	76	101	128	69	73	68
9373442	80	107	122	81	76	73
9373443	74	99	115	73	70	70
9373444	77	104	117	69	73	69
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9373440	94	74	78	91	75	87
9373441	92	72	81	76	76	81
9373442	117	78	86	91	75	82
9373443	90	76	77	86	74	75
9373444	97	70	74	80	70	73
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/29/2017 10:11

Group Number: 1888121

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

Limits:	39-140	43-112	43-115	32-134	40-115	39-137
	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9373440	91	102	114	91	97	24*
9373441	88	95	112	88	97	24*
9373442	96	97	121	89	98	15*
9373443	82	95	103	83	88	18*
9373444	92	84	86	72	43	21*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/

37191 1888171 9373440-44

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☒ Minneapolis ☐ Bismarck ☐ Hibbing

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52741

COC 2 of _____

REPORT TO	INVOICE TO
Company: BARR Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain-Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250mL Plastic-Trizma → PFC-19	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-AFTERPOETB-171202	—	—	—	12/02/17	0800	W	N	2	2			HOLD
2. SG3-AFTERPOETD-171202	—	—	—	12/02/17	1300	W	N	2	2			HOLD
3. SG3-CITYWATERTRUCK-171204	—	—	—	12/04/17	1115	W	N	2	2			HOLD
4. SG3-CITYWATERHOSE-171204	—	—	—	12/04/17	1120	W	N	2	2			HOLD
5. SG3-CITYWATERTK2-171204	—	—	—	12/04/17	1330	W	N	2	2			HOLD
6. SG3-LTB01-171204	—	—	—	12/04/17	—	W	N	1	1			
7. SG3-LTB02-171204	—	—	—	12/04/17	—	W	N	1	1			
8.												
9.												
10.												

BARR USE ONLY						
Sampled by: MRD	Relinquished by:	On Ice? (Y) N	Date 12/04/17	Time 1730	Received by:	Date / Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: 3	Date 12-5-17 Time 940
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)
Lab Name: ELLE						
Lab Location: Lancaster	Lab WO:	Temperature on Receipt (°C): 5.0		Custody Seal Intact? ☑ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 202836

Group Number(s): 1888121

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/05/2017 9:40
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	Yes		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:09 on 12/05/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.0	DT	Wet	Y	Bagged	N

Missing Sample Details

Sample ID on COC	Comments
SG3-LTB01-171204	
SG3-LTB02-171204	

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 28, 2017 15:06

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888124
SDG: SNB56
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AFTERPOETE-171205 Water	12/05/2017 08:20	9373454

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888124

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9373454

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17353011 (Sample number(s): 9373454)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9373454, Blank, LCS, LCSD

Sample Description: **SG3-AFTERPOETE-171205 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/05/2017 08:20
SDG#: SNB56-01

C. T. Male Associates
ELLE Sample #: GW 9373454
ELLE Group #: 1888124
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/06/17 at 10:05. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 11:29	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:06

Group Number: 1888124

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17353011	Sample number(s): 9373454		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9373454								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:06

Group Number: 1888124

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9373454	84	111	139	77	80	81
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9373454	100	81	80	89	75	74
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9373454	90	87	101	78	85	41*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1888124
Reported: 12/28/2017 15:06

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1888124 9373454

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52743

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 mL (TRIZMA) PFC-19	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-AFTER-POETE-171205	–	–	–	12/05/2017	0820	W	N	2	2		HOLD	
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Analysis Requested: Water | Soil

BARR USE ONLY						
Sampled by: FMD	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date / Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date: 12.6.17 Time: 1005
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☐ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Name: ELLE						
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.6	Custody Seal Intact? ☐ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203046

Group Number(s): 1888124

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/06/2017 10:05
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 12:44 on 12/06/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.6	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
SG3-FILTEREDFRACT KE-171205	2	12/05/2017 09:00	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 28, 2017 15:07

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888127
SDG: SNB57
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-CITYWATERTRUCK-171207 Water	12/07/2017 11:55	9373495
SG3-CITYWATERHOSE-171207 Water	12/07/2017 12:00	9373496
SG3-CITYWATERTK2-171207 Water	12/07/2017 13:00	9373497

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888127

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9373495, 9373496, 9373497

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17353011 (Sample number(s): 9373495-9373497)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9373495, 9373496, 9373497, Blank, LCS, LCSD

Sample Description: **SG3-CITYWATERTRUCK-171207 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/07/2017 11:55
SDG#: SNB57-01

C. T. Male Associates
ELLE Sample #: GW 9373495
ELLE Group #: 1888127
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.4 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.9**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/08/17 at 10:00. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 11:49	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERHOSE-171207 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/07/2017 12:00
SDG#: SNB57-02

C. T. Male Associates
ELLE Sample #: GW 9373496
ELLE Group #: 1888127
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.5 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/08/17 at 10:00. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 12:10	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-CITYWATERTK2-171207 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/07/2017 13:00
SDG#: SNB57-03

C. T. Male Associates
ELLE Sample #: GW 9373497
ELLE Group #: 1888127
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.5 J**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**2 J**	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**1**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**1 J**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**0.4 J**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**3**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/08/17 at 10:00. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 12:30	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888127

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17353011	Sample number(s): 9373495-9373497		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9373495-9373497								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888127

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9373495	71	102	112	72	69	70
9373496	76	104	124	72	71	75
9373497	80	113	122	72	73	72
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9373495	74	67	70	75	74	77
9373496	91	72	76	80	74	72
9373497	94	73	84	84	77	76
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888127

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9373495	95	94	109	86	95	33*
9373496	76	78	90	74	79	31*
9373497	89	93	116	82	87	32*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1888127 9373495-97

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52744

COC 4 of 4

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 MarketPointe Dr	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other 1e2MA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: 1e2MA-PFC 19 (Water)	% Solids (Soil)	Preservative Code	Field Filtered Y/N
1. SGS CITYWATERTRUCK-171207	-	-	-	12/07/2017	11 55		N	2	2			HOLD
2. SGS CITYWATERHOSE 171207	-	-	-	12/07/2017	12 00		N	2	2			HOLD
3. SGS CITYWATERTKZ 171207	-	-	-	12/07/2017	13 00		N	2	2			HOLD
4.												
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? Y (N)	Date 12/7	Time 1700	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 12/8/17	Time 1000
Barr DQ Manager: MPD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.4, 0.5			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203365

Group Number(s): 1888127

Client: BARR ENG. CO.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/08/2017 10:00
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 10:48 on 12/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	0.4	DT	Wet	Y	Bagged	N
2	DT42-02	0.5	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 28, 2017 15:07

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888129
SDG: SNB58
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AFTERPOETA-171208 Water	12/08/2017 08:30	9373499

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888129

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9373499

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17353011 (Sample number(s): 9373499)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9373499, Blank, LCS, LCSD

Sample Description: **SG3-AFTERPOETA-171208 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/08/2017 08:30
SDG#: SNB58-01

C. T. Male Associates
ELLE Sample #: GW 9373499
ELLE Group #: 1888129
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**0.9 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/09/17 at 10:00. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 12:51	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888129

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17353011	Sample number(s): 9373499		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9373499								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888129

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9373499	72	77	74	81	71	71
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9373499	57	68	71	69	70	58
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9373499	89	91	107	80	94	53*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:07

Group Number: 1888129

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1888129 9373499

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52739

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 ml TRIZMA - PFC 19	% Solids	Preservative Code	Field Filtered Y/N
1. SG3 - AFFERPOETA - 171208	–	–	–	12/08/2017	0830	W	N	2	2			HOLD
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

Analysis Requested: Water / Soil

BARR USE ONLY

Sampled by: KMD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name:

Lab Location:

Relinquished by: [signature] On Ice? (Y) N Date 12/8/17 Time 1530 Received by:

Relinquished by: On Ice? Y N Date Time Received by: [signature] Date 12-9-17 Time 1000

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.5°C Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush HOLD (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203500

Group Number(s): 1888129

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/09/2017 10:00
Number of Packages:	1	Number of Projects:	2

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8943) at 10:23 on 12/09/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.5	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 28, 2017 15:08

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888155
SDG: SNB59
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-AfterpoetTKE-171209 Water	12/09/2017 08:20	9373664
SG3-AfterpoetTKB-171210 Water	12/10/2017 08:00	9373665
SG3-AfterpoetTKD-171211 Water	12/11/2017 07:35	9373666

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888155

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9373664, 9373665, 9373666

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17353011 (Sample number(s): 9373664-9373666)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9373664, 9373665, 9373666, Blank, LCS, LCSD

Sample Description: **SG3-AfterpoetTKE-171209 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/09/2017 08:20
SDG#: SNB59-01

C. T. Male Associates
ELLE Sample #: GW 9373664
ELLE Group #: 1888155
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/12/17 at 10:25. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 13:12	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AfterpoetTKB-171210 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/10/2017 08:00
SDG#: SNB59-02

C. T. Male Associates
ELLE Sample #: GW 9373665
ELLE Group #: 1888155
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/12/17 at 10:25. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 13:32	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AfterpoetTKD-171211 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/18/2017 11:00
Collection Date/Time: 12/11/2017 07:35
SDG#: SNB59-03

C. T. Male Associates
ELLE Sample #: GW 9373666
ELLE Group #: 1888155
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

This sample was originally submitted to the laboratory on 12/12/17 at 10:25. We received authorization for testing on 12/18/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/21/2017 13:53	Marissa C Drexinger	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:08

Group Number: 1888155

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17353011	Sample number(s): 9373664-9373666		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9373664-9373666								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/28/2017 15:08

Group Number: 1888155

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9373664	72	80	76	84	75	73
9373665	79	85	83	86	86	84
9373666	72	77	76	79	84	76
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9373664	70	76	68	63	70	65
9373665	82	80	83	79	83	73
9373666	67	72	72	71	70	61
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1888155
Reported: 12/28/2017 15:08

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9373664	85	90	105	80	81	31*
9373665	97	100	125	89	96	38*
9373666	92	93	105	81	91	31*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1888155 9373664-66

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53530

COC 2 of 2

REPORT TO	INVOICE TO
Company: Barr Eng. Co.	Company: CT Male
Address: 4300 Market Point Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: Sapp - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water (250 ml plastic/TGrmd)	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. Sg3-AfterpoetTKE-171209				12/09/2017	~~10:30~~ 08:20 (VAW)	W	N	2	2				HOLD
2. Sg3-AfterpoetTKB-171210				12/10/2017	08:00	W	N	2	2				HOLD
3. Sg3-AfterpoetTKD-171211				12/11/2017	07:35	W	N	2	2				HOLD
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: Kam/BAW

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? ☒ N Date 12/11/17 Time 17:00 Received by:

Relinquished by: On Ice? Y N Date Time Received by: [signature] Date 12/12/17 Time 1025

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 4.1-1.6 Custody Seal Intact? ☒ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 203605

Group Number(s): 1888155

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/12/2017 10:25
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (4, 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:52 on 12/12/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.4	DT	Wet	Y	Bagged	N
2	DT146	1.6	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-LTB112-171209	No Lable	2 Plastic Bottles

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: December 20, 2017 16:00

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888466
SDG: SNB60
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FilteredFRACTKA-171216 Water	12/16/2017 08:45	9375160

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888466

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9375160

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The response for a target analyte(s) in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

Batch #: 17353011 (Sample number(s): 9375160)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 6:2 fluorotelomersulfonate, Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9375160

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9375160, Blank, LCS, LCSD

Sample Description: **SG3-FilteredFRACTKA-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017 08:45
SDG#: SNB60-01

C. T. Male Associates
ELLE Sample #: GW 9375160
ELLE Group #: 1888466
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 UZ	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 J**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.5 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Z = The response for a target analyte(s) in the initial calibration does not meet the method acceptance limits for the linearity of the calibration curve. Since the analyte is not detected in the associated samples, the data is reported

The recovery for labeled compound used as extraction standard 13C2-6:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 6:2-FTS is not detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FilteredFRACTKA-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017 08:45
SDG#: SNB60-01

C. T. Male Associates
ELLE Sample #: GW 9375160
ELLE Group #: 1888466
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17353011	12/20/2017 11:31	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17353011	12/19/2017 14:05	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/20/2017 16:00

Group Number: 1888466

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17353011	Sample number(s): 9375160		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17353011	Sample number(s): 9375160								
6:2 fluorotelomersulfonate	15.17	20.24	15.17	21.74	133*	143*	70-130	7	30
8:2 fluorotelomersulfonate	15.33	19.61	15.33	17.95	128	117	70-130	9	30
NEtFOSAA	5.44	6.84	5.44	6.50	126	119	70-130	5	30
NMeFOSAA	5.44	6.25	5.44	6.04	115	111	70-130	4	30
Perfluorobutanesulfonate	4.81	5.11	4.81	5.35	106	111	70-130	5	30
Perfluorobutanoic acid	5.44	6.54	5.44	6.68	120	123	70-130	2	30
Perfluorodecanoic acid	5.44	6.66	5.44	6.72	122	123	70-130	1	30
Perfluorododecanoic acid	5.44	6.25	5.44	6.25	115	115	70-130	0	30
Perfluoroheptanoic acid	5.44	5.86	5.44	6.36	108	117	70-130	8	30
Perfluorohexanesulfonate	5.14	5.40	5.14	6.17	105	120	70-130	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 12/20/2017 16:00

Group Number: 1888466

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.04	5.44	6.56	111	121	70-130	8	30
Perfluorononanoic acid	5.44	6.28	5.44	6.39	115	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	7.17	5.44	6.97	132*	128	70-130	3	30
Perfluoro-octanesulfonate	5.20	5.40	5.20	5.71	104	110	70-130	6	30
Perfluorooctanoic acid	5.44	5.93	5.44	6.61	109	121	70-130	11	30
Perfluoropentanoic acid	5.44	5.91	5.44	6.16	109	113	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.61	5.44	6.25	103	115	70-130	11	30
Perfluorotridecanoic acid	5.44	5.95	5.44	5.91	109	109	70-130	1	30
Perfluoroundecanoic acid	5.44	5.86	5.44	6.11	108	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9375160	72	77	73	68	65	64
Blank	78	80	78	89	79	83
LCS	87	88	83	84	85	84
LCSD	82	83	79	78	73	77
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9375160	171*	74	73	73	66	64
Blank	75	77	81	73	77	57
LCS	79	83	90	90	81	79
LCSD	75	80	80	84	75	77
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9375160	57	65	67	60	63	50*
Blank	78	80	83	72	78	60*
LCS	80	96	90	85	69	52*
LCSD	72	86	80	84	76	48*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1888466
Reported: 12/20/2017 16:00

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17353011

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1888466 / 9375160

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: **52749**

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 4502/004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; TRIZMA = O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL TRIZMA - PFC 19	Soil: % Solids	Preservative Code	Field Filtered Y/N	
1. SG3-FILTERED FRACTKA-171216	—	—	—	12/16/17	0845	WATER	N	2					*RUSH* 24 HR
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: KMD

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELE

Lab Location: Lancaster

Relinquished by: _____ On Ice? Y (N) Date 12/18/17 Time 1700 Received by: _____ Date _____ Time _____

Relinquished by: _____ On Ice? Y N Date _____ Time _____ Received by: _____ Date 12/19/17 Time 11

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 0.1 Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 204245

Group Number(s): 1888466

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/19/2017 11:00
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	NONE
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:08 on 12/19/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 10, 2018 13:12

Project: SGPP - Bennington

Account #: 37191
Group Number: 1888549
SDG: SNB61
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB01-171216 Water	12/16/2017	9375745
SG3-LTB02-171216 Water	12/16/2017	9375746
SG3-AFTERPOETA-171216 Water	12/16/2017 08:00	9375747

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1888549

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9375747

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9375745, 9375746

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Batch #: 17361004 (Sample number(s): 9375745-9375746)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9375745, 9375746, LCS, LCSD

Batch #: 18008003 (Sample number(s): 9375747)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

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The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9375747, Blank, LCS, LCSD

Sample Description: **SG3-LTB01-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017
SDG#: SNB61-01TB

C. T. Male Associates
ELLE Sample #: WW 9375745
ELLE Group #: 1888549
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	12/31/2017 22:30	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-LTB01-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017
SDG#: SNB61-01TB

C. T. Male Associates
ELLE Sample #: WW 9375745
ELLE Group #: 1888549
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017
SDG#: SNB61-02TB

C. T. Male Associates
ELLE Sample #: WW 9375746
ELLE Group #: 1888549
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	12/31/2017 22:51	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017
SDG#: SNB61-02TB

C. T. Male Associates
ELLE Sample #: WW 9375746
ELLE Group #: 1888549
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-AFTERPOETA-171216 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/19/2017 11:00
Collection Date/Time: 12/16/2017 08:00
SDG#: SNB61-03

C. T. Male Associates
ELLE Sample #: GW 9375747
ELLE Group #: 1888549
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.3 J**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**2**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18008003	01/10/2018 04:05	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18008003	01/09/2018 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1888549

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 17361004	Sample number(s): 9375745-9375746		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 J	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
Batch number: 18008003	Sample number(s): 9375747		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1888549

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17361004	Sample number(s): 9375745-9375746								
6:2 fluorotelomersulfonate	15.17	21.62	15.17	21.75	143*	143*	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.53	15.33	17.11	121	112	70-130	8	30
NEtFOSAA	5.44	5.66	5.44	5.27	104	97	70-130	7	30
NMeFOSAA	5.44	6.80	5.44	6.83	125	125	70-130	0	30
Perfluorobutanesulfonate	4.81	5.01	4.81	4.97	104	103	70-130	1	30
Perfluorobutanoic acid	5.44	7.09	5.44	6.45	130	119	70-130	9	30
Perfluorodecanoic acid	5.44	7.75	5.44	7.91	142*	145*	70-130	2	30
Perfluorododecanoic acid	5.44	6.35	5.44	6.07	117	112	70-130	5	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.26	116	115	70-130	1	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.52	110	107	70-130	3	30
Perfluorohexanoic acid	5.44	6.15	5.44	5.93	113	109	70-130	4	30
Perfluorononanoic acid	5.44	5.89	5.44	6.19	108	114	70-130	5	30
Perfluorooctanesulfonamide	5.44	7.09	5.44	6.43	130	118	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.02	102	96	70-130	5	30
Perfluorooctanoic acid	5.44	6.88	5.44	6.89	126	127	70-130	0	30
Perfluoropentanoic acid	5.44	6.06	5.44	6.12	111	113	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.63	5.44	6.55	122	120	70-130	1	30
Perfluorotridecanoic acid	5.44	6.39	5.44	6.14	117	113	70-130	4	30
Perfluoroundecanoic acid	5.44	6.79	5.44	6.91	125	127	70-130	2	30
Batch number: 18008003	Sample number(s): 9375747								
6:2 fluorotelomersulfonate	15.17	15.4	15.17	16.13	102	106	70-130	5	30
8:2 fluorotelomersulfonate	15.33	14.7	15.33	18.49	96	121	70-130	23	30
NEtFOSAA	5.44	5.85	5.44	6.21	108	114	70-130	6	30
NMeFOSAA	5.44	5.74	5.44	5.81	106	107	70-130	1	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.65	100	97	70-130	3	30
Perfluorobutanoic acid	5.44	5.88	5.44	5.68	108	104	70-130	3	30
Perfluorodecanoic acid	5.44	6.04	5.44	6.00	111	110	70-130	1	30
Perfluorododecanoic acid	5.44	5.58	5.44	5.81	103	107	70-130	4	30
Perfluoroheptanoic acid	5.44	6.47	5.44	5.94	119	109	70-130	9	30
Perfluorohexanesulfonate	5.14	5.47	5.14	5.20	106	101	70-130	5	30
Perfluorohexanoic acid	5.44	5.42	5.44	5.52	100	101	70-130	2	30
Perfluorononanoic acid	5.44	7.02	5.44	6.49	129	119	70-130	8	30
Perfluorooctanesulfonamide	5.44	6.39	5.44	7.40	117	136*	70-130	15	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1888549

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoro-octanesulfonate	5.20	4.67	5.20	5.25	90	101	70-130	12	30
Perfluorooctanoic acid	5.44	5.77	5.44	5.90	106	108	70-130	2	30
Perfluoropentanoic acid	5.44	5.71	5.44	5.62	105	103	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.81	5.44	6.11	107	112	70-130	5	30
Perfluorotridecanoic acid	5.44	5.80	5.44	6.01	107	111	70-130	4	30
Perfluoroundecanoic acid	5.44	6.24	5.44	6.45	115	119	70-130	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9375745	72	67	63	77	82	74
9375746	77	70	67	86	81	79
Blank	76	72	62	76	75	78
LCS	73	71	67	80	77	79
LCSD	76	69	67	79	76	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9375745	67	73	79	89	69	71
9375746	65	78	79	82	75	70
Blank	78	73	75	74	78	72
LCS	90	78	75	83	78	80
LCSD	68	72	76	79	74	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9375745	72	77	76	69	71	63*
9375746	75	82	83	73	71	58*
Blank	73	80	77	68	73	72
LCS	74	77	86	72	72	61*
LCSD	69	74	85	68	71	65*

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1888549

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 18008003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9375747	81	83	87	88	81	83
Blank	83	81	80	92	78	84
LCS	85	87	93	104	89	94
LCSD	72	78	84	87	77	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9375747	106	84	82	73	87	87
Blank	97	80	82	72	91	82
LCS	121	89	89	83	87	97
LCSD	110	79	76	71	77	81
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9375747	83	81	91	87	74	48*
Blank	84	81	95	91	76	55*
LCS	93	88	108	97	79	43*
LCSD	71	73	86	81	68	29*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1888549 S-9375745-47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52750

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 1300 Market Pointe Dr.	Address: 50 Century Hill Dr
Name: Michael Pupay	Name: Latham, NY
email: mchupay	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL Lab-Trip Blank - PFC (A)	Water: 250 mL TRIZMA - PFC (O)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-LTB01-171216	—	—	—	12/16/17	—	WATER	N	1	1				
2. SG3-LTB02-171216	—	—	—	12/16/17	—	WATER	N	1	1				
3. SG3-AFTERPOETA-171216	—	—	—	12/16/17	0800	WATER	2			2			HOLD
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
Sampled by:	KMP			12/18/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MPP						12/19/17	11
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:		Temperature on Receipt (°C): 0.8		Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 204245

Group Number(s): 1888549

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/19/2017 11:00
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	NONE
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:08 on 12/19/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 10, 2018 13:36

Project: SGPP - Bennington

Account #: 37191
Group Number: 1889303
SDG: SNB62
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR4-171217 Grab Groundwater	12/17/2017 12:10	9378524
SG3-FD01-171217 Grab Groundwater	12/17/2017 12:10	9378525
SG3-LTB01-171217 Blank Water	12/17/2017 12:10	9378526
SG3-LTB02-171217 Blank Water	12/17/2017 12:10	9378527
SG3-LTB03-171217 Blank Water	12/17/2017 12:10	9378528
SG3-LTB04-171217 Blank Water	12/17/2017 12:10	9378529
SG3-LTB05-171217 Blank Water	12/17/2017 12:10	9378530
SG3-LTB06-171217 Blank Water	12/17/2017 12:10	9378531

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1889303

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9378524, 9378525

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17355WAF026 (Sample number(s): 9378524-9378525)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9378524, 9378525, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9378526, 9378528, 9378529

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample #s: 9378527

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample #s: 9378524, 9378525

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Batch #: 17361004 (Sample number(s): 9378524-9378529)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9378524, 9378525, 9378526, 9378527, 9378528, 9378529, LCS, LCSD

SW-846 6020A, Metals

Batch #: 173551063901A (Sample number(s): 9378524-9378525 UNSPK: P372732 BKG: P372732)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cobalt, Vanadium

EPA 300.0, Wet Chemistry

Sample #s: 9378524, 9378524, 9378525, 9378525

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Batch #: 17354249113B (Sample number(s): 9378524-9378525 UNSPK: P378515 BKG: P378515)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Sulfate, Bromide

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9378524, 9378525

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Sample Description: **SG3-MWBR4-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-01

C. T. Male Associates
ELLE Sample #: GW 9378524
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	**Chloroform**	67-66-3	**0.9 J**	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-01

C. T. Male Associates
ELLE Sample #: GW 9378524
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051 U	0.051	0.20	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-01

C. T. Male Associates
ELLE Sample #: GW 9378524
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.					
	The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**27.4**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.124 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**13.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0058 J**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.84**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**3.70**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0522**	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0082**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0010 J**	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0213**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0125**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0059**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.4**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-01

C. T. Male Associates
ELLE Sample #: GW 9378524
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	**Sulfate**	14808-79-8	**4.0 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**124**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**122**	1.7	5.0	1
12148	**Carbonate Alkalinity**	n.a.	**2.2 J**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173622AA	12/28/2017 23:15	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173622AA	12/28/2017 23:15	Matthew S Krause	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17355WAF026	12/29/2017 11:26	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17355WAF026	12/21/2017 20:56	Osvaldo R Sanchez	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	12/31/2017 23:11	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-01

C. T. Male Associates
ELLE Sample #: GW 9378524
ELLE Group #: 1889303
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	173551063501	12/26/2017 18:01	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	173551063901D	12/29/2017 21:54	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	173551063901B	01/03/2018 19:06	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	173551063901A	12/29/2017 21:54	Bradley M Berlot	1
00259	Mercury	SW-846 7470A	1	173550571303	12/22/2017 06:27	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173551063501	12/21/2017 21:30	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173551063901	12/21/2017 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173550571303	12/22/2017 00:15	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17354249113B	12/21/2017 18:53	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17354249113B	12/21/2017 18:53	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17354249113B	12/21/2017 18:53	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17354249113B	12/21/2017 18:53	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17354249113B	12/21/2017 18:53	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17365107103A	12/31/2017 18:41	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17356108102B	12/28/2017 11:21	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17355117101A	12/22/2017 13:04	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17356108102B	12/22/2017 16:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17355117101A	12/21/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17355013202A	12/22/2017 00:28	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17355013202A	12/22/2017 00:28	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17355013202A	12/22/2017 00:28	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	17354146271A	12/20/2017 23:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-02FD

C. T. Male Associates
ELLE Sample #: GW 9378525
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	**Chloroform**	67-66-3	**0.9 J**	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-171217 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-02FD

C. T. Male Associates
ELLE Sample #: GW 9378525
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051 U	0.051	0.20	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-02FD

C. T. Male Associates
ELLE Sample #: GW 9378525
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
	Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.					
	The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.					
Metals		**SW-846 6010C**	**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**27.6**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**1.40**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**13.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0106**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.94**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**3.71**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0660**	0.0065	0.0400	1
		SW-846 6020A	**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0079**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0046**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00071 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0430**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0365**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**1.06**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		**EPA 300.0**	**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.3**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-02FD

C. T. Male Associates
ELLE Sample #: GW 9378525
ELLE Group #: 1889303
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	**Sulfate**	14808-79-8	**3.9 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**125**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**123**	1.7	5.0	1
12148	**Carbonate Alkalinity**	n.a.	**1.8 J**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173622AA	12/28/2017 23:37	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173622AA	12/28/2017 23:37	Matthew S Krause	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17355WAF026	12/29/2017 11:40	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17355WAF026	12/21/2017 20:56	Osvaldo R Sanchez	1
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	12/31/2017 23:32	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FD01-171217 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-02FD

C. T. Male Associates
ELLE Sample #: GW 9378525
ELLE Group #: 1889303
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	173551063501	12/26/2017 18:05	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06025	Arsenic	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06026	Barium	SW-846 6020A	1	173551063901D	12/29/2017 21:57	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06028	Cadmium	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	173551063901A	01/03/2018 19:10	Bradley M Berlot	1
06033	Copper	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06039	Nickel	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	173551063901B	01/03/2018 19:10	Bradley M Berlot	1
06042	Silver	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
06048	Vanadium	SW-846 6020A	1	173551063901A	12/29/2017 21:57	Bradley M Berlot	1
00259	Mercury	SW-846 7470A	1	173550571303	12/22/2017 06:29	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173551063501	12/21/2017 21:30	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173551063901	12/21/2017 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173550571303	12/22/2017 00:15	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	17354249113B	12/21/2017 19:21	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	17354249113B	12/21/2017 19:21	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	17354249113B	12/21/2017 19:21	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	17354249113B	12/21/2017 19:21	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	17354249113B	12/21/2017 19:21	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	17365107103A	12/31/2017 18:43	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17356108102B	12/28/2017 11:23	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17355117101A	12/22/2017 13:05	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17356108102B	12/22/2017 16:30	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17355117101A	12/21/2017 17:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17355013202A	12/22/2017 00:34	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17355013202A	12/22/2017 00:34	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17355013202A	12/22/2017 00:34	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	17354146271A	12/20/2017 23:15	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-03TB

C. T. Male Associates
ELLE Sample #: WW 9378526
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	12/31/2017 23:52	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB01-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-03TB

C. T. Male Associates
ELLE Sample #: WW 9378526
ELLE Group #: 1889303
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-04TB

C. T. Male Associates
ELLE Sample #: WW 9378527
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. There were not reportable hits in the sample. There is no impact on data quality.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB02-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-04TB

C. T. Male Associates
ELLE Sample #: WW 9378527
ELLE Group #: 1889303
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 00:13	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB03-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-05TB

C. T. Male Associates
ELLE Sample #: WW 9378528
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 00:33	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB03-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-05TB

C. T. Male Associates
ELLE Sample #: WW 9378528
ELLE Group #: 1889303
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB04-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-06TB

C. T. Male Associates
ELLE Sample #: WW 9378529
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: Sufficient sample was not available to reextract the analysis.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 01:35	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB04-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-06TB

C. T. Male Associates
ELLE Sample #: WW 9378529
ELLE Group #: 1889303
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB05-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-07TB

C. T. Male Associates
ELLE Sample #: WW 9378530
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB05-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-07TB

C. T. Male Associates
ELLE Sample #: WW 9378530
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173622AA	12/28/2017 21:05	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173622AA	12/28/2017 21:05	Matthew S Krause	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB06-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-08TB

C. T. Male Associates
ELLE Sample #: WW 9378531
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB06-171217 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/20/2017 11:35
Collection Date/Time: 12/17/2017 12:10
SDG#: SNB62-08TB

C. T. Male Associates
ELLE Sample #: WW 9378531
ELLE Group #: 1889303
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173622AA	12/28/2017 21:27	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173622AA	12/28/2017 21:27	Matthew S Krause	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1889303
Reported: 01/10/2018 13:36

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L173622AA	Sample number(s): 9378524-9378525,9378530-9378531		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17355WAF026	Sample number(s): 9378524-9378525		
1,4-Dioxane	0.30	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17361004	Sample number(s): 9378524-9378529		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 J	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173550571303	Sample number(s): 9378524-9378525		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173551063501	Sample number(s): 9378524-9378525		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173551063901A	Sample number(s): 9378524-9378525		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173551063901B	Sample number(s): 9378524-9378525		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173551063901D	Sample number(s): 9378524-9378525		
Barium	0.00072 U	0.00072	0.0040
Batch number: 17354249113B	Sample number(s): 9378524-9378525		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17355117101A	Sample number(s): 9378524-9378525		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17356108102B	Sample number(s): 9378524-9378525		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17365107103A	Sample number(s): 9378524-9378525		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17354146271A	Sample number(s): 9378524-9378525		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17355013202A	Sample number(s): 9378524-9378525		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L173622AA	Sample number(s): 9378524-9378525,9378530-9378531								
Acetone	150	128.7			86		44-177		
Benzene	20	19.69			98		78-120		
Bromochloromethane	20	20.05			100		80-125		
Bromodichloromethane	20	19.78			99		71-120		
Bromoform	20	20.31			102		59-120		
Bromomethane	20	21.74			109		44-139		
2-Butanone	150	125.67			84		53-140		
Carbon Disulfide	20	20.06			100		65-128		
Carbon Tetrachloride	20	22.07			110		68-128		
Chlorobenzene	20	20.19			101		80-120		
Chloroethane	20	20.46			102		52-127		
Chloroform	20	20.45			102		80-120		
Chloromethane	20	18.04			90		57-120		
Cyclohexane	20	17.66			88		67-121		
1,2-Dibromo-3-chloropropane	20	18.27			91		64-120		
Dibromochloromethane	20	20.78			104		71-120		
1,2-Dibromoethane	20	20.17			101		75-120		
1,2-Dichlorobenzene	20	19.67			98		80-120		
1,3-Dichlorobenzene	20	19.49			97		80-120		
1,4-Dichlorobenzene	20	19.82			99		80-120		
Dichlorodifluoromethane	20	19.87			99		47-124		
1,1-Dichloroethane	20	19.45			97		80-120		
1,2-Dichloroethane	20	20.47			102		73-124		
1,1-Dichloroethene	20	22.56			113		76-124		
cis-1,2-Dichloroethene	20	20.77			104		80-120		
trans-1,2-Dichloroethene	20	21.38			107		80-120		
1,2-Dichloropropane	20	19.04			95		80-120		
cis-1,3-Dichloropropene	20	18.56			93		75-120		
trans-1,3-Dichloropropene	20	18.75			94		76-120		
Ethylbenzene	20	20.02			100		78-120		
Freon 113	20	22.11			111		68-137		
2-Hexanone	100	92.19			92		60-134		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	20.54			103		80-120		
Methyl Acetate	20	17.77			89		61-137		
Methyl Tertiary Butyl Ether	20	19.21			96		75-120		
4-Methyl-2-pentanone	100	90.37			90		67-128		
Methylcyclohexane	20	19.08			95		66-126		
Methylene Chloride	20	20.06			100		80-120		
Styrene	20	20.47			102		80-120		
1,1,2,2-Tetrachloroethane	20	18.53			93		72-120		
Tetrachloroethene	20	21.03			105		80-129		
Toluene	20	19.65			98		80-120		
1,2,3-Trichlorobenzene	20	18.65			93		66-120		
1,2,4-Trichlorobenzene	20	17.93			90		70-120		
1,1,1-Trichloroethane	20	20.38			102		67-120		
1,1,2-Trichloroethane	20	19.66			98		80-120		
Trichloroethene	20	20.23			101		80-120		
Trichlorofluoromethane	20	23.96			120		52-143		
Vinyl Chloride	20	17.84			89		63-121		
m+p-Xylene	40	41.19			103		80-120		
o-Xylene	20	19.8			99		80-120		
Xylene (Total)	60	60.99			102		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17355WAF026	Sample number(s): 9378524-9378525								
1,4-Dioxane	1.00	1.60	1.00	1.71	160*	171*	70-130	7	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17361004	Sample number(s): 9378524-9378529								
6:2 fluorotelomersulfonate	15.17	21.62	15.17	21.75	143*	143*	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.53	15.33	17.11	121	112	70-130	8	30
NEtFOSAA	5.44	5.66	5.44	5.27	104	97	70-130	7	30
NMeFOSAA	5.44	6.80	5.44	6.83	125	125	70-130	0	30
Perfluorobutanesulfonate	4.81	5.01	4.81	4.97	104	103	70-130	1	30
Perfluorobutanoic acid	5.44	7.09	5.44	6.45	130	119	70-130	9	30
Perfluorodecanoic acid	5.44	7.75	5.44	7.91	142*	145*	70-130	2	30
Perfluorododecanoic acid	5.44	6.35	5.44	6.07	117	112	70-130	5	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.26	116	115	70-130	1	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.52	110	107	70-130	3	30
Perfluorohexanoic acid	5.44	6.15	5.44	5.93	113	109	70-130	4	30
Perfluorononanoic acid	5.44	5.89	5.44	6.19	108	114	70-130	5	30
Perfluorooctanesulfonamide	5.44	7.09	5.44	6.43	130	118	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.02	102	96	70-130	5	30
Perfluorooctanoic acid	5.44	6.88	5.44	6.89	126	127	70-130	0	30
Perfluoropentanoic acid	5.44	6.06	5.44	6.12	111	113	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.63	5.44	6.55	122	120	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	6.39	5.44	6.14	117	113	70-130	4	30
Perfluoroundecanoic acid	5.44	6.79	5.44	6.91	125	127	70-130	2	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173550571303	Sample number(s): 9378524-9378525								
Mercury	0.00100	0.000874			87		80-120		
Batch number: 173551063501	Sample number(s): 9378524-9378525								
Aluminum	2.00	2.04			102		80-120		
Boron	2.00	1.84			92		80-120		
Calcium	4.00	3.94			99		80-120		
Iron	1.00	1.03			103		80-120		
Magnesium	2.00	2.01			101		80-120		
Manganese	0.500	0.502			100		80-120		
Potassium	10	9.97			100		80-120		
Sodium	10	9.58			96		80-120		
Zinc	0.500	0.495			99		80-120		
Batch number: 173551063901A	Sample number(s): 9378524-9378525								
Antimony	0.00600	0.00596			99		80-120		
Arsenic	0.0100	0.0106			106		80-120		
Beryllium	0.00400	0.00426			107		80-120		
Cadmium	0.00500	0.00489			98		80-120		
Chromium	0.0500	0.0499			100		80-120		
Cobalt	0.250	0.259			103		80-120		
Copper	0.0500	0.0512			102		80-120		
Lead	0.0150	0.0155			103		80-120		
Nickel	0.0500	0.0509			102		80-120		
Silver	0.0500	0.0505			101		80-120		
Thallium	0.00200	0.00192			96		80-120		
Vanadium	0.0500	0.0497			99		80-120		
Batch number: 173551063901B	Sample number(s): 9378524-9378525								
Selenium	0.0100	0.0103			103		80-120		
Batch number: 173551063901D	Sample number(s): 9378524-9378525								
Barium	0.0500	0.0501			100		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17354249113B	Sample number(s): 9378524-9378525								
Bromide	7.50	7.38	7.50	7.42	98	99	90-110	1	20
Chloride	3.00	2.89	3.00	2.90	96	97	90-110	0	20
Nitrate Nitrogen	0.750	0.713	0.750	0.714	95	95	90-110	0	20
Nitrite Nitrogen	0.750	0.699	0.750	0.702	93	94	90-110	0	20
Sulfate	7.50	7.32	7.50	7.36	98	98	90-110	1	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17355117101A	Sample number(s): 9378524-9378525								
Total Cyanide	0.200	0.206			103		90-110		
Batch number: 17356108102B	Sample number(s): 9378524-9378525								
Kjeldahl Nitrogen	5.00	4.89			98		90-110		
Batch number: 17365107103A	Sample number(s): 9378524-9378525								
Ammonia Nitrogen	1.50	1.46			97		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17354146271A	Sample number(s): 9378524-9378525								
Orthophosphate as P	0.400	0.407	0.400	0.409	102	102	95-105	1	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17355013202A	Sample number(s): 9378524-9378525								
Total Alkalinity to pH 4.5	188	180.92			96		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L173622AA	Sample number(s): 9378524-9378525,9378530-9378531 UNSPK: P385664									
Acetone	6 U	150	138.99	150	137.55	93	92	44-177	1	30
Benzene	0.5 U	20	20.65	20	20.73	103	104	78-120	0	30
Bromochloromethane	1 U	20	21.14	20	20.67	106	103	80-125	2	30
Bromodichloromethane	0.5 U	20	20.82	20	20.47	104	102	71-120	2	30
Bromoform	0.5 U	20	19.73	20	19.48	99	97	59-120	1	30
Bromomethane	0.5 U	20	21.47	20	21.55	107	108	44-139	0	30
2-Butanone	3 U	150	124.98	150	126.28	83	84	53-140	1	30
Carbon Disulfide	1 U	20	21.35	20	20.98	107	105	65-128	2	30
Carbon Tetrachloride	0.5 U	20	24.25	20	23.84	121	119	68-128	2	30
Chlorobenzene	0.5 U	20	20.99	20	20.76	105	104	80-120	1	30
Chloroethane	0.5 U	20	21	20	20.94	105	105	52-127	0	30
Chloroform	0.5 U	20	21.64	20	21.35	108	107	80-120	1	30
Chloromethane	0.5 U	20	17.75	20	18.03	89	90	57-120	2	30
Cyclohexane	2 U	20	19.78	20	19.79	99	99	67-121	0	30
1,2-Dibromo-3-chloropropane	2 U	20	17.16	20	17.57	86	88	64-120	2	30
Dibromochloromethane	0.5 U	20	20.97	20	20.76	105	104	71-120	1	30
1,2-Dibromoethane	0.5 U	20	19.97	20	19.99	100	100	75-120	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	19.41	20	19.69	97	98	80-120	1	30
1,3-Dichlorobenzene	1 U	20	19.76	20	19.89	99	99	80-120	1	30
1,4-Dichlorobenzene	1 U	20	19.95	20	20.06	100	100	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	21.52	20	20.71	108	104	47-124	4	30
1,1-Dichloroethane	0.5 U	20	20.29	20	20.22	101	101	80-120	0	30
1,2-Dichloroethane	0.5 U	20	21.09	20	20.69	105	103	73-124	2	30
1,1-Dichloroethene	0.5 U	20	24.66	20	24.09	123	120	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	21.86	20	21.72	109	109	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	22.7	20	22.49	113	112	80-120	1	30
1,2-Dichloropropane	0.5 U	20	19.8	20	19.54	99	98	80-120	1	30
cis-1,3-Dichloropropene	0.5 U	20	18.73	20	18.66	94	93	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	18.94	20	19.02	95	95	76-120	0	30
Ethylbenzene	0.5 U	20	21.03	20	21.03	105	105	78-120	0	30
Freon 113	2 U	20	25.97	20	25.14	130	126	68-137	3	30
2-Hexanone	3 U	100	87.07	100	88.42	87	88	60-134	2	30
Isopropylbenzene	1 U	20	21.39	20	21.48	107	107	80-120	0	30
Methyl Acetate	1 U	20	16.77	20	16.8	84	84	61-137	0	30
Methyl Tertiary Butyl Ether	0.5 U	20	19.09	20	19.16	95	96	75-120	0	30
4-Methyl-2-pentanone	3 U	100	86.21	100	86.8	86	87	67-128	1	30
Methylcyclohexane	1 U	20	21.94	20	22.08	110	110	66-126	1	30
Methylene Chloride	0.5 U	20	20.95	20	20.38	105	102	80-120	3	30
Styrene	1 U	20	20.85	20	20.96	104	105	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	17.3	20	17.91	87	90	72-120	3	30
Tetrachloroethene	0.5 U	20	22.74	20	22.67	114	113	80-129	0	30
Toluene	0.5 U	20	20.66	20	20.55	103	103	80-120	1	30
1,2,3-Trichlorobenzene	1 U	20	17.73	20	18.27	89	91	66-120	3	30
1,2,4-Trichlorobenzene	1 U	20	17.24	20	17.58	86	88	70-120	2	30
1,1,1-Trichloroethane	0.5 U	20	22.07	20	21.71	110	109	67-120	2	30
1,1,2-Trichloroethane	0.5 U	20	19.93	20	20.04	100	100	80-120	1	30
Trichloroethene	0.5 U	20	21.83	20	21.6	109	108	80-120	1	30
Trichlorofluoromethane	0.5 U	20	16.31	20	15.83	82	79	52-143	3	30
Vinyl Chloride	0.5 U	20	18.64	20	18.43	93	92	63-121	1	30
m+p-Xylene	0.5 U	40	42.76	40	43.1	107	108	80-120	1	30
o-Xylene	0.5 U	20	20.32	20	20.26	102	101	80-120	0	30
Xylene (Total)	0.5 U	60	63.07	60	63.36	105	106	80-120	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173550571303	Sample number(s): 9378524-9378525 UNSPK: P378407									
Mercury	0.000050 U	0.00100	0.000883	0.00100	0.000872	88	87	80-120	1	20
Batch number: 173551063501	Sample number(s): 9378524-9378525 UNSPK: P375784									
Aluminum	0.0894 U	2.00	1.94	2.00	1.93	97	97	75-125	1	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.138	2.00	2.01	2.00	2.04	93	95	75-125	2	20
Calcium	121.58	4.00	125.61	4.00	124.92	101 (2)	83 (2)	75-125	1	20
Iron	22.33	1.00	23.37	1.00	23.24	103 (2)	91 (2)	75-125	1	20
Magnesium	19.34	2.00	21.42	2.00	21.19	104 (2)	93 (2)	75-125	1	20
Manganese	1.60	0.500	2.10	0.500	2.12	99	103	75-125	1	20
Potassium	1.13	10	11.05	10	11.17	99	100	75-125	1	20
Sodium	33.79	10	43.95	10	43.67	102	99	75-125	1	20
Zinc	0.0065 U	0.500	0.481	0.500	0.489	96	98	75-125	2	20
Batch number: 173551063901A	Sample number(s): 9378524-9378525 UNSPK: P372732									
Antimony	0.00045 U	0.00600	0.00529	0.00600	0.00540	88	90	75-125	2	20
Arsenic	0.00115	0.0100	0.0109	0.0100	0.0109	97	98	75-125	1	20
Beryllium	0.000071 U	0.00400	0.00429	0.00400	0.00432	107	108	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00463	0.00500	0.00463	93	93	75-125	0	20
Chromium	0.00087 U	0.0500	0.0489	0.0500	0.0484	98	97	75-125	1	20
Cobalt	0.00016 U	0.250	0.239	0.250	0.242	96	97	75-125	1	20
Copper	0.00054 U	0.0500	0.0475	0.0500	0.0484	95	97	75-125	2	20
Lead	0.000190	0.0150	0.0151	0.0150	0.0146	99	96	75-125	3	20
Nickel	0.0010 U	0.0500	0.0467	0.0500	0.0469	93	94	75-125	0	20
Silver	0.00015 U	0.0500	0.0479	0.0500	0.0481	96	96	75-125	0	20
Thallium	0.00012 U	0.00200	0.00196	0.00200	0.00203	98	102	75-125	4	20
Vanadium	0.000396	0.0500	0.0497	0.0500	0.0487	99	97	75-125	2	20
Batch number: 173551063901B	Sample number(s): 9378524-9378525 UNSPK: P372732									
Selenium	0.00050 U	0.0100	0.0101	0.0100	0.0101	101	101	75-125	0	20
Batch number: 173551063901D	Sample number(s): 9378524-9378525 UNSPK: P372732									
Barium	0.142	0.0500	0.185	0.0500	0.183	87	83	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17354249113B	Sample number(s): 9378524-9378525 UNSPK: P378515									
Bromide	1.3 U	25	28.19			113*		90-110		
Chloride	3.27	10	13.62			103		90-110		
Nitrate Nitrogen	0.536	2.50	3.05			101		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.59			104		90-110		
Sulfate	1.5 U	25	28.17			113*		90-110		
Batch number: 17355117101A	Sample number(s): 9378524-9378525 UNSPK: P376475									
Total Cyanide	0.0050 U	0.200	0.200			100		72-114		
Batch number: 17356108102B	Sample number(s): 9378524-9378525 UNSPK: P378445									
Kjeldahl Nitrogen	0.50 U	5.00	5.40			108		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17365107103A	Sample number(s): 9378524-9378525 UNSPK: P375774									
Ammonia Nitrogen	0.050 U	1.00	1.01	1.00	1.01	101	101	90-110	0	8
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17355013202A	Sample number(s): 9378524-9378525 UNSPK: P378380									
Total Alkalinity to pH 4.5	1.7 U	188	176.41			94		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 173550571303	Sample number(s): 9378524-9378525 BKG: P378407			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173551063501	Sample number(s): 9378524-9378525 BKG: P375784			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.138	0.136	1 (1)	20
Calcium	121.58	120.55	1	20
Iron	22.33	22.22	1	20
Magnesium	19.34	19.24	1	20
Manganese	1.60	1.60	0	20
Potassium	1.13	1.06	7 (1)	20
Sodium	33.79	33.51	1	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 173551063901A	Sample number(s): 9378524-9378525 BKG: P372732			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00115	0.00110	4 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00016 U	0.000216	200* (1)	20
Copper	0.00054 U	0.00054 U	0 (1)	20
Lead	0.000190	0.000231	19 (1)	20
Nickel	0.0010 U	0.0010 U	0 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000396	0.000698	55* (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 173551063901B	Sample number(s): 9378524-9378525 BKG: P372732			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173551063901D	Sample number(s): 9378524-9378525 BKG: P372732			
Barium	0.142	0.140	1	20
	mg/l	mg/l		
Batch number: 17354249113B	Sample number(s): 9378524-9378525 BKG: P378515			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	3.27	3.35	2 (1)	15
Nitrate Nitrogen	0.536	0.529	1 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	1.5 U	1.5 U	0 (1)	15
Batch number: 17355117101A	Sample number(s): 9378524-9378525 BKG: P376475			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17356108102B	Sample number(s): 9378524-9378525 BKG: P378445			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17365107103A	Sample number(s): 9378524-9378525 BKG: P375774			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17354146271A	Sample number(s): 9378524-9378525 BKG: P376390			
Orthophosphate as P	7.44	7.36	1 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17355013202A	Sample number(s): 9378524-9378525 BKG: P378380			
Total Alkalinity to pH 4.5	1.7 U	1.7 U	0 (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L173622AA

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L173622AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9378524	105	104	96	96
9378525	105	104	96	97
9378530	105	101	97	96
9378531	105	102	97	98
Blank	105	102	97	97
LCS	103	101	99	100
MS	104	101	98	100
MSD	105	103	98	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17355WAF026

	1,4-Dioxane-d8
9378524	33*
9378525	32*
Blank	35*
LCS	37*
LCSD	32*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9378524	69	62	59	65	70	66
9378525	72	68	63	78	80	76
9378526	74	72	66	82	85	82
9378527	75	70	62	83	80	78
9378528	80	78	68	82	79	80
9378529	75	67	64	85	82	78
Blank	76	72	62	76	75	78
LCS	73	71	67	80	77	79
LCSD	76	69	67	79	76	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1889303

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9378524	61	65	70	68	64	58
9378525	72	77	72	74	78	64
9378526	71	79	72	83	76	69
9378527	67	76	79	86	74	64
9378528	64	75	78	83	81	71
9378529	71	82	72	81	77	74
Blank	78	73	75	74	78	72
LCS	90	78	75	83	78	80
LCSD	68	72	76	79	74	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9378524	61	70	73	64	63	63*
9378525	75	80	86	76	74	59*
9378526	74	78	88	74	76	56*
9378527	82	81	91	61	21*	53*
9378528	93	81	88	75	80	42*
9378529	83	84	89	77	73	54*
Blank	73	80	77	68	73	72
LCS	74	77	86	72	72	61*
LCSD	69	74	85	68	71	65*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1889303 Sample # 9378524-31

COC # 542017

Client Information

Client: Barr Engineering	Acct. #:
Project Name/#: 45021004-00	PWSID #:
Project Manager: JTCC	P.O. #:
Sampler: Justin Campbell	Quote #:
State where samples were collected: VT (Vermont)	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water ☒ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: Lab Trip Blank (water)

Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Water	Ground	Potable	Surface	NPDES	Other: Lab Trip Blank (water)	Total # of Containers	PFCs – Trizma	Orthophosphate – unpreserved filtered	Metals + Hg – HNO_3	Cyanide – NaOH – ascorbic	Alkalinity – unpreserved	Dioxane – unpreserved	Ammonia/Nitrogen – H_2SO_4	VOCs – HCl	Br/Cl/NSO_4 – unpreserved	Metals Batch QC – Nitric Acid	Remarks
SG3-MW8R-171217	12/17/17	12:10	X					X						15	X	X	X	X	X	X	X	X	X	X	Metals Batch QC collected
SG3-FD01-171217	12/17/17	12:10	X					X						15	X	X	X	X	X	X	X	X	X	X	Metals Batch QC collected
SG3-LTB01-171217	12/17/17	12:10											X	1	X										
SG3-LTB02-171217	12/17/17	12:10											X	1	X										
SG3-LTB03-171217	12/17/17	12:10											X	1	X										
SG3-LTB04-171217	12/17/17	12:10											X	1	X										
SG3-LTB05-171217	12/17/17	12:10											X	1								X			
SG3-LTB06-171217	12/17/17	12:10											X	1								X			

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: data_mgt@barr.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

	Date	Time		Date	Time
Relinquished by	12/17/17	19:00	Received by	12/18/17	0730
Relinquished by	12/19/17	1630	Received by		
Relinquished by			Received by		
Relinquished by			Received by		
Relinquished by			Received by	12.20.17	1135

EDD Required? Yes No
If yes, format: _____
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx X Other _____
Temperature upon receipt 0.8 -2.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 204392

Group Number(s): 1889303

Client: Barr Eng.

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/20/2017 11:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 HCL, 4 Trizma

Unpacked by Timothy Cubberley (6520) at 12:52 on 12/20/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.8	DT	Wet	Y	Bagged	N
2	DT131	2.8	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 10, 2018 14:11

Project: SGPP - Bennington

Account #: 37191
Group Number: 1890861
SDG: SNB63
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR4-171221 Grab Groundwater	12/21/2017 13:00	9385818
SG3-LTB120-171221 Water	12/21/2017	9385819

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1890861

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9385818, 9385819

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Batch #: 17361004 (Sample number(s): 9385818-9385819)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9385818, 9385819, LCS, LCSD

Sample Description: **SG3-MWBR4-171221 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB63-01

C. T. Male Associates
ELLE Sample #: GW 9385818
ELLE Group #: 1890861
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB63-01

C. T. Male Associates
ELLE Sample #: GW 9385818
ELLE Group #: 1890861
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 01:55	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB120-171221 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017
SDG#: SNB63-02TB

C. T. Male Associates
ELLE Sample #: WW 9385819
ELLE Group #: 1890861
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.8 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**0.7 J**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**3**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.6 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**15**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**4**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB120-171221 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017
SDG#: SNB63-02TB

C. T. Male Associates
ELLE Sample #: WW 9385819
ELLE Group #: 1890861
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 02:16	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 14:11

Group Number: 1890861

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 17361004	Sample number(s): 9385818-9385819		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 J	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17361004	Sample number(s): 9385818-9385819								
6:2 fluorotelomersulfonate	15.17	21.62	15.17	21.75	143*	143*	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.53	15.33	17.11	121	112	70-130	8	30
NEtFOSAA	5.44	5.66	5.44	5.27	104	97	70-130	7	30
NMeFOSAA	5.44	6.80	5.44	6.83	125	125	70-130	0	30
Perfluorobutanesulfonate	4.81	5.01	4.81	4.97	104	103	70-130	1	30
Perfluorobutanoic acid	5.44	7.09	5.44	6.45	130	119	70-130	9	30
Perfluorodecanoic acid	5.44	7.75	5.44	7.91	142*	145*	70-130	2	30
Perfluorododecanoic acid	5.44	6.35	5.44	6.07	117	112	70-130	5	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.26	116	115	70-130	1	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.52	110	107	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 14:11

Group Number: 1890861

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.15	5.44	5.93	113	109	70-130	4	30
Perfluorononanoic acid	5.44	5.89	5.44	6.19	108	114	70-130	5	30
Perfluorooctanesulfonamide	5.44	7.09	5.44	6.43	130	118	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.02	102	96	70-130	5	30
Perfluorooctanoic acid	5.44	6.88	5.44	6.89	126	127	70-130	0	30
Perfluoropentanoic acid	5.44	6.06	5.44	6.12	111	113	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.63	5.44	6.55	122	120	70-130	1	30
Perfluorotridecanoic acid	5.44	6.39	5.44	6.14	117	113	70-130	4	30
Perfluoroundecanoic acid	5.44	6.79	5.44	6.91	125	127	70-130	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9385818	83	80	72	90	87	81
9385819	70	65	61	79	80	69
Blank	76	72	62	76	75	78
LCS	73	71	67	80	77	79
LCSD	76	69	67	79	76	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9385818	81	80	85	84	88	86
9385819	62	76	72	81	62	60
Blank	78	73	75	74	78	72
LCS	90	78	75	83	78	80
LCSD	68	72	76	79	74	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9385818	84	94	101	81	77	69*
9385819	58	68	70	63	63	55*
Blank	73	80	77	68	73	72

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1890861
Reported: 01/10/2018 14:11

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	74	77	86	72	72	61*
LCSD	69	74	85	68	71	65*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

1890861 9385818-19 37191 ~~1890868 9385827-30~~ NB 12/28/17

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53515

COC _____ of _____

REPORT TO	INVOICE TO
Company: BARR Engineering Co.	Company: C.T. Male Assoc.
Address: 4300 Marketpointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other (Trizma)

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250mL Plastic / Trizma PFC19	Water: 250mL plastic / trip blanks	Water	Water	Water	Water	Soil	Soil	Soil	Soil	Soil	% Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR4-171221	—	—	—	12/21/2017	1300	GW		2	2												PFC (19)	
2. SG3-LTB120-171221	—	—	—	—	AM	W		2		2											trip blanks	
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

BARR USE ONLY		Relinquished by	On Ice? (Y) N	Date	Time	Received by	Date	Time
Sampled by:	KD	Mitchell Smith		12/21/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by: Adrianna Mull	Date 12/26/17	Time 0855
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE							
Lab Location:	Lancaster	Lab WO:	Temperature on Receipt (°C): 5.4			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 204819

Group Number(s): 1890861

Client: C T Male

Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/26/2017 8:55
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Deborah Neslund (208) at 10:41 on 12/26/2017

Samples Chilled Details: Bennington

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	5.4	DT	Wet	N	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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F : 717-656-2681
www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 10, 2018 13:36

Project: SGPP - Bennington

Account #: 37191
Group Number: 1890862
SDG: SNB64
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR4-171221 Grab Groundwater	12/21/2017 13:00	9385820
SG3-LTB121-171221 Blank Water	12/21/2017	9385821

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1890862

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9385820

The stated QC limits and surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank associated with the samples. All results are reported from the first trial. Similar results were obtained in both trials.

Batch #: 17361WAH026 (Sample number(s): 9385820)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9385820, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9385821

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Batch #: 17361004 (Sample number(s): 9385821)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, 6:2 fluorotelomersulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) LCS, LCSD

SW-846 6010C, Metals

Batch #: 173621063503 (Sample number(s): 9385820 UNSPK: P385664 BKG: P385664)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Aluminum, Calcium, Iron, Magnesium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Iron, Boron

SW-846 6020A, Metals

Batch #: 173621063902A (Sample number(s): 9385820 UNSPK: P384026 BKG: P384026)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Beryllium, Lead

Batch #: 173621063902D (Sample number(s): 9385820 UNSPK: P384026 BKG: P384026)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

EPA 300.0, Wet Chemistry

Sample #s: 9385820, 9385820

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

EPA 351.2, Wet Chemistry

Batch #: 18005108103A (Sample number(s): 9385820 UNSPK: P383055 BKG: P383055)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 17363004104A (Sample number(s): 9385820 UNSPK: P385664 BKG: P382123, P385664)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9385820

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB64-01

C. T. Male Associates
ELLE Sample #: GW 9385820
ELLE Group #: 1890862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	**Chloroform**	67-66-3	**0.7 J**	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB64-01

C. T. Male Associates
ELLE Sample #: GW 9385820
ELLE Group #: 1890862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.096 J**	0.051	0.21	1

The stated QC limits and surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank associated with the samples. All results are reported from the first trial. Similar results were obtained in both trials.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**28.6**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**13.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0077 J**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.45**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**3.24**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0485**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0097**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB64-01

C. T. Male Associates
ELLE Sample #: GW 9385820
ELLE Group #: 1890862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0092**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00077 J**	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.3**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	**Sulfate**	14808-79-8	**4.2 J**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**128**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**128**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB64-01

C. T. Male Associates
ELLE Sample #: GW 9385820
ELLE Group #: 1890862
Matrix: Groundwater

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L173622AA	12/29/2017 01:25	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L173622AA	12/29/2017 01:25	Matthew S Krause	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17361WAH026	12/29/2017 11:53	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17361WAH026	12/28/2017 08:00	Bradley W VanLeuven	1
01743	Aluminum	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	173621063503	01/02/2018 01:34	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	173621063902D	01/05/2018 15:48	Bradley M Berlot	1
06027	Beryllium	SW-846 6020A	1	173621063902A	01/05/2018 07:16	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	173621063902A	01/05/2018 15:48	Bradley M Berlot	1
06031	Chromium	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	173621063902A	01/05/2018 07:16	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	173621063902A	01/05/2018 10:31	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	173621063902B	01/05/2018 07:16	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	173621063902A	01/05/2018 15:48	Bradley M Berlot	1
06045	Thallium	SW-846 6020A	1	173621063902A	01/05/2018 07:16	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	173621063902A	01/08/2018 13:09	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	173620571304	01/02/2018 07:55	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	173621063503	12/29/2017 15:50	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	173621063902	12/29/2017 15:50	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	173620571304	12/29/2017 17:30	JoElla L Rice	1
01505	Bromide	EPA 300.0	3	17362120115A	12/29/2017 11:32	Hallie A Burnett	5
00224	Chloride	EPA 300.0	3	17362120115A	12/29/2017 11:32	Hallie A Burnett	5
00368	Nitrate Nitrogen	EPA 300.0	3	17362120115A	12/29/2017 11:32	Hallie A Burnett	5
01506	Nitrite Nitrogen	EPA 300.0	3	17362120115A	12/29/2017 11:32	Hallie A Burnett	5
00228	Sulfate	EPA 300.0	3	17362120115A	12/29/2017 11:32	Hallie A Burnett	5
12892	Ammonia Nitrogen	EPA 350.1	1	18004107104B	01/04/2018 18:29	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18005108103A	01/06/2018 14:40	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	17361117101B	12/28/2017 19:55	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18005108103A	01/05/2018 16:15	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17361117101B	12/27/2017 16:15	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17363004104A	12/29/2017 23:44	Nathan T Morgan	1

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-MWBR4-171221 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017 13:00
SDG#: SNB64-01

C. T. Male Associates
ELLE Sample #: GW 9385820
ELLE Group #: 1890862
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17363004104A	12/29/2017 23:44	Nathan T Morgan	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17363004104A	12/29/2017 23:44	Nathan T Morgan	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	17361146271A	12/27/2017 21:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB121-171221 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017
SDG#: SNB64-02TB

C. T. Male Associates
ELLE Sample #: WW 9385821
ELLE Group #: 1890862
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**1 JB**	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the target analytes were not detected in the method blank. The data is reported from the initial trial.

The injection standard 13C3-PFBA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	17361004	01/01/2018 02:36	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB121-171221 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 12/26/2017 08:55
Collection Date/Time: 12/21/2017
SDG#: SNB64-02TB

C. T. Male Associates
ELLE Sample #: WW 9385821
ELLE Group #: 1890862
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	17361004	12/27/2017 07:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L173622AA	Sample number(s): 9385820		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 17361WAH026	Sample number(s): 9385820		
1,4-Dioxane	0.11 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 17361004	Sample number(s): 9385821		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 J	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 173620571304	Sample number(s): 9385820		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 173621063503	Sample number(s): 9385820		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 173621063902A	Sample number(s): 9385820		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 173621063902B	Sample number(s): 9385820		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 173621063902D	Sample number(s): 9385820		
Barium	0.0017 J	0.00072	0.0040
Batch number: 17361117101B	Sample number(s): 9385820		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17362120115A	Sample number(s): 9385820		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18004107104B	Sample number(s): 9385820		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18005108103A	Sample number(s): 9385820		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17361146271A	Sample number(s): 9385820		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17363004104A	Sample number(s): 9385820		
Total Alkalinity to pH 4.5	3.2 J	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L173622AA	Sample number(s): 9385820								
Acetone	150	128.7			86		44-177		
Benzene	20	19.69			98		78-120		
Bromochloromethane	20	20.05			100		80-125		
Bromodichloromethane	20	19.78			99		71-120		
Bromoform	20	20.31			102		59-120		
Bromomethane	20	21.74			109		44-139		
2-Butanone	150	125.67			84		53-140		
Carbon Disulfide	20	20.06			100		65-128		
Carbon Tetrachloride	20	22.07			110		68-128		
Chlorobenzene	20	20.19			101		80-120		
Chloroethane	20	20.46			102		52-127		
Chloroform	20	20.45			102		80-120		
Chloromethane	20	18.04			90		57-120		
Cyclohexane	20	17.66			88		67-121		
1,2-Dibromo-3-chloropropane	20	18.27			91		64-120		
Dibromochloromethane	20	20.78			104		71-120		
1,2-Dibromoethane	20	20.17			101		75-120		
1,2-Dichlorobenzene	20	19.67			98		80-120		
1,3-Dichlorobenzene	20	19.49			97		80-120		
1,4-Dichlorobenzene	20	19.82			99		80-120		
Dichlorodifluoromethane	20	19.87			99		47-124		
1,1-Dichloroethane	20	19.45			97		80-120		
1,2-Dichloroethane	20	20.47			102		73-124		
1,1-Dichloroethene	20	22.56			113		76-124		
cis-1,2-Dichloroethene	20	20.77			104		80-120		
trans-1,2-Dichloroethene	20	21.38			107		80-120		
1,2-Dichloropropane	20	19.04			95		80-120		
cis-1,3-Dichloropropene	20	18.56			93		75-120		
trans-1,3-Dichloropropene	20	18.75			94		76-120		
Ethylbenzene	20	20.02			100		78-120		
Freon 113	20	22.11			111		68-137		
2-Hexanone	100	92.19			92		60-134		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	20.54			103		80-120		
Methyl Acetate	20	17.77			89		61-137		
Methyl Tertiary Butyl Ether	20	19.21			96		75-120		
4-Methyl-2-pentanone	100	90.37			90		67-128		
Methylcyclohexane	20	19.08			95		66-126		
Methylene Chloride	20	20.06			100		80-120		
Styrene	20	20.47			102		80-120		
1,1,2,2-Tetrachloroethane	20	18.53			93		72-120		
Tetrachloroethene	20	21.03			105		80-129		
Toluene	20	19.65			98		80-120		
1,2,3-Trichlorobenzene	20	18.65			93		66-120		
1,2,4-Trichlorobenzene	20	17.93			90		70-120		
1,1,1-Trichloroethane	20	20.38			102		67-120		
1,1,2-Trichloroethane	20	19.66			98		80-120		
Trichloroethene	20	20.23			101		80-120		
Trichlorofluoromethane	20	23.96			120		52-143		
Vinyl Chloride	20	17.84			89		63-121		
m+p-Xylene	40	41.19			103		80-120		
o-Xylene	20	19.8			99		80-120		
Xylene (Total)	60	60.99			102		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17361WAH026	Sample number(s): 9385820								
1,4-Dioxane	1.00	1.33	1.00	1.38	133*	138*	70-130	3	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17361004	Sample number(s): 9385821								
6:2 fluorotelomersulfonate	15.17	21.62	15.17	21.75	143*	143*	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.53	15.33	17.11	121	112	70-130	8	30
NEtFOSAA	5.44	5.66	5.44	5.27	104	97	70-130	7	30
NMeFOSAA	5.44	6.80	5.44	6.83	125	125	70-130	0	30
Perfluorobutanesulfonate	4.81	5.01	4.81	4.97	104	103	70-130	1	30
Perfluorobutanoic acid	5.44	7.09	5.44	6.45	130	119	70-130	9	30
Perfluorodecanoic acid	5.44	7.75	5.44	7.91	142*	145*	70-130	2	30
Perfluorododecanoic acid	5.44	6.35	5.44	6.07	117	112	70-130	5	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.26	116	115	70-130	1	30
Perfluorohexanesulfonate	5.14	5.67	5.14	5.52	110	107	70-130	3	30
Perfluorohexanoic acid	5.44	6.15	5.44	5.93	113	109	70-130	4	30
Perfluorononanoic acid	5.44	5.89	5.44	6.19	108	114	70-130	5	30
Perfluorooctanesulfonamide	5.44	7.09	5.44	6.43	130	118	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.02	102	96	70-130	5	30
Perfluorooctanoic acid	5.44	6.88	5.44	6.89	126	127	70-130	0	30
Perfluoropentanoic acid	5.44	6.06	5.44	6.12	111	113	70-130	1	30
Perfluorotetradecanoic acid	5.44	6.63	5.44	6.55	122	120	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	6.39	5.44	6.14	117	113	70-130	4	30
Perfluoroundecanoic acid	5.44	6.79	5.44	6.91	125	127	70-130	2	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173620571304	Sample number(s): 9385820								
Mercury	0.00100	0.000827			83		80-120		
Batch number: 173621063503	Sample number(s): 9385820								
Aluminum	2.00	1.94			97		80-120		
Boron	2.00	1.77			88		80-120		
Calcium	4.00	3.81			95		80-120		
Iron	1.00	0.942			94		80-120		
Magnesium	2.00	1.90			95		80-120		
Manganese	0.500	0.472			94		80-120		
Potassium	10	9.42			94		80-120		
Sodium	10	9.52			95		80-120		
Zinc	0.500	0.459			92		80-120		
Batch number: 173621063902A	Sample number(s): 9385820								
Antimony	0.00600	0.00698			116		80-120		
Arsenic	0.0100	0.0102			102		80-120		
Beryllium	0.00400	0.00445			111		80-120		
Cadmium	0.00500	0.00520			104		80-120		
Chromium	0.0500	0.0501			100		80-120		
Cobalt	0.250	0.251			100		80-120		
Copper	0.0500	0.0520			104		80-120		
Lead	0.0150	0.0159			106		80-120		
Nickel	0.0500	0.0486			97		80-120		
Silver	0.0500	0.0461			92		80-120		
Thallium	0.00200	0.00209			104		80-120		
Vanadium	0.0500	0.0482			96		80-120		
Batch number: 173621063902B	Sample number(s): 9385820								
Selenium	0.0100	0.0101			101		80-120		
Batch number: 173621063902D	Sample number(s): 9385820								
Barium	0.0500	0.0549			110		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17361117101B	Sample number(s): 9385820								
Total Cyanide	0.200	0.219			110		90-110		
Batch number: 17362120115A	Sample number(s): 9385820								
Bromide	7.50	7.51	7.50	7.52	100	100	90-110	0	20
Chloride	3.00	2.93	3.00	2.93	98	98	90-110	0	20
Nitrate Nitrogen	0.750	0.742	0.750	0.745	99	99	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nitrite Nitrogen	0.750	0.729	0.750	0.731	97	97	90-110	0	20
Sulfate	7.50	7.60	7.50	7.58	101	101	90-110	0	20
Batch number: 18004107104B	Sample number(s): 9385820								
Ammonia Nitrogen	1.50	1.54			103		90-110		
Batch number: 18005108103A	Sample number(s): 9385820								
Kjeldahl Nitrogen	5.00	4.49			90		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17361146271A	Sample number(s): 9385820								
Orthophosphate as P	0.400	0.399	0.400	0.402	100	100	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 17363004104A	Sample number(s): 9385820								
Total Alkalinity to pH 4.5	188	168.95			90		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L173622AA	Sample number(s): 9385820 UNSPK: P385664									
Acetone	6 U	150	138.99	150	137.55	93	92	44-177	1	30
Benzene	0.5 U	20	20.65	20	20.73	103	104	78-120	0	30
Bromochloromethane	1 U	20	21.14	20	20.67	106	103	80-125	2	30
Bromodichloromethane	0.5 U	20	20.82	20	20.47	104	102	71-120	2	30
Bromoform	0.5 U	20	19.73	20	19.48	99	97	59-120	1	30
Bromomethane	0.5 U	20	21.47	20	21.55	107	108	44-139	0	30
2-Butanone	3 U	150	124.98	150	126.28	83	84	53-140	1	30
Carbon Disulfide	1 U	20	21.35	20	20.98	107	105	65-128	2	30
Carbon Tetrachloride	0.5 U	20	24.25	20	23.84	121	119	68-128	2	30
Chlorobenzene	0.5 U	20	20.99	20	20.76	105	104	80-120	1	30
Chloroethane	0.5 U	20	21	20	20.94	105	105	52-127	0	30
Chloroform	0.5 U	20	21.64	20	21.35	108	107	80-120	1	30
Chloromethane	0.5 U	20	17.75	20	18.03	89	90	57-120	2	30
Cyclohexane	2 U	20	19.78	20	19.79	99	99	67-121	0	30
1,2-Dibromo-3-chloropropane	2 U	20	17.16	20	17.57	86	88	64-120	2	30
Dibromochloromethane	0.5 U	20	20.97	20	20.76	105	104	71-120	1	30
1,2-Dibromoethane	0.5 U	20	19.97	20	19.99	100	100	75-120	0	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	19.41	20	19.69	97	98	80-120	1	30
1,3-Dichlorobenzene	1 U	20	19.76	20	19.89	99	99	80-120	1	30
1,4-Dichlorobenzene	1 U	20	19.95	20	20.06	100	100	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	21.52	20	20.71	108	104	47-124	4	30
1,1-Dichloroethane	0.5 U	20	20.29	20	20.22	101	101	80-120	0	30
1,2-Dichloroethane	0.5 U	20	21.09	20	20.69	105	103	73-124	2	30
1,1-Dichloroethene	0.5 U	20	24.66	20	24.09	123	120	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	21.86	20	21.72	109	109	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	22.7	20	22.49	113	112	80-120	1	30
1,2-Dichloropropane	0.5 U	20	19.8	20	19.54	99	98	80-120	1	30
cis-1,3-Dichloropropene	0.5 U	20	18.73	20	18.66	94	93	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	18.94	20	19.02	95	95	76-120	0	30
Ethylbenzene	0.5 U	20	21.03	20	21.03	105	105	78-120	0	30
Freon 113	2 U	20	25.97	20	25.14	130	126	68-137	3	30
2-Hexanone	3 U	100	87.07	100	88.42	87	88	60-134	2	30
Isopropylbenzene	1 U	20	21.39	20	21.48	107	107	80-120	0	30
Methyl Acetate	1 U	20	16.77	20	16.8	84	84	61-137	0	30
Methyl Tertiary Butyl Ether	0.5 U	20	19.09	20	19.16	95	96	75-120	0	30
4-Methyl-2-pentanone	3 U	100	86.21	100	86.8	86	87	67-128	1	30
Methylcyclohexane	1 U	20	21.94	20	22.08	110	110	66-126	1	30
Methylene Chloride	0.5 U	20	20.95	20	20.38	105	102	80-120	3	30
Styrene	1 U	20	20.85	20	20.96	104	105	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	17.3	20	17.91	87	90	72-120	3	30
Tetrachloroethene	0.5 U	20	22.74	20	22.67	114	113	80-129	0	30
Toluene	0.5 U	20	20.66	20	20.55	103	103	80-120	1	30
1,2,3-Trichlorobenzene	1 U	20	17.73	20	18.27	89	91	66-120	3	30
1,2,4-Trichlorobenzene	1 U	20	17.24	20	17.58	86	88	70-120	2	30
1,1,1-Trichloroethane	0.5 U	20	22.07	20	21.71	110	109	67-120	2	30
1,1,2-Trichloroethane	0.5 U	20	19.93	20	20.04	100	100	80-120	1	30
Trichloroethene	0.5 U	20	21.83	20	21.6	109	108	80-120	1	30
Trichlorofluoromethane	0.5 U	20	16.31	20	15.83	82	79	52-143	3	30
Vinyl Chloride	0.5 U	20	18.64	20	18.43	93	92	63-121	1	30
m+p-Xylene	0.5 U	40	42.76	40	43.1	107	108	80-120	1	30
o-Xylene	0.5 U	20	20.32	20	20.26	102	101	80-120	0	30
Xylene (Total)	0.5 U	60	63.07	60	63.36	105	106	80-120	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 173620571304	Sample number(s): 9385820 UNSPK: P384026									
Mercury	0.000050 U	0.00100	0.000851	0.00100	0.000801	85	80	80-120	6	20
Batch number: 173621063503	Sample number(s): 9385820 UNSPK: P385664									
Aluminum	0.777	2.00	2.05	2.00	1.99	64*	61*	75-125	3	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.0132	2.00	1.82	2.00	1.81	91	90	75-125	1	20
Calcium	88.94	4.00	90.87	4.00	91.55	48 (2)	65 (2)	75-125	1	20
Iron	1.41	1.00	1.45	1.00	1.43	4*	1*	75-125	2	20
Magnesium	27.7	2.00	28.86	2.00	28.75	58 (2)	53 (2)	75-125	0	20
Manganese	0.407	0.500	0.858	0.500	0.858	90	90	75-125	0	20
Potassium	3.62	10	12.84	10	12.5	92	89	75-125	3	20
Sodium	24.61	10	33.78	10	33.25	92	86	75-125	2	20
Zinc	0.0065 U	0.500	0.455	0.500	0.448	91	90	75-125	2	20
Batch number: 173621063902A	Sample number(s): 9385820 UNSPK: P384026									
Antimony	0.00045 U	0.00600	0.00658	0.00600	0.00685	110	114	75-125	4	20
Arsenic	0.00192	0.0100	0.0124	0.0100	0.0104	105	85	75-125	18	20
Beryllium	0.000188	0.00400	0.00396	0.00400	0.00393	94	94	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00505	0.00500	0.00465	101	93	75-125	8	20
Chromium	0.00155	0.0500	0.0491	0.0500	0.0473	95	92	75-125	4	20
Cobalt	0.000472	0.250	0.237	0.250	0.233	95	93	75-125	2	20
Copper	0.00586	0.0500	0.0569	0.0500	0.0494	102	87	75-125	14	20
Lead	0.000254	0.0150	0.0150	0.0150	0.0150	98	98	75-125	0	20
Nickel	0.00306	0.0500	0.0491	0.0500	0.0468	92	88	75-125	5	20
Silver	0.00015 U	0.0500	0.0497	0.0500	0.0490	99	98	75-125	2	20
Thallium	0.00012 U	0.00200	0.00202	0.00200	0.00197	101	99	75-125	2	20
Vanadium	0.00110	0.0500	0.0483	0.0500	0.0492	94	96	75-125	2	20
Batch number: 173621063902B	Sample number(s): 9385820 UNSPK: P384026									
Selenium	0.00050 U	0.0100	0.0100	0.0100	0.0101	100	101	75-125	0	20
Batch number: 173621063902D	Sample number(s): 9385820 UNSPK: P384026									
Barium	0.142	0.0500	0.188	0.0500	0.173	91	63*	75-125	8	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 17361117101B	Sample number(s): 9385820 UNSPK: P385664									
Total Cyanide	0.0050 U	0.200	0.206			103		72-114		
Batch number: 17362120115A	Sample number(s): 9385820 UNSPK: 9385820									
Bromide	1.3 U	25	25.36			101		90-110		
Chloride	3.30	10	12.78			95		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.60			104		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.52			101		90-110		
Sulfate	4.25	25	28.45			97		90-110		
Batch number: 18004107104B	Sample number(s): 9385820 UNSPK: P382457									
Ammonia Nitrogen	0.050 U	1.00	1.04			104		90-110		
Batch number: 18005108103A	Sample number(s): 9385820 UNSPK: P383055									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Kjeldahl Nitrogen	34.25	5.00	40.46			124 (2)		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17363004104A	Sample number(s): 9385820 UNSPK: P385664									
Total Alkalinity to pH 4.5	222.56	188	254.31	188	259.81	17*	20*	77-114	2	10

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 173620571304	Sample number(s): 9385820 BKG: P384026			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 173621063503	Sample number(s): 9385820 BKG: P385664			
Aluminum	0.777	0.140	139* (1)	20
Boron	0.0132	0.0101 U	200* (1)	20
Calcium	88.94	88.94	0	20
Iron	1.41	0.573	85* (1)	20
Magnesium	27.7	27.46	1	20
Manganese	0.407	0.398	2	20
Potassium	3.62	3.45	5 (1)	20
Sodium	24.61	24.66	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 173621063902A	Sample number(s): 9385820 BKG: P384026			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00192	0.00232	19 (1)	20
Beryllium	0.000188	0.000071 U	200* (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00155	0.00158	2 (1)	20
Cobalt	0.000472	0.000532	12 (1)	20
Copper	0.00586	0.00610	4 (1)	20
Lead	0.000254	0.000327	25* (1)	20
Nickel	0.00306	0.00356	15 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00110	0.00125	13 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 173621063902B	Sample number(s): 9385820 BKG: P384026			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 173621063902D	Sample number(s): 9385820 BKG: P384026			
Barium	0.142	0.134	6	20
	mg/l	mg/l		
Batch number: 17361117101B	Sample number(s): 9385820 BKG: P385664			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17362120115A	Sample number(s): 9385820 BKG: 9385820			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	3.30	3.23	2 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	4.25	4.15	2 (1)	15
Batch number: 18004107104B	Sample number(s): 9385820 BKG: P382457			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 18005108103A	Sample number(s): 9385820 BKG: P383055			
Kjeldahl Nitrogen	34.25	32.15	6 (1)	20
	mg/l	mg/l		
Batch number: 17361146271A	Sample number(s): 9385820 BKG: P386729			
Orthophosphate as P	6.60	6.54	1	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17363004104A	Sample number(s): 9385820 BKG: P385664			
Total Alkalinity to pH 4.5	222.56	222.31	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L173622AA

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:36

Group Number: 1890862

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L173622AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9385820	107	102	97	96
Blank	105	102	97	97
LCS	103	101	99	100
MS	104	101	98	100
MSD	105	103	98	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 17361WAH026

	1,4-Dioxane-d8
9385820	38*
Blank	37*
LCS	41*
LCSD	36*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9385821	75	73	64	87	83	76
Blank	76	72	62	76	75	78
LCS	73	71	67	80	77	79
LCSD	76	69	67	79	76	75
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9385821	65	77	74	73	81	73
Blank	78	73	75	74	78	72
LCS	90	78	75	83	78	80
LCSD	68	72	76	79	74	75
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9385821	83	82	81	75	79	73
Blank	73	80	77	68	73	72

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1890862
Reported: 01/10/2018 13:36

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 17361004

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	74	77	86	72	72	61*
LCSD	69	74	85	68	71	65*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1890862 9385820 -21

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53516

COC _____ of _____

REPORT TO	INVOICE TO
Company: BARR Engineering Co.	Company: C.T. Male Assoc.
Address: 4300 Marketpointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: MDupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other (Trizma)

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL plastic/orthophosphate	250 mL plastic HNO3/metals+Hg	250 mL plastic NaOH/cyanide	250 mL plastic/alkalinity	250 mL glass/Diox and	250 mL plastic/ammonia/nitrogen	Soil: 40 mL glass/VOCs	40 mL glass/Br, Cl, NO3, SO4	250 mL Trizma/trip blanks	% Solids	Preservative Code	Field Filtered Y/N
									A	C	E	A	A	D	B	A	O			
									Y	N	N	N	N	N	N	N	N			
1. SG3-MWBR4-171221	—	—	—	12/21/2017	1300	GW		12	1	1	1	1	2	1	3	2				
2. SG3-LTB12-171221	—	—	—	—	AM	W		2									2			
3.																				
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KD		Y	12/21/17	1700			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						12/26/17	0855
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Location:	Lancaster	Lab WO:		Temperature on Receipt (°C): 1.4		Custody Seal Intact? ☒ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 204818

Group Number(s): 1890863

Client: CT Male

Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/26/2017 8:55
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Deborah Neslund (208) at 10:39 on 12/26/2017

Samples Chilled Details: Bennington

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.4	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 10, 2018 13:12

Project: SGPP - Bennington

Account #: 37191
Group Number: 1893607
SDG: SNB66
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180104 Grab Groundwater	01/04/2018 09:00	9396554
SG3-LTB122-180104 Water	01/04/2018	9396555

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1893607

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9396554, 9396555

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18008003 (Sample number(s): 9396554-9396555)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9396554, 9396555, Blank, LCS, LCSD

Sample Description: **SG3-MWBR3-180104 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018 09:00
SDG#: SNB66-01

C. T. Male Associates
ELLE Sample #: GW 9396554
ELLE Group #: 1893607
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**62**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18008003	01/10/2018 06:49	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18008003	01/09/2018 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB122-180104 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018
SDG#: SNB66-02TB

C. T. Male Associates
ELLE Sample #: WW 9396555
ELLE Group #: 1893607
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18008003	01/10/2018 07:09	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18008003	01/09/2018 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1893607

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18008003	Sample number(s): 9396554-9396555		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18008003	Sample number(s): 9396554-9396555								
6:2 fluorotelomersulfonate	15.17	15.4	15.17	16.13	102	106	70-130	5	30
8:2 fluorotelomersulfonate	15.33	14.7	15.33	18.49	96	121	70-130	23	30
NEtFOSAA	5.44	5.85	5.44	6.21	108	114	70-130	6	30
NMeFOSAA	5.44	5.74	5.44	5.81	106	107	70-130	1	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.65	100	97	70-130	3	30
Perfluorobutanoic acid	5.44	5.88	5.44	5.68	108	104	70-130	3	30
Perfluorodecanoic acid	5.44	6.04	5.44	6.00	111	110	70-130	1	30
Perfluorododecanoic acid	5.44	5.58	5.44	5.81	103	107	70-130	4	30
Perfluoroheptanoic acid	5.44	6.47	5.44	5.94	119	109	70-130	9	30
Perfluorohexanesulfonate	5.14	5.47	5.14	5.20	106	101	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/10/2018 13:12

Group Number: 1893607

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.42	5.44	5.52	100	101	70-130	2	30
Perfluorononanoic acid	5.44	7.02	5.44	6.49	129	119	70-130	8	30
Perfluorooctanesulfonamide	5.44	6.39	5.44	7.40	117	136*	70-130	15	30
Perfluoro-octanesulfonate	5.20	4.67	5.20	5.25	90	101	70-130	12	30
Perfluorooctanoic acid	5.44	5.77	5.44	5.90	106	108	70-130	2	30
Perfluoropentanoic acid	5.44	5.71	5.44	5.62	105	103	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.81	5.44	6.11	107	112	70-130	5	30
Perfluorotridecanoic acid	5.44	5.80	5.44	6.01	107	111	70-130	4	30
Perfluoroundecanoic acid	5.44	6.24	5.44	6.45	115	119	70-130	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18008003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9396554	85	90	95	109	95	98
9396555	87	81	80	120	91	95
Blank	83	81	80	92	78	84
LCS	85	87	93	104	89	94
LCSD	72	78	84	87	77	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9396554	117	87	84	73	90	90
9396555	109	86	87	97	93	93
Blank	97	80	82	72	91	82
LCS	121	89	89	83	87	97
LCSD	110	79	76	71	77	81
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9396554	77	89	89	94	77	56*
9396555	82	88	103	102	90	58*
Blank	84	81	95	91	76	55*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1893607
Reported: 01/10/2018 13:12

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18008003

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	93	88	108	97	79	43*
LCSD	71	73	86	81	68	29*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1893607/9396554-55

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53518

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name:	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

TRIZMA =

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: PFC (19) - 250 ml (P)	Water: 250 mL plastic lab trip blanks	Soil	% Solids	Preservative Code	Field Filtered Y/N
							O	A						
							N	N						
1. SG3-MWBR3-180104				01/04/2018	09:00	GW	N	2	2					
2. SG3-LTB122-180104				01/04/2018	—	water	N	1		1				
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? (Y) N	Date 01/04/18	Time 1045	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/6/18	Time 1100
Barr DQ Manager: MDD	Samples Shipped VIA: ~~Courier~~ ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 0.3 - 0.5	Custody Seal Intact? ☒ Y ☐ N ☐ None				
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 205405

Group Number(s): 1893607

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/06/2018 11:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See COC
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 11:39 on 01/06/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.5	DT	Wet	Y	Bagged	N
2	DT42-03	0.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 17, 2018 14:44

Project: SGPP - Bennington

Account #: 37191
Group Number: 1893613
SDG: SNB67
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180104 Grab Groundwater	01/04/2018 09:00	9396569
SG3-LTB123-180104 Blank Water	01/04/2018	9396570

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1893613

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9396569

The stated QC and surrogate limits are advisory only until
sufficient data points can be obtained to calculate statistical limits.

Batch #: 18008WAC026 (Sample number(s): 9396569)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9396569, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9396570

The stated QC limits are advisory only until sufficient data points
can be obtained to calculate statistical limits.

Batch #: 18008003 (Sample number(s): 9396570)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9396570, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 180101063503 (Sample number(s): 9396569 UNSPK: P399192 BKG: P399192)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Aluminum, Calcium, Sodium

SW-846 6020A, Metals

Batch #: 180121063901A (Sample number(s): 9396569 UNSPK: P403716 BKG: P403716)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Arsenic, Beryllium, Chromium, Copper, Lead, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Cadmium, Thallium

Batch #: 180121063901D (Sample number(s): 9396569 UNSPK: P403716 BKG: P403716)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

EPA 300.0, Wet Chemistry

Sample #s: 9396569, 9396569

Reporting limits were raised due to interference from the sample matrix.

Batch #: 18006987112A (Sample number(s): 9396569 UNSPK: 9396569 BKG: 9396569)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Chloride, Sulfate, Nitrate Nitrogen, Bromide, Nitrite Nitrogen

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9396569

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Sample Description: **SG3-MWBR3-180104 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018 09:00
SDG#: SNB67-01

C. T. Male Associates
ELLE Sample #: GW 9396569
ELLE Group #: 1893613
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180104 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018 09:00
SDG#: SNB67-01

C. T. Male Associates
ELLE Sample #: GW 9396569
ELLE Group #: 1893613
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.052 U	0.052	0.21	1

The stated QC and surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**0.114 J**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**0.0751 J**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**46.7**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.349 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**17.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0333**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.63**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**3.95**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.641**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0245**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0021 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.00066 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0150**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0022**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0016 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180104 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018 09:00
SDG#: SNB67-01

C. T. Male Associates
ELLE Sample #: GW 9396569
ELLE Group #: 1893613
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.9**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.44 J**	0.25	0.50	5
	Reporting limits were raised due to interference from the sample matrix.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	Reporting limits were raised due to interference from the sample matrix.					
00228	**Sulfate**	14808-79-8	**14.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**170**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**170**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180104 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018 09:00
SDG#: SNB67-01

C. T. Male Associates
ELLE Sample #: GW 9396569
ELLE Group #: 1893613
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L180101AA	01/10/2018 14:47	Jennifer K Howe	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L180101AA	01/10/2018 14:47	Jennifer K Howe	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18008WAC026	01/09/2018 07:57	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18008WAC026	01/08/2018 17:00	Osvaldo R Sanchez	1
01743	Aluminum	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	180101063503	01/14/2018 14:31	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	180121063901D	01/16/2018 05:50	Sarah L Burt	1
06027	Beryllium	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	180121063901A	01/16/2018 20:56	Bradley M Berlot	1
06032	Cobalt	SW-846 6020A	1	180121063901A	01/17/2018 12:51	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	180121063901A	01/16/2018 20:56	Bradley M Berlot	1
06035	Lead	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	180171063901A	01/17/2018 12:08	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180121063901B	01/16/2018 05:50	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	180121063901A	01/16/2018 05:50	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	180121063901A	01/16/2018 20:56	Bradley M Berlot	1
00259	Mercury	SW-846 7470A	1	180090571303	01/11/2018 06:38	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180101063503	01/10/2018 21:00	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180121063901	01/15/2018 05:43	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	2	180171063901	01/17/2018 07:30	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180090571303	01/10/2018 09:25	Nicholas W Shroyer	1
01505	Bromide	EPA 300.0	1	18006987112A	01/06/2018 14:48	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18006987112A	01/06/2018 14:48	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18006987112A	01/06/2018 14:48	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18006987112A	01/06/2018 14:48	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18006987112A	01/06/2018 14:48	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18016107101A	01/16/2018 21:02	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18012108103B	01/17/2018 02:09	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	18009117101A	01/10/2018 18:59	Samuel J Weaver	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18012108103B	01/12/2018 17:00	Luke Timcik	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18009117101A	01/09/2018 15:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18008006202A	01/08/2018 22:36	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18008006202A	01/08/2018 22:36	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18008006202A	01/08/2018 22:36	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18006146271A	01/06/2018 12:20	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB123-180104 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/06/2018 11:00
Collection Date/Time: 01/04/2018
SDG#: SNB67-02TB

C. T. Male Associates
ELLE Sample #: WW 9396570
ELLE Group #: 1893613
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18008003	01/10/2018 07:30	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18008003	01/09/2018 08:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L180101AA	Sample number(s): 9396569		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18008WAC026	Sample number(s): 9396569		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 18008003	Sample number(s): 9396570		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 180090571303	Sample number(s): 9396569		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180101063503	Sample number(s): 9396569		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0025 J	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180121063901A	Sample number(s): 9396569		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180121063901B	Sample number(s): 9396569		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180121063901D	Sample number(s): 9396569		
Barium	0.0010 J	0.00072	0.0040
Batch number: 180171063901A	Sample number(s): 9396569		
Nickel	0.0010 U	0.0010	0.0040
Batch number: 18006987112A	Sample number(s): 9396569		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18009117101A	Sample number(s): 9396569		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18012108103B	Sample number(s): 9396569		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18016107101A	Sample number(s): 9396569		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18006146271A	Sample number(s): 9396569		
Orthophosphate as P	0.030 U	0.030	0.090

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18008006202A	Sample number(s): 9396569		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L180101AA	Sample number(s): 9396569								
Acetone	150	179.25	150	135.16	119	90	44-177	28	30
Benzene	20	20.81	20	20.48	104	102	78-120	2	30
Bromochloromethane	20	20.92	20	20.75	105	104	80-125	1	30
Bromodichloromethane	20	19.69	20	19.37	98	97	71-120	2	30
Bromoform	20	20.01	20	19.48	100	97	59-120	3	30
Bromomethane	20	17.85	20	16.8	89	84	44-139	6	30
2-Butanone	150	148.56	150	136.25	99	91	53-140	9	30
Carbon Disulfide	20	19.99	20	19.75	100	99	65-128	1	30
Carbon Tetrachloride	20	20.88	20	20.16	104	101	68-128	3	30
Chlorobenzene	20	20.64	20	20.25	103	101	80-120	2	30
Chloroethane	20	17.55	20	16.61	88	83	52-127	5	30
Chloroform	20	20.63	20	20.07	103	100	80-120	3	30
Chloromethane	20	16.9	20	16.81	85	84	57-120	1	30
Cyclohexane	20	19.93	20	19.2	100	96	67-121	4	30
1,2-Dibromo-3-chloropropane	20	18.06	20	18.38	90	92	64-120	2	30
Dibromochloromethane	20	20.33	20	19.84	102	99	71-120	2	30
1,2-Dibromoethane	20	20.64	20	20.2	103	101	75-120	2	30
1,2-Dichlorobenzene	20	20.2	20	20.02	101	100	80-120	1	30
1,3-Dichlorobenzene	20	19.74	20	19.67	99	98	80-120	0	30
1,4-Dichlorobenzene	20	20.08	20	20.03	100	100	80-120	0	30
Dichlorodifluoromethane	20	14.74	20	14.31	74	72	47-124	3	30
1,1-Dichloroethane	20	20.28	20	19.66	101	98	80-120	3	30
1,2-Dichloroethane	20	19.11	20	18.61	96	93	73-124	3	30
1,1-Dichloroethene	20	22.58	20	22.12	113	111	76-124	2	30
cis-1,2-Dichloroethene	20	21.4	20	21.27	107	106	80-120	1	30
trans-1,2-Dichloroethene	20	21.83	20	21.28	109	106	80-120	3	30
1,2-Dichloropropane	20	20.01	20	19.57	100	98	80-120	2	30
cis-1,3-Dichloropropene	20	19.94	20	19.35	100	97	75-120	3	30
trans-1,3-Dichloropropene	20	19.45	20	18.98	97	95	76-120	2	30
Ethylbenzene	20	20.36	20	19.8	102	99	78-120	3	30
Freon 113	20	21.98	20	21.2	110	106	68-137	4	30
2-Hexanone	100	97.6	100	93.59	98	94	60-134	4	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	21.26	20	20.63	106	103	80-120	3	30
Methyl Acetate	20	18.29	20	18.16	91	91	61-137	1	30
Methyl Tertiary Butyl Ether	20	19.97	20	19.54	100	98	75-120	2	30
4-Methyl-2-pentanone	100	94.32	100	93.03	94	93	67-128	1	30
Methylcyclohexane	20	20.4	20	19.99	102	100	66-126	2	30
Methylene Chloride	20	20.87	20	20.4	104	102	80-120	2	30
Styrene	20	20.74	20	20.35	104	102	80-120	2	30
1,1,2,2-Tetrachloroethane	20	19.02	20	19.07	95	95	72-120	0	30
Tetrachloroethene	20	21.49	20	20.98	107	105	80-129	2	30
Toluene	20	20.99	20	20.38	105	102	80-120	3	30
1,2,3-Trichlorobenzene	20	19.16	20	19.36	96	97	66-120	1	30
1,2,4-Trichlorobenzene	20	19.07	20	19.16	95	96	70-120	0	30
1,1,1-Trichloroethane	20	21.68	20	20.85	108	104	67-120	4	30
1,1,2-Trichloroethane	20	21.09	20	20.47	105	102	80-120	3	30
Trichloroethene	20	20.65	20	20.22	103	101	80-120	2	30
Trichlorofluoromethane	20	18.21	20	17.53	91	88	52-143	4	30
Vinyl Chloride	20	17.73	20	17.28	89	86	63-121	3	30
m+p-Xylene	40	41.67	40	40.65	104	102	80-120	2	30
o-Xylene	20	20.4	20	19.93	102	100	80-120	2	30
Xylene (Total)	60	62.07	60	60.58	103	101	80-120	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 18008WAC026	Sample number(s): 9396569								
1,4-Dioxane	1.00	1.31	1.00	1.35	131*	135*	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18008003	Sample number(s): 9396570								
6:2 fluorotelomersulfonate	15.17	15.4	15.17	16.13	102	106	70-130	5	30
8:2 fluorotelomersulfonate	15.33	14.7	15.33	18.49	96	121	70-130	23	30
NEtFOSAA	5.44	5.85	5.44	6.21	108	114	70-130	6	30
NMeFOSAA	5.44	5.74	5.44	5.81	106	107	70-130	1	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.65	100	97	70-130	3	30
Perfluorobutanoic acid	5.44	5.88	5.44	5.68	108	104	70-130	3	30
Perfluorodecanoic acid	5.44	6.04	5.44	6.00	111	110	70-130	1	30
Perfluorododecanoic acid	5.44	5.58	5.44	5.81	103	107	70-130	4	30
Perfluoroheptanoic acid	5.44	6.47	5.44	5.94	119	109	70-130	9	30
Perfluorohexanesulfonate	5.14	5.47	5.14	5.20	106	101	70-130	5	30
Perfluorohexanoic acid	5.44	5.42	5.44	5.52	100	101	70-130	2	30
Perfluorononanoic acid	5.44	7.02	5.44	6.49	129	119	70-130	8	30
Perfluorooctanesulfonamide	5.44	6.39	5.44	7.40	117	136*	70-130	15	30
Perfluoro-octanesulfonate	5.20	4.67	5.20	5.25	90	101	70-130	12	30
Perfluorooctanoic acid	5.44	5.77	5.44	5.90	106	108	70-130	2	30
Perfluoropentanoic acid	5.44	5.71	5.44	5.62	105	103	70-130	2	30
Perfluorotetradecanoic acid	5.44	5.81	5.44	6.11	107	112	70-130	5	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.80	5.44	6.01	107	111	70-130	4	30
Perfluoroundecanoic acid	5.44	6.24	5.44	6.45	115	119	70-130	3	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180090571303	Sample number(s): 9396569								
Mercury	0.00100	0.000862			86		80-120		
Batch number: 180101063503	Sample number(s): 9396569								
Aluminum	2.00	2.05			102		80-120		
Boron	2.00	1.99			100		80-120		
Calcium	4.00	4.07			102		80-120		
Iron	1.00	1.03			103		80-120		
Magnesium	2.00	2.04			102		80-120		
Manganese	0.500	0.518			104		80-120		
Potassium	10	10.09			101		80-120		
Sodium	10	10.2			102		80-120		
Zinc	0.500	0.511			102		80-120		
Batch number: 180121063901A	Sample number(s): 9396569								
Antimony	0.00600	0.00564			94		80-120		
Arsenic	0.0100	0.0112			112		80-120		
Beryllium	0.00400	0.00414			104		80-120		
Cadmium	0.00500	0.00514			103		80-120		
Chromium	0.0500	0.0497			99		80-120		
Cobalt	0.250	0.263			105		80-120		
Copper	0.0500	0.0507			101		80-120		
Lead	0.0150	0.0150			100		80-120		
Silver	0.0500	0.0519			104		80-120		
Thallium	0.00200	0.00194			97		80-120		
Vanadium	0.0500	0.0488			98		80-120		
Batch number: 180121063901B	Sample number(s): 9396569								
Selenium	0.0100	0.0105			105		80-120		
Batch number: 180121063901D	Sample number(s): 9396569								
Barium	0.0500	0.0512			102		80-120		
Batch number: 180171063901A	Sample number(s): 9396569								
Nickel	0.0500	0.0466			93		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18006987112A	Sample number(s): 9396569								
Bromide	7.50	7.38			98		90-110		
Chloride	3.00	2.92			97		90-110		
Nitrate Nitrogen	0.750	0.728			97		90-110		
Nitrite Nitrogen	0.750	0.719			96		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Sulfate	7.50	7.35			98		90-110		
Batch number: 18009117101A	Sample number(s): 9396569								
Total Cyanide	0.200	0.195			97		90-110		
Batch number: 18012108103B	Sample number(s): 9396569								
Kjeldahl Nitrogen	5.00	5.37			107		90-110		
Batch number: 18016107101A	Sample number(s): 9396569								
Ammonia Nitrogen	1.50	1.44			96		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18006146271A	Sample number(s): 9396569								
Orthophosphate as P	0.400	0.395	0.400	0.394	99	98	95-105	0	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18008006202A	Sample number(s): 9396569								
Total Alkalinity to pH 4.5	188	179.91			96		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 180090571303	Sample number(s): 9396569 UNSPK: P396620									
Mercury	0.000050 U	0.00100	0.000969	0.00100	0.000957	97	96	80-120	1	20
Batch number: 180101063503	Sample number(s): 9396569 UNSPK: P399192									
Aluminum	0.702	2.00	3.12	2.00	3.31	121	130*	75-125	6	20
Boron	0.218	2.00	2.08	2.00	2.16	93	97	75-125	4	20
Calcium	53.95	4.00	59.77	4.00	59.11	146 (2)	129 (2)	75-125	1	20
Iron	1.19	1.00	2.32	1.00	2.34	113	115	75-125	1	20
Magnesium	10.66	2.00	13.07	2.00	12.94	121 (2)	114 (2)	75-125	1	20
Manganese	0.289	0.500	0.715	0.500	0.744	85	91	75-125	4	20
Potassium	16.12	10	26.37	10	26.09	102	100	75-125	1	20
Sodium	327.43	10	346.32	10	342.37	189 (2)	149 (2)	75-125	1	20
Zinc	0.127	0.500	0.606	0.500	0.615	96	98	75-125	1	20
Batch number: 180121063901A	Sample number(s): 9396569 UNSPK: P403716									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Antimony	0.00045 U	0.00600	0.00551	0.00600	0.00586	92	98	75-125	6	20
Arsenic	0.245	0.0100	0.249	0.0100	0.248	37 (2)	22 (2)	75-125	1	20
Beryllium	0.000926	0.00400	0.00390	0.00400	0.00368	74*	69*	75-125	6	20
Cadmium	0.00015 U	0.00500	0.00519	0.00500	0.00509	104	102	75-125	2	20
Chromium	0.0207	0.0500	0.0596	0.0500	0.0555	78	69*	75-125	7	20
Cobalt	0.00862	0.250	0.263	0.250	0.259	102	100	75-125	1	20
Copper	0.0222	0.0500	0.0584	0.0500	0.0537	72*	63*	75-125	8	20
Lead	0.0186	0.0150	0.0200	0.0150	0.0178	10*	-5*	75-125	11	20
Silver	0.00015 U	0.0500	0.0521	0.0500	0.0503	104	101	75-125	4	20
Thallium	0.000177	0.00200	0.00215	0.00200	0.00204	98	93	75-125	5	20
Vanadium	0.0424	0.0500	0.0658	0.0500	0.0595	47*	34*	75-125	10	20
Batch number: 180121063901B	Sample number(s): 9396569 UNSPK: P403716									
Selenium	0.00050 U	0.0100	0.0101	0.0100	0.00980	101	98	75-125	3	20
Batch number: 180121063901D	Sample number(s): 9396569 UNSPK: P403716									
Barium	0.560	0.0500	0.491	0.0500	0.443	-138 (2)	-233 (2)	75-125	10	20
Batch number: 180171063901A	Sample number(s): 9396569 UNSPK: 9396569									
Nickel	0.00161	0.0500	0.0477	0.0500	0.0484	92	94	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18006987112A	Sample number(s): 9396569 UNSPK: 9396569									
Bromide	1.3 U	25	21.19			85*		90-110		
Chloride	3.95	10	11.64			77*		90-110		
Nitrate Nitrogen	0.441	2.50	2.38			78*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.09			84*		90-110		
Sulfate	14	25	33.45			78*		90-110		
Batch number: 18009117101A	Sample number(s): 9396569 UNSPK: P396620									
Total Cyanide	0.0050 U	0.200	0.214			107		72-114		
Batch number: 18012108103B	Sample number(s): 9396569 UNSPK: P394621									
Kjeldahl Nitrogen	37.54	5.00	42.7			103 (2)		90-110		
Batch number: 18016107101A	Sample number(s): 9396569 UNSPK: 9396569									
Ammonia Nitrogen	0.050 U	1.00	0.961			96		90-110		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18008006202A	Sample number(s): 9396569 UNSPK: P395477									
Total Alkalinity to pH 4.5	59.6	188	219.59			85		77-114		

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1893613
Reported: 01/17/2018 14:44

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180090571303	Sample number(s): 9396569 BKG: P396620			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180101063503	Sample number(s): 9396569 BKG: P399192			
Aluminum	0.702	0.755	7 (1)	20
Boron	0.218	0.186	15 (1)	20
Calcium	53.95	56.63	5	20
Iron	1.19	1.35	12 (1)	20
Magnesium	10.66	11.22	5	20
Manganese	0.289	0.253	13	20
Potassium	16.12	16.63	3	20
Sodium	327.43	341.99	4	20
Zinc	0.127	0.124	2 (1)	20
Batch number: 180121063901A	Sample number(s): 9396569 BKG: P403716			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.245	0.245	0	20
Beryllium	0.000926	0.000872	6 (1)	20
Cadmium	0.00015 U	0.000169	200* (1)	20
Chromium	0.0207	0.0215	4	20
Cobalt	0.00862	0.00870	1	20
Copper	0.0222	0.0214	4	20
Lead	0.0186	0.0188	1	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.000177	0.000129	31* (1)	20
Vanadium	0.0424	0.0418	2	20
Batch number: 180121063901B	Sample number(s): 9396569 BKG: P403716			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180121063901D	Sample number(s): 9396569 BKG: P403716			
Barium	0.560	0.565	1	20
Batch number: 180171063901A	Sample number(s): 9396569 BKG: 9396569			
Nickel	0.00161	0.00157	2 (1)	20
	mg/l	mg/l		
Batch number: 18006987112A	Sample number(s): 9396569 BKG: 9396569			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	3.95	3.88	2 (1)	15
Nitrate Nitrogen	0.441	0.416	6 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	14	13.93	1 (1)	15

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 18009117101A	Sample number(s): 9396569 BKG: P396620			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 18012108103B	Sample number(s): 9396569 BKG: P394621			
Kjeldahl Nitrogen	37.54	38.08	1 (1)	20
Batch number: 18016107101A	Sample number(s): 9396569 BKG: 9396569			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18006146271A	Sample number(s): 9396569 BKG: 9396569			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18008006202A	Sample number(s): 9396569 BKG: P395477			
Total Alkalinity to pH 4.5	59.6	60.51	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L180101AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9396569	99	100	99	99
Blank	100	99	99	99
LCS	100	100	100	100
LCSD	100	101	100	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18008WAC026

	1,4-Dioxane-d8
9396569	34*
Blank	33*
LCS	37*
LCSD	36*

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 14:44

Group Number: 1893613

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 1,4-Dioxane
Batch number: 18008WAC026

Limits: 70-130

Analysis Name: 19 PFAS Compounds
Batch number: 18008003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9396570	79	78	78	109	79	91
Blank	83	81	80	92	78	84
LCS	85	87	93	104	89	94
LCSD	72	78	84	87	77	81
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9396570	101	87	80	85	82	85
Blank	97	80	82	72	91	82
LCS	121	89	89	83	87	97
LCSD	110	79	76	71	77	81
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9396570	71	78	89	85	72	50*
Blank	84	81	95	91	76	55*
LCS	93	88	108	97	79	43*
LCSD	71	73	86	81	68	29*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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37191/1893613/9396569-70

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 53517

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Rd.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No: 4502 1004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: ORTHOPHOSPHATE-250mL(P)	METALS+Hg-250mL(P)	CYANIDE-250mL(P)	ALKALINITY-250mL(P)	DIOXANE-250mL(G)	AMMONIA/NITROGEN-250mL(P)	Soil: VOCs-40mL(G)	BR/Cl/N/SO4-40mL(G)	250mL plastic lab trip blanks	% Solids
Preservative Code									A	C	E	A	A	D	B	A		
Field Filtered Y/N									Y	N	N	N	N	N	N	N		
1. SG3-MWBR3-180104				01/04/2018	09:00	GW	N	12	1	1	1	1	2	1	3	2		
2. SG3-ATB123-180104				01/04/2018	—	water	N	1									1	
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

BARR USE ONLY

Sampled by: KMD

Barr Proj. Manager: JTC

Barr DQ Manager: MDP

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: _____ On Ice? (Y) N Date 01/04/18 Time 1045

Relinquished by: _____ On Ice? Y N Date _____ Time _____

Received by: _____ Date _____ Time _____

Received by: _____ Date 1/6/18 Time 1100

Samples Shipped VIA: ~~Courier~~ ☑ Federal Express ☐ Sampler ☐ Other: _____

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): 0.3 - 0.5 Custody Seal Intact? ☒ Y ☐ N ☐ None

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 205405

Group Number(s): 1893613

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/06/2018 11:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See COC
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 11:39 on 01/06/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.5	DT	Wet	Y	Bagged	N
2	DT42-03	0.3	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 17, 2018 10:02

Project: SGPP - Bennington

Account #: 37191
Group Number: 1895496
SDG: SNB68
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-PUMP-180110 Rinse Water	01/10/2018 09:20	9403785

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1895496

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9403785

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18015020 (Sample number(s): 9403785)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9403785, Blank, LCS, LCSD

Sample Description: **SG3-PUMP-180110 Rinse Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/11/2018 09:45
Collection Date/Time: 01/10/2018 09:20
SDG#: SNB68-01RB

C. T. Male Associates
ELLE Sample #: WW 9403785
ELLE Group #: 1895496
Matrix: Rinse Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18015020	01/16/2018 14:18	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18015020	01/15/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 10:02

Group Number: 1895496

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18015020	Sample number(s): 9403785		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18015020	Sample number(s): 9403785								
6:2 fluorotelomersulfonate	15.17	13.59	15.17	15.93	90	105	70-130	16	30
8:2 fluorotelomersulfonate	15.33	18.78	15.33	17.34	123	113	70-130	8	30
NEtFOSAA	5.44	5.53	5.44	5.35	102	98	70-130	3	30
NMeFOSAA	5.44	5.36	5.44	5.86	99	108	70-130	9	30
Perfluorobutanesulfonate	4.81	4.67	4.81	5.13	97	107	70-130	9	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.60	98	103	70-130	5	30
Perfluorodecanoic acid	5.44	6.06	5.44	5.70	111	105	70-130	6	30
Perfluorododecanoic acid	5.44	5.57	5.44	5.74	102	105	70-130	3	30
Perfluoroheptanoic acid	5.44	5.88	5.44	6.20	108	114	70-130	5	30
Perfluorohexanesulfonate	5.14	5.03	5.14	5.14	98	100	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 10:02

Group Number: 1895496

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.24	5.44	5.67	96	104	70-130	8	30
Perfluorononanoic acid	5.44	6.50	5.44	6.37	119	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.91	5.44	7.15	109	131*	70-130	19	30
Perfluoro-octanesulfonate	5.20	5.34	5.20	5.22	103	100	70-130	2	30
Perfluorooctanoic acid	5.44	5.66	5.44	5.84	104	107	70-130	3	30
Perfluoropentanoic acid	5.44	5.55	5.44	5.60	102	103	70-130	1	30
Perfluorotetradecanoic acid	5.44	4.91	5.44	5.29	90	97	70-130	7	30
Perfluorotridecanoic acid	5.44	5.59	5.44	5.98	103	110	70-130	7	30
Perfluoroundecanoic acid	5.44	5.54	5.44	5.94	102	109	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18015020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9403785	70	67	71	81	79	73
Blank	64	70	68	70	72	65
LCS	78	83	85	93	85	83
LCSD	73	74	74	79	73	70
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9403785	72	70	68	74	67	70
Blank	72	65	62	64	66	64
LCS	86	82	67	66	76	68
LCSD	85	73	64	61	78	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9403785	62	72	78	71	62	47*
Blank	65	70	68	68	64	50*
LCS	74	83	81	80	66	47*
LCSD	66	82	79	76	63	38*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1895496
Reported: 01/17/2018 10:02

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18015020

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1895496/9403785

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53519

COC 1 of 9

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SOPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 mL (P) - PFC(19)	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SGS-PUMP-180110				01/10/2018	0920	water	N	2	2			RINSE BLANK [PFC (19)]
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? (Y) N	Date 01/10/18	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/11/18	Time 945
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☑ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.1	Custody Seal Intact? ☐ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206006

Group Number(s): 1895496

Client: Barr Engineering

SGPP Bennington

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/11/2018 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Anneliese Owen (210) at 15:35 on 01/15/2018

Samples Chilled Details: SGPP Bennington

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.1	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 23, 2018 03:59

Project: SGPP - Bennington

Account #: 37191
Group Number: 1895985
SDG: SNB69
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180110 Grab Groundwater	01/10/2018 16:00	9405237
SG3-LTB125-180110 Blank Water	01/10/2018	9405238
SG3-LTB124-180110 Blank Water	01/10/2018	9405239

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1895985

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9405237

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18015WAF026 (Sample number(s): 9405237)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9405237, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9405238, 9405239

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18015020 (Sample number(s): 9405238-9405239)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9405238, 9405239, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 180151063502 (Sample number(s): 9405237 UNSPK: P404455 BKG: P404455)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window

indicating a positive bias: Aluminum, Iron

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 180171063904A (Sample number(s): 9405237 UNSPK: P402040 BKG: P402040)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Nickel, Vanadium

SW-846 7470A, Metals

Batch #: 180150571305 (Sample number(s): 9405237 UNSPK: P404338 BKG: P404338)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Mercury

EPA 300.0, Wet Chemistry

Batch #: 18012120117A (Sample number(s): 9405237 UNSPK: 9405237 BKG: 9405237)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Chloride, Nitrate Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 18022107102A (Sample number(s): 9405237 UNSPK: P404156 BKG: P404156)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 18015009203A (Sample number(s): 9405237 UNSPK: P403783 BKG: P403783, P404550)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: **SG3-MWBR3-180110 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018 16:00
SDG#: SNB69-01

C. T. Male Associates
ELLE Sample #: GW 9405237
ELLE Group #: 1895985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180110 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018 16:00
SDG#: SNB69-01

C. T. Male Associates
ELLE Sample #: GW 9405237
ELLE Group #: 1895985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051 U	0.051	0.20	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**47.3**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**18.0**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0028 J**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**0.664 J**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**2.37**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0961**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0207**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00014 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0130**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0326**	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180110 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018 16:00
SDG#: SNB69-01

C. T. Male Associates
ELLE Sample #: GW 9405237
ELLE Group #: 1895985
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**6.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.54**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**11.4**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**168**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**168**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180182AA	01/19/2018 03:02	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180182AA	01/19/2018 03:02	Kevin D Kelly	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18015WAF026	01/18/2018 14:49	Holly B Ziegler	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180110 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018 16:00
SDG#: SNB69-01

C. T. Male Associates
ELLE Sample #: GW 9405237
ELLE Group #: 1895985
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18015WAF026	01/15/2018 17:00	Osvaldo R Sanchez	1
01743	Aluminum	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
08014	Boron	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
01750	Calcium	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
01754	Iron	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
01762	Potassium	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
01767	Sodium	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
07072	Zinc	SW-846 6010C	1	180151063502	01/19/2018 12:51	Eric L Eby	1
06024	Antimony	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	180171063904D	01/19/2018 12:24	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06028	Cadmium	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06031	Chromium	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06039	Nickel	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180171063904B	01/19/2018 12:24	Patrick J Engle	1
06042	Silver	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06045	Thallium	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	180171063904A	01/19/2018 12:24	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	180150571305	01/17/2018 08:56	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180151063502	01/16/2018 05:04	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180171063904	01/18/2018 15:20	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180150571305	01/16/2018 19:20	Barbara A Kane	1
01505	Bromide	EPA 300.0	1	18012120117A	01/12/2018 14:41	Hallie A Burnett	5
00224	Chloride	EPA 300.0	1	18012120117A	01/12/2018 14:41	Hallie A Burnett	5
00368	Nitrate Nitrogen	EPA 300.0	1	18012120117A	01/12/2018 14:41	Hallie A Burnett	5
01506	Nitrite Nitrogen	EPA 300.0	1	18012120117A	01/12/2018 14:41	Hallie A Burnett	5
00228	Sulfate	EPA 300.0	1	18012120117A	01/12/2018 14:41	Hallie A Burnett	5
12892	Ammonia Nitrogen	EPA 350.1	1	18022107102A	01/22/2018 18:19	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18017108101B	01/22/2018 19:56	Gregory Baldree	1
08255	Total Cyanide	SW-846 9012A	1	18015117101B	01/17/2018 12:45	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18017108101B	01/17/2018 15:45	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18015117101B	01/15/2018 07:40	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18015009203A	01/16/2018 04:51	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18015009203A	01/16/2018 04:51	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18015009203A	01/16/2018 04:51	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18012146271A	01/12/2018 14:53	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB125-180110 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018
SDG#: SNB69-02TB

C. T. Male Associates
ELLE Sample #: WW 9405238
ELLE Group #: 1895985
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18015020	01/16/2018 14:39	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18015020	01/15/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB124-180110 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018
SDG#: SNB69-03TB

C. T. Male Associates
ELLE Sample #: WW 9405239
ELLE Group #: 1895985
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18015020	01/16/2018 15:00	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18015020	01/15/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180182AA	Sample number(s): 9405237		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18015WAF026	Sample number(s): 9405237		
1,4-Dioxane	0.056 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 18015020	Sample number(s): 9405238-9405239		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 180150571305	Sample number(s): 9405237		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180151063502	Sample number(s): 9405237		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.109 J	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0524 J	0.0374	0.200
Manganese	0.0023 J	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180171063904A	Sample number(s): 9405237		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180171063904B	Sample number(s): 9405237		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180171063904D	Sample number(s): 9405237		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18012120117A	Sample number(s): 9405237		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18015117101B	Sample number(s): 9405237		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18017108101B	Sample number(s): 9405237		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18022107102A	Sample number(s): 9405237		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18012146271A	Sample number(s): 9405237		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18015009203A	Sample number(s): 9405237		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180182AA	Sample number(s): 9405237								
Acetone	150	151.07	150	155.22	101	103	44-177	3	30
Benzene	20	20.49	20	20.92	102	105	78-120	2	30
Bromochloromethane	20	20.78	20	20.59	104	103	80-125	1	30
Bromodichloromethane	20	20.45	20	20.68	102	103	71-120	1	30
Bromoform	20	18.48	20	18.57	92	93	59-120	0	30
Bromomethane	20	19.51	20	20.11	98	101	44-139	3	30
2-Butanone	150	149.56	150	148.78	100	99	53-140	1	30
Carbon Disulfide	20	18.92	20	19.34	95	97	65-128	2	30
Carbon Tetrachloride	20	21.8	20	21.67	109	108	68-128	1	30
Chlorobenzene	20	20.49	20	20.26	102	101	80-120	1	30
Chloroethane	20	18.76	20	19.25	94	96	52-127	3	30
Chloroform	20	22.34	20	22.62	112	113	80-120	1	30
Chloromethane	20	17.79	20	18.37	89	92	57-120	3	30
Cyclohexane	20	18.51	20	19.06	93	95	67-121	3	30
1,2-Dibromo-3-chloropropane	20	20.26	20	20.19	101	101	64-120	0	30
Dibromochloromethane	20	20.25	20	20.03	101	100	71-120	1	30
1,2-Dibromoethane	20	20.7	20	20.87	103	104	75-120	1	30
1,2-Dichlorobenzene	20	21.03	20	21.08	105	105	80-120	0	30
1,3-Dichlorobenzene	20	20.76	20	21.38	104	107	80-120	3	30
1,4-Dichlorobenzene	20	21.24	20	21.18	106	106	80-120	0	30
Dichlorodifluoromethane	20	17.07	20	17.53	85	88	47-124	3	30
1,1-Dichloroethane	20	20.54	20	21.15	103	106	80-120	3	30
1,2-Dichloroethane	20	22.88	20	22.54	114	113	73-124	1	30
1,1-Dichloroethene	20	22.25	20	22.94	111	115	76-124	3	30
cis-1,2-Dichloroethene	20	22.19	20	21.97	111	110	80-120	1	30
trans-1,2-Dichloroethene	20	22.05	20	22.69	110	113	80-120	3	30
1,2-Dichloropropane	20	20.91	20	20.56	105	103	80-120	2	30
cis-1,3-Dichloropropene	20	20.12	20	19.99	101	100	75-120	1	30
trans-1,3-Dichloropropene	20	19.56	20	19.85	98	99	76-120	1	30
Ethylbenzene	20	20.48	20	20.94	102	105	78-120	2	30
Freon 113	20	18.94	20	19.7	95	99	68-137	4	30
2-Hexanone	100	98.37	100	97.92	98	98	60-134	0	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	20.83	20	21.16	104	106	80-120	2	30
Methyl Acetate	20	19.09	20	19.87	95	99	61-137	4	30
Methyl Tertiary Butyl Ether	20	21.59	20	21.7	108	109	75-120	1	30
4-Methyl-2-pentanone	100	100.04	100	102.14	100	102	67-128	2	30
Methylcyclohexane	20	17.05	20	17.24	85	86	66-126	1	30
Methylene Chloride	20	20.72	20	20.69	104	103	80-120	0	30
Styrene	20	20.12	20	20.27	101	101	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.69	20	20.54	103	103	72-120	1	30
Tetrachloroethene	20	20.78	20	21.32	104	107	80-129	3	30
Toluene	20	20.35	20	20.83	102	104	80-120	2	30
1,2,3-Trichlorobenzene	20	19.78	20	19.68	99	98	66-120	0	30
1,2,4-Trichlorobenzene	20	19.74	20	19.92	99	100	70-120	1	30
1,1,1-Trichloroethane	20	21.82	20	22.08	109	110	67-120	1	30
1,1,2-Trichloroethane	20	20.77	20	21.43	104	107	80-120	3	30
Trichloroethene	20	21.59	20	21.11	108	106	80-120	2	30
Trichlorofluoromethane	20	19.16	20	20.01	96	100	52-143	4	30
Vinyl Chloride	20	17.96	20	18.28	90	91	63-121	2	30
m+p-Xylene	40	41.22	40	41.46	103	104	80-120	1	30
o-Xylene	20	20.58	20	20.18	103	101	80-120	2	30
Xylene (Total)	60	61.81	60	61.64	103	103	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 18015WAF026	Sample number(s): 9405237								
1,4-Dioxane	1.00	1.19	1.00	1.16	119	116	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18015020	Sample number(s): 9405238-9405239								
6:2 fluorotelomersulfonate	15.17	13.59	15.17	15.93	90	105	70-130	16	30
8:2 fluorotelomersulfonate	15.33	18.78	15.33	17.34	123	113	70-130	8	30
NEtFOSAA	5.44	5.53	5.44	5.35	102	98	70-130	3	30
NMeFOSAA	5.44	5.36	5.44	5.86	99	108	70-130	9	30
Perfluorobutanesulfonate	4.81	4.67	4.81	5.13	97	107	70-130	9	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.60	98	103	70-130	5	30
Perfluorodecanoic acid	5.44	6.06	5.44	5.70	111	105	70-130	6	30
Perfluorododecanoic acid	5.44	5.57	5.44	5.74	102	105	70-130	3	30
Perfluoroheptanoic acid	5.44	5.88	5.44	6.20	108	114	70-130	5	30
Perfluorohexanesulfonate	5.14	5.03	5.14	5.14	98	100	70-130	2	30
Perfluorohexanoic acid	5.44	5.24	5.44	5.67	96	104	70-130	8	30
Perfluorononanoic acid	5.44	6.50	5.44	6.37	119	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.91	5.44	7.15	109	131*	70-130	19	30
Perfluoro-octanesulfonate	5.20	5.34	5.20	5.22	103	100	70-130	2	30
Perfluorooctanoic acid	5.44	5.66	5.44	5.84	104	107	70-130	3	30
Perfluoropentanoic acid	5.44	5.55	5.44	5.60	102	103	70-130	1	30
Perfluorotetradecanoic acid	5.44	4.91	5.44	5.29	90	97	70-130	7	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.59	5.44	5.98	103	110	70-130	7	30
Perfluoroundecanoic acid	5.44	5.54	5.44	5.94	102	109	70-130	7	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180150571305	Sample number(s): 9405237								
Mercury	0.00100	0.000878			88		80-120		
Batch number: 180151063502	Sample number(s): 9405237								
Aluminum	2.00	2.19			110		80-120		
Boron	2.00	1.87			94		80-120		
Calcium	4.00	4.37			109		80-120		
Iron	1.00	1.32			132*		80-120		
Magnesium	2.00	2.16			108		80-120		
Manganese	0.500	0.521			104		80-120		
Potassium	10	10.29			103		80-120		
Sodium	10	10.16			102		80-120		
Zinc	0.500	0.504			101		80-120		
Batch number: 180171063904A	Sample number(s): 9405237								
Antimony	0.00600	0.00613			102		80-120		
Arsenic	0.0100	0.0102			102		80-120		
Beryllium	0.00400	0.00433			108		80-120		
Cadmium	0.00500	0.00547			109		80-120		
Chromium	0.0500	0.0496			99		80-120		
Cobalt	0.250	0.252			101		80-120		
Copper	0.0500	0.0529			106		80-120		
Lead	0.0150	0.0150			100		80-120		
Nickel	0.0500	0.0542			108		80-120		
Silver	0.0500	0.0497			99		80-120		
Thallium	0.00200	0.00202			101		80-120		
Vanadium	0.0500	0.0487			97		80-120		
Batch number: 180171063904B	Sample number(s): 9405237								
Selenium	0.0100	0.0106			106		80-120		
Batch number: 180171063904D	Sample number(s): 9405237								
Barium	0.0500	0.0506			101		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18012120117A	Sample number(s): 9405237								
Bromide	7.50	7.30			97		90-110		
Chloride	3.00	2.90			97		90-110		
Nitrate Nitrogen	0.750	0.727			97		90-110		
Nitrite Nitrogen	0.750	0.708			94		90-110		
Sulfate	7.50	7.36			98		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18015117101B	Sample number(s): 9405237								
Total Cyanide	0.200	0.180			90		90-110		
Batch number: 18017108101B	Sample number(s): 9405237								
Kjeldahl Nitrogen	5.00	5.51			110		90-110		
Batch number: 18022107102A	Sample number(s): 9405237								
Ammonia Nitrogen	1.50	1.42			95		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18012146271A	Sample number(s): 9405237								
Orthophosphate as P	0.400	0.402	0.400	0.402	100	100	95-105	0	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18015009203A	Sample number(s): 9405237								
Total Alkalinity to pH 4.5	188	178.51			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 180150571305	Sample number(s): 9405237 UNSPK: P404338									
Mercury	0.0000745	0.00100	0.00104	0.00100	0.00106	97	98	80-120	1	20
Batch number: 180151063502	Sample number(s): 9405237 UNSPK: P404455									
Aluminum	1.19	2.00	7.94	2.00	7.71	338*	326*	75-125	3	20
Boron	0.124	2.00	2.03	2.00	2.03	95	95	75-125	0	20
Calcium	56.21	4.00	58.47	4.00	55.38	56 (2)	-21 (2)	75-125	5	20
Iron	3.17	1.00	7.76	1.00	7.47	459*	430*	75-125	4	20
Magnesium	11.03	2.00	13.12	2.00	12.51	104 (2)	74 (2)	75-125	5	20
Manganese	0.0805	0.500	0.609	0.500	0.609	106	106	75-125	0	20
Potassium	4.37	10	14.99	10	14.76	106	104	75-125	2	20
Sodium	11.15	10	20.93	10	20.38	98	92	75-125	3	20
Zinc	0.0109	0.500	0.523	0.500	0.521	102	102	75-125	0	20
Batch number: 180171063904A	Sample number(s): 9405237 UNSPK: P402040									
Antimony	0.00045 U	0.00600	0.00543	0.00600	0.00603	91	101	75-125	11	20
Arsenic	0.00072 U	0.0100	0.0116	0.0100	0.0101	116	101	75-125	14	20

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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Beryllium	0.000071 U	0.00400	0.00400	0.00400	0.00406	100	101	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00520	0.00500	0.00507	104	101	75-125	3	20
Chromium	0.0103	0.0500	0.0528	0.0500	0.0522	85	84	75-125	1	20
Cobalt	0.000634	0.250	0.249	0.250	0.237	100	94	75-125	5	20
Copper	0.00270	0.0500	0.0538	0.0500	0.0512	102	97	75-125	5	20
Lead	0.000221	0.0150	0.0145	0.0150	0.0148	95	97	75-125	2	20
Nickel	0.0110	0.0500	0.0582	0.0500	0.0540	94	86	75-125	7	20
Silver	0.00015 U	0.0500	0.0484	0.0500	0.0455	97	91	75-125	6	20
Thallium	0.00012 U	0.00200	0.00187	0.00200	0.00217	94	109	75-125	15	20
Vanadium	0.000278	0.0500	0.0475	0.0500	0.0480	95	95	75-125	1	20
Batch number: 180171063904B	Sample number(s): 9405237 UNSPK: P402040									
Selenium	0.00050 U	0.0100	0.0103	0.0100	0.0104	103	104	75-125	1	20
Batch number: 180171063904D	Sample number(s): 9405237 UNSPK: P402040									
Barium	0.0361	0.0500	0.0866	0.0500	0.0819	101	92	75-125	6	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18012120117A	Sample number(s): 9405237 UNSPK: 9405237									
Bromide	1.3 U	25	23.69			95		90-110		
Chloride	6.37	10	12.77			64*		90-110		
Nitrate Nitrogen	0.539	2.50	2.77			89*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.34			94		90-110		
Sulfate	11.44	25	34.7			93		90-110		
Batch number: 18015117101B	Sample number(s): 9405237 UNSPK: P402101									
Total Cyanide	0.0050 U	0.200	0.189			95		72-114		
Batch number: 18017108101B	Sample number(s): 9405237 UNSPK: P402122									
Kjeldahl Nitrogen	6.64	5.00	11.58			99		90-110		
Batch number: 18022107102A	Sample number(s): 9405237 UNSPK: P404156									
Ammonia Nitrogen	0.848	1.00	1.98			113*		90-110		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18015009203A	Sample number(s): 9405237 UNSPK: P403783									
Total Alkalinity to pH 4.5	341.39	188	395.99			29*		77-114		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180150571305	Sample number(s): 9405237 BKG: P404338			
Mercury	0.0000745	0.0000965	26* (1)	20
Batch number: 180151063502	Sample number(s): 9405237 BKG: P404455			
Aluminum	1.19	1.18	1 (1)	20
Boron	0.124	0.125	1 (1)	20
Calcium	56.21	56.31	0	20
Iron	3.17	3.11	2	20
Magnesium	11.03	11.03	0	20
Manganese	0.0805	0.0803	0	20
Potassium	4.37	4.28	2 (1)	20
Sodium	11.15	11.22	1	20
Zinc	0.0109	0.0107	2 (1)	20
Batch number: 180171063904A	Sample number(s): 9405237 BKG: P402040			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.0103	0.0144	33* (1)	20
Cobalt	0.000634	0.000550	14 (1)	20
Copper	0.00270	0.00289	7 (1)	20
Lead	0.000221	0.000268	19 (1)	20
Nickel	0.0110	0.0137	22* (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000278	0.000536	63* (1)	20
Batch number: 180171063904B	Sample number(s): 9405237 BKG: P402040			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180171063904D	Sample number(s): 9405237 BKG: P402040			
Barium	0.0361	0.0407	12	20
	mg/l	mg/l		
Batch number: 18012120117A	Sample number(s): 9405237 BKG: 9405237			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	6.37	6.38	0 (1)	15
Nitrate Nitrogen	0.539	0.551	2 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	11.44	11.47	0 (1)	15
Batch number: 18015117101B	Sample number(s): 9405237 BKG: P402101			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 18017108101B	Sample number(s): 9405237 BKG: P402122			
Kjeldahl Nitrogen	6.64	6.50	2	20
Batch number: 18022107102A	Sample number(s): 9405237 BKG: P404156			
Ammonia Nitrogen	0.848	0.830	2	20
	mg/l	mg/l		
Batch number: 18012146271A	Sample number(s): 9405237 BKG: 9405237			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18015009203A	Sample number(s): 9405237 BKG: P403783			
Total Alkalinity to pH 4.5	341.39	341.27	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180182AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9405237	103	102	96	98
Blank	103	99	98	99
LCS	105	99	98	101
LCSD	105	108	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18015WAF026

	1,4-Dioxane-d8
9405237	43*
Blank	41*
LCS	37*
LCSD	40*
Limits:	70-130

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/23/2018 03:59

Group Number: 1895985

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18015020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9405238	62	58	59	68	62	63
9405239	70	69	70	73	71	71
Blank	64	70	68	70	72	65
LCS	78	83	85	93	85	83
LCSD	73	74	74	79	73	70
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9405238	72	67	61	81	70	62
9405239	73	75	74	80	78	72
Blank	72	65	62	64	66	64
LCS	86	82	67	66	76	68
LCSD	85	73	64	61	78	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9405238	68	74	77	74	67	56*
9405239	73	81	79	73	66	61*
Blank	65	70	68	68	64	50*
LCS	74	83	81	80	66	47*
LCSD	66	82	79	76	63	38*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

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37191 / 1895985 / 9405237-39

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52745

COC _____ of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: orthophosphate 250 mL (P)	Water: METALS+Hg 250 mL (P)	Water: CYANIDE 250 mL (P)	Water: ALKALINITY 250 mL (P)	Water: DIOXANE 250 mL (G)	Water: AMMONIA/NITROGEN 250 mL (P)	Soil: VOCs 40 mL (G)	Soil: GRO/DRO/LVOC 40 mL (G)	Soil: Lab trip blank 250 mL (P)	% Solids
Preservative Code									A	C	E	A	A	D	B	A	A	
Field Filtered Y/N									Y	N	N	N	N	N	N	N	N	
1. SG3-MWBR3-180110				01/10/2018	16:00	GW	N	12	1	1	1	1	2	1	3	2		
2. SG3-LTB125-180110				01/10/2018	[illegible]	water	N	2									2	
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? (Y) N	Date 01/11/18	Time 1300	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date 1/18/18	Time 1135
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)	
Lab Name: ELLE	Lab WO:	Temperature on Receipt (°C): 0.8, 1			Custody Seal Intact? ☑ Y ☐ N ☐ None		
Lab Location: Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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37191/1895985/9405237-39

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52700

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Marketpointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, TRIZMA O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: PFC(19) 250 mL (P)	Water: Lab trip blank 250 mL(P)	Soil	% Solids
Preservative Code									O	A		
Field Filtered Y/N									N	N		
1. SG3-MWBR3-180110				01/10/2018	16:00	GW	N	2	2			
2. SG3-LTB124-180110				01/10/2018		water	N	1		2		
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

BARR USE ONLY

Sampled by: KMP

Barr Proj. Manager: JTC

Barr DQ Manager: MPD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y 0 N Date 01/11/18 Time 1300 Received by:

Relinquished by: On Ice? Y N Date Time Received by: [signature] Date 1/12/18 Time 1135

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.8/1.4 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 3-5 day TAT (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 205883

Group Number(s): 1895985

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/12/2018 11:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	Yes
Samples Chilled:	Yes	VOA IDs (≥ 6mm):	See Below
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	4
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL Plastic Bottles)

VOA Vial IDs (Headspace ≥ 6mm): SG3-MWBR3-180110 (2 vials)

Unpacked by Wyatt Shiffler (12792) at 12:12 on 01/12/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.4	DT	Wet	Y	Bagged	N
2	DT146	0.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 17, 2018 12:38

Project: SGPP - Bennington

Account #: 37191
Group Number: 1896002
SDG: SNB70
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180110 Groundwater	01/10/2018 16:00	9405277

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1896002

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9405277

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18015020 (Sample number(s): 9405277)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorooctanesulfonamide

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9405277, Blank, LCS, LCSD

Sample Description: **SG3-MWBR3-180110 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/12/2018 11:35
Collection Date/Time: 01/10/2018 16:00
SDG#: SNB70-01

C. T. Male Associates
ELLE Sample #: GW 9405277
ELLE Group #: 1896002
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**0.3 J**	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**67**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18015020	01/16/2018 15:20	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18015020	01/15/2018 14:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 12:38

Group Number: 1896002

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18015020	Sample number(s): 9405277		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18015020	Sample number(s): 9405277								
6:2 fluorotelomersulfonate	15.17	13.59	15.17	15.93	90	105	70-130	16	30
8:2 fluorotelomersulfonate	15.33	18.78	15.33	17.34	123	113	70-130	8	30
NEtFOSAA	5.44	5.53	5.44	5.35	102	98	70-130	3	30
NMeFOSAA	5.44	5.36	5.44	5.86	99	108	70-130	9	30
Perfluorobutanesulfonate	4.81	4.67	4.81	5.13	97	107	70-130	9	30
Perfluorobutanoic acid	5.44	5.31	5.44	5.60	98	103	70-130	5	30
Perfluorodecanoic acid	5.44	6.06	5.44	5.70	111	105	70-130	6	30
Perfluorododecanoic acid	5.44	5.57	5.44	5.74	102	105	70-130	3	30
Perfluoroheptanoic acid	5.44	5.88	5.44	6.20	108	114	70-130	5	30
Perfluorohexanesulfonate	5.14	5.03	5.14	5.14	98	100	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/17/2018 12:38

Group Number: 1896002

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.24	5.44	5.67	96	104	70-130	8	30
Perfluorononanoic acid	5.44	6.50	5.44	6.37	119	117	70-130	2	30
Perfluorooctanesulfonamide	5.44	5.91	5.44	7.15	109	131*	70-130	19	30
Perfluoro-octanesulfonate	5.20	5.34	5.20	5.22	103	100	70-130	2	30
Perfluorooctanoic acid	5.44	5.66	5.44	5.84	104	107	70-130	3	30
Perfluoropentanoic acid	5.44	5.55	5.44	5.60	102	103	70-130	1	30
Perfluorotetradecanoic acid	5.44	4.91	5.44	5.29	90	97	70-130	7	30
Perfluorotridecanoic acid	5.44	5.59	5.44	5.98	103	110	70-130	7	30
Perfluoroundecanoic acid	5.44	5.54	5.44	5.94	102	109	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18015020

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9405277	67	68	66	70	72	68
Blank	64	70	68	70	72	65
LCS	78	83	85	93	85	83
LCSD	73	74	74	79	73	70
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9405277	60	65	63	58	69	66
Blank	72	65	62	64	66	64
LCS	86	82	67	66	76	68
LCSD	85	73	64	61	78	74
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9405277	66	70	71	72	63	48*
Blank	65	70	68	68	64	50*
LCS	74	83	81	80	66	47*
LCSD	66	82	79	76	63	38*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1896002
Reported: 01/17/2018 12:38

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18015020

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1896002/9405277

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52700

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Marketpointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, TRIZMA D = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: PFC (14) 250 mL (P)	Water: Lab Trip blank 250 mL (P)	Soil: % Solids	Preservative Code	Field Filtered Y/N
												O	N
1. SG3-MWBR3-180110				01/10/2018	16:00	GW	N	2	1			A	N
2. SG3-LTB124-180110				01/10/2018		water	N	1		1			
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: KMP

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y (0) N Date 01/11/18 Time 1300

Received by:

Relinquished by: On Ice? Y N Date Time

Received by: [signature] Date 1/12/18 Time 1135

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.8/1.4 Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 3-5 day TAT (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 205883

Group Number(s): 1896002

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/12/2018 11:35
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	Yes
Samples Chilled:	Yes	VOA IDs (≥ 6mm):	See Below
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	4
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (4, 250mL Plastic Bottles)

VOA Vial IDs (Headspace ≥ 6mm): SG3-MWBR3-180110 (2 vials)

Unpacked by Wyatt Shiffler (12792) at 12:12 on 01/12/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.4	DT	Wet	Y	Bagged	N
2	DT146	0.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

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BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 19, 2018 13:04

Project: SGPP - Bennington

Account #: 37191
Group Number: 1897857
SDG: SNB71
PO Number: 16.6131
State of Sample Origin: VT

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
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Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-165-175-180116 Grab Groundwater	01/16/2018 17:30	9412747

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1897857

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9412747

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18018021 (Sample number(s): 9412747)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid, Perfluoroundecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9412747, LCS

Sample Description: **SG3-MWBR2-165-175-180116 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 17:30
SDG#: SNB71-01

C. T. Male Associates
ELLE Sample #: GW 9412747
ELLE Group #: 1897857
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**4**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**16**	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**38**	0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**3**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**41**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**3**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**1 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**170**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**28**	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18018021	01/19/2018 06:23	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18018021	01/18/2018 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/19/2018 13:04

Group Number: 1897857

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18018021	Sample number(s): 9412747		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18018021	Sample number(s): 9412747								
6:2 fluorotelomersulfonate	15.17	16.99	15.17	17.49	112	115	70-130	3	30
8:2 fluorotelomersulfonate	15.33	17.91	15.33	15.71	117	103	70-130	13	30
NEtFOSAA	5.44	6.49	5.44	6.13	119	113	70-130	6	30
NMeFOSAA	5.44	6.44	5.44	6.58	118	121	70-130	2	30
Perfluorobutanesulfonate	4.81	5.32	4.81	5.09	111	106	70-130	4	30
Perfluorobutanoic acid	5.44	5.97	5.44	6.16	110	113	70-130	3	30
Perfluorodecanoic acid	5.44	6.25	5.44	6.22	115	114	70-130	1	30
Perfluorododecanoic acid	5.44	6.21	5.44	6.32	114	116	70-130	2	30
Perfluoroheptanoic acid	5.44	6.68	5.44	7.01	123	129	70-130	5	30
Perfluorohexanesulfonate	5.14	5.11	5.14	5.60	99	109	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/19/2018 13:04

Group Number: 1897857

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.15	5.44	5.96	113	110	70-130	3	30
Perfluorononanoic acid	5.44	6.85	5.44	7.70	126	141*	70-130	12	30
Perfluorooctanesulfonamide	5.44	6.38	5.44	6.36	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.72	5.20	5.39	110	104	70-130	6	30
Perfluorooctanoic acid	5.44	5.83	5.44	6.56	107	121	70-130	12	30
Perfluoropentanoic acid	5.44	5.92	5.44	6.26	109	115	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.75	5.44	5.93	106	109	70-130	3	30
Perfluorotridecanoic acid	5.44	5.95	5.44	6.65	109	122	70-130	11	30
Perfluoroundecanoic acid	5.44	6.94	5.44	7.48	128	138*	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18018021

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9412747	73	92	110	83	79	78
Blank	79	83	82	101	99	86
LCS	71	65	69	87	93	83
LCSD	74	76	80	81	87	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9412747	82	75	73	77	84	90
Blank	102	87	78	67	90	95
LCS	87	87	65	62	82	77
LCSD	90	78	70	62	86	98
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9412747	86	75	81	82	67	65*
Blank	83	82	84	88	79	72
LCS	72	78	84	86	78	68*
LCSD	76	76	81	82	77	70

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1897857
Reported: 01/19/2018 13:04

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18018021

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 Gi-1897857 S-941247

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53525

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 CENTURY HILL DR.
Name: Michael Dupay	Name: LATHAM, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other Trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	250 ml Plastic-Trizma	250 ml Unpreserved	% Solids	Preservative Code	Field Filtered Y/N
									O	A			N
1. SG3-MWBR2-165-175-180116	—	—	—	1-16-18	1730	GW	N	2	2				
2. SG3-Redi-Flow-180116	—	—	—	1-16-18	1420	W	N	2		2			
3. SG3-LTB126-180116	—	—	—	1-16-18	AM	W	N	2	2				
4.													
5.													
6.													
7.													
8.													
9.													
10.													

PFCs-24 HR

PFCs-7 day

BARR USE ONLY

Sampled by: RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Koslosky — On Ice? (Y) N — Date 1/17/18 — Time 1000

Relinquished by: — On Ice? Y (N) — Date — Time

Received by: — Date — Time

Received by: — Date 1/18/18 — Time 1120

Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206229

Group Number(s): 1897857

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/18/2018 11:20
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 11:48 on 01/18/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.7	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 25, 2018 16:01

Project: SGPP - Bennington

Account #: 37191
Group Number: 1897860
SDG: SNB72
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-Redi-Flow-180116 Grab Groundwater	01/16/2018 14:20	9412752
SG3-LTB126-180116 Water	01/16/2018	9412753

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1897860

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9412752

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18018021 (Sample number(s): 9412752-9412753)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid, Perfluoroundecanoic acid

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9412752, LCS

Sample Description: **SG3-Redi-Flow-180116 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 14:20
SDG#: SNB72-01

C. T. Male Associates
ELLE Sample #: GW 9412752
ELLE Group #: 1897860
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18018021	01/19/2018 06:44	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18018021	01/18/2018 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SG3-LTB126-180116 Water
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018
SDG#: SNB72-02TB

C. T. Male Associates
ELLE Sample #: WW 9412753
ELLE Group #: 1897860
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18018021	01/19/2018 07:04	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18018021	01/18/2018 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 16:01

Group Number: 1897860

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18018021	Sample number(s): 9412752-9412753		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18018021	Sample number(s): 9412752-9412753								
6:2 fluorotelomersulfonate	15.17	16.99	15.17	17.49	112	115	70-130	3	30
8:2 fluorotelomersulfonate	15.33	17.91	15.33	15.71	117	103	70-130	13	30
NEtFOSAA	5.44	6.49	5.44	6.13	119	113	70-130	6	30
NMeFOSAA	5.44	6.44	5.44	6.58	118	121	70-130	2	30
Perfluorobutanesulfonate	4.81	5.32	4.81	5.09	111	106	70-130	4	30
Perfluorobutanoic acid	5.44	5.97	5.44	6.16	110	113	70-130	3	30
Perfluorodecanoic acid	5.44	6.25	5.44	6.22	115	114	70-130	1	30
Perfluorododecanoic acid	5.44	6.21	5.44	6.32	114	116	70-130	2	30
Perfluoroheptanoic acid	5.44	6.68	5.44	7.01	123	129	70-130	5	30
Perfluorohexanesulfonate	5.14	5.11	5.14	5.60	99	109	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 16:01

Group Number: 1897860

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	6.15	5.44	5.96	113	110	70-130	3	30
Perfluorononanoic acid	5.44	6.85	5.44	7.70	126	141*	70-130	12	30
Perfluorooctanesulfonamide	5.44	6.38	5.44	6.36	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.72	5.20	5.39	110	104	70-130	6	30
Perfluorooctanoic acid	5.44	5.83	5.44	6.56	107	121	70-130	12	30
Perfluoropentanoic acid	5.44	5.92	5.44	6.26	109	115	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.75	5.44	5.93	106	109	70-130	3	30
Perfluorotridecanoic acid	5.44	5.95	5.44	6.65	109	122	70-130	11	30
Perfluoroundecanoic acid	5.44	6.94	5.44	7.48	128	138*	70-130	7	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18018021

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9412752	70	67	66	76	75	74
9412753	74	73	73	86	95	79
Blank	79	83	82	101	99	86
LCS	71	65	69	87	93	83
LCSD	74	76	80	81	87	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9412752	83	77	68	65	83	87
9412753	81	87	74	70	83	85
Blank	102	87	78	67	90	95
LCS	87	87	65	62	82	77
LCSD	90	78	70	62	86	98
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9412752	71	67	63	71	68	63*
9412753	64	75	73	78	76	72
Blank	83	82	84	88	79	72

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1897860
Reported: 01/25/2018 16:01

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18018021

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	72	78	84	86	78	68*
LCSD	76	76	81	82	77	70
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1897860 S-9412752-53

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53525

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr.	Address: 50 CENTURY HILL DR.
Name: Michael Dupay	Name: LATHAM, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other Trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water 250 ml Plastic-Trizma	Water 250 ml Unpreserved	Soil % Solids	Preservative Code	Field Filtered Y/N
									0	A			N
1. SG3-MWBR2-165-175-180116	—	—	—	1-16-18	1730	GW	N	2	2			PFCs-24 HR	
2. SG3-Redi-Flow-180116	—	—	—	1-16-18	1420	W	N	2		2		PFCs-7 day	
3. SG3-LTB126-180116	—	—	—	1-16-18	AM	W	N	2	2				
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: RAK

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: Robert Kurlovsky — On Ice? (Y) N — Date 1/17/18 — Time 1000

Relinquished by: — On Ice? Y (N) — Date — Time

Received by: — Date — Time

Received by: — Date 1/18/18 — Time 1120

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206229

Group Number(s): 1897860

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/18/2018 11:20
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 11:48 on 01/18/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.7	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 30, 2018 13:32

Project: SGPP - Bennington

Account #: 37191
Group Number: 1897862
SDG: SNB73
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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REVISED

SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-165-175-180116 Grab Groundwater	01/16/2018 17:30	9412755
SG3-LTB127-180116 Blank Water	01/16/2018	9412756

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1897862

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9412755

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank. The data is reported from the initial trial. Similar results were obtained in both trials.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18018WAX026 (Sample number(s): 9412755)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,4-Dioxane

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9412755, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9412756

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18018021 (Sample number(s): 9412756)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid, Perfluoroundecanoic acid

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The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9412756, LCS

SW-846 6010C, Metals

Batch #: 180211063501 (Sample number(s): 9412755 UNSPK: P415930 BKG: P415930)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Iron, Boron

SW-846 6020A, Metals

Batch #: 180211063903A (Sample number(s): 9412755 UNSPK: P415930 BKG: P415930)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

REVISED

Sample Description: **SG3-MWBR2-165-175-180116 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 17:30
SDG#: SNB73-01

C. T. Male Associates
ELLE Sample #: GW 9412755
ELLE Group #: 1897862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-165-175-180116 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 17:30
SDG#: SNB73-01

C. T. Male Associates
ELLE Sample #: GW 9412755
ELLE Group #: 1897862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**1**	0.5	1	1
11997	**o-Xylene**	95-47-6	**0.6 J**	0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**2**	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.19 J**	0.050	0.20	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank. The data is reported from the initial trial. Similar results were obtained in both trials.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**60.2**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.253 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**24.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.824**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**2.22**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**2.54**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.0661**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.00073 J**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0496**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-165-175-180116 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 17:30
SDG#: SNB73-01

C. T. Male Associates
ELLE Sample #: GW 9412755
ELLE Group #: 1897862
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06032	**Cobalt**	7440-48-4	**0.0087**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0015 J**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00018 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0046**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.00018 J**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.4**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**11.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**228**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**228**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-MWBR2-165-175-180116 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018 17:30
SDG#: SNB73-01

C. T. Male Associates
ELLE Sample #: GW 9412755
ELLE Group #: 1897862
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180191AA	01/20/2018 00:35	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180191AA	01/20/2018 00:35	Kevin D Kelly	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18018WAX026	01/24/2018 14:12	William H Saadeh	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18018WAX026	01/19/2018 08:00	Bradley W VanLeuven	1
01743	Aluminum	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
08014	Boron	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
01750	Calcium	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
01754	Iron	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
01762	Potassium	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
01767	Sodium	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
07072	Zinc	SW-846 6010C	1	180211063501	01/23/2018 11:25	Eric L Eby	1
06024	Antimony	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06025	Arsenic	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06026	Barium	SW-846 6020A	1	180211063903D	01/29/2018 13:07	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06028	Cadmium	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06031	Chromium	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06032	Cobalt	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06033	Copper	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06035	Lead	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06039	Nickel	SW-846 6020A	1	180211063903A	01/29/2018 15:40	Bradley M Berlot	1
06041	Selenium	SW-846 6020A	1	180211063903B	01/26/2018 00:46	Sarah L Burt	1
06042	Silver	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06045	Thallium	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
06048	Vanadium	SW-846 6020A	1	180211063903A	01/26/2018 00:46	Sarah L Burt	1
00259	Mercury	SW-846 7470A	1	180190571302	01/23/2018 08:42	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180211063501	01/22/2018 21:00	Annamaria Kuhns	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180211063903	01/23/2018 06:40	Nicholas W Shroyer	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180190571302	01/22/2018 01:35	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	18018120115A	01/18/2018 15:17	Hallie A Burnett	5
00224	Chloride	EPA 300.0	1	18018120115A	01/18/2018 15:17	Hallie A Burnett	5
00368	Nitrate Nitrogen	EPA 300.0	1	18018120115A	01/18/2018 15:17	Hallie A Burnett	5
01506	Nitrite Nitrogen	EPA 300.0	1	18018120115A	01/18/2018 15:17	Hallie A Burnett	5
00228	Sulfate	EPA 300.0	1	18018120115A	01/18/2018 15:17	Hallie A Burnett	5
12892	Ammonia Nitrogen	EPA 350.1	1	18028107101B	01/28/2018 17:22	Joseph E McKenzie	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18024108101B	01/25/2018 02:33	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	18019117101A	01/22/2018 11:03	Ashlynn M Cornelius	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18024108101B	01/24/2018 07:35	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18019117101A	01/19/2018 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18018006202A	01/19/2018 00:23	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18018006202A	01/19/2018 00:23	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18018006202A	01/19/2018 00:23	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18018146272A	01/18/2018 13:40	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **SG3-LTB127-180116 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/18/2018 11:20
Collection Date/Time: 01/16/2018
SDG#: SNB73-02TB

C. T. Male Associates
ELLE Sample #: WW 9412756
ELLE Group #: 1897862
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18018021	01/19/2018 07:25	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18018021	01/18/2018 14:35	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180191AA	Sample number(s): 9412755		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18018WAX026	Sample number(s): 9412755		
1,4-Dioxane	0.16 J	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 18018021	Sample number(s): 9412756		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 180190571302	Sample number(s): 9412755		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180211063501	Sample number(s): 9412755		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.187 J	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0536 J	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.684 J	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180211063903A	Sample number(s): 9412755		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180211063903B	Sample number(s): 9412755		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180211063903D	Sample number(s): 9412755		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18018120115A	Sample number(s): 9412755		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18019117101A	Sample number(s): 9412755		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18024108101B	Sample number(s): 9412755		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18028107101B	Sample number(s): 9412755		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18018146272A	Sample number(s): 9412755		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18018006202A	Sample number(s): 9412755		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180191AA	Sample number(s): 9412755								
Acetone	150	147.13	150	151.21	98	101	44-177	3	30
Benzene	20	20.76	20	20.49	104	102	78-120	1	30
Bromochloromethane	20	21.04	20	20.2	105	101	80-125	4	30
Bromodichloromethane	20	21.42	20	20.96	107	105	71-120	2	30
Bromoform	20	19.46	20	18.74	97	94	59-120	4	30
Bromomethane	20	22.08	20	22.99	110	115	44-139	4	30
2-Butanone	150	147.15	150	149.61	98	100	53-140	2	30
Carbon Disulfide	20	19.23	20	19.48	96	97	65-128	1	30
Carbon Tetrachloride	20	22.18	20	22.3	111	111	68-128	1	30
Chlorobenzene	20	20.68	20	20.67	103	103	80-120	0	30
Chloroethane	20	20.17	20	20.95	101	105	52-127	4	30
Chloroform	20	22.31	20	21.99	112	110	80-120	1	30
Chloromethane	20	19.98	20	20.3	100	101	57-120	2	30
Cyclohexane	20	18.07	20	18.73	90	94	67-121	4	30
1,2-Dibromo-3-chloropropane	20	21.29	20	20.91	106	105	64-120	2	30
Dibromochloromethane	20	20.81	20	20.51	104	103	71-120	1	30
1,2-Dibromoethane	20	20.53	20	20.67	103	103	75-120	1	30
1,2-Dichlorobenzene	20	20.91	20	21.36	105	107	80-120	2	30
1,3-Dichlorobenzene	20	20.67	20	20.5	103	102	80-120	1	30
1,4-Dichlorobenzene	20	21.59	20	21.39	108	107	80-120	1	30
Dichlorodifluoromethane	20	17.9	20	18.32	90	92	47-124	2	30
1,1-Dichloroethane	20	21.14	20	20.84	106	104	80-120	1	30
1,2-Dichloroethane	20	22.77	20	22.71	114	114	73-124	0	30
1,1-Dichloroethene	20	22.57	20	22.76	113	114	76-124	1	30
cis-1,2-Dichloroethene	20	21.42	20	21.97	107	110	80-120	3	30
trans-1,2-Dichloroethene	20	22.43	20	22.02	112	110	80-120	2	30
1,2-Dichloropropane	20	20.64	20	20.61	103	103	80-120	0	30
cis-1,3-Dichloropropene	20	20.26	20	20.32	101	102	75-120	0	30
trans-1,3-Dichloropropene	20	19.99	20	20.13	100	101	76-120	1	30
Ethylbenzene	20	20.74	20	20.65	104	103	78-120	0	30
Freon 113	20	19.08	20	19.86	95	99	68-137	4	30
2-Hexanone	100	99.55	100	100.31	100	100	60-134	1	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Isopropylbenzene	20	21.39	20	21.28	107	106	80-120	1	30
Methyl Acetate	20	19.23	20	19.34	96	97	61-137	1	30
Methyl Tertiary Butyl Ether	20	21.38	20	21.4	107	107	75-120	0	30
4-Methyl-2-pentanone	100	100.14	100	101.38	100	101	67-128	1	30
Methylcyclohexane	20	17.21	20	16.87	86	84	66-126	2	30
Methylene Chloride	20	21.03	20	21.62	105	108	80-120	3	30
Styrene	20	20.48	20	20.63	102	103	80-120	1	30
1,1,2,2-Tetrachloroethane	20	20.15	20	20.4	101	102	72-120	1	30
Tetrachloroethene	20	21.43	20	21.29	107	106	80-129	1	30
Toluene	20	20.52	20	20.37	103	102	80-120	1	30
1,2,3-Trichlorobenzene	20	22.31	20	20.87	112	104	66-120	7	30
1,2,4-Trichlorobenzene	20	21.24	20	20.89	106	104	70-120	2	30
1,1,1-Trichloroethane	20	20.91	20	21.07	105	105	67-120	1	30
1,1,2-Trichloroethane	20	21.43	20	21.13	107	106	80-120	1	30
Trichloroethene	20	21.5	20	21.6	107	108	80-120	0	30
Trichlorofluoromethane	20	21.48	20	21.73	107	109	52-143	1	30
Vinyl Chloride	20	20.16	20	20.14	101	101	63-121	0	30
m+p-Xylene	40	41.94	40	41.74	105	104	80-120	0	30
o-Xylene	20	20.28	20	20.4	101	102	80-120	1	30
Xylene (Total)	60	62.21	60	62.15	104	104	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 18018WAX026	Sample number(s): 9412755								
1,4-Dioxane	1.00	1.35	1.00	1.33	135*	133*	70-130	2	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18018021	Sample number(s): 9412756								
6:2 fluorotelomersulfonate	15.17	16.99	15.17	17.49	112	115	70-130	3	30
8:2 fluorotelomersulfonate	15.33	17.91	15.33	15.71	117	103	70-130	13	30
NEtFOSAA	5.44	6.49	5.44	6.13	119	113	70-130	6	30
NMeFOSAA	5.44	6.44	5.44	6.58	118	121	70-130	2	30
Perfluorobutanesulfonate	4.81	5.32	4.81	5.09	111	106	70-130	4	30
Perfluorobutanoic acid	5.44	5.97	5.44	6.16	110	113	70-130	3	30
Perfluorodecanoic acid	5.44	6.25	5.44	6.22	115	114	70-130	1	30
Perfluorododecanoic acid	5.44	6.21	5.44	6.32	114	116	70-130	2	30
Perfluoroheptanoic acid	5.44	6.68	5.44	7.01	123	129	70-130	5	30
Perfluorohexanesulfonate	5.14	5.11	5.14	5.60	99	109	70-130	9	30
Perfluorohexanoic acid	5.44	6.15	5.44	5.96	113	110	70-130	3	30
Perfluorononanoic acid	5.44	6.85	5.44	7.70	126	141*	70-130	12	30
Perfluorooctanesulfonamide	5.44	6.38	5.44	6.36	117	117	70-130	0	30
Perfluoro-octanesulfonate	5.20	5.72	5.20	5.39	110	104	70-130	6	30
Perfluorooctanoic acid	5.44	5.83	5.44	6.56	107	121	70-130	12	30
Perfluoropentanoic acid	5.44	5.92	5.44	6.26	109	115	70-130	6	30
Perfluorotetradecanoic acid	5.44	5.75	5.44	5.93	106	109	70-130	3	30

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.95	5.44	6.65	109	122	70-130	11	30
Perfluoroundecanoic acid	5.44	6.94	5.44	7.48	128	138*	70-130	7	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180190571302	Sample number(s): 9412755								
Mercury	0.00100	0.000844			84		80-120		
Batch number: 180211063501	Sample number(s): 9412755								
Aluminum	2.00	2.11			106		80-120		
Boron	2.00	1.93			96		80-120		
Calcium	4.00	4.05			101		80-120		
Iron	1.00	0.985			98		80-120		
Magnesium	2.00	2.07			103		80-120		
Manganese	0.500	0.507			101		80-120		
Potassium	10	10.08			101		80-120		
Sodium	10	10.01			100		80-120		
Zinc	0.500	0.485			97		80-120		
Batch number: 180211063903A	Sample number(s): 9412755								
Antimony	0.00600	0.00552			92		80-120		
Arsenic	0.0100	0.0111			111		80-120		
Beryllium	0.00400	0.00405			101		80-120		
Cadmium	0.00500	0.00498			100		80-120		
Chromium	0.0500	0.0472			94		80-120		
Cobalt	0.250	0.260			104		80-120		
Copper	0.0500	0.0531			106		80-120		
Lead	0.0150	0.0149			99		80-120		
Nickel	0.0500	0.0529			106		80-120		
Silver	0.0500	0.0523			105		80-120		
Thallium	0.00200	0.00197			99		80-120		
Vanadium	0.0500	0.0468			94		80-120		
Batch number: 180211063903B	Sample number(s): 9412755								
Selenium	0.0100	0.00996			100		80-120		
Batch number: 180211063903D	Sample number(s): 9412755								
Barium	0.0500	0.0488			98		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18018120115A	Sample number(s): 9412755								
Bromide	7.50	7.33			98		90-110		
Chloride	3.00	2.97			99		90-110		
Nitrate Nitrogen	0.750	0.724			97		90-110		
Nitrite Nitrogen	0.750	0.731			97		90-110		
Sulfate	7.50	7.56			101		90-110		

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18019117101A	Sample number(s): 9412755								
Total Cyanide	0.200	0.197			99		90-110		
Batch number: 18024108101B	Sample number(s): 9412755								
Kjeldahl Nitrogen	5.00	5.12			102		90-110		
Batch number: 18028107101B	Sample number(s): 9412755								
Ammonia Nitrogen	1.50	1.54			102		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18018146272A	Sample number(s): 9412755								
Orthophosphate as P	0.400	0.398	0.400	0.403	100	101	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18018006202A	Sample number(s): 9412755								
Total Alkalinity to pH 4.5	188	179.34			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 180190571302	Sample number(s): 9412755 UNSPK: P413067									
Mercury	0.000050 U	0.00100	0.000865	0.00100	0.000855	86	85	80-120	1	20
Batch number: 180211063501	Sample number(s): 9412755 UNSPK: P415930									
Aluminum	0.0894 U	2.00	2.06	2.00	2.06	103	103	75-125	0	20
Boron	0.0184	2.00	1.91	2.00	1.94	95	96	75-125	2	20
Calcium	65.66	4.00	69.5	4.00	69.65	96 (2)	100 (2)	75-125	0	20
Iron	0.0805 U	1.00	1.05	1.00	1.04	105	104	75-125	0	20
Magnesium	11.94	2.00	13.9	2.00	13.93	98 (2)	99 (2)	75-125	0	20
Manganese	0.275	0.500	0.764	0.500	0.776	98	100	75-125	2	20
Potassium	2.12	10	12.16	10	12.34	100	102	75-125	1	20
Sodium	47.5	10	57.67	10	57.46	102 (2)	100 (2)	75-125	0	20
Zinc	0.0065 U	0.500	0.475	0.500	0.480	95	96	75-125	1	20
Batch number: 180211063903A	Sample number(s): 9412755 UNSPK: P415930									
Antimony	0.00045 U	0.00600	0.00652	0.00600	0.00650	109	108	75-125	0	20
Arsenic	0.00072 U	0.0100	0.0103	0.0100	0.0109	103	109	75-125	6	20

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Beryllium	0.000071 U	0.00400	0.00408	0.00400	0.00405	102	101	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00482	0.00500	0.00580	96	116	75-125	18	20
Chromium	0.00087 U	0.0500	0.0503	0.0500	0.0511	101	102	75-125	2	20
Cobalt	0.00016 U	0.250	0.267	0.250	0.252	107	101	75-125	6	20
Copper	0.000674	0.0500	0.0536	0.0500	0.0512	106	101	75-125	5	20
Lead	0.00011 U	0.0150	0.0155	0.0150	0.0150	103	100	75-125	3	20
Nickel	0.0010 U	0.0500	0.0507	0.0500	0.0500	101	100	75-125	1	20
Silver	0.00015 U	0.0500	0.0528	0.0500	0.0495	106	99	75-125	6	20
Thallium	0.00012 U	0.00200	0.00227	0.00200	0.00215	114	108	75-125	6	20
Vanadium	0.00021 U	0.0500	0.0516	0.0500	0.0503	103	101	75-125	3	20
Batch number: 180211063903B	Sample number(s): 9412755 UNSPK: P415930									
Selenium	0.00050 U	0.0100	0.0102	0.0100	0.0101	102	101	75-125	1	20
Batch number: 180211063903D	Sample number(s): 9412755 UNSPK: P415930									
Barium	0.117	0.0500	0.156	0.0500	0.161	77	87	75-125	3	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18018120115A	Sample number(s): 9412755 UNSPK: P412707									
Bromide	1.3 U	25	23.12			92		90-110		
Chloride	12.06	10	22.75			107		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.44			98		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.40			96		90-110		
Sulfate	12.99	25	37.12			97		90-110		
Batch number: 18019117101A	Sample number(s): 9412755 UNSPK: 9412755									
Total Cyanide	0.0050 U	0.200	0.203			102		72-114		
Batch number: 18024108101B	Sample number(s): 9412755 UNSPK: P419183									
Kjeldahl Nitrogen	0.570	5.00	5.74			103		90-110		
Batch number: 18028107101B	Sample number(s): 9412755 UNSPK: P411863									
Ammonia Nitrogen	1.39	1.00	2.36			97		90-110		
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18018006202A	Sample number(s): 9412755 UNSPK: P411676									
Total Alkalinity to pH 4.5	220.91	188	388.59			89		77-114		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180190571302	Sample number(s): 9412755 BKG: P413067			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180211063501	Sample number(s): 9412755 BKG: P415930			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0184	0.0145	24* (1)	20
Calcium	65.66	66.62	1	20
Iron	0.0805 U	0.103	200* (1)	20
Magnesium	11.94	12.19	2	20
Manganese	0.275	0.275	0	20
Potassium	2.12	2.18	3 (1)	20
Sodium	47.5	48.68	2	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 180211063903A	Sample number(s): 9412755 BKG: P415930			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00016 U	0.00016 U	0 (1)	20
Copper	0.000674	0.000536	23* (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.0010 U	0.0010 U	0 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 180211063903B	Sample number(s): 9412755 BKG: P415930			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180211063903D	Sample number(s): 9412755 BKG: P415930			
Barium	0.117	0.116	1	20
	mg/l	mg/l		
Batch number: 18018120115A	Sample number(s): 9412755 BKG: P412707			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	12.06	11.97	1	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	12.99	13.02	0 (1)	15
Batch number: 18019117101A	Sample number(s): 9412755 BKG: 9412755			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 18024108101B	Sample number(s): 9412755 BKG: P419183			
Kjeldahl Nitrogen	0.570	0.636	11 (1)	20
Batch number: 18028107101B	Sample number(s): 9412755 BKG: P411863			
Ammonia Nitrogen	1.39	1.39	0	20
	mg/l	mg/l		
Batch number: 18018146272A	Sample number(s): 9412755 BKG: 9412755			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18018006202A	Sample number(s): 9412755 BKG: P411676			
Total Alkalinity to pH 4.5	220.91	221.75	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180191AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9412755	101	102	98	98
Blank	104	102	98	97
LCS	105	98	99	102
LCSD	105	100	98	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18018WAX026

	1,4-Dioxane-d8
9412755	38*
Blank	37*
LCS	41*
LCSD	43*
Limits:	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 13:32

Group Number: 1897862

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18018021

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9412756	71	69	71	80	85	76
Blank	79	83	82	101	99	86
LCS	71	65	69	87	93	83
LCSD	74	76	80	81	87	76
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9412756	97	81	73	66	83	96
Blank	102	87	78	67	90	95
LCS	87	87	65	62	82	77
LCSD	90	78	70	62	86	98
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9412756	59	74	66	80	69	63*
Blank	83	82	84	88	79	72
LCS	72	78	84	86	78	68*
LCSD	76	76	81	82	77	70
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1897862 S-9412755-80

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 53520

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Point Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other Trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250ml Plastic - Trizma	250ml Plastic - Filtered	250ml Plastic - HNO_3	250ml Plastic - NaOH/ASC	250ml Plastic - Unpres.	250ml Glass - Unpres.	Soil: 250ml Plastic - H_2SO_4	40ml Glass - HCl	40ml Glass - Unpres	% Solids	Preservative Code	Field Filtered Y/N
									O	A	C	E	A	A	D	B	A			
									N	Y	N	N	N	N	N	N	N			
1. SG3-MWBR2-165-175-180116	–	–	–	1-16-18	1730	GW	N	12		1	1	1	1	2	1	3	2			orthophosphate, Metals+Hg
2. SG3-LTB127-180116	–	–	–	1-16-18	AM	W	N	2	2											Cyanide, Alkalinity,
3.																				Dioxane, Ammonia/
4.																				Nitrogen, VOCs,
5.																				Br/Cl/N/SO4
6.																				7 day turnaround
7.																				
8.																				
9.																				
10.																				

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by:	RAK	Robert Kosbosky	Y	1.17.18	1000			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/18/18	Time 1120
Barr DQ Manager:	MDD	Samples Shipped VIA: ☒ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Name:	ELLE	Lab WO:	Temperature on Receipt (°C):			Custody Seal Intact? ☐ Y ☐ N ☐ None		
Lab Location:	Lancaster, PA							

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206229

Group Number(s): 1897862

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/18/2018 11:20
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 11:48 on 01/18/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.7	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 25, 2018 16:27

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899091
SDG: SNB74
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-PIPE-180117 Grab Groundwater	01/17/2018 15:00	9415916

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899091

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 18020002 (Sample number(s): 9415916)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) LCSD

Sample Description: **SG3-PIPE-180117 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/19/2018 11:00
Collection Date/Time: 01/17/2018 15:00
SDG#: SNB74-01

C. T. Male Associates
ELLE Sample #: GW 9415916
ELLE Group #: 1899091
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18020002	01/22/2018 04:50	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18020002	01/21/2018 11:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 16:27

Group Number: 1899091

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18020002	Sample number(s): 9415916		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18020002	Sample number(s): 9415916								
6:2 fluorotelomersulfonate	15.17	16.52	15.17	15.24	109	100	70-130	8	30
8:2 fluorotelomersulfonate	15.33	16.12	15.33	18.51	105	121	70-130	14	30
NEtFOSAA	5.44	5.27	5.44	5.73	97	105	70-130	8	30
NMeFOSAA	5.44	5.25	5.44	5.79	97	106	70-130	10	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.63	100	96	70-130	3	30
Perfluorobutanoic acid	5.44	5.77	5.44	5.71	106	105	70-130	1	30
Perfluorodecanoic acid	5.44	6.44	5.44	5.79	118	106	70-130	11	30
Perfluorododecanoic acid	5.44	5.65	5.44	5.80	104	107	70-130	3	30
Perfluoroheptanoic acid	5.44	5.96	5.44	6.46	110	119	70-130	8	30
Perfluorohexanesulfonate	5.14	5.28	5.14	5.12	103	100	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 16:27

Group Number: 1899091

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.51	5.44	5.58	101	103	70-130	1	30
Perfluorononanoic acid	5.44	6.92	5.44	7.31	127	134*	70-130	5	30
Perfluorooctanesulfonamide	5.44	6.15	5.44	5.36	113	99	70-130	14	30
Perfluoro-octanesulfonate	5.20	5.12	5.20	4.85	99	93	70-130	5	30
Perfluorooctanoic acid	5.44	5.61	5.44	5.98	103	110	70-130	6	30
Perfluoropentanoic acid	5.44	5.94	5.44	5.70	109	105	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.26	5.44	5.35	97	98	70-130	2	30
Perfluorotridecanoic acid	5.44	5.85	5.44	5.97	108	110	70-130	2	30
Perfluoroundecanoic acid	5.44	6.94	5.44	7.02	128	129	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18020002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9415916	84	82	87	93	97	92
Blank	98	100	101	115	126	111
LCS	93	89	95	121	108	102
LCSD	93	87	91	114	110	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9415916	90	91	82	73	95	96
Blank	103	115*	99	90	120*	113
LCS	107	109	92	82	107	115
LCSD	114	103	95	74	116*	109
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9415916	90	96	104	95	96	73
Blank	100	105	118	123	104	96
LCS	106	100	121	116	101	80
LCSD	103	107	117	119	103	57*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1899091
Reported: 01/25/2018 16:27

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18020002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1899091/9415916

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53522

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250ml Plastic - Trizma	Water 250ml Plastic - Unpres.	Soil	% Solids	Preservative Code	Field Filtered Y/N
									O	A				N
1. ~~SG3 MW3R2~~													PFCs - 24 HR	
2. SG3 - PIPE - 180117	-	-	-	1-17-18	1500	W	N	2		2			PFCs - 7day	
3. SG3 - LTB128 - 180117	-	-	-	1-17-18	AM	W	N	2	2					
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY		Relinquished by	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	RAK	Robert Koslosky	Y					
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD		Y				1/19/18	1100
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 HR (mm/dd/yyyy)	
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.8			Custody Seal Intact? ☑ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206359

Group Number(s): 1899091

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/19/2018 11:00
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:20 on 01/19/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.2	DT	Wet	Y	Bagged	N
2	DT42-03	2.5	DT	Wet	Y	Bagged	N
3	DT42-03	2.6	DT	Wet	Y	Bagged	N
4	DT42-03	1.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 27, 2018 07:47

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899093
SDG: SNB75
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB128-180117 Water	01/17/2018	9415918

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899093

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9415918

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

Sample Description: **SG3-LTB128-180117 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/19/2018 11:00
Collection Date/Time: 01/17/2018
SDG#: SNB75-01TB

C. T. Male Associates
ELLE Sample #: WW 9415918
ELLE Group #: 1899093
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18022002	01/24/2018 07:14	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18022002	01/22/2018 07:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/27/2018 07:47

Group Number: 1899093

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18022002	Sample number(s): 9415918		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18022002	Sample number(s): 9415918								
6:2 fluorotelomersulfonate	15.17	13.85	15.17	17.86	91	118	70-130	25	30
8:2 fluorotelomersulfonate	15.33	15.49	15.33	16.63	101	109	70-130	7	30
NEtFOSAA	5.44	5.22	5.44	5.87	96	108	70-130	12	30
NMeFOSAA	5.44	5.62	5.44	6.23	103	115	70-130	10	30
Perfluorobutanesulfonate	4.81	4.37	4.81	4.94	91	103	70-130	12	30
Perfluorobutanoic acid	5.44	5.28	5.44	5.56	97	102	70-130	5	30
Perfluorodecanoic acid	5.44	5.72	5.44	6.12	105	113	70-130	7	30
Perfluorododecanoic acid	5.44	5.06	5.44	5.71	93	105	70-130	12	30
Perfluoroheptanoic acid	5.44	5.91	5.44	5.39	109	99	70-130	9	30
Perfluorohexanesulfonate	5.14	5.02	5.14	5.20	98	101	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/27/2018 07:47

Group Number: 1899093

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.51	5.44	6.19	101	114	70-130	12	30
Perfluorononanoic acid	5.44	5.90	5.44	5.57	108	102	70-130	6	30
Perfluorooctanesulfonamide	5.44	5.69	5.44	6.29	105	116	70-130	10	30
Perfluoro-octanesulfonate	5.20	4.73	5.20	5.68	91	109	70-130	18	30
Perfluorooctanoic acid	5.44	5.42	5.44	5.89	100	108	70-130	8	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.56	100	102	70-130	2	30
Perfluorotetradecanoic acid	5.44	6.12	5.44	6.07	112	112	70-130	1	30
Perfluorotridecanoic acid	5.44	5.27	5.44	5.51	97	101	70-130	4	30
Perfluoroundecanoic acid	5.44	6.13	5.44	6.15	113	113	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9415918	88	89	84	92	91	96
Blank	93	96	86	89	87	96
LCS	92	86	90	88	93	95
LCSD	102	98	98	93	91	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9415918	101	96	83	92	93	104
Blank	106	102	92	97	91	108
LCS	116	94	86	87	98	109
LCSD	102	104	99	116	102	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9415918	79	93	84	98	80	109
Blank	72	91	79	87	75	99
LCS	75	93	76	96	78	107
LCSD	74	94	86	96	85	106

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1899093
Reported: 01/27/2018 07:47

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1899003/9415918

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53522

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. MALE
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other trizma

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Water: 250ml Plastic-Trizma	Water: 250ml Plastic-Unpres.	Soil	% Solids	Analysis Requested
Preservative Code									O	A			
Field Filtered Y/N									N	N			
1. ~~SG3-MW3R2~~													PFCs - 24 HR
2. SG3-PIPE-180117	–	–	–	1-17-18	1500	W	N	2		2			PFCs - 7day
3. SG3-LTB128-180117	–	–	–	1-17-18	AM	W	N	2	2				
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY							
Sampled by: RAK	Relinquished by: Robert Kozlowsky	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	1/19/18	1100
Barr DQ Manager: MDO	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 HR (mm/dd/yyyy)		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.8	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206359

Group Number(s): 1899093

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/19/2018 11:00
Number of Packages:	4	Number of Projects:	2
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 13:20 on 01/19/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.2	DT	Wet	Y	Bagged	N
2	DT42-03	2.5	DT	Wet	Y	Bagged	N
3	DT42-03	2.6	DT	Wet	Y	Bagged	N
4	DT42-03	1.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 31, 2018 01:37

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899380
SDG: SNB76
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-243-265-180119 Grab Groundwater	01/19/2018 13:28	9417337
SG3-LTB131-180119 Blank Water	01/19/2018	9417338

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899380

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5180293AA (Sample number(s): 9417337 UNSPK: P415930)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1-Dichloroethene, trans-1,2-Dichloroethene

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9417337

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18022WAA026 (Sample number(s): 9417337)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9417337, Blank, LCS, LCSD

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9417338

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits in this sample. Since the recovery is high and the recovery for the labeled compounds used as extraction standards is within QC acceptance limits, the data is reported.

SW-846 6020A, Metals

Batch #: 180241063901A (Sample number(s): 9417337 UNSPK: P416615 BKG: P416615)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium, Silver, Vanadium

EPA 300.0, Wet Chemistry

Batch #: 18020987112A (Sample number(s): 9417337 UNSPK: 9417337 BKG: 9417337)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Sulfate, Nitrate Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 18030107102B (Sample number(s): 9417337 UNSPK: 9417337 BKG: 9417337)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 18025108103B (Sample number(s): 9417337 UNSPK: P414981 BKG: P414981)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Kjeldahl Nitrogen

SW-846 9012A, Wet Chemistry

Batch #: 18023117101A (Sample number(s): 9417337 UNSPK: P416994 BKG: P416994)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Cyanide (water)

SM 2320 B-1997, Wet Chemistry

Batch #: 18022003103A (Sample number(s): 9417337 UNSPK: P416821 BKG: P416821, P417450)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: **SG3-MWBR2-243-265-180119 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 13:28
SDG#: SNB76-01

C. T. Male Associates
ELLE Sample #: GW 9417337
ELLE Group #: 1899380
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-243-265-180119 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 13:28
SDG#: SNB76-01

C. T. Male Associates
ELLE Sample #: GW 9417337
ELLE Group #: 1899380
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.050 U	0.050	0.20	1

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**61.0**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**25.0**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**3.92**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.06**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.40 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.102**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.202**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0277**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.00075 J**	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0136**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0017**	0.00012	0.0010	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-243-265-180119 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 13:28
SDG#: SNB76-01

C. T. Male Associates
ELLE Sample #: GW 9417337
ELLE Group #: 1899380
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
Metals	**SW-846 7470A**		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.8**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**10.9**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**238**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**238**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180293AA	01/30/2018 01:21	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180293AA	01/30/2018 01:21	Kevin D Kelly	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18022WAA026	01/24/2018 13:58	William H Saadeh	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-243-265-180119 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 13:28
SDG#: SNB76-01

C. T. Male Associates
ELLE Sample #: GW 9417337
ELLE Group #: 1899380
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18022WAA026	01/22/2018 17:00	Osvaldo R Sanchez	1
01743	Aluminum	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	180241063501	01/29/2018 04:55	Scott R Yanos	1
01750	Calcium	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	180241063501	01/26/2018 19:09	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	180241063901D	01/29/2018 15:54	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06028	Cadmium	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06031	Chromium	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06039	Nickel	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180241063901B	01/29/2018 15:54	Patrick J Engle	1
06042	Silver	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06045	Thallium	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	180241063901A	01/29/2018 15:54	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	180240571302	01/25/2018 08:45	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180241063501	01/25/2018 16:00	Barbara A Kane	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180241063901	01/24/2018 16:07	Barbara A Kane	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180240571302	01/24/2018 18:00	Barbara A Kane	1
01505	Bromide	EPA 300.0	1	18020987112A	01/20/2018 16:02	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18020987112A	01/20/2018 16:02	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18020987112A	01/20/2018 16:02	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18020987112A	01/20/2018 16:02	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18020987112A	01/20/2018 16:02	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18030107102B	01/30/2018 12:28	Brianna A White	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18025108103B	01/29/2018 13:33	Ashlynn M Cornelius	1
08255	Total Cyanide	SW-846 9012A	1	18023117101A	01/25/2018 11:48	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18025108103B	01/25/2018 17:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18023117101A	01/23/2018 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18022003103A	01/23/2018 04:15	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18022003103A	01/23/2018 04:15	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18022003103A	01/23/2018 04:15	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18020146271A	01/20/2018 11:10	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB131-180119 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018
SDG#: SNB76-02TB

C. T. Male Associates
ELLE Sample #: WW 9417338
ELLE Group #: 1899380
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits in this sample. Since the recovery is high and the recovery for the labeled compounds used as extraction standards is within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18022002	01/24/2018 07:35	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18022002	01/22/2018 07:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180293AA	Sample number(s): 9417337		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18022WAA026	Sample number(s): 9417337		
1,4-Dioxane	0.050 U	0.050	0.20
	ng/l	ng/l	ng/l
Batch number: 18022002	Sample number(s): 9417338		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2
	mg/l	mg/l	mg/l
Batch number: 180240571302	Sample number(s): 9417337		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180241063501	Sample number(s): 9417337		
Aluminum	0.0894 U	0.0894	0.400
Boron	0.0101 U	0.0101	0.100

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180241063901A	Sample number(s): 9417337		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180241063901B	Sample number(s): 9417337		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180241063901D	Sample number(s): 9417337		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18020987112A	Sample number(s): 9417337		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18023117101A	Sample number(s): 9417337		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18025108103B	Sample number(s): 9417337		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18030107102B	Sample number(s): 9417337		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18020146271A	Sample number(s): 9417337		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18022003103A	Sample number(s): 9417337		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180293AA	Sample number(s): 9417337								
Acetone	150	146.34			98		44-177		
Benzene	20	21.04			105		78-120		
Bromochloromethane	20	21.12			106		80-125		
Bromodichloromethane	20	20.24			101		71-120		
Bromoform	20	18.18			91		59-120		
Bromomethane	20	18.84			94		44-139		
2-Butanone	150	152.64			102		53-140		
Carbon Disulfide	20	17.53			88		65-128		
Carbon Tetrachloride	20	20.47			102		68-128		
Chlorobenzene	20	20.36			102		80-120		
Chloroethane	20	18.19			91		52-127		
Chloroform	20	21.91			110		80-120		
Chloromethane	20	15.59			78		57-120		
Cyclohexane	20	18.17			91		67-121		
1,2-Dibromo-3-chloropropane	20	19.81			99		64-120		
Dibromochloromethane	20	20.48			102		71-120		
1,2-Dibromoethane	20	20.58			103		75-120		
1,2-Dichlorobenzene	20	20.71			104		80-120		
1,3-Dichlorobenzene	20	20.73			104		80-120		
1,4-Dichlorobenzene	20	21.37			107		80-120		
Dichlorodifluoromethane	20	12.71			64		47-124		
1,1-Dichloroethane	20	21.11			106		80-120		
1,2-Dichloroethane	20	22.12			111		73-124		
1,1-Dichloroethene	20	21.68			108		76-124		
cis-1,2-Dichloroethene	20	21.71			109		80-120		
trans-1,2-Dichloroethene	20	22.15			111		80-120		
1,2-Dichloropropane	20	20.95			105		80-120		
cis-1,3-Dichloropropene	20	20.36			102		75-120		
trans-1,3-Dichloropropene	20	19.54			98		76-120		
Ethylbenzene	20	20.53			103		78-120		
Freon 113	20	18.56			93		68-137		
2-Hexanone	100	101.24			101		60-134		

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Isopropylbenzene	20	20.25			101		80-120		
Methyl Acetate	20	19.22			96		61-137		
Methyl Tertiary Butyl Ether	20	21.16			106		75-120		
4-Methyl-2-pentanone	100	104.04			104		67-128		
Methylcyclohexane	20	16.64			83		66-126		
Methylene Chloride	20	20.97			105		80-120		
Styrene	20	20.14			101		80-120		
1,1,2,2-Tetrachloroethane	20	21.72			109		72-120		
Tetrachloroethene	20	20.78			104		80-129		
Toluene	20	20.44			102		80-120		
1,2,3-Trichlorobenzene	20	20.03			100		66-120		
1,2,4-Trichlorobenzene	20	19.97			100		70-120		
1,1,1-Trichloroethane	20	21.06			105		67-120		
1,1,2-Trichloroethane	20	22.09			110		80-120		
Trichloroethene	20	21.34			107		80-120		
Trichlorofluoromethane	20	18.05			90		52-143		
Vinyl Chloride	20	16.1			80		63-121		
m+p-Xylene	40	40.21			101		80-120		
o-Xylene	20	19.65			98		80-120		
Xylene (Total)	60	59.87			100		80-120		
	ug/l	**ug/l**	**ug/l**	**ug/l**					
Batch number: 18022WAA026	Sample number(s): 9417337								
1,4-Dioxane	1.00	1.20	1.00	1.21	120	121	70-130	1	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 18022002	Sample number(s): 9417338								
6:2 fluorotelomersulfonate	15.17	13.85	15.17	17.86	91	118	70-130	25	30
8:2 fluorotelomersulfonate	15.33	15.49	15.33	16.63	101	109	70-130	7	30
NEtFOSAA	5.44	5.22	5.44	5.87	96	108	70-130	12	30
NMeFOSAA	5.44	5.62	5.44	6.23	103	115	70-130	10	30
Perfluorobutanesulfonate	4.81	4.37	4.81	4.94	91	103	70-130	12	30
Perfluorobutanoic acid	5.44	5.28	5.44	5.56	97	102	70-130	5	30
Perfluorodecanoic acid	5.44	5.72	5.44	6.12	105	113	70-130	7	30
Perfluorododecanoic acid	5.44	5.06	5.44	5.71	93	105	70-130	12	30
Perfluoroheptanoic acid	5.44	5.91	5.44	5.39	109	99	70-130	9	30
Perfluorohexanesulfonate	5.14	5.02	5.14	5.20	98	101	70-130	3	30
Perfluorohexanoic acid	5.44	5.51	5.44	6.19	101	114	70-130	12	30
Perfluorononanoic acid	5.44	5.90	5.44	5.57	108	102	70-130	6	30
Perfluorooctanesulfonamide	5.44	5.69	5.44	6.29	105	116	70-130	10	30
Perfluoro-octanesulfonate	5.20	4.73	5.20	5.68	91	109	70-130	18	30
Perfluorooctanoic acid	5.44	5.42	5.44	5.89	100	108	70-130	8	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.56	100	102	70-130	2	30
Perfluorotetradecanoic acid	5.44	6.12	5.44	6.07	112	112	70-130	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorotridecanoic acid	5.44	5.27	5.44	5.51	97	101	70-130	4	30
Perfluoroundecanoic acid	5.44	6.13	5.44	6.15	113	113	70-130	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180240571302	Sample number(s): 9417337								
Mercury	0.00100	0.000928			93		80-120		
Batch number: 180241063501	Sample number(s): 9417337								
Aluminum	2.00	2.04			102		80-120		
Boron	2.00	1.86			93		80-120		
Calcium	4.00	3.99			100		80-120		
Iron	1.00	0.993			99		80-120		
Magnesium	2.00	2.03			102		80-120		
Manganese	0.500	0.512			102		80-120		
Potassium	10	10.1			101		80-120		
Sodium	10	10.09			101		80-120		
Zinc	0.500	0.497			99		80-120		
Batch number: 180241063901A	Sample number(s): 9417337								
Antimony	0.00600	0.00639			106		80-120		
Arsenic	0.0100	0.00996			100		80-120		
Beryllium	0.00400	0.00416			104		80-120		
Cadmium	0.00500	0.00547			109		80-120		
Chromium	0.0500	0.0539			108		80-120		
Cobalt	0.250	0.250			100		80-120		
Copper	0.0500	0.0523			105		80-120		
Lead	0.0150	0.0154			103		80-120		
Nickel	0.0500	0.0505			101		80-120		
Silver	0.0500	0.0447			89		80-120		
Thallium	0.00200	0.00225			112		80-120		
Vanadium	0.0500	0.0519			104		80-120		
Batch number: 180241063901B	Sample number(s): 9417337								
Selenium	0.0100	0.0101			101		80-120		
Batch number: 180241063901D	Sample number(s): 9417337								
Barium	0.0500	0.0528			106		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18020987112A	Sample number(s): 9417337								
Bromide	7.50	7.49	7.50	7.50	100	100	90-110	0	20
Chloride	3.00	2.95	3.00	2.95	98	98	90-110	0	20
Nitrate Nitrogen	0.750	0.739	0.750	0.739	99	99	90-110	0	20
Nitrite Nitrogen	0.750	0.738	0.750	0.737	98	98	90-110	0	20
Sulfate	7.50	7.50	7.50	7.52	100	100	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18023117101A	Sample number(s): 9417337								
Total Cyanide	0.200	0.203			101		90-110		
Batch number: 18025108103B	Sample number(s): 9417337								
Kjeldahl Nitrogen	5.00	5.01			100		90-110		
Batch number: 18030107102B	Sample number(s): 9417337								
Ammonia Nitrogen	1.50	1.46			97		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18020146271A	Sample number(s): 9417337								
Orthophosphate as P	0.400	0.396	0.400	0.398	99	100	95-105	0	4
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18022003103A	Sample number(s): 9417337								
Total Alkalinity to pH 4.5	188	163.82			87		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5180293AA	Sample number(s): 9417337 UNSPK: P415930									
Acetone	6 U	150	146.77	150	145.69	98	97	44-177	1	30
Benzene	0.5 U	20	22.5	20	22.43	112	112	78-120	0	30
Bromochloromethane	1 U	20	21.81	20	21.55	109	108	80-125	1	30
Bromodichloromethane	0.5 U	20	21.33	20	21.46	107	107	71-120	1	30
Bromoform	0.5 U	20	17.92	20	17.86	90	89	59-120	0	30
Bromomethane	0.5 U	20	21.29	20	21.64	106	108	44-139	2	30
2-Butanone	3 U	150	152.83	150	151.92	102	101	53-140	1	30
Carbon Disulfide	1 U	20	19.14	20	19.08	96	95	65-128	0	30
Carbon Tetrachloride	0.5 U	20	24.13	20	23.84	121	119	68-128	1	30
Chlorobenzene	0.5 U	20	21.56	20	21.35	108	107	80-120	1	30
Chloroethane	0.5 U	20	20.37	20	20.35	102	102	52-127	0	30
Chloroform	0.5 U	20	23.47	20	23.12	117	116	80-120	1	30
Chloromethane	0.5 U	20	18.07	20	18.21	90	91	57-120	1	30
Cyclohexane	2 U	20	23.3	20	23.6	117	118	67-121	1	30
1,2-Dibromo-3-chloropropane	2 U	20	19.37	20	19.76	97	99	64-120	2	30
Dibromochloromethane	0.5 U	20	20.44	20	20.76	102	104	71-120	2	30
1,2-Dibromoethane	0.5 U	20	20.91	20	20.66	105	103	75-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	20.94	20	21.24	105	106	80-120	1	30
1,3-Dichlorobenzene	1 U	20	21.06	20	21.52	105	108	80-120	2	30
1,4-Dichlorobenzene	1 U	20	21.42	20	21.81	107	109	80-120	2	30
Dichlorodifluoromethane	0.5 U	20	18.56	20	18.06	93	90	47-124	3	30
1,1-Dichloroethane	0.5 U	20	22.97	20	22.39	115	112	80-120	3	30
1,2-Dichloroethane	0.5 U	20	22.79	20	22.47	114	112	73-124	1	30
1,1-Dichloroethene	0.5 U	20	25.41	20	24.99	127*	125*	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	23.47	20	23.62	117	118	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	24.38	20	23.92	122*	120	80-120	2	30
1,2-Dichloropropane	0.5 U	20	21.78	20	21.88	109	109	80-120	0	30
cis-1,3-Dichloropropene	0.5 U	20	20.61	20	20.65	103	103	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	19.84	20	19.91	99	100	76-120	0	30
Ethylbenzene	0.5 U	20	21.98	20	21.9	110	109	78-120	0	30
Freon 113	2 U	20	25.51	20	24.8	128	124	68-137	3	30
2-Hexanone	3 U	100	100.77	100	98.8	101	99	60-134	2	30
Isopropylbenzene	1 U	20	22.03	20	22.1	110	110	80-120	0	30
Methyl Acetate	1 U	20	20.39	20	19.49	102	97	61-137	5	30
Methyl Tertiary Butyl Ether	0.5 U	20	21.69	20	21.91	108	110	75-120	1	30
4-Methyl-2-pentanone	3 U	100	103.17	100	102.31	103	102	67-128	1	30
Methylcyclohexane	1 U	20	23	20	22.71	115	114	66-126	1	30
Methylene Chloride	0.5 U	20	22.7	20	23.03	114	115	80-120	1	30
Styrene	1 U	20	21.03	20	21.29	105	106	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.15	20	20.86	106	104	72-120	1	30
Tetrachloroethene	0.5 U	20	22.88	20	22.08	114	110	80-129	4	30
Toluene	0.5 U	20	22.47	20	21.83	112	109	80-120	3	30
1,2,3-Trichlorobenzene	1 U	20	19.91	20	21.26	100	106	66-120	7	30
1,2,4-Trichlorobenzene	1 U	20	19.98	20	20.42	100	102	70-120	2	30
1,1,1-Trichloroethane	0.5 U	20	23.61	20	23.73	118	119	67-120	1	30
1,1,2-Trichloroethane	0.5 U	20	21.45	20	21.81	107	109	80-120	2	30
Trichloroethene	0.5 U	20	23.38	20	23.11	117	116	80-120	1	30
Trichlorofluoromethane	0.5 U	20	22.75	20	23.12	114	116	52-143	2	30
Vinyl Chloride	0.5 U	20	19.42	20	19	97	95	63-121	2	30
m+p-Xylene	0.5 U	40	43.34	40	43.51	108	109	80-120	0	30
o-Xylene	0.5 U	20	21.18	20	20.89	106	104	80-120	1	30
Xylene (Total)	0.5 U	60	64.52	60	64.41	108	107	80-120	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180240571302	Sample number(s): 9417337 UNSPK: 9417337									
Mercury	0.000050 U	0.00100	0.000894	0.00100	0.000880	89	88	80-120	2	20
Batch number: 180241063501	Sample number(s): 9417337 UNSPK: P415715									
Aluminum	0.0894 U	2.00	1.92	2.00	1.95	96	97	75-125	2	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.0468	2.00	1.92	2.00	1.91	94	93	75-125	1	20
Calcium	104.89	4.00	108.24	4.00	109.53	84 (2)	116 (2)	75-125	1	20
Iron	0.0805 U	1.00	0.969	1.00	0.968	97	97	75-125	0	20
Magnesium	36.91	2.00	38.74	2.00	39.28	91 (2)	119 (2)	75-125	1	20
Manganese	0.0016 U	0.500	0.495	0.500	0.493	99	99	75-125	0	20
Potassium	3.52	10	13.42	10	13.59	99	101	75-125	1	20
Sodium	37.85	10	47.49	10	48.07	96	102	75-125	1	20
Zinc	0.0065 U	0.500	0.481	0.500	0.479	96	96	75-125	0	20
Batch number: 180241063901A	Sample number(s): 9417337 UNSPK: P416615									
Antimony	0.00045 U	0.00600	0.00728	0.00600	0.00702	121	117	75-125	4	20
Arsenic	0.00072 U	0.0100	0.0121	0.0100	0.0121	121	121	75-125	0	20
Beryllium	0.000071 U	0.00400	0.00415	0.00400	0.00407	104	102	75-125	2	20
Cadmium	0.00015 U	0.00500	0.00531	0.00500	0.00538	106	108	75-125	1	20
Chromium	0.00141	0.0500	0.0540	0.0500	0.0583	105	114	75-125	8	20
Cobalt	0.0902	0.250	0.364	0.250	0.386	110	118	75-125	6	20
Copper	0.00189	0.0500	0.0559	0.0500	0.0590	108	114	75-125	5	20
Lead	0.00011 U	0.0150	0.0158	0.0150	0.0181	105	121	75-125	14	20
Nickel	0.00526	0.0500	0.0590	0.0500	0.0625	108	115	75-125	6	20
Silver	0.000149	0.0500	0.0533	0.0500	0.0525	106	105	75-125	2	20
Thallium	0.00012 U	0.00200	0.00208	0.00200	0.00230	104	115	75-125	10	20
Vanadium	0.000304	0.0500	0.0538	0.0500	0.0583	107	116	75-125	8	20
Batch number: 180241063901B	Sample number(s): 9417337 UNSPK: P416615									
Selenium	0.00050 U	0.0100	0.0103	0.0100	0.0105	103	105	75-125	1	20
Batch number: 180241063901D	Sample number(s): 9417337 UNSPK: P416615									
Barium	0.0108	0.0500	0.0664	0.0500	0.0616	111	102	75-125	7	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18020987112A	Sample number(s): 9417337 UNSPK: 9417337									
Bromide	1.3 U	25	26.54			106		90-110		
Chloride	3.81	10	14.37			106		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.82			113*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.69			107		90-110		
Sulfate	10.93	25	38.84			112*		90-110		
Batch number: 18023117101A	Sample number(s): 9417337 UNSPK: P416994									
Total Cyanide	0.0192	0.200	0.190			85		72-114		
Batch number: 18025108103B	Sample number(s): 9417337 UNSPK: P414981									
Kjeldahl Nitrogen	2.98	5.00	7.10			82*		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18030107102B	Sample number(s): 9417337 UNSPK: 9417337									
Ammonia Nitrogen	0.050 U	1.00	1.15			115*		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18022003103A	Sample number(s): 9417337 UNSPK: P416821									
Total Alkalinity to pH 4.5	206.85	188	246.11			21*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 180240571302	Sample number(s): 9417337 BKG: 9417337			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180241063501	Sample number(s): 9417337 BKG: P415715			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0468	0.0425	10 (1)	20
Calcium	104.89	104.86	0	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	36.91	36.75	0	20
Manganese	0.0016 U	0.0016 U	0 (1)	20
Potassium	3.52	3.36	5 (1)	20
Sodium	37.85	37.9	0	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 180241063901A	Sample number(s): 9417337 BKG: P416615			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00141	0.00087 U	200* (1)	20
Cobalt	0.0902	0.0901	0	20
Copper	0.00189	0.00203	7 (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.00526	0.00518	2 (1)	20
Silver	0.000149	0.00015 U	200* (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000304	0.000394	26* (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180241063901B	Sample number(s): 9417337 BKG: P416615			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180241063901D	Sample number(s): 9417337 BKG: P416615			
Barium	0.0108	0.0101	6 (1)	20
	mg/l	mg/l		
Batch number: 18020987112A	Sample number(s): 9417337 BKG: 9417337			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	3.81	3.68	3 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	10.93	10.94	0 (1)	15
Batch number: 18023117101A	Sample number(s): 9417337 BKG: P416994			
Total Cyanide	0.0192	0.0113	52* (1)	20
Batch number: 18025108103B	Sample number(s): 9417337 BKG: P414981			
Kjeldahl Nitrogen	2.98	2.69	10 (1)	20
Batch number: 18030107102B	Sample number(s): 9417337 BKG: 9417337			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18020146271A	Sample number(s): 9417337 BKG: P416975			
Orthophosphate as P	48.33	46.91	3 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18022003103A	Sample number(s): 9417337 BKG: P416821			
Total Alkalinity to pH 4.5	206.85	204.3	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180293AA

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/31/2018 01:37

Group Number: 1899380

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180293AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9417337	101	99	99	96
Blank	100	103	99	95
LCS	103	105	98	98
MS	104	102	99	100
MSD	103	103	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18022WAA026

	1,4-Dioxane-d8
9417337	41*
Blank	36*
LCS	43*
LCSD	38*
Limits:	70-130

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9417338	87	83	84	93	78	86
Blank	93	96	86	89	87	96
LCS	92	86	90	88	93	95
LCSD	102	98	98	93	91	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9417338	88	87	83	90	90	87
Blank	106	102	92	97	91	108
LCS	116	94	86	87	98	109
LCSD	102	104	99	116	102	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9417338	61	82	69	77	70	85
Blank	72	91	79	87	75	99

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1899380
Reported: 01/31/2018 01:37

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	75	93	76	96	78	107
LCSD	74	94	86	96	85	106
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 37191 Group # 1899380 Sample # 9417337-38

COC # ~~539666~~ CoC Sheet #2 of 2

Client Information See page #1

Client: See Page #1	Acct. #: See page #1
Project Name/#: Saint Gobain - Bennington	PWSID #:
Project Manager: JTC	P.O. #:
Sampler: Justin Campbell (JC)	Quote #:
State where samples were collected: VT	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ (GW) NPDES ☐ Surface ☐ | Other: ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	250 ml plastic unpreserved	250 ml plastic-E.filtered	250 ml plastic-HNO_3	250 ml plastic-NaOH/CSC	250 ml glass-unpreserved	250 ml plastic-H_2SO_4	40 ml glass-HCl	40 ml glass-unpreserved	500 ml plastic-Nitric Acid	Remarks
SG3-MWBR2-243-265-180119	01-19-18	13:25	X		GW	1	1	1	1	2	1	3	2	1	Orthophosphate,
SG3-LTB131-180119	01-19-18	—	X		W	2									Metals+Hg, Cyanide,
															Alkalinity, Dioxane,
															Ammonia/Nitrogen,
															VOC[5], Br/Cl/N/SO4
															7 day Turnaround

Turnaround Time (TAT) Requested (please circle)

Standard ~~Rush~~ JC

(Rush TAT is subject to laboratory approval and surcharge.)

7-day turnaround

Date results are needed:

E-mail address: mdupay@barr.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	01-19-18	16:08			
				1/20/18	1015

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx X Other

Temperature upon receipt 0.1 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 206467

Group Number(s): 1899380

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/20/2018 10:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Unpreserved (2, 250mLPlastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:07 on 01/20/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	0.1	DT	Wet	Y	Bagged	N

General Comments: Vials Frozen.

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Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 25, 2018 09:51

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899411
SDG: SNB77
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-243-265-180119 Groundwater	01/19/2018 13:20	9417444

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899411

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 18020002 (Sample number(s): 9417444)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: Perfluorononanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) Blank, LCSD

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) LCSD

Sample Description: **SG3-MWBR2-243-265-180119 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 13:20
SDG#: SNB77-01

C. T. Male Associates
ELLE Sample #: GW 9417444
ELLE Group #: 1899411
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**8**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**18**	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**45**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**3**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**42**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**5**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**160**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**31**	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18020002	01/22/2018 05:11	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18020002	01/21/2018 11:30	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 09:51

Group Number: 1899411

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18020002	Sample number(s): 9417444		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18020002	Sample number(s): 9417444								
6:2 fluorotelomersulfonate	15.17	16.52	15.17	15.24	109	100	70-130	8	30
8:2 fluorotelomersulfonate	15.33	16.12	15.33	18.51	105	121	70-130	14	30
NEtFOSAA	5.44	5.27	5.44	5.73	97	105	70-130	8	30
NMeFOSAA	5.44	5.25	5.44	5.79	97	106	70-130	10	30
Perfluorobutanesulfonate	4.81	4.80	4.81	4.63	100	96	70-130	3	30
Perfluorobutanoic acid	5.44	5.77	5.44	5.71	106	105	70-130	1	30
Perfluorodecanoic acid	5.44	6.44	5.44	5.79	118	106	70-130	11	30
Perfluorododecanoic acid	5.44	5.65	5.44	5.80	104	107	70-130	3	30
Perfluoroheptanoic acid	5.44	5.96	5.44	6.46	110	119	70-130	8	30
Perfluorohexanesulfonate	5.14	5.28	5.14	5.12	103	100	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/25/2018 09:51

Group Number: 1899411

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.51	5.44	5.58	101	103	70-130	1	30
Perfluorononanoic acid	5.44	6.92	5.44	7.31	127	134*	70-130	5	30
Perfluorooctanesulfonamide	5.44	6.15	5.44	5.36	113	99	70-130	14	30
Perfluoro-octanesulfonate	5.20	5.12	5.20	4.85	99	93	70-130	5	30
Perfluorooctanoic acid	5.44	5.61	5.44	5.98	103	110	70-130	6	30
Perfluoropentanoic acid	5.44	5.94	5.44	5.70	109	105	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.26	5.44	5.35	97	98	70-130	2	30
Perfluorotridecanoic acid	5.44	5.85	5.44	5.97	108	110	70-130	2	30
Perfluoroundecanoic acid	5.44	6.94	5.44	7.02	128	129	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18020002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9417444	88	119	142	113	118	108
Blank	98	100	101	115	126	111
LCS	93	89	95	121	108	102
LCSD	93	87	91	114	110	94
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9417444	100	98	82	79	98	97
Blank	103	115*	99	90	120*	113
LCS	107	109	92	82	107	115
LCSD	114	103	95	74	116*	109
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9417444	105	97	103	105	88	88
Blank	100	105	118	123	104	96
LCS	106	100	121	116	101	80
LCSD	103	107	117	119	103	57*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1899411
Reported: 01/25/2018 09:51

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18020002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1899411/9417444

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53524

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr
Name: Michael Dupuy	Name: LATHAM, NY 12110
email: mdupuy@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Barr Project No:

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml unpreserved	Water: 250 ml plastic - TRIZMA	Soil: % Solids	Preservative Code	Field Filtered Y/N
1. SG3-PUMP-180119				01-19-2018	10:55	W	N	2	2			PFC's - 7-day	
2. SG3-MWBR2-243-265-180119				01-19-2018	13:20	GW	N	2		2		PFC's - 24 HR	
3. SG3-ETB130-180119				01-19-2018	—	W	N	2		2			
4. SG3-FB01-180119				01-19-18	12:57	W	N	1	1				
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY	Relinquished by:	On Ice? (Y) N	Date	Time	Received by:	Date	Time
Sampled by: JC							
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						1/20/18	0820
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☒ Rush ____ (mm/dd/yyyy)		
Lab Location: LANCASTER, PA	Lab WO:	Temperature on Receipt (°C) 0.8-2.0	Custody Seal Intact? ☒ Y ☐ N ☐ None				

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

(3) 1015

1/20/18 XW

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Sample Administration Receipt Documentation Log

Doc Log ID: 206472

Group Number(s): 1899411

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/20/2018 10:15
Number of Packages:	4	Number of Projects:	3
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	No	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma bottles

Unpacked by Simon Nies (25112) at 12:16 on 01/20/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.9	DT	Wet	Y	Bagged	N
2	DT42-03	0.8	DT	Wet	Y	Bagged	N
3	DT42-03	1.3	DT	Wet	Y	Bagged	N
4	DT42-03	2.0	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 27, 2018 07:48

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899412
SDG: SNB78
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-PUMP-180119 Water	01/19/2018 10:55	9417445
SG3-LTB130-180119 Water	01/19/2018	9417446
SG3-FB01-180119 Blank Water	01/19/2018 12:57	9417447

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899412

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9417446, 9417447

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

Sample #s: 9417445

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits in this sample. Since the recovery is high and the recovery for the labeled compounds used as extraction standards is within QC acceptance limits, the data is reported.

Sample Description: **SG3-PUMP-180119 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 10:55
SDG#: SNB78-01

C. T. Male Associates
ELLE Sample #: WW 9417445
ELLE Group #: 1899412
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.4 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits in this sample. Since the recovery is high and the recovery for the labeled compounds used as extraction standards is within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18022002	01/24/2018 07:55	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18022002	01/22/2018 07:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB130-180119 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018
SDG#: SNB78-02TB

C. T. Male Associates
ELLE Sample #: WW 9417446
ELLE Group #: 1899412
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18022002	01/24/2018 08:16	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18022002	01/22/2018 07:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FB01-180119 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/20/2018 10:15
Collection Date/Time: 01/19/2018 12:57
SDG#: SNB78-03FB

C. T. Male Associates
ELLE Sample #: WW 9417447
ELLE Group #: 1899412
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The sample injection internal standard peak areas were outside of the QC limits in the laboratory control spike (LCS). Since the recovery is high and the recovery for the labeled compounds used as extraction standards and native compounds is within QC acceptance limits, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18022002	01/24/2018 08:36	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18022002	01/22/2018 07:20	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1899412
Reported: 01/27/2018 07:48

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18022002	Sample number(s): 9417445-9417447		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18022002	Sample number(s): 9417445-9417447								
6:2 fluorotelomersulfonate	15.17	13.85	15.17	17.86	91	118	70-130	25	30
8:2 fluorotelomersulfonate	15.33	15.49	15.33	16.63	101	109	70-130	7	30
NEtFOSAA	5.44	5.22	5.44	5.87	96	108	70-130	12	30
NMeFOSAA	5.44	5.62	5.44	6.23	103	115	70-130	10	30
Perfluorobutanesulfonate	4.81	4.37	4.81	4.94	91	103	70-130	12	30
Perfluorobutanoic acid	5.44	5.28	5.44	5.56	97	102	70-130	5	30
Perfluorodecanoic acid	5.44	5.72	5.44	6.12	105	113	70-130	7	30
Perfluorododecanoic acid	5.44	5.06	5.44	5.71	93	105	70-130	12	30
Perfluoroheptanoic acid	5.44	5.91	5.44	5.39	109	99	70-130	9	30
Perfluorohexanesulfonate	5.14	5.02	5.14	5.20	98	101	70-130	3	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/27/2018 07:48

Group Number: 1899412

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.51	5.44	6.19	101	114	70-130	12	30
Perfluorononanoic acid	5.44	5.90	5.44	5.57	108	102	70-130	6	30
Perfluorooctanesulfonamide	5.44	5.69	5.44	6.29	105	116	70-130	10	30
Perfluoro-octanesulfonate	5.20	4.73	5.20	5.68	91	109	70-130	18	30
Perfluorooctanoic acid	5.44	5.42	5.44	5.89	100	108	70-130	8	30
Perfluoropentanoic acid	5.44	5.44	5.44	5.56	100	102	70-130	2	30
Perfluorotetradecanoic acid	5.44	6.12	5.44	6.07	112	112	70-130	1	30
Perfluorotridecanoic acid	5.44	5.27	5.44	5.51	97	101	70-130	4	30
Perfluoroundecanoic acid	5.44	6.13	5.44	6.15	113	113	70-130	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9417445	83	77	82	79	80	78
9417446	92	87	88	87	94	97
9417447	87	82	83	80	83	84
Blank	93	96	86	89	87	96
LCS	92	86	90	88	93	95
LCSD	102	98	98	93	91	102
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9417445	108	83	82	95	81	110
9417446	91	97	91	104	97	108
9417447	92	86	86	88	86	82
Blank	106	102	92	97	91	108
LCS	116	94	86	87	98	109
LCSD	102	104	99	116	102	107
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1899412
Reported: 01/27/2018 07:48

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18022002

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9417445	84	77	82	67	62	76
9417446	83	96	93	106	85	103
9417447	64	84	75	77	72	90
Blank	72	91	79	87	75	99
LCS	75	93	76	96	78	107
LCSD	74	94	86	96	85	106
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1899412/9417445-47

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☐ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53524

COC 1 of 2

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr
Name: Michael Dupuy	Name: LATHAM, NY 12110
email: mdupuy@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain - Bennington	Barr Project No:

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml unpreserved	Water: 250 ml plastic - TRIZMA	Soil: % Solids	Preservative Code	Field Filtered Y/N	Comments
									A	O				
									N	N				
1. SG3-PUMP-180119				01-19-2018	10:55	W	N	2	2					PFCs - 17-day
2. SG3-MWBR2-243-265-180119				01-19-2018	13:20	GW	N	2		2				PFC - 24 HR
3. SG3-ETB130-180119				01-19-2018	—	W	N	2		2				
4. SG3-FB01-180119				01-19-18	12:57	W	N	1	1					
5.														
6.														
7.														
8.														
9.														
10.														

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

BARR USE ONLY						
Sampled by: JC	Relinquished by:	On Ice? (Y) N	Date 1-19-18	Time 16:00	Received by:	Date / Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/20/18 Time 08:20
Barr DQ Manager: MDD	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☒ Rush (mm/dd/yyyy)
Lab Name: ELLE						
Lab Location: LANCASTER, PA	Lab WO:	Temperature on Receipt (°C) 0.8-2.0	Custody Seal Intact? ☒ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

(3) 1015

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Sample Administration Receipt Documentation Log

Doc Log ID: 206472

Group Number(s): 1899412

Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/20/2018 10:15
Number of Packages:	4	Number of Projects:	3
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	No	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma bottles

Unpacked by Simon Nies (25112) at 12:16 on 01/20/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.9	DT	Wet	Y	Bagged	N
2	DT42-03	0.8	DT	Wet	Y	Bagged	N
3	DT42-03	1.3	DT	Wet	Y	Bagged	N
4	DT42-03	2.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 15:24

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899910
SDG: SNB79
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-199-219-180120 Grab Groundwater	01/20/2018 20:25	9419381
SG3-LTB133-180120 Blank Water	01/20/2018	9419382

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899910

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 9419381

Reporting limits were raised due to sample foaming.

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9419381

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank .
The data is reported from the initial trial. Similar results were obtained in both trials.

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18024WAO026 (Sample number(s): 9419381)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9419381, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 180261063502 (Sample number(s): 9419381 UNSPK: P421040 BKG: P421040)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Zinc

SW-846 6020A, Metals

Batch #: 180261063904A (Sample number(s): 9419381 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 180261063904B (Sample number(s): 9419381 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Selenium

Batch #: 180261063904D (Sample number(s): 9419381 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

EPA 300.0, Wet Chemistry

Sample #s: 9419381, 9419381

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Batch #: 18023987112A (Sample number(s): 9419381 UNSPK: P418754 BKG: P418754)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Chloride, Sulfate

EPA 350.1, Wet Chemistry

Batch #: 18030107103B (Sample number(s): 9419381 UNSPK: 9419381 BKG: 9419381)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Ammonia Nitrogen

SM 2320 B-1997, Wet Chemistry

Batch #: 18025011202A (Sample number(s): 9419381 UNSPK: 9419381 BKG: P417268, P9419381)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9419381

The holding time was not met. The sample was submitted to the laboratory outside of the holding time.

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB79-01

C. T. Male Associates
ELLE Sample #: GW 9419381
ELLE Group #: 1899910
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	60 U	60	200	10
11997	Benzene	71-43-2	5 U	5	10	10
11997	Bromochloromethane	74-97-5	10 U	10	50	10
11997	Bromodichloromethane	75-27-4	5 U	5	10	10
11997	Bromoform	75-25-2	5 U	5	40	10
11997	Bromomethane	74-83-9	5 U	5	10	10
11997	2-Butanone	78-93-3	30 U	30	100	10
11997	Carbon Disulfide	75-15-0	10 U	10	50	10
11997	Carbon Tetrachloride	56-23-5	5 U	5	10	10
11997	Chlorobenzene	108-90-7	5 U	5	10	10
11997	Chloroethane	75-00-3	5 U	5	10	10
11997	Chloroform	67-66-3	5 U	5	10	10
11997	Chloromethane	74-87-3	5 U	5	10	10
11997	Cyclohexane	110-82-7	20 U	20	50	10
11997	1,2-Dibromo-3-chloropropane	96-12-8	20 U	20	50	10
11997	Dibromochloromethane	124-48-1	5 U	5	10	10
11997	1,2-Dibromoethane	106-93-4	5 U	5	10	10
11997	1,2-Dichlorobenzene	95-50-1	10 U	10	50	10
11997	1,3-Dichlorobenzene	541-73-1	10 U	10	50	10
11997	1,4-Dichlorobenzene	106-46-7	10 U	10	50	10
11997	Dichlorodifluoromethane	75-71-8	5 U	5	10	10
11997	1,1-Dichloroethane	75-34-3	5 U	5	10	10
11997	1,2-Dichloroethane	107-06-2	5 U	5	10	10
11997	1,1-Dichloroethene	75-35-4	5 U	5	10	10
11997	cis-1,2-Dichloroethene	156-59-2	5 U	5	10	10
11997	trans-1,2-Dichloroethene	156-60-5	5 U	5	10	10
11997	1,2-Dichloropropane	78-87-5	5 U	5	10	10
11997	cis-1,3-Dichloropropene	10061-01-5	5 U	5	10	10
11997	trans-1,3-Dichloropropene	10061-02-6	5 U	5	10	10
11997	Ethylbenzene	100-41-4	5 U	5	10	10
11997	Freon 113	76-13-1	20 U	20	100	10
11997	2-Hexanone	591-78-6	30 U	30	100	10
11997	Isopropylbenzene	98-82-8	10 U	10	50	10
11997	Methyl Acetate	79-20-9	10 U	10	50	10
11997	Methyl Tertiary Butyl Ether	1634-04-4	5 U	5	10	10
11997	4-Methyl-2-pentanone	108-10-1	30 U	30	100	10
11997	Methylcyclohexane	108-87-2	10 U	10	50	10
11997	Methylene Chloride	75-09-2	5 U	5	10	10
11997	Styrene	100-42-5	10 U	10	50	10
11997	1,1,2,2-Tetrachloroethane	79-34-5	5 U	5	10	10
11997	Tetrachloroethene	127-18-4	5 U	5	10	10

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB79-01

C. T. Male Associates
ELLE Sample #: GW 9419381
ELLE Group #: 1899910
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	5 U	5	10	10
11997	1,2,3-Trichlorobenzene	87-61-6	10 U	10	50	10
11997	1,2,4-Trichlorobenzene	120-82-1	10 U	10	50	10
11997	1,1,1-Trichloroethane	71-55-6	5 U	5	10	10
11997	1,1,2-Trichloroethane	79-00-5	5 U	5	10	10
11997	Trichloroethene	79-01-6	5 U	5	10	10
11997	Trichlorofluoromethane	75-69-4	5 U	5	10	10
11997	Vinyl Chloride	75-01-4	5 U	5	10	10
11997	m+p-Xylene	179601-23-1	5 U	5	10	10
11997	o-Xylene	95-47-6	5 U	5	10	10
11997	Xylene (Total)	1330-20-7	5 U	5	10	10

Reporting limits were raised due to sample foaming.

GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.26**	0.052	0.21	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank . The data is reported from the initial trial. Similar results were obtained in both trials.

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**58.7**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.344 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**25.1**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.11**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**1.36**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.48 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.183**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0754**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0012 J**	0.00087	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB79-01

C. T. Male Associates
ELLE Sample #: GW 9419381
ELLE Group #: 1899910
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06032	**Cobalt**	7440-48-4	**0.0045**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0043**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.00012 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0053**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0011**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0017**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.000054 J**	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**5.3**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					
00228	**Sulfate**	14808-79-8	**11.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.062 J**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**232**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**232**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory outside of the holding time.					

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB79-01

C. T. Male Associates
ELLE Sample #: GW 9419381
ELLE Group #: 1899910
Matrix: Groundwater

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L180302AA	01/30/2018 16:42	Daniel H Heller	10
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L180302AA	01/30/2018 16:42	Daniel H Heller	10
14080	1,4-Dioxane	SW-846 8270D SIM	1	18024WAO026	01/26/2018 13:36	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18024WAO026	01/24/2018 19:02	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
01762	Potassium	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	180261063502	01/30/2018 03:43	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	180261063904D	01/31/2018 16:07	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06028	Cadmium	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06031	Chromium	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06039	Nickel	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180261063904B	01/31/2018 16:07	Patrick J Engle	1
06042	Silver	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06045	Thallium	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	180261063904A	01/31/2018 16:07	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	180250571302	01/26/2018 08:39	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180261063502	01/29/2018 15:40	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180261063904	01/29/2018 22:55	Denise L Trimby	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180250571302	01/25/2018 22:10	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18023987112A	01/23/2018 22:58	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18023987112A	01/23/2018 22:58	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18023987112A	01/23/2018 22:58	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18023987112A	01/23/2018 22:58	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18023987112A	01/23/2018 22:58	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18030107103B	01/30/2018 13:33	Brianna A White	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18025108104A	01/26/2018 14:13	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	18024117101A	01/25/2018 12:23	Brianna A White	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18025108104A	01/25/2018 17:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18024117101A	01/24/2018 08:50	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18025011202A	01/25/2018 23:40	Jeremy L Bolf	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB79-01

C. T. Male Associates
ELLE Sample #: GW 9419381
ELLE Group #: 1899910
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18025011202A	01/25/2018 23:40	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18025011202A	01/25/2018 23:40	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18023146271A	01/23/2018 23:30	Hannah M Royer	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB133-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018
SDG#: SNB79-02TB

C. T. Male Associates
ELLE Sample #: WW 9419382
ELLE Group #: 1899910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB133-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018
SDG#: SNB79-02TB

C. T. Male Associates
ELLE Sample #: WW 9419382
ELLE Group #: 1899910
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L180302AA	01/30/2018 16:20	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L180302AA	01/30/2018 16:20	Daniel H Heller	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: L180302AA	Sample number(s): 9419381-9419382		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18024WAO026	Sample number(s): 9419381		
1,4-Dioxane	0.21	0.050	0.20
	mg/l	mg/l	mg/l
Batch number: 180250571302	Sample number(s): 9419381		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180261063502	Sample number(s): 9419381		
Aluminum	0.0939 J	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0768 J	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180261063904A	Sample number(s): 9419381		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180261063904B	Sample number(s): 9419381		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180261063904D	Sample number(s): 9419381		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18023987112A	Sample number(s): 9419381		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18024117101A	Sample number(s): 9419381		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18025108104A	Sample number(s): 9419381		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18030107103B	Sample number(s): 9419381		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18023146271A	Sample number(s): 9419381		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18025011202A	Sample number(s): 9419381		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L180302AA	Sample number(s): 9419381-9419382								
Acetone	150	169.1			113		44-177		
Benzene	20	20.16			101		78-120		
Bromochloromethane	20	19.67			98		80-125		
Bromodichloromethane	20	15.41			77		71-120		
Bromoform	20	13.43			67		59-120		
Bromomethane	20	15.81			79		44-139		
2-Butanone	150	128.88			86		53-140		
Carbon Disulfide	20	16			80		65-128		
Carbon Tetrachloride	20	15.41			77		68-128		
Chlorobenzene	20	20.23			101		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloroethane	20	16.3			82		52-127		
Chloroform	20	18.25			91		80-120		
Chloromethane	20	15.99			80		57-120		
Cyclohexane	20	17.74			89		67-121		
1,2-Dibromo-3-chloropropane	20	14.84			74		64-120		
Dibromochloromethane	20	16.05			80		71-120		
1,2-Dibromoethane	20	19.67			98		75-120		
1,2-Dichlorobenzene	20	19.79			99		80-120		
1,3-Dichlorobenzene	20	19.63			98		80-120		
1,4-Dichlorobenzene	20	20.06			100		80-120		
Dichlorodifluoromethane	20	12.71			64		47-124		
1,1-Dichloroethane	20	18.49			92		80-120		
1,2-Dichloroethane	20	16.02			80		73-124		
1,1-Dichloroethene	20	20.81			104		76-124		
cis-1,2-Dichloroethene	20	20.35			102		80-120		
trans-1,2-Dichloroethene	20	20.65			103		80-120		
1,2-Dichloropropane	20	19.15			96		80-120		
cis-1,3-Dichloropropene	20	16.98			85		75-120		
trans-1,3-Dichloropropene	20	16.18			81		76-120		
Ethylbenzene	20	19.68			98		78-120		
Freon 113	20	19.09			95		68-137		
2-Hexanone	100	88.56			89		60-134		
Isopropylbenzene	20	20.19			101		80-120		
Methyl Acetate	20	17.95			90		61-137		
Methyl Tertiary Butyl Ether	20	18.17			91		75-120		
4-Methyl-2-pentanone	100	85.93			86		67-128		
Methylcyclohexane	20	18.41			92		66-126		
Methylene Chloride	20	20.31			102		80-120		
Styrene	20	19.66			98		80-120		
1,1,2,2-Tetrachloroethane	20	19.53			98		72-120		
Tetrachloroethene	20	20.57			103		80-129		
Toluene	20	20.57			103		80-120		
1,2,3-Trichlorobenzene	20	18.93			95		66-120		
1,2,4-Trichlorobenzene	20	18.68			93		70-120		
1,1,1-Trichloroethane	20	15.52			78		67-120		
1,1,2-Trichloroethane	20	20.38			102		80-120		
Trichloroethene	20	19.05			95		80-120		
Trichlorofluoromethane	20	14.41			72		52-143		
Vinyl Chloride	20	15.67			78		63-121		
m+p-Xylene	40	40.46			101		80-120		
o-Xylene	20	19.78			99		80-120		
Xylene (Total)	60	60.23			100		80-120		
	ug/l	ug/l	ug/l	ug/l					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18024WAO026	Sample number(s): 9419381								
1,4-Dioxane	1.00	1.22	1.00	1.18	122	118	70-130	3	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180250571302	Sample number(s): 9419381								
Mercury	0.00100	0.000951			95		80-120		
Batch number: 180261063502	Sample number(s): 9419381								
Aluminum	2.00	1.85			93		80-120		
Boron	2.00	1.78			89		80-120		
Calcium	4.00	3.85			96		80-120		
Iron	1.00	0.961			96		80-120		
Magnesium	2.00	1.94			97		80-120		
Manganese	0.500	0.492			98		80-120		
Potassium	10	9.82			98		80-120		
Sodium	10	9.61			96		80-120		
Zinc	0.500	0.472			94		80-120		
Batch number: 180261063904A	Sample number(s): 9419381								
Antimony	0.00600	0.00550			92		80-120		
Arsenic	0.0100	0.00947			95		80-120		
Beryllium	0.00400	0.00409			102		80-120		
Cadmium	0.00500	0.00484			97		80-120		
Chromium	0.0500	0.0508			102		80-120		
Cobalt	0.250	0.244			98		80-120		
Copper	0.0500	0.0508			102		80-120		
Lead	0.0150	0.0155			104		80-120		
Nickel	0.0500	0.0494			99		80-120		
Silver	0.0500	0.0500			100		80-120		
Thallium	0.00200	0.00199			99		80-120		
Vanadium	0.0500	0.0489			98		80-120		
Batch number: 180261063904B	Sample number(s): 9419381								
Selenium	0.0100	0.0103			103		80-120		
Batch number: 180261063904D	Sample number(s): 9419381								
Barium	0.0500	0.0485			97		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18023987112A	Sample number(s): 9419381								
Bromide	7.50	7.43	7.50	7.43	99	99	90-110	0	20
Chloride	3.00	3.02	3.00	3.02	101	101	90-110	0	20
Nitrate Nitrogen	0.750	0.738	0.750	0.741	98	99	90-110	0	20
Nitrite Nitrogen	0.750	0.725	0.750	0.725	97	97	90-110	0	20
Sulfate	7.50	7.43	7.50	7.42	99	99	90-110	0	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18024117101A	Sample number(s): 9419381								
Total Cyanide	0.200	0.199			99		90-110		
Batch number: 18025108104A	Sample number(s): 9419381								
Kjeldahl Nitrogen	5.00	5.47			109		90-110		
Batch number: 18030107103B	Sample number(s): 9419381								
Ammonia Nitrogen	1.50	1.51			101		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18023146271A	Sample number(s): 9419381								
Orthophosphate as P	0.400	0.399			100		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18025011202A	Sample number(s): 9419381								
Total Alkalinity to pH 4.5	188	178.95			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: L180302AA	Sample number(s): 9419381-9419382 UNSPK: 9419381									
Acetone	60 U	1500	1676.52	1500	1660.46	112	111	44-177	1	30
Benzene	5 U	200	196.45	200	199.64	98	100	78-120	2	30
Bromochloromethane	10 U	200	193.71	200	194.87	97	97	80-125	1	30
Bromodichloromethane	5 U	200	149.48	200	152.33	75	76	71-120	2	30
Bromoform	5 U	200	130.73	200	133.05	65	67	59-120	2	30
Bromomethane	5 U	200	151.72	200	154.77	76	77	44-139	2	30
2-Butanone	30 U	1500	1286.39	1500	1293.58	86	86	53-140	1	30
Carbon Disulfide	10 U	200	143.68	200	149.04	72	75	65-128	4	30
Carbon Tetrachloride	5 U	200	149.07	200	153.45	75	77	68-128	3	30
Chlorobenzene	5 U	200	200.09	200	202.11	100	101	80-120	1	30
Chloroethane	5 U	200	148.84	200	149.3	74	75	52-127	0	30
Chloroform	5 U	200	178.6	200	181.78	89	91	80-120	2	30
Chloromethane	5 U	200	141.84	200	144.38	71	72	57-120	2	30
Cyclohexane	20 U	200	176.33	200	180.21	88	90	67-121	2	30
1,2-Dibromo-3-chloropropane	20 U	200	144.09	200	147.03	72	74	64-120	2	30
Dibromochloromethane	5 U	200	156.18	200	158.92	78	79	71-120	2	30
1,2-Dibromoethane	5 U	200	194.43	200	196.48	97	98	75-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	10 U	200	195.81	200	201	98	100	80-120	3	30
1,3-Dichlorobenzene	10 U	200	193.17	200	197.29	97	99	80-120	2	30
1,4-Dichlorobenzene	10 U	200	195.11	200	200.37	98	100	80-120	3	30
Dichlorodifluoromethane	5 U	200	115.37	200	116.52	58	58	47-124	1	30
1,1-Dichloroethane	5 U	200	180.41	200	182.72	90	91	80-120	1	30
1,2-Dichloroethane	5 U	200	159.24	200	158.97	80	79	73-124	0	30
1,1-Dichloroethene	5 U	200	198.24	200	201.66	99	101	76-124	2	30
cis-1,2-Dichloroethene	5 U	200	200.07	200	200.59	100	100	80-120	0	30
trans-1,2-Dichloroethene	5 U	200	198.13	200	200.62	99	100	80-120	1	30
1,2-Dichloropropane	5 U	200	189.45	200	190.52	95	95	80-120	1	30
cis-1,3-Dichloropropene	5 U	200	163.08	200	166.65	82	83	75-120	2	30
trans-1,3-Dichloropropene	5 U	200	155.19	200	158.16	78	79	76-120	2	30
Ethylbenzene	5 U	200	195.24	200	199.3	98	100	78-120	2	30
Freon 113	20 U	200	187.06	200	190.26	94	95	68-137	2	30
2-Hexanone	30 U	1000	888.35	1000	890.03	89	89	60-134	0	30
Isopropylbenzene	10 U	200	202.5	200	205.59	101	103	80-120	2	30
Methyl Acetate	10 U	200	176.93	200	179.39	88	90	61-137	1	30
Methyl Tertiary Butyl Ether	5 U	200	174.8	200	177.59	87	89	75-120	2	30
4-Methyl-2-pentanone	30 U	1000	862.93	1000	864.14	86	86	67-128	0	30
Methylcyclohexane	10 U	200	191.21	200	196.6	96	98	66-126	3	30
Methylene Chloride	5 U	200	197.22	200	199	99	99	80-120	1	30
Styrene	10 U	200	197.78	200	198.47	99	99	80-120	0	30
1,1,2,2-Tetrachloroethane	5 U	200	188.4	200	196.35	94	98	72-120	4	30
Tetrachloroethene	5 U	200	204.89	200	205.11	102	103	80-129	0	30
Toluene	5 U	200	204.37	200	207.48	102	104	80-120	2	30
1,2,3-Trichlorobenzene	10 U	200	177.21	200	186.55	89	93	66-120	5	30
1,2,4-Trichlorobenzene	10 U	200	177.99	200	183.97	89	92	70-120	3	30
1,1,1-Trichloroethane	5 U	200	171.59	200	173.61	86	87	67-120	1	30
1,1,2-Trichloroethane	5 U	200	202.22	200	205.79	101	103	80-120	2	30
Trichloroethene	5 U	200	187.41	200	190.35	94	95	80-120	2	30
Trichlorofluoromethane	5 U	200	143.93	200	144.07	72	72	52-143	0	30
Vinyl Chloride	5 U	200	140.91	200	142.61	70	71	63-121	1	30
m+p-Xylene	5 U	400	404.43	400	411.6	101	103	80-120	2	30
o-Xylene	5 U	200	196.56	200	199.94	98	100	80-120	2	30
Xylene (Total)	5 U	600	600.99	600	611.54	100	102	80-120	2	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180250571302	Sample number(s): 9419381 UNSPK: P421040									
Mercury	0.000050 U	0.00100	0.000895	0.00100	0.000899	90	90	80-120	0	20
Batch number: 180261063502	Sample number(s): 9419381 UNSPK: P421040									
Aluminum	0.301	2.00	2.30	2.00	2.24	100	97	75-125	3	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.287	2.00	2.09	2.00	2.13	90	92	75-125	2	20
Calcium	39.53	4.00	44.08	4.00	44.27	114 (2)	119 (2)	75-125	0	20
Iron	1.29	1.00	2.04	1.00	2.13	75	84	75-125	4	20
Magnesium	22.07	2.00	24.2	2.00	24.41	106 (2)	117 (2)	75-125	1	20
Manganese	0.989	0.500	1.29	0.500	1.35	61*	73*	75-125	4	20
Potassium	4.46	10	14.2	10	14.23	97	98	75-125	0	20
Sodium	179.15	10	188.86	10	191.43	97 (2)	123 (2)	75-125	1	20
Zinc	0.0065 U	0.500	0.471	0.500	0.473	94	95	75-125	1	20
Batch number: 180261063904A	Sample number(s): 9419381 UNSPK: P421055									
Antimony	0.0023 U	0.0300	0.00244	0.0300	0.00290	8*	10*	75-125	17	20
Arsenic	0.351	0.0500	0.407	0.0500	0.317	112 (2)	-68 (2)	75-125	25*	20
Beryllium	0.410	0.0200	0.363	0.0200	0.292	-237 (2)	-593 (2)	75-125	22*	20
Cadmium	0.664	0.0250	0.760	0.0250	0.593	382 (2)	-286 (2)	75-125	25*	20
Chromium	6.35	0.250	7.32	0.250	5.67	390 (2)	-269 (2)	75-125	25*	20
Cobalt	4.71	1.25	6.50	1.25	5.25	143*	44*	75-125	21*	20
Copper	12.85	0.250	14.92	0.250	11.61	827 (2)	-493 (2)	75-125	25*	20
Lead	1.36	0.0750	1.58	0.0750	1.21	301 (2)	-190 (2)	75-125	26*	20
Nickel	24.12	0.250	28.08	0.250	20.66	1582 (2)	-1383 (2)	75-125	30*	20
Silver	0.0239	0.250	0.230	0.250	0.230	82	83	75-125	0	20
Thallium	0.0103	0.0100	0.0143	0.0100	0.00849	41*	-18*	75-125	51*	20
Vanadium	11.11	0.250	12.61	0.250	9.67	602 (2)	-575 (2)	75-125	26*	20
Batch number: 180261063904B	Sample number(s): 9419381 UNSPK: P421055									
Selenium	0.00742	0.0500	0.0185	0.0500	0.0206	22*	26*	75-125	11	20
Batch number: 180261063904D	Sample number(s): 9419381 UNSPK: P421055									
Barium	32	0.250	35.94	0.250	28.74	1578 (2)	-1303 (2)	75-125	22*	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18023987112A	Sample number(s): 9419381 UNSPK: P418754									
Bromide	1.3 U	25	24.08	25	27.06	96	108	90-110	12	20
Chloride	86.72	40	126.34	40	142.11	99	138*	90-110	12	20
Nitrate Nitrogen	0.25 U	2.50	2.46	2.50	2.62	98	105	90-110	6	20
Nitrite Nitrogen	0.25 U	2.50	2.32	2.50	2.32	93	93	90-110	0	20
Sulfate	17.77	25	40.67	25	47.69	92	120*	90-110	16	20
Batch number: 18024117101A	Sample number(s): 9419381 UNSPK: P419216									
Total Cyanide	0.0050 U	0.200	0.208			104		72-114		
Batch number: 18025108104A	Sample number(s): 9419381 UNSPK: P416506									
Kjeldahl Nitrogen	8.99	5.00	14.09			102		90-110		
Batch number: 18030107103B	Sample number(s): 9419381 UNSPK: 9419381									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Ammonia Nitrogen	0.0622	1.00	1.02			95		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18023146271A	Sample number(s): 9419381 UNSPK: P418744									
Orthophosphate as P	0.030 U	0.400	0.424	0.400	0.423	106	106	69-131	0	5
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18025011202A	Sample number(s): 9419381 UNSPK: 9419381									
Total Alkalinity to pH 4.5	232.21	188	306.76			40*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 180250571302	Sample number(s): 9419381 BKG: P421040			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180261063502	Sample number(s): 9419381 BKG: P421040			
Aluminum	0.301	0.452	40* (1)	20
Boron	0.287	0.288	0 (1)	20
Calcium	39.53	39.89	1	20
Iron	1.29	1.33	3 (1)	20
Magnesium	22.07	22.33	1	20
Manganese	0.989	1.05	6	20
Potassium	4.46	4.54	2 (1)	20
Sodium	179.15	180.58	1	20
Zinc	0.0065 U	0.00658	200* (1)	20
Batch number: 180261063904A	Sample number(s): 9419381 BKG: P421055			
Antimony	0.0023 U	0.0023 U	0 (1)	20
Arsenic	0.351	0.392	11	20
Beryllium	0.410	0.357	14	20
Cadmium	0.664	0.747	12	20
Chromium	6.35	7.35	15	20
Cobalt	4.71	5.39	14	20
Copper	12.85	14.46	12	20
Lead	1.36	1.56	14	20
Nickel	24.12	28.68	17	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Silver	0.0239	0.0268	11 (1)	20
Thallium	0.0103	0.0152	39* (1)	20
Vanadium	11.11	12.62	13	20
Batch number: 180261063904B	Sample number(s): 9419381 BKG: P421055			
Selenium	0.00742	0.00716	4 (1)	20
Batch number: 180261063904D	Sample number(s): 9419381 BKG: P421055			
Barium	32	36.6	13	20
	mg/l	mg/l		
Batch number: 18023987112A	Sample number(s): 9419381 BKG: P418754			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	86.72	86.42	0	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	17.77	16.7	6 (1)	15
Batch number: 18024117101A	Sample number(s): 9419381 BKG: P419216			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 18025108104A	Sample number(s): 9419381 BKG: P416506			
Kjeldahl Nitrogen	8.99	9.04	1 (1)	20
Batch number: 18030107103B	Sample number(s): 9419381 BKG: 9419381			
Ammonia Nitrogen	0.0622	0.0502	21* (1)	20
	mg/l	mg/l		
Batch number: 18023146271A	Sample number(s): 9419381 BKG: P418744			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18025011202A	Sample number(s): 9419381 BKG: 9419381			
Total Alkalinity to pH 4.5	232.21	234.47	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:24

Group Number: 1899910

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: L180302AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9419381	92	103	100	95
9419382	92	102	102	95
Blank	93	103	101	95
LCS	94	103	102	95
MS	94	103	101	96
MSD	93	100	102	95
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18024WAO026

	1,4-Dioxane-d8
9419381	40*
Blank	44*
LCS	38*
LCSD	41*
Limits:	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1877910 S-9419381-82

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53526

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: C.T. Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY 12110
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	~~Barr~~ Project No: 16161131

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: 250 ml Plastic - unpreserved	Water: 250 ml Plastic - Filtered	Water: 250 ml Plastic - HNO_3	Water: 250 ml Plastic - NaOH/ASC	Water: 250 ml Glass - Unpreserved	Soil: 250 ml Plastic - H_2SO_4	Soil: 40 ml Glass - HCl	Soil: 4oz ml Glass - Unpreserved	% Solids	Preservative Code / Field Filtered Y/N
									A	A	O	C	E1	A	D	B	A	
									N	Y	N	N	N	N	N	N	N	
1. SG3-MW3R20191-219-180120	—	—	—	01-20-2018	20:25	GW	N	13	1	1	—	1	1	2	1	3	2	orthophosphate, Metals + Hg,
2. SG3-LB133-180120	—	—	—	01-20-2018	—	W	N	2	2									Cyanide, Alkalinity, Dioxane 8260
3.																		Ammonia/Nitrogen, VOC's,
4.																		Br/Cl/N/SO4
5.				JC														7 Day turnaround
6.																		
7.																		
8.																		
9.																		
10.																		

BARR USE ONLY	Relinquished by	On Ice? Y N	Date	Time	Received by	Date	Time
Sampled by: JC							
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDD						1/23/18	1025
Lab Name: ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: LANCaster, PA	Lab WO:	Temperature on Receipt (°C) 0.6 & 0.8			Custody Seal Intact? ☐ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206570

Group Number(s): 1899910

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/23/2018 10:25
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): HCL(2); TRIZMA(2); NONE(2)

Unpacked by Ruth Shank (12390) at 11:13 on 01/23/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.8	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 24, 2018 17:30

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899916
SDG: SNB80
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-199-219-180120 Grab Groundwater	01/20/2018 20:25	9419511

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899916

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9419511

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The injection standards, 13C4-PFOS and 13C2-PFDA were marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Batch #: 18023009 (Sample number(s): 9419511)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9419511

Sample Description: **SG3-MWBR2-199-219-180120 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 20:25
SDG#: SNB80-01

C. T. Male Associates
ELLE Sample #: GW 9419511
ELLE Group #: 1899916
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**5**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**18**	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**37**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**41**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**2**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**0.9 J**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**140**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**30**	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The injection standards, 13C4-PFOS and 13C2-PFDA were marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18023009	01/24/2018 11:20	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18023009	01/23/2018 14:25	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/24/2018 17:30

Group Number: 1899916

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18023009	Sample number(s): 9419511		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18023009	Sample number(s): 9419511								
6:2 fluorotelomersulfonate	15.17	15.01	15.17	16.34	99	108	70-130	8	30
8:2 fluorotelomersulfonate	15.33	14.62	15.33	14.57	95	95	70-130	0	30
NEtFOSAA	5.44	5.27	5.44	5.23	97	96	70-130	1	30
NMeFOSAA	5.44	5.97	5.44	5.10	110	94	70-130	16	30
Perfluorobutanesulfonate	4.81	4.50	4.81	4.53	94	94	70-130	1	30
Perfluorobutanoic acid	5.44	5.37	5.44	5.38	99	99	70-130	0	30
Perfluorodecanoic acid	5.44	5.62	5.44	5.52	103	101	70-130	2	30
Perfluorododecanoic acid	5.44	5.37	5.44	5.01	99	92	70-130	7	30
Perfluoroheptanoic acid	5.44	5.60	5.44	5.50	103	101	70-130	2	30
Perfluorohexanesulfonate	5.14	5.03	5.14	4.77	98	93	70-130	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/24/2018 17:30

Group Number: 1899916

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.82	5.44	5.38	107	99	70-130	8	30
Perfluorononanoic acid	5.44	6.17	5.44	5.37	113	99	70-130	14	30
Perfluorooctanesulfonamide	5.44	6.22	5.44	5.49	114	101	70-130	12	30
Perfluoro-octanesulfonate	5.20	5.24	5.20	5.28	101	102	70-130	1	30
Perfluorooctanoic acid	5.44	5.72	5.44	5.47	105	101	70-130	4	30
Perfluoropentanoic acid	5.44	5.29	5.44	5.27	97	97	70-130	0	30
Perfluorotetradecanoic acid	5.44	6.06	5.44	5.45	111	100	70-130	11	30
Perfluorotridecanoic acid	5.44	5.09	5.44	5.41	93	99	70-130	6	30
Perfluoroundecanoic acid	5.44	6.42	5.44	5.51	118	101	70-130	15	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18023009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9419511	73	85	97	66	72	71
Blank	79	77	74	80	77	82
LCS	74	73	70	78	79	84
LCSD	79	82	76	80	88	86
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9419511	76	70	71	76	68	65
Blank	79	81	73	81	79	86
LCS	83	77	79	79	78	81
LCSD	86	87	78	88	84	80
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9419511	69	70	74	66	62	68*
Blank	79	83	82	88	77	81
LCS	64	76	71	80	63	79
LCSD	76	85	87	84	73	82

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1899916
Reported: 01/24/2018 17:30

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18023009

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1899916 S-941911-13

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53527

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT, Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham NY 12110
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Goobain Bennington	Barr Project No: 16.6131

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: 250 ml plastic - unpreserved	Water: 250 ml plastic - TRIZMA	Water	Water	Water	Water	Soil	Soil	Soil	Soil	Soil	% Solids	Preservative Code	Field Filtered Y/N
									A	O												
									N	N												
1. SG3-MWBR2-PP-219-180120	—	—	—	01-20-2018	20:25	GW	N	2		2											PFC's-7-day	
2. SG3-FB01-180120	—	—	—	01-20-2018	15:30	W	N	1	1												PFC's-24HR	
3. SG3-MWBR2-132-180120	—	—	—	01-20-2018	—	W	N	2		2												
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	JC		Y	01-20-18	21:30			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDD						1/23/18	1025
Lab Name:	ELLE	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:				Temperature on Receipt (°C): 0.6, 0.8 Custody Seal Intact? ☑ Y ☐ N ☐ None		

JC Requested Due Date: ☒ Standard Turn Around Time ☒ Rush 24-HR (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206570

Group Number(s): 1899916

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/23/2018 10:25
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): HCL(2); TRIZMA(2); NONE(2)

Unpacked by Ruth Shank (12390) at 11:13 on 01/23/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.8	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 07:47

Project: SGPP - Bennington

Account #: 37191
Group Number: 1899932
SDG: SNB81
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-FB01-180120 Blank Water	01/20/2018 15:30	9419598
SG3-LTB-132-180120 Blank Water	01/20/2018	9419599

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1899932

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9419598, 9419599

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Batch #: 18026002 (Sample number(s): 9419598-9419599)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

Sample Description: **SG3-FB01-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 15:30
SDG#: SNB81-01FB

C. T. Male Associates
ELLE Sample #: WW 9419598
ELLE Group #: 1899932
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		ng/l	ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-FB01-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018 15:30
SDG#: SNB81-01FB

C. T. Male Associates
ELLE Sample #: WW 9419598
ELLE Group #: 1899932
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026002	01/29/2018 16:54	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026002	01/26/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB-132-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018
SDG#: SNB81-02TB

C. T. Male Associates
ELLE Sample #: WW 9419599
ELLE Group #: 1899932
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

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Sample Description: **SG3-LTB-132-180120 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/23/2018 10:25
Collection Date/Time: 01/20/2018
SDG#: SNB81-02TB

C. T. Male Associates
ELLE Sample #: WW 9419599
ELLE Group #: 1899932
Matrix: Blank Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026002	01/29/2018 17:15	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026002	01/26/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 07:47

Group Number: 1899932

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18026002	Sample number(s): 9419598-9419599		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18026002	Sample number(s): 9419598-9419599								
6:2 fluorotelomersulfonate	15.17	18.71	15.17	18.91	123	125	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.82	15.33	16.18	123	106	70-130	15	30
NEtFOSAA	5.44	5.76	5.44	5.66	106	104	70-130	2	30
NMeFOSAA	5.44	6.08	5.44	4.83	112	89	70-130	23	30
Perfluorobutanesulfonate	4.81	5.10	4.81	4.70	106	98	70-130	8	30
Perfluorobutanoic acid	5.44	5.79	5.44	5.95	106	109	70-130	3	30
Perfluorodecanoic acid	5.44	5.66	5.44	5.48	104	101	70-130	3	30
Perfluorododecanoic acid	5.44	6.11	5.44	5.51	112	101	70-130	10	30
Perfluoroheptanoic acid	5.44	6.16	5.44	6.04	113	111	70-130	2	30
Perfluorohexanesulfonate	5.14	5.27	5.14	5.38	103	105	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 07:47

Group Number: 1899932

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.85	5.44	5.89	108	108	70-130	1	30
Perfluorononanoic acid	5.44	7.04	5.44	7.00	129	129	70-130	1	30
Perfluorooctanesulfonamide	5.44	6.01	5.44	6.65	110	122	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.19	102	100	70-130	2	30
Perfluorooctanoic acid	5.44	5.32	5.44	5.79	98	106	70-130	8	30
Perfluoropentanoic acid	5.44	6.10	5.44	5.84	112	107	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.63	5.44	5.91	103	109	70-130	5	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.27	95	97	70-130	2	30
Perfluoroundecanoic acid	5.44	6.31	5.44	6.08	116	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9419598	89	88	73	87	84	84
9419599	90	95	84	99	85	92
Blank	84	84	73	89	85	79
LCS	100	99	85	94	93	97
LCSD	97	96	83	87	83	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9419598	91	97	84	81	103	110
9419599	98	99	86	89	99	99
Blank	83	91	74	82	106	111
LCS	99	104	91	87	109	114
LCSD	93	98	99	84	121*	122
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9419598	87	84	89	84	76	107
9419599	91	82	91	84	70	75
Blank	94	90	92	90	82	111

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1899932
Reported: 02/01/2018 07:47

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026002

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	92	96	110	101	91	119
LCSD	113	101	109	112	96	140*
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1899932 / G-1899946 KB 1/24/18 S-94419511-13 94419598-99

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND ☐ SD ☐ MN Other: VT

COC Number: 53527

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male
Address: 4300 Market Pointe Dr	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham NY 12110
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: St. Gobain Bennington	Project No: 16.61131

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Location	Sample Depth Start	Sample Depth Stop	Sample Depth Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 250 ml plastic - unpreserved	Analysis Requested: Water 250 ml plastic - TRIZMA	Analysis Requested: Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR2-PP-219-180120	—	—	—	01-20-2018	20:25	GW	N	2		2			PFC's-7-day
2. SG3-FB01-180120	—	—	—	01-20-2018	15:30	W	N	1	1				PFC's-24HR
3. SG3-MWBR2-132-180120	—	—	—	01-20-2018	—	W	N	2		2			
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: JC

Barr Proj. Manager: JTC

Barr DQ Manager: MDD

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: JC | On Ice? (Y) N | Date 01-20-18 | Time 21:30

Relinquished by: | On Ice? Y N | Date | Time

Received by: | Date | Time

Received by: | Date 1/23/18 | Time 1025

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Lab WO: Temperature on Receipt (°C): 0.6, 6.8 Custody Seal Intact? ☒ Y ☐ N ☐ None

JC ☐ Standard Turn Around Time ☒ Rush 24-HR

Requested Due Date: (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206570

Group Number(s): 1899932 MB 1899916 1/24/18

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/23/2018 10:25
Number of Packages:	2	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): HCL(2); TRIZMA(2); NONE(2)

Unpacked by Ruth Shank (12390) at 11:13 on 01/23/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	0.8	DT	Wet	Y	Bagged	N
2	DT42-03	0.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 26, 2018 14:28

Project: SGPP - Bennington

Account #: 37191
Group Number: 1900464
SDG: SNB82
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
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Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-131.27-161-180122 Grab Groundwater	01/22/2018 16:00	9421606

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1900464

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9421606

The injection standard 13C2-PFDA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

REVISED

Sample Description: **SG3-MWBR3-131.27-161-180122 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018 16:00
SDG#: SNB82-01

C. T. Male Associates
ELLE Sample #: GW 9421606
ELLE Group #: 1900464
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**72**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The injection standard 13C2-PFDA was marginally above acceptance criteria. The associated extraction standards were within QC specifications therefore the data is reported.

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18024010	01/25/2018 23:52	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18024010	01/24/2018 15:10	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1900464
Reported: 01/26/2018 14:28

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18024010	Sample number(s): 9421606		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18024010	Sample number(s): 9421606								
6:2 fluorotelomersulfonate	15.17	14.8	15.17	14.92	98	98	70-130	1	30
8:2 fluorotelomersulfonate	15.33	13.08	15.33	13.78	85	90	70-130	5	30
NEtFOSAA	5.44	4.91	5.44	4.94	90	91	70-130	1	30
NMeFOSAA	5.44	4.42	5.44	5.25	81	97	70-130	17	30
Perfluorobutanesulfonate	4.81	4.50	4.81	4.42	93	92	70-130	2	30
Perfluorobutanoic acid	5.44	5.04	5.44	5.20	93	96	70-130	3	30
Perfluorodecanoic acid	5.44	4.67	5.44	4.75	86	87	70-130	2	30
Perfluorododecanoic acid	5.44	5.21	5.44	5.56	96	102	70-130	6	30
Perfluoroheptanoic acid	5.44	5.38	5.44	5.48	99	101	70-130	2	30
Perfluorohexanesulfonate	5.14	4.44	5.14	4.41	86	86	70-130	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/26/2018 14:28

Group Number: 1900464

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.06	5.44	5.12	93	94	70-130	1	30
Perfluorononanoic acid	5.44	4.63	5.44	4.99	85	92	70-130	8	30
Perfluorooctanesulfonamide	5.44	5.34	5.44	6.06	98	111	70-130	13	30
Perfluoro-octanesulfonate	5.20	3.86	5.20	4.75	74	91	70-130	21	30
Perfluorooctanoic acid	5.44	4.75	5.44	5.13	87	94	70-130	8	30
Perfluoropentanoic acid	5.44	4.78	5.44	5.14	88	95	70-130	7	30
Perfluorotetradecanoic acid	5.44	4.82	5.44	5.18	89	95	70-130	7	30
Perfluorotridecanoic acid	5.44	5.12	5.44	5.55	94	102	70-130	8	30
Perfluoroundecanoic acid	5.44	5.23	5.44	5.18	96	95	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18024010

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9421606	76	81	81	69	71	76
Blank	76	73	70	73	70	71
LCS	86	84	81	79	80	76
LCSD	81	83	82	77	80	83
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9421606	72	63	71	81	74	97
Blank	77	73	80	77	81	96
LCS	82	83	96	90	87	99
LCSD	91	80	85	82	92	111
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9421606	74	76	79	72	69	75
Blank	67	70	68	70	71	85
LCS	89	81	82	78	78	91
LCSD	90	96	102	89	93	127

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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REVISED

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1900464
Reported: 01/26/2018 14:28

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18024010

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A-37191 G-1900464 S-942160

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53486

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Pl.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = NH_4Cl; K = Zn Acetate; O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: PFC (19) 250mL (P)	Water: Lab trip blank 250mL (P)	Soil: % Solids	Preservative Code	Field Filtered Y/N	Remarks
1. SG3-MWGR3-131.27-160-180122	—	—	—	01/22/2018	1600	GW	N	2	2					24 HR RUSH
2. SG3-LTB133-180122	—	—	—	01/22/2018	—	W	N	2	X	2				
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KMP		Y N	1/23/18	1430			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/24/18	Time 1125
Barr DQ Manager:	MDP	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	ELLE							
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 3.4			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

A-37191 G-1900464 S-942160B

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 53486

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: Saft - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	PFC (19) 250 mL (P)	Lab trip blank 250mL (P)	% Solids	Preservative Code	Field Filtered Y/N
									6	0			
									N	N			
1. SB3-MWBR3-131.27-160-180122 (MUD) (GW)	—	—	—	01/22/2018	1600	GW	N	2	2				24 HR RUSH
2. SB3-LTB133-180122	—	—	—	01/22/2018	—	W	N	2	~~2~~	2			
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY

Sampled by: KMP

Barr Proj. Manager: JTC

Barr DQ Manager: MDP

Lab Name: ELLE

Lab Location: Lancaster, PA

Relinquished by: [signature] On Ice? Y N (Y) Date 1/23/18 Time 1430 Received by: [signature] Date Time

Relinquished by: [signature] On Ice? Y N Date Time Received by: [signature] Date 1/24/18 Time 1125

Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other: Air Bill Number:

Lab WO: Temperature on Receipt (°C): 3.4 Custody Seal Intact? ☑ Y ☐ N ☐ None

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206790

Group Number(s): 1900464

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/24/2018 11:25
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Carolyn Cyms (964) at 07:15 on 01/25/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	3.4	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details

Sample ID on COC	Sample ID on Label	Comments
SG3-MWBR3-131-27-160-18 0122	SG3-MWBR3-131-27-161-18 0122	

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Lancaster, PA 17605-2425
T 717-656-2300
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 02, 2018 08:17

Project: SGPP - Bennington

Account #: 37191
Group Number: 1900468
SDG: SNB83
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB133-180122 Water	01/22/2018	9421614

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1900468

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Sample #s: 9421614

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Batch #: 18026002 (Sample number(s): 9421614)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) LCSD

Sample Description: **SG3-LTB133-180122 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018
SDG#: SNB83-01TB

C. T. Male Associates
ELLE Sample #: **WW 9421614**
ELLE Group #: **1900468**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	1	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	1	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	1	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

The recovery for labeled compound used as extraction standard d5-NEtFOSAA is outside of QC acceptance limits in the calibration verification standard associated with the initial calibration. Since the recovery was high and this compound was not detected in sample analysis, the data is reported.

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The LCS/LCSD extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB133-180122 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018
SDG#: SNB83-01TB

C. T. Male Associates
ELLE Sample #: WW 9421614
ELLE Group #: 1900468
Matrix: Water

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026002	01/29/2018 17:35	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026002	01/26/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/02/2018 08:17

Group Number: 1900468

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18026002	Sample number(s): 9421614		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18026002	Sample number(s): 9421614								
6:2 fluorotelomersulfonate	15.17	18.71	15.17	18.91	123	125	70-130	1	30
8:2 fluorotelomersulfonate	15.33	18.82	15.33	16.18	123	106	70-130	15	30
NEtFOSAA	5.44	5.76	5.44	5.66	106	104	70-130	2	30
NMeFOSAA	5.44	6.08	5.44	4.83	112	89	70-130	23	30
Perfluorobutanesulfonate	4.81	5.10	4.81	4.70	106	98	70-130	8	30
Perfluorobutanoic acid	5.44	5.79	5.44	5.95	106	109	70-130	3	30
Perfluorodecanoic acid	5.44	5.66	5.44	5.48	104	101	70-130	3	30
Perfluorododecanoic acid	5.44	6.11	5.44	5.51	112	101	70-130	10	30
Perfluoroheptanoic acid	5.44	6.16	5.44	6.04	113	111	70-130	2	30
Perfluorohexanesulfonate	5.14	5.27	5.14	5.38	103	105	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/02/2018 08:17

Group Number: 1900468

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.85	5.44	5.89	108	108	70-130	1	30
Perfluorononanoic acid	5.44	7.04	5.44	7.00	129	129	70-130	1	30
Perfluorooctanesulfonamide	5.44	6.01	5.44	6.65	110	122	70-130	10	30
Perfluoro-octanesulfonate	5.20	5.29	5.20	5.19	102	100	70-130	2	30
Perfluorooctanoic acid	5.44	5.32	5.44	5.79	98	106	70-130	8	30
Perfluoropentanoic acid	5.44	6.10	5.44	5.84	112	107	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.63	5.44	5.91	103	109	70-130	5	30
Perfluorotridecanoic acid	5.44	5.15	5.44	5.27	95	97	70-130	2	30
Perfluoroundecanoic acid	5.44	6.31	5.44	6.08	116	112	70-130	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026002

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9421614	86	91	83	97	84	85
Blank	84	84	73	89	85	79
LCS	100	99	85	94	93	97
LCSD	97	96	83	87	83	82
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9421614	90	95	87	82	107	105
Blank	83	91	74	82	106	111
LCS	99	104	91	87	109	114
LCSD	93	98	99	84	121*	122
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9421614	97	90	99	99	78	87
Blank	94	90	92	90	82	111
LCS	92	96	110	101	91	119
LCSD	113	101	109	112	96	140*

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1900468
Reported: 02/02/2018 08:17

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026002

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Barr Engineering Co. Chain of Custody

A-37191 G-1900468 S-942614

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53486

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other THIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water PFC (19) 250 mL (P)	Water Lab trip blank 250mL (P)	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWGR3-131.27-160-180122	—	—	—	01/22/2018	1600	GW	N	2	2				24 HR RUSH
2. SG3-LTB133-180122	—	—	—	01/22/2018	—	W	N	2	X2				
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY							
Sampled by: KMP	Relinquished by:	On Ice? Y ☒ N ☐	Date 1/23/18	Time 1458	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y ☐ N ☐	Date	Time	Received by:	Date 1/24/18	Time 1125
Barr DQ Manager: MDP	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr (mm/dd/yyyy)	
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 3.4			Custody Seal Intact? ☒ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206700

Group Number(s): 1900468

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/24/2018 11:25
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 11:46 on 01/24/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	3.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 15:00

Project: SGPP - Bennington

Account #: 37191
Group Number: 1900475
SDG: SNB84
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-131.27-161-180122 Grab Groundwater	01/22/2018 16:00	9421637

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1900475

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5180293AA (Sample number(s): 9421637 UNSPK: P415930)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: 1,1-Dichloroethene, trans-1,2-Dichloroethene

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9421637

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-Dioxane was not detected in the re-extract.

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18025WAD026 (Sample number(s): 9421637)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9421637, Blank, LCS, LCSD

SW-846 6010C, Metals

Batch #: 180261063502 (Sample number(s): 9421637 UNSPK: P421040 BKG: P421040)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Manganese

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Aluminum, Zinc

SW-846 6020A, Metals

Batch #: 180261063904A (Sample number(s): 9421637 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Vanadium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Thallium, Vanadium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Thallium

Batch #: 180261063904B (Sample number(s): 9421637 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Selenium

Batch #: 180261063904D (Sample number(s): 9421637 UNSPK: P421055 BKG: P421055)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Barium

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Barium

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Barium

SM 2320 B-1997, Wet Chemistry

Batch #: 18025011202A (Sample number(s): 9421637 UNSPK: P419381 BKG: P417268, P419381)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: **SG3-MWBR3-131.27-161-180122 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018 16:00
SDG#: SNB84-01

C. T. Male Associates
ELLE Sample #: GW 9421637
ELLE Group #: 1900475
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-131.27-161-180122 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018 16:00
SDG#: SNB84-01

C. T. Male Associates
ELLE Sample #: GW 9421637
ELLE Group #: 1900475
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.084 J**	0.050	0.20	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials with the exception of: 1,4-Dioxane was not detected in the re-extract.

The stated surrogate limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**41.2**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.0884 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**15.7**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0157**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.00**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**7.08**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.343**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0275**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00042 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0030 J**	0.00087	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-131.27-161-180122 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018 16:00
SDG#: SNB84-01

C. T. Male Associates
ELLE Sample #: GW 9421637
ELLE Group #: 1900475
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06032	**Cobalt**	7440-48-4	**0.00044 J**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0167**	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0017 J**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**8.2**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**26.3**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**141**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**141**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-131.27-161-180122 Grab Groundwater SGPP - Bennington**

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/24/2018 11:25
Collection Date/Time: 01/22/2018 16:00
SDG#: SNB84-01

C. T. Male Associates
ELLE Sample #: GW 9421637
ELLE Group #: 1900475
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180293AA	01/30/2018 02:48	Kevin D Kelly	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180293AA	01/30/2018 02:48	Kevin D Kelly	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18025WAD026	01/26/2018 13:22	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18025WAD026	01/25/2018 16:14	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
08014	Boron	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
01750	Calcium	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
01754	Iron	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
01757	Magnesium	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
07058	Manganese	SW-846 6010C	1	180261063502	01/30/2018 13:23	Eric L Eby	1
01762	Potassium	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
01767	Sodium	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
07072	Zinc	SW-846 6010C	1	180261063502	01/30/2018 04:04	Jonathan J Allen	1
06024	Antimony	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06025	Arsenic	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06026	Barium	SW-846 6020A	1	180261063904D	01/31/2018 16:26	Patrick J Engle	1
06027	Beryllium	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06028	Cadmium	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06031	Chromium	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06032	Cobalt	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06033	Copper	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06035	Lead	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06039	Nickel	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06041	Selenium	SW-846 6020A	1	180261063904B	01/31/2018 16:26	Patrick J Engle	1
06042	Silver	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06045	Thallium	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
06048	Vanadium	SW-846 6020A	1	180261063904A	01/31/2018 16:26	Patrick J Engle	1
00259	Mercury	SW-846 7470A	1	180250571302	01/26/2018 08:45	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180261063502	01/29/2018 15:40	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180261063904	01/29/2018 22:55	Denise L Trimby	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180250571302	01/25/2018 22:10	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18023249212A	01/24/2018 13:29	Zachary W Enck	5
00224	Chloride	EPA 300.0	1	18023249212A	01/26/2018 04:45	Zachary W Enck	5
00368	Nitrate Nitrogen	EPA 300.0	1	18023249212A	01/24/2018 13:29	Zachary W Enck	5
01506	Nitrite Nitrogen	EPA 300.0	1	18023249212A	01/24/2018 13:29	Zachary W Enck	5
00228	Sulfate	EPA 300.0	1	18023249212A	01/24/2018 13:29	Zachary W Enck	5
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108A	01/31/2018 18:43	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18025108104A	01/26/2018 14:15	Brianna A White	1
08255	Total Cyanide	SW-846 9012A	1	18030117101A	01/30/2018 18:49	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18025108104A	01/25/2018 17:00	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	2	18030117101A	01/30/2018 07:30	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18025011202A	01/26/2018 00:34	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18025011202A	01/26/2018 00:34	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18025011202A	01/26/2018 00:34	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18024146271A	01/24/2018 15:31	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1900475
Reported: 02/01/2018 15:00

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180293AA	Sample number(s): 9421637		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18025WAD026	Sample number(s): 9421637		
1,4-Dioxane	0.25	0.050	0.20
	mg/l	mg/l	mg/l
Batch number: 180250571302	Sample number(s): 9421637		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180261063502	Sample number(s): 9421637		
Aluminum	0.0939 J	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0768 J	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180261063904A	Sample number(s): 9421637		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180261063904B	Sample number(s): 9421637		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180261063904D	Sample number(s): 9421637		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18023249212A	Sample number(s): 9421637		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18025108104A	Sample number(s): 9421637		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18030117101A	Sample number(s): 9421637		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18031107108A	Sample number(s): 9421637		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18024146271A	Sample number(s): 9421637		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18025011202A	Sample number(s): 9421637		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180293AA	Sample number(s): 9421637								
Acetone	150	146.34			98		44-177		
Benzene	20	21.04			105		78-120		
Bromochloromethane	20	21.12			106		80-125		
Bromodichloromethane	20	20.24			101		71-120		
Bromoform	20	18.18			91		59-120		
Bromomethane	20	18.84			94		44-139		
2-Butanone	150	152.64			102		53-140		
Carbon Disulfide	20	17.53			88		65-128		
Carbon Tetrachloride	20	20.47			102		68-128		
Chlorobenzene	20	20.36			102		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloroethane	20	18.19			91		52-127		
Chloroform	20	21.91			110		80-120		
Chloromethane	20	15.59			78		57-120		
Cyclohexane	20	18.17			91		67-121		
1,2-Dibromo-3-chloropropane	20	19.81			99		64-120		
Dibromochloromethane	20	20.48			102		71-120		
1,2-Dibromoethane	20	20.58			103		75-120		
1,2-Dichlorobenzene	20	20.71			104		80-120		
1,3-Dichlorobenzene	20	20.73			104		80-120		
1,4-Dichlorobenzene	20	21.37			107		80-120		
Dichlorodifluoromethane	20	12.71			64		47-124		
1,1-Dichloroethane	20	21.11			106		80-120		
1,2-Dichloroethane	20	22.12			111		73-124		
1,1-Dichloroethene	20	21.68			108		76-124		
cis-1,2-Dichloroethene	20	21.71			109		80-120		
trans-1,2-Dichloroethene	20	22.15			111		80-120		
1,2-Dichloropropane	20	20.95			105		80-120		
cis-1,3-Dichloropropene	20	20.36			102		75-120		
trans-1,3-Dichloropropene	20	19.54			98		76-120		
Ethylbenzene	20	20.53			103		78-120		
Freon 113	20	18.56			93		68-137		
2-Hexanone	100	101.24			101		60-134		
Isopropylbenzene	20	20.25			101		80-120		
Methyl Acetate	20	19.22			96		61-137		
Methyl Tertiary Butyl Ether	20	21.16			106		75-120		
4-Methyl-2-pentanone	100	104.04			104		67-128		
Methylcyclohexane	20	16.64			83		66-126		
Methylene Chloride	20	20.97			105		80-120		
Styrene	20	20.14			101		80-120		
1,1,2,2-Tetrachloroethane	20	21.72			109		72-120		
Tetrachloroethene	20	20.78			104		80-129		
Toluene	20	20.44			102		80-120		
1,2,3-Trichlorobenzene	20	20.03			100		66-120		
1,2,4-Trichlorobenzene	20	19.97			100		70-120		
1,1,1-Trichloroethane	20	21.06			105		67-120		
1,1,2-Trichloroethane	20	22.09			110		80-120		
Trichloroethene	20	21.34			107		80-120		
Trichlorofluoromethane	20	18.05			90		52-143		
Vinyl Chloride	20	16.1			80		63-121		
m+p-Xylene	40	40.21			101		80-120		
o-Xylene	20	19.65			98		80-120		
Xylene (Total)	60	59.87			100		80-120		
	ug/l	ug/l	ug/l	ug/l					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18025WAD026	Sample number(s): 9421637								
1,4-Dioxane	1.00	1.20	1.00	1.20	120	120	70-130	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180250571302	Sample number(s): 9421637								
Mercury	0.00100	0.000951			95		80-120		
Batch number: 180261063502	Sample number(s): 9421637								
Aluminum	2.00	1.85			93		80-120		
Boron	2.00	1.78			89		80-120		
Calcium	4.00	3.85			96		80-120		
Iron	1.00	0.961			96		80-120		
Magnesium	2.00	1.94			97		80-120		
Manganese	0.500	0.492			98		80-120		
Potassium	10	9.82			98		80-120		
Sodium	10	9.61			96		80-120		
Zinc	0.500	0.472			94		80-120		
Batch number: 180261063904A	Sample number(s): 9421637								
Antimony	0.00600	0.00550			92		80-120		
Arsenic	0.0100	0.00947			95		80-120		
Beryllium	0.00400	0.00409			102		80-120		
Cadmium	0.00500	0.00484			97		80-120		
Chromium	0.0500	0.0508			102		80-120		
Cobalt	0.250	0.244			98		80-120		
Copper	0.0500	0.0508			102		80-120		
Lead	0.0150	0.0155			104		80-120		
Nickel	0.0500	0.0494			99		80-120		
Silver	0.0500	0.0500			100		80-120		
Thallium	0.00200	0.00199			99		80-120		
Vanadium	0.0500	0.0489			98		80-120		
Batch number: 180261063904B	Sample number(s): 9421637								
Selenium	0.0100	0.0103			103		80-120		
Batch number: 180261063904D	Sample number(s): 9421637								
Barium	0.0500	0.0485			97		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18023249212A	Sample number(s): 9421637								
Bromide	7.50	7.58			101		90-110		
Chloride	3.00	3.05			102		90-110		
Nitrate Nitrogen	0.750	0.751			100		90-110		
Nitrite Nitrogen	0.750	0.736			98		90-110		
Sulfate	7.50	7.58			101		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18025108104A	Sample number(s): 9421637								
Kjeldahl Nitrogen	5.00	5.47			109		90-110		
Batch number: 18030117101A	Sample number(s): 9421637								
Total Cyanide	0.200	0.185			93		90-110		
Batch number: 18031107108A	Sample number(s): 9421637								
Ammonia Nitrogen	1.50	1.61	1.50	1.64	107	109	90-110	2	15
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18024146271A	Sample number(s): 9421637								
Orthophosphate as P	0.400	0.407	0.400	0.403	102	101	95-105	1	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18025011202A	Sample number(s): 9421637								
Total Alkalinity to pH 4.5	188	178.95			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5180293AA	Sample number(s): 9421637 UNSPK: P415930									
Acetone	6 U	150	146.77	150	145.69	98	97	44-177	1	30
Benzene	0.5 U	20	22.5	20	22.43	112	112	78-120	0	30
Bromochloromethane	1 U	20	21.81	20	21.55	109	108	80-125	1	30
Bromodichloromethane	0.5 U	20	21.33	20	21.46	107	107	71-120	1	30
Bromoform	0.5 U	20	17.92	20	17.86	90	89	59-120	0	30
Bromomethane	0.5 U	20	21.29	20	21.64	106	108	44-139	2	30
2-Butanone	3 U	150	152.83	150	151.92	102	101	53-140	1	30
Carbon Disulfide	1 U	20	19.14	20	19.08	96	95	65-128	0	30
Carbon Tetrachloride	0.5 U	20	24.13	20	23.84	121	119	68-128	1	30
Chlorobenzene	0.5 U	20	21.56	20	21.35	108	107	80-120	1	30
Chloroethane	0.5 U	20	20.37	20	20.35	102	102	52-127	0	30
Chloroform	0.5 U	20	23.47	20	23.12	117	116	80-120	1	30
Chloromethane	0.5 U	20	18.07	20	18.21	90	91	57-120	1	30
Cyclohexane	2 U	20	23.3	20	23.6	117	118	67-121	1	30
1,2-Dibromo-3-chloropropane	2 U	20	19.37	20	19.76	97	99	64-120	2	30
Dibromochloromethane	0.5 U	20	20.44	20	20.76	102	104	71-120	2	30
1,2-Dibromoethane	0.5 U	20	20.91	20	20.66	105	103	75-120	1	30

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	20.94	20	21.24	105	106	80-120	1	30
1,3-Dichlorobenzene	1 U	20	21.06	20	21.52	105	108	80-120	2	30
1,4-Dichlorobenzene	1 U	20	21.42	20	21.81	107	109	80-120	2	30
Dichlorodifluoromethane	0.5 U	20	18.56	20	18.06	93	90	47-124	3	30
1,1-Dichloroethane	0.5 U	20	22.97	20	22.39	115	112	80-120	3	30
1,2-Dichloroethane	0.5 U	20	22.79	20	22.47	114	112	73-124	1	30
1,1-Dichloroethene	0.5 U	20	25.41	20	24.99	127*	125*	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	23.47	20	23.62	117	118	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	24.38	20	23.92	122*	120	80-120	2	30
1,2-Dichloropropane	0.5 U	20	21.78	20	21.88	109	109	80-120	0	30
cis-1,3-Dichloropropene	0.5 U	20	20.61	20	20.65	103	103	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	19.84	20	19.91	99	100	76-120	0	30
Ethylbenzene	0.5 U	20	21.98	20	21.9	110	109	78-120	0	30
Freon 113	2 U	20	25.51	20	24.8	128	124	68-137	3	30
2-Hexanone	3 U	100	100.77	100	98.8	101	99	60-134	2	30
Isopropylbenzene	1 U	20	22.03	20	22.1	110	110	80-120	0	30
Methyl Acetate	1 U	20	20.39	20	19.49	102	97	61-137	5	30
Methyl Tertiary Butyl Ether	0.5 U	20	21.69	20	21.91	108	110	75-120	1	30
4-Methyl-2-pentanone	3 U	100	103.17	100	102.31	103	102	67-128	1	30
Methylcyclohexane	1 U	20	23	20	22.71	115	114	66-126	1	30
Methylene Chloride	0.5 U	20	22.7	20	23.03	114	115	80-120	1	30
Styrene	1 U	20	21.03	20	21.29	105	106	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.15	20	20.86	106	104	72-120	1	30
Tetrachloroethene	0.5 U	20	22.88	20	22.08	114	110	80-129	4	30
Toluene	0.5 U	20	22.47	20	21.83	112	109	80-120	3	30
1,2,3-Trichlorobenzene	1 U	20	19.91	20	21.26	100	106	66-120	7	30
1,2,4-Trichlorobenzene	1 U	20	19.98	20	20.42	100	102	70-120	2	30
1,1,1-Trichloroethane	0.5 U	20	23.61	20	23.73	118	119	67-120	1	30
1,1,2-Trichloroethane	0.5 U	20	21.45	20	21.81	107	109	80-120	2	30
Trichloroethene	0.5 U	20	23.38	20	23.11	117	116	80-120	1	30
Trichlorofluoromethane	0.5 U	20	22.75	20	23.12	114	116	52-143	2	30
Vinyl Chloride	0.5 U	20	19.42	20	19	97	95	63-121	2	30
m+p-Xylene	0.5 U	40	43.34	40	43.51	108	109	80-120	0	30
o-Xylene	0.5 U	20	21.18	20	20.89	106	104	80-120	1	30
Xylene (Total)	0.5 U	60	64.52	60	64.41	108	107	80-120	0	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180250571302	Sample number(s): 9421637 UNSPK: P421040									
Mercury	0.000050 U	0.00100	0.000895	0.00100	0.000899	90	90	80-120	0	20
Batch number: 180261063502	Sample number(s): 9421637 UNSPK: P421040									
Aluminum	0.301	2.00	2.30	2.00	2.24	100	97	75-125	3	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Boron	0.287	2.00	2.09	2.00	2.13	90	92	75-125	2	20
Calcium	39.53	4.00	44.08	4.00	44.27	114 (2)	119 (2)	75-125	0	20
Iron	1.29	1.00	2.04	1.00	2.13	75	84	75-125	4	20
Magnesium	22.07	2.00	24.2	2.00	24.41	106 (2)	117 (2)	75-125	1	20
Manganese	0.989	0.500	1.29	0.500	1.35	61*	73*	75-125	4	20
Potassium	4.46	10	14.2	10	14.23	97	98	75-125	0	20
Sodium	179.15	10	188.86	10	191.43	97 (2)	123 (2)	75-125	1	20
Zinc	0.0065 U	0.500	0.471	0.500	0.473	94	95	75-125	1	20
Batch number: 180261063904A	Sample number(s): 9421637 UNSPK: P421055									
Antimony	0.0023 U	0.0300	0.00244	0.0300	0.00290	8*	10*	75-125	17	20
Arsenic	0.351	0.0500	0.407	0.0500	0.317	112 (2)	-68 (2)	75-125	25*	20
Beryllium	0.410	0.0200	0.363	0.0200	0.292	-237 (2)	-593 (2)	75-125	22*	20
Cadmium	0.664	0.0250	0.760	0.0250	0.593	382 (2)	-286 (2)	75-125	25*	20
Chromium	6.35	0.250	7.32	0.250	5.67	390 (2)	-269 (2)	75-125	25*	20
Cobalt	4.71	1.25	6.50	1.25	5.25	143*	44*	75-125	21*	20
Copper	12.85	0.250	14.92	0.250	11.61	827 (2)	-493 (2)	75-125	25*	20
Lead	1.36	0.0750	1.58	0.0750	1.21	301 (2)	-190 (2)	75-125	26*	20
Nickel	24.12	0.250	28.08	0.250	20.66	1582 (2)	-1383 (2)	75-125	30*	20
Silver	0.0239	0.250	0.230	0.250	0.230	82	83	75-125	0	20
Thallium	0.0103	0.0100	0.0143	0.0100	0.00849	41*	-18*	75-125	51*	20
Vanadium	11.11	0.250	12.61	0.250	9.67	602 (2)	-575 (2)	75-125	26*	20
Batch number: 180261063904B	Sample number(s): 9421637 UNSPK: P421055									
Selenium	0.00742	0.0500	0.0185	0.0500	0.0206	22*	26*	75-125	11	20
Batch number: 180261063904D	Sample number(s): 9421637 UNSPK: P421055									
Barium	32	0.250	35.94	0.250	28.74	1578 (2)	-1303 (2)	75-125	22*	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18023249212A	Sample number(s): 9421637 UNSPK: P412106									
Bromide	1.3 U	25	25.39			102		90-110		
Chloride	5.46	10	16.27			108		90-110		
Nitrate Nitrogen	0.25 U	2.50	2.69			108		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.59			104		90-110		
Sulfate	13.02	25	39.78			107		90-110		
Batch number: 18025108104A	Sample number(s): 9421637 UNSPK: P416506									
Kjeldahl Nitrogen	8.99	5.00	14.09			102		90-110		
Batch number: 18030117101A	Sample number(s): 9421637 UNSPK: P423454									
Total Cyanide	0.0050 U	0.200	0.192			96		72-114		
Batch number: 18031107108A	Sample number(s): 9421637 UNSPK: P419105									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Ammonia Nitrogen	1.74	1.00	2.80			106		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18025011202A	Sample number(s): 9421637 UNSPK: P419381									
Total Alkalinity to pH 4.5	232.21	188	306.76			40*		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 180250571302	Sample number(s): 9421637 BKG: P421040			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180261063502	Sample number(s): 9421637 BKG: P421040			
Aluminum	0.301	0.452	40* (1)	20
Boron	0.287	0.288	0 (1)	20
Calcium	39.53	39.89	1	20
Iron	1.29	1.33	3 (1)	20
Magnesium	22.07	22.33	1	20
Manganese	0.989	1.05	6	20
Potassium	4.46	4.54	2 (1)	20
Sodium	179.15	180.58	1	20
Zinc	0.0065 U	0.00658	200* (1)	20
Batch number: 180261063904A	Sample number(s): 9421637 BKG: P421055			
Antimony	0.0023 U	0.0023 U	0 (1)	20
Arsenic	0.351	0.392	11	20
Beryllium	0.410	0.357	14	20
Cadmium	0.664	0.747	12	20
Chromium	6.35	7.35	15	20
Cobalt	4.71	5.39	14	20
Copper	12.85	14.46	12	20
Lead	1.36	1.56	14	20
Nickel	24.12	28.68	17	20
Silver	0.0239	0.0268	11 (1)	20
Thallium	0.0103	0.0152	39* (1)	20
Vanadium	11.11	12.62	13	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180261063904B	Sample number(s): 9421637 BKG: P421055			
Selenium	0.00742	0.00716	4 (1)	20
Batch number: 180261063904D	Sample number(s): 9421637 BKG: P421055			
Barium	32	36.6	13	20
	mg/l	mg/l		
Batch number: 18023249212A	Sample number(s): 9421637 BKG: P412106			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	5.46	5.55	2 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	13.02	13.12	1 (1)	15
Batch number: 18025108104A	Sample number(s): 9421637 BKG: P416506			
Kjeldahl Nitrogen	8.99	9.04	1 (1)	20
Batch number: 18030117101A	Sample number(s): 9421637 BKG: P423454			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 18031107108A	Sample number(s): 9421637 BKG: P419105			
Ammonia Nitrogen	1.74	1.76	1	20
	mg/l	mg/l		
Batch number: 18024146271A	Sample number(s): 9421637 BKG: 9421637			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18025011202A	Sample number(s): 9421637 BKG: P419381			
Total Alkalinity to pH 4.5	232.21	234.47	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180293AA

*- Outside of specification
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(1) The result for one or both determinations was less than five times the LOQ.
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P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:00

Group Number: 1900475

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180293AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9421637	102	106	98	97
Blank	100	103	99	95
LCS	103	105	98	98
MS	104	102	99	100
MSD	103	103	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18025WAD026

	1,4-Dioxane-d8
9421637	38*
Blank	39*
LCS	38*
LCSD	43*
Limits:	70-130

*- Outside of specification
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A-37191 G-1900475 (2) S-9421637-38

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52747

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: METHANE 250mL (P)	METALS + Hg 250 mL (P)	CYANIDE 250 mL (P)	ALKALINITY 250 mL (P)	DIOXANE 250mL (G)	AMMONIA / NITROGEN 250 mL	Soil: VOCs 40 mL (G)	Be 1/2 IN 4oz 40mL (G)	Lab this bank 250 mL (G)	% Solids
									A	C	EI	A	A	P	B	A	A	
									Y	N	N	N	N	N	N	N	N	
1. SG3-MWGR3-131.27-160-180122	—	—	—	01/22/2018	1600	GW	N	12	1	1	1	1	2	1	3	2		
2. SG3-LTB132-180122	—	—	—	01/23/2018	—	W	N	2									2	
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

Preservative Code

Field Filtered Y/N

BARR USE ONLY						
Sampled by: KMP	Relinquished by:	On Ice? Y ⓝ	Date 1/23/18	Time 1430	Received by:	Date — Time —
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/24/18 Time 1125
Barr DQ Manager: MPP	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)
Lab Name: ELLE						
Lab Location: Lancaster PA	Lab WO:	Temperature on Receipt (°C): 1.6		Custody Seal Intact? ☑ Y ☐ N ☐ None		

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

A-37191 G-1900475 S-9421637-38

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

BARR ☐ Ann Arbor ☐ Duluth ☐ Jefferson City ☐ Bismarck ☐ Hibbing ☒ Minneapolis

COC Number: 52747

COC 1 of _____

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location (MD)	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: Orthophosphate 250mL (P)	Metals + Hg 250mL (P)	Cyanide 250mL (P)	Alkalinity 250mL (P)	Dioxane 250mL (G)	Ammonia/Nitrogen 250mL	Soil: VOCs 40mL (G)	ER/LW/IN 4oz 40mL (G)	Lab Trip Blank 250mL (P)	% Solids	Preservative Code	Field Filtered Y/N
									A	L	E	A	A	P	B	A	A			
									Y	N	N	N	N	N	N	N	N			
1. SG3-MWBR3-131.27-160-180122 (161)	—	—	—	01/22/2018	1600	GW	N	12	1	1	1	1	2	1	3	2				
2. SG3-LTB132-180122	—	—	—	01/22/2018	—	W	N	2									2			
3.																				
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

BARR USE ONLY	Relinquished by:	On Ice? Y/N	Date	Time	Received by:	Date	Time
Sampled by: EMP		☑ N	1/23/18	1430			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/24/18	Time 1125
Barr DQ Manager: MPP	Samples Shipped VIA: ☒ Courier ☒ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name: ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.6	Custody Seal Intact? ☑ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206703

Group Number(s): 1900475

Client: BARR ENGINEERING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/24/2018 11:25
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	TRIZMA
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ruth Shank (12390) at 11:52 on 01/24/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.6	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 29, 2018 16:20

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901527
SDG: SNB85
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180125 Groundwater	01/25/2018 10:30	9426199

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901527

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: **SG3-MWBR3-180125 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/25/2018 10:30
SDG#: SNB85-01

C. T. Male Associates
ELLE Sample #: GW 9426199
ELLE Group #: 1901527
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**2**	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**0.4 J**	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**64**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026008	01/29/2018 12:07	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026008	01/28/2018 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/29/2018 16:20

Group Number: 1901527

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18026008	Sample number(s): 9426199		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18026008	Sample number(s): 9426199								
6:2 fluorotelomersulfonate	15.17	17.1	15.17	16.93	113	112	70-130	1	30
8:2 fluorotelomersulfonate	15.33	15.13	15.33	17.4	99	114	70-130	14	30
NEtFOSAA	5.44	6.49	5.44	5.82	119	107	70-130	11	30
NMeFOSAA	5.44	6.49	5.44	6.43	119	118	70-130	1	30
Perfluorobutanesulfonate	4.81	4.79	4.81	4.80	100	100	70-130	0	30
Perfluorobutanoic acid	5.44	5.74	5.44	5.92	106	109	70-130	3	30
Perfluorodecanoic acid	5.44	5.36	5.44	6.27	99	115	70-130	16	30
Perfluorododecanoic acid	5.44	5.66	5.44	6.07	104	112	70-130	7	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.07	116	111	70-130	4	30
Perfluorohexanesulfonate	5.14	5.22	5.14	5.46	102	106	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/29/2018 16:20

Group Number: 1901527

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.39	5.44	5.61	99	103	70-130	4	30
Perfluorononanoic acid	5.44	6.11	5.44	6.83	112	126	70-130	11	30
Perfluorooctanesulfonamide	5.44	6.55	5.44	6.56	120	121	70-130	0	30
Perfluoro-octanesulfonate	5.20	4.85	5.20	5.19	93	100	70-130	7	30
Perfluorooctanoic acid	5.44	4.66	5.44	5.90	86	108	70-130	23	30
Perfluoropentanoic acid	5.44	5.62	5.44	5.87	103	108	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.57	5.44	5.72	102	105	70-130	3	30
Perfluorotridecanoic acid	5.44	5.05	5.44	5.53	93	102	70-130	9	30
Perfluoroundecanoic acid	5.44	5.92	5.44	5.87	109	108	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9426199	97	117	109	103	96	99
Blank	95	101	93	94	87	82
LCS	93	89	79	94	84	87
LCSD	89	95	91	88	83	86
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9426199	123	104	91	87	108	123
Blank	96	101	91	82	112	113
LCS	94	101	97	94	104	117
LCSD	98	90	80	75	97	97
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9426199	100	100	121	106	80	83
Blank	95	98	105	98	85	101
LCS	96	90	96	99	86	99
LCSD	101	90	101	90	84	91

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1901527
Reported: 01/29/2018 16:20

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026008

Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

3719 1/1901527/9426199

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53485

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: m.dupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: PFC (19) 250 mL (P)	Water: Lab Trip blank 250 mL (P)	Soil	% Solids	Preservative Code	Field Filtered Y/N
															N N
*	1. SG3-MWBR3-180125	—	—	—	01/25/2018	10:30	GW	N	2	2					*RUSH 24 HR*
	2. SG3-PVC-180124	—	—	—	01/24/2018	10:15	W	N	2	2					MWBR-3 Rinsate blank-screen/riser
	3. SG3-LTB134-180124	—	—	—	01/24/2018	—	W	N	2		2				
	4.														
	5.														
	6.														
	7.														
	8.														
	9.														
	10.														

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KMD		Y N	1/25/18	1730			
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager:	MDP						1.26.18	1005
Lab Name:	Lancaster	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.7			Custody Seal Intact? ☑ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 hr TAT (mm/dd/yyyy)

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Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206935

Group Number(s): 1901527

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/26/2018 10:05
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:42 on 01/26/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.7	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 29, 2018 15:57

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901531
SDG: SNB86
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-PVC-180124 Blank Water	01/24/2018 10:15	9426213
SG3-LTB134-180124 Water	01/24/2018	9426214

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901531

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 18026008 (Sample number(s): 9426213-9426214)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9426213

Sample Description: **SG3-PVC-180124 Blank Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/24/2018 10:15
SDG#: SNB86-01RB

C. T. Male Associates
ELLE Sample #: WW 9426213
ELLE Group #: 1901531
Matrix: Blank Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026008	01/29/2018 12:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026008	01/28/2018 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-LTB134-180124 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/24/2018
SDG#: SNB86-02TB

C. T. Male Associates
ELLE Sample #: **WW 9426214**
ELLE Group #: **1901531**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	5	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	5	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	Perfluorooctanoic acid	335-67-1	0.3 U	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18026008	01/29/2018 12:48	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18026008	01/28/2018 09:45	Danielle D McCully	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/29/2018 15:57

Group Number: 1901531

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Batch number: 18026008	Sample number(s): 9426213-9426214		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18026008	Sample number(s): 9426213-9426214								
6:2 fluorotelomersulfonate	15.17	17.1	15.17	16.93	113	112	70-130	1	30
8:2 fluorotelomersulfonate	15.33	15.13	15.33	17.4	99	114	70-130	14	30
NEtFOSAA	5.44	6.49	5.44	5.82	119	107	70-130	11	30
NMeFOSAA	5.44	6.49	5.44	6.43	119	118	70-130	1	30
Perfluorobutanesulfonate	4.81	4.79	4.81	4.80	100	100	70-130	0	30
Perfluorobutanoic acid	5.44	5.74	5.44	5.92	106	109	70-130	3	30
Perfluorodecanoic acid	5.44	5.36	5.44	6.27	99	115	70-130	16	30
Perfluorododecanoic acid	5.44	5.66	5.44	6.07	104	112	70-130	7	30
Perfluoroheptanoic acid	5.44	6.30	5.44	6.07	116	111	70-130	4	30
Perfluorohexanesulfonate	5.14	5.22	5.14	5.46	102	106	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/29/2018 15:57

Group Number: 1901531

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.39	5.44	5.61	99	103	70-130	4	30
Perfluorononanoic acid	5.44	6.11	5.44	6.83	112	126	70-130	11	30
Perfluorooctanesulfonamide	5.44	6.55	5.44	6.56	120	121	70-130	0	30
Perfluoro-octanesulfonate	5.20	4.85	5.20	5.19	93	100	70-130	7	30
Perfluorooctanoic acid	5.44	4.66	5.44	5.90	86	108	70-130	23	30
Perfluoropentanoic acid	5.44	5.62	5.44	5.87	103	108	70-130	4	30
Perfluorotetradecanoic acid	5.44	5.57	5.44	5.72	102	105	70-130	3	30
Perfluorotridecanoic acid	5.44	5.05	5.44	5.53	93	102	70-130	9	30
Perfluoroundecanoic acid	5.44	5.92	5.44	5.87	109	108	70-130	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026008

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9426213	103	106	95	107	99	100
9426214	87	91	78	89	91	85
Blank	95	101	93	94	87	82
LCS	93	89	79	94	84	87
LCSD	89	95	91	88	83	86
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9426213	108	112	97	88	119*	129
9426214	93	94	77	69	114	106
Blank	96	101	91	82	112	113
LCS	94	101	97	94	104	117
LCSD	98	90	80	75	97	97
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9426213	112	96	118	103	93	95
9426214	104	104	117	98	90	108
Blank	95	98	105	98	85	101

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1901531
Reported: 01/29/2018 15:57

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18026008

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
LCS	96	90	96	99	86	99
LCSD	101	90	101	90	84	91
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1901531/94226213-14

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53485

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: M.dupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water PFC (14) 250 mL (P)	Water Lab trip blank 250 mL (P)	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR3-180125	—	—	—	01/25/2018	10:30	GW	N	2	2			*RUSH 24 HR*	
2. SG3-PVC-180124	—	—	—	01/24/2018	10:15	W	N	2	2			MWBR-3 rinsate blank-screen/riser	
3. SG3-LTB134-180124	—	—	—	01/24/2018	—	W	N	2		2			
4.													
5.													
6.													
7.													
8.													
9.													
10.													

BARR USE ONLY							
Sampled by: KMD	Relinquished by:	On Ice? (Y) N	Date 1/25/18	Time 1730	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1.26.18	Time 1005
Barr DQ Manager: MDP	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☒ Rush 24 hr TAT (mm/dd/yyyy)	
Lab Name: Lancaster							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 1.7		Custody Seal Intact? ☑ Y ☐ N ☐ None			

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 206935

Group Number(s): 1901531

Client: Barr

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/26/2018 10:05
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Trizma
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:42 on 01/26/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.7	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 15:32

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901566
SDG: SNB87
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR3-180125 Grab Groundwater	01/25/2018 10:30	9426289

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901566

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Trip blank vials were not received by the laboratory for this sample group.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5180313AA (Sample number(s): 9426289 UNSPK: P427854)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cyclohexane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, Freon 113, 1,1,1-Trichloroethane

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9426289

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18030WAF026 (Sample number(s): 9426289 UNSPK: P427854)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9426289, Blank, LCS, MS, MSD

SW-846 6020A, Metals

Batch #: 180311063903A (Sample number(s): 9426289 UNSPK: P427854 BKG: P427854)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Copper

EPA 351.2, Wet Chemistry

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Batch #: 18031108102A (Sample number(s): 9426289 UNSPK: P427854 BKG: P427854)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

Sample Description: **SG3-MWBR3-180125 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/25/2018 10:30
SDG#: SNB87-01

C. T. Male Associates
ELLE Sample #: GW 9426289
ELLE Group #: 1901566
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180125 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/25/2018 10:30
SDG#: SNB87-01

C. T. Male Associates
ELLE Sample #: GW 9426289
ELLE Group #: 1901566
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.055 J**	0.051	0.20	1

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**48.2**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.104 J**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**18.6**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**0.0376**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**3.98**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**5.37**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**1.64**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0019 J**	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.0347**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00066 J**	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0010 J**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0017**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0741**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0019 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0040**	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180125 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/25/2018 10:30
SDG#: SNB87-01

C. T. Male Associates
ELLE Sample #: GW 9426289
ELLE Group #: 1901566
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**5.2**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.46 J**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**13.6**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**178**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**178**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.
Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR3-180125 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/26/2018 10:05
Collection Date/Time: 01/25/2018 10:30
SDG#: SNB87-01

C. T. Male Associates
ELLE Sample #: GW 9426289
ELLE Group #: 1901566
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180313AA	01/31/2018 23:48	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180313AA	01/31/2018 23:48	Don V Viray	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18030WAF026	02/01/2018 09:35	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18030WAF026	01/30/2018 15:53	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
08014	Boron	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	180301063502	01/31/2018 12:13	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	180311063903D	02/01/2018 07:28	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	180311063903B	02/01/2018 07:28	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	180311063903A	02/01/2018 07:28	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	180300571304	01/31/2018 07:12	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180301063502	01/31/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180311063903	01/31/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180300571304	01/30/2018 22:05	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18026987112A	01/26/2018 14:38	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18026987112A	01/26/2018 14:38	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18026987112A	01/26/2018 14:38	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18026987112A	01/26/2018 14:38	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18026987112A	01/26/2018 14:38	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108A	01/31/2018 18:38	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18031108102A	02/01/2018 11:34	Ashlynn M Cornelius	1
08255	Total Cyanide	SW-846 9012A	1	18029117101A	01/30/2018 17:37	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18031108102A	01/31/2018 16:45	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18029117101A	01/29/2018 16:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18029013203A	01/30/2018 03:23	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18029013203A	01/30/2018 03:23	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18029013203A	01/30/2018 03:23	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18027146271A	01/27/2018 10:00	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1901566
Reported: 02/01/2018 15:32

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180313AA	Sample number(s): 9426289		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18030WAF026	Sample number(s): 9426289		
1,4-Dioxane	0.064 J	0.050	0.20
	mg/l	mg/l	mg/l
Batch number: 180300571304	Sample number(s): 9426289		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180301063502	Sample number(s): 9426289		
Aluminum	0.114 J	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180311063903A	Sample number(s): 9426289		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180311063903B	Sample number(s): 9426289		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180311063903D	Sample number(s): 9426289		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18026987112A	Sample number(s): 9426289		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18029117101A	Sample number(s): 9426289		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18031107108A	Sample number(s): 9426289		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18031108102A	Sample number(s): 9426289		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18027146271A	Sample number(s): 9426289		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18029013203A	Sample number(s): 9426289		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180313AA	Sample number(s): 9426289								
Acetone	150	126.69			84		44-177		
Benzene	20	20.91			105		78-120		
Bromochloromethane	20	20.04			100		80-125		
Bromodichloromethane	20	20.14			101		71-120		
Bromoform	20	16.6			83		59-120		
Bromomethane	20	19.77			99		44-139		
2-Butanone	150	151.31			101		53-140		
Carbon Disulfide	20	17.98			90		65-128		
Carbon Tetrachloride	20	21.97			110		68-128		
Chlorobenzene	20	20.02			100		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloroethane	20	18.01			90		52-127		
Chloroform	20	22.45			112		80-120		
Chloromethane	20	16.19			81		57-120		
Cyclohexane	20	20.12			101		67-121		
1,2-Dibromo-3-chloropropane	20	19.87			99		64-120		
Dibromochloromethane	20	19.2			96		71-120		
1,2-Dibromoethane	20	19.87			99		75-120		
1,2-Dichlorobenzene	20	19.59			98		80-120		
1,3-Dichlorobenzene	20	19.8			99		80-120		
1,4-Dichlorobenzene	20	19.91			100		80-120		
Dichlorodifluoromethane	20	15.76			79		47-124		
1,1-Dichloroethane	20	21.17			106		80-120		
1,2-Dichloroethane	20	21.86			109		73-124		
1,1-Dichloroethene	20	22.69			113		76-124		
cis-1,2-Dichloroethene	20	21.85			109		80-120		
trans-1,2-Dichloroethene	20	21.91			110		80-120		
1,2-Dichloropropane	20	20.5			102		80-120		
cis-1,3-Dichloropropene	20	19.59			98		75-120		
trans-1,3-Dichloropropene	20	18.95			95		76-120		
Ethylbenzene	20	20.55			103		78-120		
Freon 113	20	21.54			108		68-137		
2-Hexanone	100	96.73			97		60-134		
Isopropylbenzene	20	20.22			101		80-120		
Methyl Acetate	20	19.47			97		61-137		
Methyl Tertiary Butyl Ether	20	21.4			107		75-120		
4-Methyl-2-pentanone	100	100.06			100		67-128		
Methylcyclohexane	20	19.25			96		66-126		
Methylene Chloride	20	20.79			104		80-120		
Styrene	20	19.56			98		80-120		
1,1,2,2-Tetrachloroethane	20	20.09			100		72-120		
Tetrachloroethene	20	21.15			106		80-129		
Toluene	20	20.32			102		80-120		
1,2,3-Trichlorobenzene	20	19.13			96		66-120		
1,2,4-Trichlorobenzene	20	18.6			93		70-120		
1,1,1-Trichloroethane	20	22.04			110		67-120		
1,1,2-Trichloroethane	20	20.53			103		80-120		
Trichloroethene	20	21.97			110		80-120		
Trichlorofluoromethane	20	20.45			102		52-143		
Vinyl Chloride	20	17.24			86		63-121		
m+p-Xylene	40	39.76			99		80-120		
o-Xylene	20	19.16			96		80-120		
Xylene (Total)	60	58.92			98		80-120		
	ug/l	ug/l	ug/l	ug/l					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18030WAF026	Sample number(s): 9426289								
1,4-Dioxane	1.00	1.17			117		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180300571304	Sample number(s): 9426289								
Mercury	0.00100	0.000912			91		80-120		
Batch number: 180301063502	Sample number(s): 9426289								
Aluminum	2.00	2.03			101		80-120		
Boron	2.00	2.00			100		80-120		
Calcium	4.00	3.97			99		80-120		
Iron	1.00	0.985			98		80-120		
Magnesium	2.00	2.00			100		80-120		
Manganese	0.500	0.519			104		80-120		
Potassium	10	9.84			98		80-120		
Sodium	10	9.86			99		80-120		
Zinc	0.500	0.530			106		80-120		
Batch number: 180311063903A	Sample number(s): 9426289								
Antimony	0.00600	0.00582			97		80-120		
Arsenic	0.0100	0.0100			100		80-120		
Beryllium	0.00400	0.00396			99		80-120		
Cadmium	0.00500	0.00491			98		80-120		
Chromium	0.0500	0.0505			101		80-120		
Cobalt	0.250	0.242			97		80-120		
Copper	0.0500	0.0516			103		80-120		
Lead	0.0150	0.0152			101		80-120		
Nickel	0.0500	0.0508			102		80-120		
Silver	0.0500	0.0518			104		80-120		
Thallium	0.00200	0.00220			110		80-120		
Vanadium	0.0500	0.0512			102		80-120		
Batch number: 180311063903B	Sample number(s): 9426289								
Selenium	0.0100	0.0101			101		80-120		
Batch number: 180311063903D	Sample number(s): 9426289								
Barium	0.0500	0.0492			98		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18026987112A	Sample number(s): 9426289								
Bromide	7.50	7.49			100		90-110		
Chloride	3.00	2.95			98		90-110		
Nitrate Nitrogen	0.750	0.775			103		90-110		
Nitrite Nitrogen	0.750	0.761			101		90-110		
Sulfate	7.50	7.47			100		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18029117101A	Sample number(s): 9426289								
Total Cyanide	0.200	0.185			92		90-110		
Batch number: 18031107108A	Sample number(s): 9426289								
Ammonia Nitrogen	1.50	1.61	1.50	1.64	107	109	90-110	2	15
Batch number: 18031108102A	Sample number(s): 9426289								
Kjeldahl Nitrogen	5.00	5.29			106		90-110		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18027146271A	Sample number(s): 9426289								
Orthophosphate as P	0.400	0.393	0.400	0.402	98	101	95-105	2	4
	mg/l as CaCO3	**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**					
Batch number: 18029013203A	Sample number(s): 9426289								
Total Alkalinity to pH 4.5	188	178.62			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5180313AA	Sample number(s): 9426289 UNSPK: P427854									
Acetone	6 U	150	140.42	150	135.29	94	90	44-177	4	30
Benzene	0.5 U	20	22.22	20	22.42	111	112	78-120	1	30
Bromochloromethane	1 U	20	21.83	20	22.08	109	110	80-125	1	30
Bromodichloromethane	0.5 U	20	21.54	20	21.16	108	106	71-120	2	30
Bromoform	0.5 U	20	18.14	20	17.47	91	87	59-120	4	30
Bromomethane	0.5 U	20	20.69	20	21.49	103	107	44-139	4	30
2-Butanone	3 U	150	156.33	150	154.07	104	103	53-140	1	30
Carbon Disulfide	1 U	20	20.18	20	21.2	101	106	65-128	5	30
Carbon Tetrachloride	0.5 U	20	24.89	20	24.51	124	123	68-128	2	30
Chlorobenzene	0.5 U	20	21.07	20	21.08	105	105	80-120	0	30
Chloroethane	0.5 U	20	19.57	20	21.4	98	107	52-127	9	30
Chloroform	0.5 U	20	23.9	20	23.32	120	117	80-120	2	30
Chloromethane	0.5 U	20	16.86	20	18.53	84	93	57-120	9	30
Cyclohexane	2 U	20	24.71	20	24.34	124*	122*	67-121	2	30
1,2-Dibromo-3-chloropropane	2 U	20	20.91	20	20.31	105	102	64-120	3	30
Dibromochloromethane	0.5 U	20	20.53	20	20.25	103	101	71-120	1	30
1,2-Dibromoethane	0.5 U	20	20.94	20	21.19	105	106	75-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	21.37	20	21	107	105	80-120	2	30
1,3-Dichlorobenzene	1 U	20	21.38	20	21.04	107	105	80-120	2	30
1,4-Dichlorobenzene	1 U	20	21.85	20	21.54	109	108	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	17.98	20	18.44	90	92	47-124	2	30
1,1-Dichloroethane	0.5 U	20	22.65	20	22.58	113	113	80-120	0	30
1,2-Dichloroethane	0.5 U	20	23.59	20	22.92	118	115	73-124	3	30
1,1-Dichloroethene	0.5 U	20	26.89	20	27.31	134*	137*	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	23.72	20	23.44	119	117	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	24.96	20	24.63	125*	123*	80-120	1	30
1,2-Dichloropropane	0.5 U	20	21.84	20	21.73	109	109	80-120	1	30
cis-1,3-Dichloropropene	0.5 U	20	20.79	20	20.79	104	104	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	20.07	20	19.36	100	97	76-120	4	30
Ethylbenzene	0.5 U	20	21.4	20	21.51	107	108	78-120	1	30
Freon 113	2 U	20	26.95	20	27.83	135	139*	68-137	3	30
2-Hexanone	3 U	100	102.44	100	99.02	102	99	60-134	3	30
Isopropylbenzene	1 U	20	21.83	20	21.92	109	110	80-120	0	30
Methyl Acetate	1 U	20	21.19	20	21.01	106	105	61-137	1	30
Methyl Tertiary Butyl Ether	0.5 U	20	22.6	20	21.98	113	110	75-120	3	30
4-Methyl-2-pentanone	3 U	100	105.06	100	102.24	105	102	67-128	3	30
Methylcyclohexane	1 U	20	22.98	20	22.39	115	112	66-126	3	30
Methylene Chloride	0.5 U	20	22.86	20	23.23	114	116	80-120	2	30
Styrene	1 U	20	20.56	20	20.69	103	103	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.45	20	20.67	107	103	72-120	4	30
Tetrachloroethene	0.5 U	20	22.34	20	22.35	112	112	80-129	0	30
Toluene	0.5 U	20	21.33	20	21.23	107	106	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	21.26	20	22.55	106	113	66-120	6	30
1,2,4-Trichlorobenzene	1 U	20	20.8	20	21.64	104	108	70-120	4	30
1,1,1-Trichloroethane	0.5 U	20	24.51	20	23.6	123*	118	67-120	4	30
1,1,2-Trichloroethane	0.5 U	20	20.77	20	21.25	104	106	80-120	2	30
Trichloroethene	0.5 U	20	23.32	20	23.43	117	117	80-120	1	30
Trichlorofluoromethane	0.5 U	20	23.7	20	24.65	118	123	52-143	4	30
Vinyl Chloride	0.5 U	20	19.37	20	19.66	97	98	63-121	1	30
m+p-Xylene	0.5 U	40	42.63	40	42.55	107	106	80-120	0	30
o-Xylene	0.5 U	20	20.75	20	20.61	104	103	80-120	1	30
Xylene (Total)	0.5 U	60	63.38	60	63.16	106	105	80-120	0	30
	ug/l	**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 18030WAF026	Sample number(s): 9426289 UNSPK: P427854									
1,4-Dioxane	0.0649	1.00	1.22	1.00	1.15	115	108	70-130	6	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180300571304	Sample number(s): 9426289 UNSPK: P427468									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Mercury	0.000050 U	0.00100	0.000902	0.00100	0.000917	90	92	80-120	2	20
Batch number: 180301063502	Sample number(s): 9426289 UNSPK: P427854									
Aluminum	0.0894 U	2.00	1.97	2.00	2.01	98	100	75-125	2	20
Boron	0.0101 U	2.00	2.02	2.00	2.01	101	101	75-125	0	20
Calcium	58.9	4.00	63.13	4.00	63.87	106 (2)	124 (2)	75-125	1	20
Iron	0.0805 U	1.00	0.988	1.00	0.967	99	97	75-125	2	20
Magnesium	24.28	2.00	26.37	2.00	26.63	105 (2)	117 (2)	75-125	1	20
Manganese	2.37	0.500	2.89	0.500	2.93	104 (2)	111 (2)	75-125	1	20
Potassium	0.911	10	10.67	10	10.65	98	97	75-125	0	20
Sodium	1.33	10	11.21	10	11.04	99	97	75-125	2	20
Zinc	0.182	0.500	0.660	0.500	0.675	96	99	75-125	2	20
Batch number: 180311063903A	Sample number(s): 9426289 UNSPK: P427854									
Antimony	0.00045 U	0.00600	0.00629	0.00600	0.00593	105	99	75-125	6	20
Arsenic	0.00072 U	0.0100	0.0109	0.0100	0.0115	109	115	75-125	6	20
Beryllium	0.000071 U	0.00400	0.00405	0.00400	0.00421	101	105	75-125	4	20
Cadmium	0.000201	0.00500	0.00515	0.00500	0.00526	99	101	75-125	2	20
Chromium	0.00087 U	0.0500	0.0518	0.0500	0.0522	104	104	75-125	1	20
Cobalt	0.0171	0.250	0.260	0.250	0.259	97	97	75-125	0	20
Copper	0.0295	0.0500	0.0523	0.0500	0.0538	46*	49*	75-125	3	20
Lead	0.00177	0.0150	0.0161	0.0150	0.0158	96	94	75-125	2	20
Nickel	0.00900	0.0500	0.0597	0.0500	0.0611	101	104	75-125	2	20
Silver	0.00015 U	0.0500	0.0507	0.0500	0.0514	101	103	75-125	1	20
Thallium	0.00135	0.00200	0.00352	0.00200	0.00331	108	98	75-125	6	20
Vanadium	0.00021 U	0.0500	0.0530	0.0500	0.0525	106	105	75-125	1	20
Batch number: 180311063903B	Sample number(s): 9426289 UNSPK: P427854									
Selenium	0.00050 U	0.0100	0.0102	0.0100	0.00996	102	100	75-125	2	20
Batch number: 180311063903D	Sample number(s): 9426289 UNSPK: P427854									
Barium	0.136	0.0500	0.192	0.0500	0.191	111	109	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18026987112A	Sample number(s): 9426289 UNSPK: 9426289									
Bromide	1.3 U	25	23.52			94		90-110		
Chloride	5.19	10	14.55			94		90-110		
Nitrate Nitrogen	0.457	2.50	2.85			96		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.52			101		90-110		
Sulfate	13.59	25	37.55			96		90-110		
Batch number: 18029117101A	Sample number(s): 9426289 UNSPK: P424223									

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Total Cyanide	0.0050 U	0.200	0.199			100		72-114		
Batch number: 18031107108A	Sample number(s): 9426289 UNSPK: P419105									
Ammonia Nitrogen	1.74	1.00	2.80			106		90-110		
Batch number: 18031108102A	Sample number(s): 9426289 UNSPK: P427854									
Kjeldahl Nitrogen	0.50 U	5.00	5.83			117*		90-110		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18029013203A	Sample number(s): 9426289 UNSPK: P427854									
Total Alkalinity to pH 4.5	228.07	188	399.53			91		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 180300571304	Sample number(s): 9426289 BKG: P427468			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180301063502	Sample number(s): 9426289 BKG: P427854			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	58.9	59.22	1	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	24.28	24.44	1	20
Manganese	2.37	2.39	1	20
Potassium	0.911	0.934	2 (1)	20
Sodium	1.33	1.38	4 (1)	20
Zinc	0.182	0.196	7 (1)	20
Batch number: 180311063903A	Sample number(s): 9426289 BKG: P427854			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.000201	0.000228	13 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.0171	0.0172	1	20
Copper	0.0295	0.0301	2	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Lead	0.00177	0.00172	3 (1)	20
Nickel	0.00900	0.00945	5 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00135	0.00133	1 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 180311063903B	Sample number(s): 9426289 BKG: P427854			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180311063903D	Sample number(s): 9426289 BKG: P427854			
Barium	0.136	0.135	1	20
	mg/l	mg/l		
Batch number: 18026987112A	Sample number(s): 9426289 BKG: 9426289			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	5.19	5.17	0 (1)	15
Nitrate Nitrogen	0.457	0.448	2 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	13.59	13.64	0 (1)	15
Batch number: 18029117101A	Sample number(s): 9426289 BKG: P424223			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 18031107108A	Sample number(s): 9426289 BKG: P419105			
Ammonia Nitrogen	1.74	1.76	1	20
Batch number: 18031108102A	Sample number(s): 9426289 BKG: P427854			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18027146271A	Sample number(s): 9426289 BKG: P427428			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18029013203A	Sample number(s): 9426289 BKG: P427854			
Total Alkalinity to pH 4.5	228.07	229.63	1	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:32

Group Number: 1901566

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180313AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9426289	103	103	98	96
Blank	102	102	98	96
LCS	104	102	98	98
MS	105	106	98	99
MSD	105	103	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18030WAF026

	1,4-Dioxane-d8
9426289	41*
Blank	42*
LCS	39*
MS	39*
MSD	41*
Limits:	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 1901566 9426289-90

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 52702

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Analysis Requested: Water: Orthophosphate 250 mL (F)	Methes + Hg 250 mL (P)	Cyanide 250 mL (P)	Alkalinity 250 mL (P)	Pickane 250 mL (G)	Ammonia/Nitrogen 250 mL (P)	Soil: VOCs 40 mL (G)	Br, Cl, N / SO_4 40 mL (G)	Lab Tip blank 250 mL (P)	% Solids	Preservative Code	Field Filtered Y/N
									A	C	E	A	A	D	B	A	A			
									Y	N	N	N	N	N	N	N	N			
1. 180125 SG3-MWBR3-~~1825~~	—	—	—	01/25/18	10:30	GW	N	12	1	1	1	1	2	1	3	2				
2. SG3-LTB135-180124	—	—	—	01/24/2018	—	W	N	2	1								2			
3.																				
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

BARR USE ONLY	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by: KMP		Y N	1/25/18	1730			
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Barr DQ Manager: MDP						1/26/18	1005
Lab Name: ELLE	Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:	Requested Due Date: ☒ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)	
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.4			Custody Seal Intact? ☑ Y ☐ N ☐ None		

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 206943

Group Number(s): 1901566

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/26/2018 10:05
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): Trizma (250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:21 on 01/26/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.4	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 30, 2018 15:58

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901920
SDG: SNB88
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

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Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-180126 Groundwater	01/26/2018 11:45	9427822
SG3-MWBR2-180126 MS Groundwater	01/26/2018 11:45	9427823
SG3-MWBR2-180126 MSD Groundwater	01/26/2018 11:45	9427824

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901920

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 18029001 (Sample number(s): 9427822-9427824 UNSPK: 9427822)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9427824, MSD

Sample Description: **SG3-MWBR2-180126 Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB88-01BKG

C. T. Male Associates
ELLE Sample #: GW 9427822
ELLE Group #: 1901920
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	9	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	1 U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	1 U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**7**	0.3	1	1
14473	**Perfluorobutanoic acid**	375-22-4	**17**	2	6	1
14473	Perfluorodecanoic acid	335-76-2	1 U	1	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	1	1
14473	**Perfluoroheptanoic acid**	375-85-9	**39**	0.3	1	1
14473	**Perfluorohexanesulfonate**	355-46-4	**2**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**38**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**4**	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	1 U	1	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**2**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**160**	0.3	1	1
14473	**Perfluoropentanoic acid**	2706-90-3	**30**	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	1	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	1	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18029001	01/30/2018 08:39	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18029001	01/29/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MS Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB88-01MS

C. T. Male Associates
ELLE Sample #: GW 9427823
ELLE Group #: 1901920
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**16**	3	8	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**14**	2	6	1
14473	**NEtFOSAA**	2991-50-6	**5**	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	**NMeFOSAA**	2355-31-9	**6**	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**12**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**21**	2	6	1
14473	**Perfluorodecanoic acid**	335-76-2	**5**	0.9	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**5**	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**41**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**8**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**43**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**8**	0.4	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**6**	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**6**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**150**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**34**	2	6	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**5**	0.3	0.9	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**5**	0.3	0.9	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**5**	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18029001	01/30/2018 07:17	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18029001	01/29/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MSD Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB88-01MSD

C. T. Male Associates
ELLE Sample #: GW 9427824
ELLE Group #: 1901920
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	**6:2 fluorotelomersulfonate**	27619-97-2	**16**	3	8	1
14473	**8:2 fluorotelomersulfonate**	39108-34-4	**14**	2	5	1
14473	**NEtFOSAA**	2991-50-6	**5**	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	**NMeFOSAA**	2355-31-9	**6**	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	**Perfluorobutanesulfonate**	375-73-5	**12**	0.3	0.9	1
14473	**Perfluorobutanoic acid**	375-22-4	**21**	2	5	1
14473	**Perfluorodecanoic acid**	335-76-2	**6**	0.9	2	1
14473	**Perfluorododecanoic acid**	307-55-1	**6**	0.3	0.9	1
14473	**Perfluoroheptanoic acid**	375-85-9	**41**	0.3	0.9	1
14473	**Perfluorohexanesulfonate**	355-46-4	**8**	0.4	2	1
14473	**Perfluorohexanoic acid**	307-24-4	**43**	0.4	2	1
14473	**Perfluorononanoic acid**	375-95-1	**8**	0.4	2	1
14473	**Perfluorooctanesulfonamide**	754-91-6	**6**	0.9	3	1
14473	**Perfluoro-octanesulfonate**	1763-23-1	**6**	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**150**	0.3	0.9	1
14473	**Perfluoropentanoic acid**	2706-90-3	**33**	2	5	1
14473	**Perfluorotetradecanoic acid**	376-06-7	**5**	0.3	0.9	1
14473	**Perfluorotridecanoic acid**	72629-94-8	**5**	0.3	0.9	1
14473	**Perfluoroundecanoic acid**	2058-94-8	**6**	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18029001	01/30/2018 07:37	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18029001	01/29/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 15:58

Group Number: 1901920

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18029001	Sample number(s): 9427822-9427824		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18029001	Sample number(s): 9427822-9427824								
6:2 fluorotelomersulfonate	15.17	18.46			122		70-130		
8:2 fluorotelomersulfonate	15.33	15.46			101		70-130		
NEtFOSAA	5.44	5.70			105		70-130		
NMeFOSAA	5.44	5.92			109		70-130		
Perfluorobutanesulfonate	4.81	4.66			97		70-130		
Perfluorobutanoic acid	5.44	5.66			104		70-130		
Perfluorodecanoic acid	5.44	5.52			101		70-130		
Perfluorododecanoic acid	5.44	5.76			106		70-130		
Perfluoroheptanoic acid	5.44	6.15			113		70-130		
Perfluorohexanesulfonate	5.14	5.12			100		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 15:58

Group Number: 1901920

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.28			97		70-130		
Perfluorononanoic acid	5.44	6.15			113		70-130		
Perfluorooctanesulfonamide	5.44	6.00			110		70-130		
Perfluoro-octanesulfonate	5.20	4.86			94		70-130		
Perfluorooctanoic acid	5.44	5.38			99		70-130		
Perfluoropentanoic acid	5.44	5.72			105		70-130		
Perfluorotetradecanoic acid	5.44	5.37			99		70-130		
Perfluorotridecanoic acid	5.44	5.01			92		70-130		
Perfluoroundecanoic acid	5.44	5.95			109		70-130		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18029001	Sample number(s): 9427822-9427824 UNSPK: 9427822									
6:2 fluorotelomersulfonate	3 U	13.99	16.25	13.85	15.61	116	113	70-130	4	30
8:2 fluorotelomersulfonate	2 U	14.13	13.84	14	13.62	98	97	70-130	2	30
NEtFOSAA	1 U	5.02	5.22	4.97	5.03	104	101	70-130	4	30
NMeFOSAA	1 U	5.02	5.60	4.97	5.96	112	120	70-130	6	30
Perfluorobutanesulfonate	6.90	4.44	11.58	4.39	11.55	106	106	70-130	0	30
Perfluorobutanoic acid	16.56	5.02	20.64	4.97	20.92	81	88	70-130	1	30
Perfluorodecanoic acid	1 U	5.02	4.83	4.97	5.61	96	113	70-130	15	30
Perfluorododecanoic acid	0.3 U	5.02	5.37	4.97	5.63	107	113	70-130	5	30
Perfluoroheptanoic acid	39.44	5.02	40.9	4.97	40.72	29 (2)	26 (2)	70-130	0	30
Perfluorohexanesulfonate	2.14	4.74	7.75	4.70	7.71	118	118	70-130	1	30
Perfluorohexanoic acid	38.11	5.02	42.56	4.97	42.63	89 (2)	91 (2)	70-130	0	30
Perfluorononanoic acid	3.57	5.02	8.26	4.97	7.68	94	83	70-130	7	30
Perfluorooctanesulfonamide	1 U	5.02	5.95	4.97	5.95	119	120	70-130	0	30
Perfluoro-octanesulfonate	1.98	4.80	5.89	4.75	6.11	82	87	70-130	4	30
Perfluorooctanoic acid	160.03	5.02	146.28	4.97	152.97	-273 (2)	-141 (2)	70-130	4	30
Perfluoropentanoic acid	29.69	5.02	34.16	4.97	32.88	89 (2)	64 (2)	70-130	4	30
Perfluorotetradecanoic acid	0.3 U	5.02	5.12	4.97	5.23	102	105	70-130	2	30
Perfluorotridecanoic acid	0.3 U	5.02	4.51	4.97	4.63	90	93	70-130	3	30
Perfluoroundecanoic acid	0.4 U	5.02	5.30	4.97	5.50	106	111	70-130	4	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1901920
Reported: 01/30/2018 15:58

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18029001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9427822	82	109	138	72	81	82
9427823	83	110	137	82	79	89
9427824	88	123	151*	85	81	86
Blank	91	85	79	91	84	93
LCS	80	83	83	78	74	76
MS	83	110	137	82	79	89
MSD	88	123	151*	85	81	86
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9427822	74	75	84	84	92	112
9427823	87	83	81	81	94	113
9427824	99	84	83	88	87	123
Blank	95	90	100	96	112	127
LCS	80	78	84	80	90	105
MS	87	83	81	81	94	113
MSD	99	84	83	88	87	123
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9427822	94	82	89	90	66	93
9427823	75	78	81	79	60	89
9427824	84	80	96	84	65	86
Blank	87	93	108	99	80	119
LCS	73	76	79	80	65	101
MS	75	78	81	79	60	89
MSD	84	80	96	84	65	86
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191 / 1901920 / 9427822-24

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53489

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water: PFC (14) 250 mL (P)	Water: Lab trip blank 250mL(P)	Soil	% Solids	Preservative Code	Field Filtered Y/N	Remarks
1. SG3-MWBR2-180126	—	—	—	01/26/2018	11:45	GW	Y	6	6						RUSH 24 HR
2. SG3-LTB136-180126	—	—	—	01/26/2018	—	W	N	2		2					
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

BARR USE ONLY	Relinquished by	On Ice?	Date	Time	Received by	Date	Time
Sampled by: KMP	[signature]	(Y) N	1/26/18	1620			
Barr Proj. Manager: JTC		On Ice? Y N	Date	Time	Received by: [signature]	1/27/18	1000
Barr DQ Manager: MDD							
Lab Name: ~~Lancaster~~, ELLE	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Location: Lancaster, PA	Lab WO:		Temperature on Receipt (°C): 0.8/1.1		Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 HR (mm/dd/yyyy)

H:RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

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Sample Administration Receipt Documentation Log

Doc Log ID: 207039

Group Number(s): 1901920

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/27/2018 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 (Trizma 250mL Plastic Bottles) 2 (Unpreserved 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:06 on 01/27/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: January 30, 2018 14:49

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901929
SDG: SNB89
PO Number: 16.6131
State of Sample Origin: VT

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Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-LTB136-180126 Water	01/26/2018	9427850

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901929

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 Version 1.1 Modified, Misc. Organics

Batch #: 18029001 (Sample number(s): 9427850 UNSPK: P427822)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluoropentanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) MSD

Sample Description: **SG3-LTB136-180126 Water**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018
SDG#: SNB89-01TB

C. T. Male Associates
ELLE Sample #: WW 9427850
ELLE Group #: 1901929
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	6:2 fluorotelomersulfonate	27619-97-2	3 U	3	8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	2 U	2	6	1
14473	NEtFOSAA	2991-50-6	0.9 U	0.9	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.9 U	0.9	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonate	375-73-5	0.3 U	0.3	0.9	1
14473	Perfluorobutanoic acid	375-22-4	2 U	2	6	1
14473	Perfluorodecanoic acid	335-76-2	0.9 U	0.9	2	1
14473	Perfluorododecanoic acid	307-55-1	0.3 U	0.3	0.9	1
14473	Perfluoroheptanoic acid	375-85-9	0.3 U	0.3	0.9	1
14473	Perfluorohexanesulfonate	355-46-4	0.4 U	0.4	2	1
14473	Perfluorohexanoic acid	307-24-4	0.4 U	0.4	2	1
14473	Perfluorononanoic acid	375-95-1	0.4 U	0.4	2	1
14473	Perfluorooctanesulfonamide	754-91-6	0.9 U	0.9	3	1
14473	Perfluoro-octanesulfonate	1763-23-1	0.4 U	0.4	2	1
14473	**Perfluorooctanoic acid**	335-67-1	**0.6 J**	0.3	0.9	1
14473	Perfluoropentanoic acid	2706-90-3	2 U	2	6	1
14473	Perfluorotetradecanoic acid	376-06-7	0.3 U	0.3	0.9	1
14473	Perfluorotridecanoic acid	72629-94-8	0.3 U	0.3	0.9	1
14473	Perfluoroundecanoic acid	2058-94-8	0.4 U	0.4	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	19 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18029001	01/30/2018 09:00	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18029001	01/29/2018 06:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 14:49

Group Number: 1901929

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18029001	Sample number(s): 9427850		
6:2 fluorotelomersulfonate	3 U	3	9
8:2 fluorotelomersulfonate	2 U	2	6
NEtFOSAA	1 U	1	3
NMeFOSAA	1 U	1	3
Perfluorobutanesulfonate	0.3 U	0.3	1
Perfluorobutanoic acid	2 U	2	6
Perfluorodecanoic acid	1 U	1	2
Perfluorododecanoic acid	0.3 U	0.3	1
Perfluoroheptanoic acid	0.3 U	0.3	1
Perfluorohexanesulfonate	0.4 U	0.4	2
Perfluorohexanoic acid	0.4 U	0.4	2
Perfluorononanoic acid	0.4 U	0.4	2
Perfluorooctanesulfonamide	1 U	1	3
Perfluoro-octanesulfonate	0.4 U	0.4	2
Perfluorooctanoic acid	0.3 U	0.3	1
Perfluoropentanoic acid	2 U	2	6
Perfluorotetradecanoic acid	0.3 U	0.3	1
Perfluorotridecanoic acid	0.3 U	0.3	1
Perfluoroundecanoic acid	0.4 U	0.4	2

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18029001	Sample number(s): 9427850								
6:2 fluorotelomersulfonate	15.17	18.46			122		70-130		
8:2 fluorotelomersulfonate	15.33	15.46			101		70-130		
NEtFOSAA	5.44	5.70			105		70-130		
NMeFOSAA	5.44	5.92			109		70-130		
Perfluorobutanesulfonate	4.81	4.66			97		70-130		
Perfluorobutanoic acid	5.44	5.66			104		70-130		
Perfluorodecanoic acid	5.44	5.52			101		70-130		
Perfluorododecanoic acid	5.44	5.76			106		70-130		
Perfluoroheptanoic acid	5.44	6.15			113		70-130		
Perfluorohexanesulfonate	5.14	5.12			100		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 14:49

Group Number: 1901929

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorohexanoic acid	5.44	5.28			97		70-130		
Perfluorononanoic acid	5.44	6.15			113		70-130		
Perfluorooctanesulfonamide	5.44	6.00			110		70-130		
Perfluoro-octanesulfonate	5.20	4.86			94		70-130		
Perfluorooctanoic acid	5.44	5.38			99		70-130		
Perfluoropentanoic acid	5.44	5.72			105		70-130		
Perfluorotetradecanoic acid	5.44	5.37			99		70-130		
Perfluorotridecanoic acid	5.44	5.01			92		70-130		
Perfluoroundecanoic acid	5.44	5.95			109		70-130		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18029001	Sample number(s): 9427850 UNSPK: P427822									
6:2 fluorotelomersulfonate	3 U	13.99	16.25	13.85	15.61	116	113	70-130	4	30
8:2 fluorotelomersulfonate	2 U	14.13	13.84	14	13.62	98	97	70-130	2	30
NEtFOSAA	1 U	5.02	5.22	4.97	5.03	104	101	70-130	4	30
NMeFOSAA	1 U	5.02	5.60	4.97	5.96	112	120	70-130	6	30
Perfluorobutanesulfonate	6.90	4.44	11.58	4.39	11.55	106	106	70-130	0	30
Perfluorobutanoic acid	16.56	5.02	20.64	4.97	20.92	81	88	70-130	1	30
Perfluorodecanoic acid	1 U	5.02	4.83	4.97	5.61	96	113	70-130	15	30
Perfluorododecanoic acid	0.3 U	5.02	5.37	4.97	5.63	107	113	70-130	5	30
Perfluoroheptanoic acid	39.44	5.02	40.9	4.97	40.72	29 (2)	26 (2)	70-130	0	30
Perfluorohexanesulfonate	2.14	4.74	7.75	4.70	7.71	118	118	70-130	1	30
Perfluorohexanoic acid	38.11	5.02	42.56	4.97	42.63	89 (2)	91 (2)	70-130	0	30
Perfluorononanoic acid	3.57	5.02	8.26	4.97	7.68	94	83	70-130	7	30
Perfluorooctanesulfonamide	1 U	5.02	5.95	4.97	5.95	119	120	70-130	0	30
Perfluoro-octanesulfonate	1.98	4.80	5.89	4.75	6.11	82	87	70-130	4	30
Perfluorooctanoic acid	160.03	5.02	146.28	4.97	152.97	-273 (2)	-141 (2)	70-130	4	30
Perfluoropentanoic acid	29.69	5.02	34.16	4.97	32.88	89 (2)	64 (2)	70-130	4	30
Perfluorotetradecanoic acid	0.3 U	5.02	5.12	4.97	5.23	102	105	70-130	2	30
Perfluorotridecanoic acid	0.3 U	5.02	4.51	4.97	4.63	90	93	70-130	3	30
Perfluoroundecanoic acid	0.4 U	5.02	5.30	4.97	5.50	106	111	70-130	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 01/30/2018 14:49

Group Number: 1901929

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: 19 PFAS Compounds
Batch number: 18029001

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9427850	88	94	84	88	88	83
Blank	91	85	79	91	84	93
LCS	80	83	83	78	74	76
MS	83	110	137	82	79	89
MSD	88	123	151*	85	81	86
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9427850	90	86	94	93	94	113
Blank	95	90	100	96	112	127
LCS	80	78	84	80	90	105
MS	87	83	81	81	94	113
MSD	99	84	83	88	87	123
Limits:	39-140	43-112	43-115	32-134	40-115	39-137

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9427850	98	91	101	88	70	90
Blank	87	93	108	99	80	119
LCS	73	76	79	80	65	101
MS	75	78	81	79	60	89
MSD	84	80	96	84	65	86
Limits:	17-120	30-128	21-135	28-127	26-119	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1901929/9427850

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53489

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 Market Pointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SCPP - Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other TRIZMA

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water PFC (19) 250 mL (P)	Water Lab trip blank 250 mL (P)	Soil % Solids	Preservative Code	Field Filtered Y/N
1. SG3-MWBR2-180126	—	—	—	01/26/2018	11:45	GW	Y	6	6			A	N
2. SG3-LTB136-180126	—	—	—	01/26/2018	—	W	N	2	2			A	N
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

RUSH 24 HR

BARR USE ONLY							
Sampled by: KMP	Relinquished by:	On Ice? Y (N)	Date 1/26/18	Time 1620	Received by:	Date	Time
Barr Proj. Manager: JTC	Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date 1/27/18	Time 1000
Barr DQ Manager: MDD	Samples Shipped VIA: ☐ Courier ☒ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name: ~~Lancaster~~, ELLE							
Lab Location: Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.8/1.1			Custody Seal Intact? ☐ Y ☐ N ☐ None		

Requested Due Date: ☐ Standard Turn Around Time ☒ Rush 24 HR (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 207039

Group Number(s): 1901929

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/27/2018 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 (Trizma 250mL Plastic Bottles) 2 (Unpreserved 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:06 on 01/27/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: February 01, 2018 15:33

Project: SGPP - Bennington

Account #: 37191
Group Number: 1901931
SDG: SNB90
PO Number: 16.6131
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Barr Engineering Company	Attn: Data Mgt
Electronic Copy To	Barr Engineering Company	Attn: Michael Dupay
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
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Respectfully Submitted,

Nancy Jean Bornholm

Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
SG3-MWBR2-180126 Grab Groundwater	01/26/2018 11:45	9427854
SG3-MWBR2-180126 MS Grab Groundwater	01/26/2018 11:45	9427855
SG3-MWBR2-180126 MSD Grab Groundwater	01/26/2018 11:45	9427856
SG3-MWBR2-180126 Dupl Grab Groundwater	01/26/2018 11:45	9427857

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: SGPP - Bennington
ELLE Group #: 1901931

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: 5180313AA (Sample number(s): 9427854-9427856 UNSPK: 9427854)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cyclohexane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, Freon 113, 1,1,1-Trichloroethane

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9427854, 9427855, 9427856

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18030WAF026 (Sample number(s): 9427854-9427856 UNSPK: 9427854)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9427854, 9427855, 9427856, Blank, LCS, MS, MSD

SW-846 6020A, Metals

Batch #: 180311063903A (Sample number(s): 9427854-9427857 UNSPK: 9427854 BKG: 9427854)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Copper

EPA 300.0, Wet Chemistry

Batch #: 18027987212B (Sample number(s): 9427854-9427855, 9427857 UNSPK: 9427854 BKG: 9427854)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Bromide, Nitrite Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 18031107108C (Sample number(s): 9427854-9427857 UNSPK: 9427854 BKG: 9427854)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

EPA 351.2, Wet Chemistry

Batch #: 18031108102A (Sample number(s): 9427854-9427855, 9427857 UNSPK: 9427854 BKG: 9427854)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Kjeldahl Nitrogen

SW-846 9012A, Wet Chemistry

Batch #: 18030117102A (Sample number(s): 9427854-9427855, 9427857 UNSPK: 9427854 BKG: 9427854)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Cyanide (water)

Sample Description: **SG3-MWBR2-180126 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01BKG

C. T. Male Associates
ELLE Sample #: GW 9427854
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Acetone	67-64-1	6 U	6	20	1
11997	Benzene	71-43-2	0.5 U	0.5	1	1
11997	Bromochloromethane	74-97-5	1 U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5 U	0.5	1	1
11997	Bromoform	75-25-2	0.5 U	0.5	4	1
11997	Bromomethane	74-83-9	0.5 U	0.5	1	1
11997	2-Butanone	78-93-3	3 U	3	10	1
11997	Carbon Disulfide	75-15-0	1 U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5 U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5 U	0.5	1	1
11997	Chloroethane	75-00-3	0.5 U	0.5	1	1
11997	Chloroform	67-66-3	0.5 U	0.5	1	1
11997	Chloromethane	74-87-3	0.5 U	0.5	1	1
11997	Cyclohexane	110-82-7	2 U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2 U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5 U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5 U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1 U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1 U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1 U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5 U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5 U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5 U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5 U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5 U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5 U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5 U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5 U	0.5	1	1
11997	Freon 113	76-13-1	2 U	2	10	1
11997	2-Hexanone	591-78-6	3 U	3	10	1
11997	Isopropylbenzene	98-82-8	1 U	1	5	1
11997	Methyl Acetate	79-20-9	1 U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5 U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3 U	3	10	1
11997	Methylcyclohexane	108-87-2	1 U	1	5	1
11997	Methylene Chloride	75-09-2	0.5 U	0.5	1	1
11997	Styrene	100-42-5	1 U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5 U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5 U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01BKG

C. T. Male Associates
ELLE Sample #: GW 9427854
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	Toluene	108-88-3	0.5 U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1 U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1 U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5 U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5 U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5 U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5 U	0.5	1	1
11997	o-Xylene	95-47-6	0.5 U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5 U	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**0.065 J**	0.050	0.20	1

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**58.9**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**24.3**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.37**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**0.911 J**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.33 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.182**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.136**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00020 J**	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0171**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0295**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0018 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0090**	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01BKG

C. T. Male Associates
ELLE Sample #: GW 9427854
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0013**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**4.0**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**11.2**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**228**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**228**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01BKG

C. T. Male Associates
ELLE Sample #: GW 9427854
ELLE Group #: 1901931
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180313AA	02/01/2018 00:10	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180313AA	02/01/2018 00:10	Don V Viray	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18030WAF026	02/01/2018 08:53	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18030WAF026	01/30/2018 15:53	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180301063502	01/31/2018 20:37	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	180301063502	01/31/2018 11:31	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	180311063903D	02/01/2018 07:04	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	180311063903B	02/01/2018 07:04	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	180311063903A	02/01/2018 07:04	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	180300571305	01/31/2018 07:57	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180301063502	01/31/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180311063903	01/31/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180300571305	01/30/2018 22:05	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18027987212B	01/27/2018 22:29	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18027987212B	01/27/2018 22:29	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:29	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:29	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18027987212B	01/27/2018 22:29	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108C	01/31/2018 18:31	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18031108102A	02/01/2018 11:28	Ashlynn M Cornelius	1
08255	Total Cyanide	SW-846 9012A	1	18030117102A	01/30/2018 20:06	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18031108102A	01/31/2018 16:45	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18030117102A	01/30/2018 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18029013203A	01/30/2018 02:50	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	18029013203A	01/30/2018 02:50	Jeremy L Bolf	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	18029013203A	01/30/2018 02:50	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18027146272A	01/27/2018 12:57	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MS Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MS

C. T. Male Associates
ELLE Sample #: GW 9427855
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**140**	6	20	1
11997	**Benzene**	71-43-2	**22**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**22**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**22**	0.5	1	1
11997	**Bromoform**	75-25-2	**18**	0.5	4	1
11997	**Bromomethane**	74-83-9	**21**	0.5	1	1
11997	**2-Butanone**	78-93-3	**160**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**20**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**25**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**21**	0.5	1	1
11997	**Chloroethane**	75-00-3	**20**	0.5	1	1
11997	**Chloroform**	67-66-3	**24**	0.5	1	1
11997	**Chloromethane**	74-87-3	**17**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**25**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**21**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**21**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**21**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**21**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**21**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**22**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**18**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**23**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**24**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**27**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**24**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**25**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**22**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**21**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**20**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**21**	0.5	1	1
11997	**Freon 113**	76-13-1	**27**	2	10	1
11997	**2-Hexanone**	591-78-6	**100**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**22**	1	5	1
11997	**Methyl Acetate**	79-20-9	**21**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**23**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**110**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**23**	1	5	1
11997	**Methylene Chloride**	75-09-2	**23**	0.5	1	1
11997	**Styrene**	100-42-5	**21**	1	5	1
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**21**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**22**	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MS Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MS

C. T. Male Associates
ELLE Sample #: GW 9427855
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Toluene**	108-88-3	**21**	0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**21**	1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**21**	1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**25**	0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**21**	0.5	1	1
11997	**Trichloroethene**	79-01-6	**23**	0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**24**	0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**19**	0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**43**	0.5	1	1
11997	**o-Xylene**	95-47-6	**21**	0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**63**	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		ug/l	ug/l	ug/l	
14080	**1,4-Dioxane**	123-91-1	**1.2**	0.050	0.20	1

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		mg/l	mg/l	mg/l	
01743	**Aluminum**	7429-90-5	**1.97**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**2.02**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**63.1**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.988**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**26.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.89**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**10.7**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**11.2**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.660**	0.0065	0.0400	1
	SW-846 6020A		mg/l	mg/l	mg/l	
06024	**Antimony**	7440-36-0	**0.0063**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0109**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.192**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0041**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0052**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0518**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.260**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0523**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0161**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0597**	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MS Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MS

C. T. Male Associates
ELLE Sample #: GW 9427855
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06041	**Selenium**	7782-49-2	**0.0102**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0507**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0035**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0530**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00087**	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**31.3**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**16.0**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**3.4**	0.25	0.50	5
01506	**Nitrite Nitrogen**	14797-65-0	**3.1**	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**42.9**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.1**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**5.8**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	**Total Cyanide**	57-12-5	**0.12**	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**400**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	**Orthophosphate as P**	7723-14-0	**0.41**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180313AA	02/01/2018 00:32	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180313AA	02/01/2018 00:32	Don V Viray	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MS Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MS

C. T. Male Associates
ELLE Sample #: GW 9427855
ELLE Group #: 1901931
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14080	1,4-Dioxane	SW-846 8270D SIM	1	18030WAF026	02/01/2018 09:07	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18030WAF026	01/30/2018 15:53	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180301063502	01/31/2018 20:46	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	180301063502	01/31/2018 11:40	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	180311063903D	02/01/2018 07:13	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	180311063903B	02/01/2018 07:13	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	180311063903A	02/01/2018 07:13	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	180300571305	01/31/2018 08:01	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180301063502	01/31/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180311063903	01/31/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180300571305	01/30/2018 22:05	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18027987212B	01/27/2018 22:57	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	18027987212B	01/27/2018 22:57	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:57	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:57	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18027987212B	01/27/2018 22:57	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108C	01/31/2018 18:33	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18031108102A	02/01/2018 11:30	Ashlynn M Cornelius	1
08255	Total Cyanide	SW-846 9012A	1	18030117102A	01/30/2018 20:08	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18031108102A	01/31/2018 16:45	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18030117102A	01/30/2018 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18029013203A	01/30/2018 02:57	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18027146272A	01/27/2018 12:57	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MSD Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MSD

C. T. Male Associates
ELLE Sample #: GW 9427856
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**140**	6	20	1
11997	**Benzene**	71-43-2	**22**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**22**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**21**	0.5	1	1
11997	**Bromoform**	75-25-2	**17**	0.5	4	1
11997	**Bromomethane**	74-83-9	**21**	0.5	1	1
11997	**2-Butanone**	78-93-3	**150**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**21**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**25**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**21**	0.5	1	1
11997	**Chloroethane**	75-00-3	**21**	0.5	1	1
11997	**Chloroform**	67-66-3	**23**	0.5	1	1
11997	**Chloromethane**	74-87-3	**19**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**24**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**20**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**20**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**21**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**21**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**21**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**22**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**18**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**23**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**23**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**27**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**23**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**25**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**22**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**21**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**19**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**22**	0.5	1	1
11997	**Freon 113**	76-13-1	**28**	2	10	1
11997	**2-Hexanone**	591-78-6	**99**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**22**	1	5	1
11997	**Methyl Acetate**	79-20-9	**21**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**22**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**100**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**22**	1	5	1
11997	**Methylene Chloride**	75-09-2	**23**	0.5	1	1
11997	**Styrene**	100-42-5	**21**	1	5	1
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**21**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**22**	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MWBR2-180126 MSD Grab Groundwater
SGPP - Bennington

Project Name: SGPP - Bennington

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MSD

C. T. Male Associates
ELLE Sample #: GW 9427856
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Toluene**	108-88-3	**21**	0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**23**	1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**22**	1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**24**	0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**21**	0.5	1	1
11997	**Trichloroethene**	79-01-6	**23**	0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**25**	0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**20**	0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**43**	0.5	1	1
11997	**o-Xylene**	95-47-6	**21**	0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**63**	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		ug/l	ug/l	ug/l	
14080	**1,4-Dioxane**	123-91-1	**1.1**	0.050	0.20	1

1,4-Dioxane was detected in the method blank associated with the samples as noted on the QC Summary. The client was contacted and the data reported.

The QC limits for 1,4-Dioxane are advisory only until sufficient data points can be obtained to calculate statistical limits.

Metals	**SW-846 6010C**		mg/l	mg/l	mg/l	
01743	**Aluminum**	7429-90-5	**2.01**	0.0894	0.400	1
08014	**Boron**	7440-42-8	**2.01**	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**63.9**	0.0600	0.400	1
01754	**Iron**	7439-89-6	**0.967**	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**26.6**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.93**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**10.7**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**11.0**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.675**	0.0065	0.0400	1
	SW-846 6020A		mg/l	mg/l	mg/l	
06024	**Antimony**	7440-36-0	**0.0059**	0.00045	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0115**	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.191**	0.00072	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0042**	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0053**	0.00015	0.0010	1
06031	**Chromium**	7440-47-3	**0.0522**	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.259**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0538**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0158**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0611**	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MSD Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MSD

C. T. Male Associates
ELLE Sample #: GW 9427856
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06041	**Selenium**	7782-49-2	**0.010**	0.00050	0.0040	1
06042	**Silver**	7440-22-4	**0.0514**	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0033**	0.00012	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0525**	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00086**	0.000050	0.00020	1
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.0**	0.050	0.10	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	**Orthophosphate as P**	7723-14-0	**0.41**	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	5180313AA	02/01/2018 00:53	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	5180313AA	02/01/2018 00:53	Don V Viray	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	18030WAF026	02/01/2018 09:21	Catherine E Bachman	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	18030WAF026	01/30/2018 15:53	Christine E Gleim	1
01743	Aluminum	SW-846 6010C	1	180301063502	01/31/2018 20:49	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	180301063502	01/31/2018 11:44	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	180311063903D	02/01/2018 07:16	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 MSD Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01MSD

C. T. Male Associates
ELLE Sample #: GW 9427856
ELLE Group #: 1901931
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	180311063903B	02/01/2018 07:16	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	180311063903A	02/01/2018 07:16	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	180300571305	01/31/2018 08:07	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180301063502	01/31/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180311063903	01/31/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180300571305	01/30/2018 22:05	Annamaria Kuhns	1
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108C	01/31/2018 18:34	Gregory Baldree	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18027146272A	01/27/2018 12:57	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Dupl Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01DUP

C. T. Male Associates
ELLE Sample #: GW 9427857
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
08014	Boron	7440-42-8	0.0101 U	0.0101	0.100	1
01750	**Calcium**	7440-70-2	**59.2**	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	**Magnesium**	7439-95-4	**24.4**	0.0374	0.200	1
07058	**Manganese**	7439-96-5	**2.39**	0.0016	0.0100	1
01762	**Potassium**	7440-09-7	**0.934 J**	0.179	1.00	1
01767	**Sodium**	7440-23-5	**1.38 J**	0.321	2.00	1
07072	**Zinc**	7440-66-6	**0.196**	0.0065	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	**Barium**	7440-39-3	**0.135**	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	**Cadmium**	7440-43-9	**0.00023 J**	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0172**	0.00016	0.0010	1
06033	**Copper**	7440-50-8	**0.0301**	0.00054	0.0040	1
06035	**Lead**	7439-92-1	**0.0017 J**	0.00011	0.0020	1
06039	**Nickel**	7440-02-0	**0.0095**	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	**Thallium**	7440-28-0	**0.0013**	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**3.9**	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**11.1**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Dupl Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01DUP

C. T. Male Associates
ELLE Sample #: GW 9427857
ELLE Group #: 1901931
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SW-846 9012A**		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**230**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
14627	Orthophosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

This sample was field filtered for dissolved ortho-phosphate.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	180301063502	01/31/2018 20:43	Cindy M Gehman	1
08014	Boron	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
01750	Calcium	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
07072	Zinc	SW-846 6010C	1	180301063502	01/31/2018 11:37	Suzanne M Will	1
06024	Antimony	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	180311063903D	02/01/2018 07:10	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	180311063903B	02/01/2018 07:10	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	180311063903A	02/01/2018 07:10	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	180300571305	01/31/2018 07:59	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	180301063502	01/31/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	180311063903	01/31/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	180300571305	01/30/2018 22:05	Annamaria Kuhns	1
01505	Bromide	EPA 300.0	1	18027987212B	01/27/2018 22:43	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: **SG3-MWBR2-180126 Dupl Grab Groundwater**
SGPP - Bennington

Project Name: **SGPP - Bennington**

Submittal Date/Time: 01/27/2018 10:00
Collection Date/Time: 01/26/2018 11:45
SDG#: SNB90-01DUP

C. T. Male Associates
ELLE Sample #: GW 9427857
ELLE Group #: 1901931
Matrix: Groundwater

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	18027987212B	01/27/2018 22:43	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:43	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18027987212B	01/27/2018 22:43	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18027987212B	01/27/2018 22:43	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18031107108C	01/31/2018 18:36	Gregory Baldree	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	18031108102A	02/01/2018 11:31	Ashlynn M Cornelius	1
08255	Total Cyanide	SW-846 9012A	1	18030117102A	01/30/2018 20:09	Gregory Baldree	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	18031108102A	01/31/2018 16:45	Barbara A Washington	1
08256	Cyanide Water Distillation	SW-846 9012A	1	18030117102A	01/30/2018 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	18029013203A	01/30/2018 03:03	Jeremy L Bolf	1
14627	Orthophosphate as P	SM 4500-P E-1999	1	18027146272A	01/27/2018 12:57	Leroy C Poole	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 5180313AA	Sample number(s): 9427854-9427856		
Acetone	6 U	6	20
Benzene	0.5 U	0.5	1
Bromochloromethane	1 U	1	5
Bromodichloromethane	0.5 U	0.5	1
Bromoform	0.5 U	0.5	4
Bromomethane	0.5 U	0.5	1
2-Butanone	3 U	3	10
Carbon Disulfide	1 U	1	5
Carbon Tetrachloride	0.5 U	0.5	1
Chlorobenzene	0.5 U	0.5	1
Chloroethane	0.5 U	0.5	1
Chloroform	0.5 U	0.5	1
Chloromethane	0.5 U	0.5	1
Cyclohexane	2 U	2	5
1,2-Dibromo-3-chloropropane	2 U	2	5
Dibromochloromethane	0.5 U	0.5	1
1,2-Dibromoethane	0.5 U	0.5	1
1,2-Dichlorobenzene	1 U	1	5
1,3-Dichlorobenzene	1 U	1	5
1,4-Dichlorobenzene	1 U	1	5
Dichlorodifluoromethane	0.5 U	0.5	1
1,1-Dichloroethane	0.5 U	0.5	1
1,2-Dichloroethane	0.5 U	0.5	1
1,1-Dichloroethene	0.5 U	0.5	1
cis-1,2-Dichloroethene	0.5 U	0.5	1
trans-1,2-Dichloroethene	0.5 U	0.5	1
1,2-Dichloropropane	0.5 U	0.5	1
cis-1,3-Dichloropropene	0.5 U	0.5	1
trans-1,3-Dichloropropene	0.5 U	0.5	1
Ethylbenzene	0.5 U	0.5	1
Freon 113	2 U	2	10
2-Hexanone	3 U	3	10
Isopropylbenzene	1 U	1	5
Methyl Acetate	1 U	1	5
Methyl Tertiary Butyl Ether	0.5 U	0.5	1
4-Methyl-2-pentanone	3 U	3	10
Methylcyclohexane	1 U	1	5
Methylene Chloride	0.5 U	0.5	1
Styrene	1 U	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
1,1,2,2-Tetrachloroethane	0.5 U	0.5	1
Tetrachloroethene	0.5 U	0.5	1
Toluene	0.5 U	0.5	1
1,2,3-Trichlorobenzene	1 U	1	5
1,2,4-Trichlorobenzene	1 U	1	5
1,1,1-Trichloroethane	0.5 U	0.5	1
1,1,2-Trichloroethane	0.5 U	0.5	1
Trichloroethene	0.5 U	0.5	1
Trichlorofluoromethane	0.5 U	0.5	1
Vinyl Chloride	0.5 U	0.5	1
m+p-Xylene	0.5 U	0.5	1
o-Xylene	0.5 U	0.5	1
Xylene (Total)	0.5 U	0.5	1
Batch number: 18030WAF026	Sample number(s): 9427854-9427856		
1,4-Dioxane	0.064 J	0.050	0.20
	mg/l	mg/l	mg/l
Batch number: 180300571305	Sample number(s): 9427854-9427857		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 180301063502	Sample number(s): 9427854-9427857		
Aluminum	0.114 J	0.0894	0.400
Boron	0.0101 U	0.0101	0.100
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 180311063903A	Sample number(s): 9427854-9427857		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 180311063903B	Sample number(s): 9427854-9427857		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Selenium	0.00050 U	0.00050	0.0040
Batch number: 180311063903D	Sample number(s): 9427854-9427857		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18027987212B	Sample number(s): 9427854-9427855,9427857		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18030117102A	Sample number(s): 9427854-9427855,9427857		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 18031107108C	Sample number(s): 9427854-9427857		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18031108102A	Sample number(s): 9427854-9427855,9427857		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 18027146272A	Sample number(s): 9427854-9427857		
Orthophosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18029013203A	Sample number(s): 9427854-9427855,9427857		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 5180313AA	Sample number(s): 9427854-9427856								
Acetone	150	126.69			84		44-177		
Benzene	20	20.91			105		78-120		
Bromochloromethane	20	20.04			100		80-125		
Bromodichloromethane	20	20.14			101		71-120		
Bromoform	20	16.6			83		59-120		
Bromomethane	20	19.77			99		44-139		
2-Butanone	150	151.31			101		53-140		
Carbon Disulfide	20	17.98			90		65-128		
Carbon Tetrachloride	20	21.97			110		68-128		
Chlorobenzene	20	20.02			100		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloroethane	20	18.01			90		52-127		
Chloroform	20	22.45			112		80-120		
Chloromethane	20	16.19			81		57-120		
Cyclohexane	20	20.12			101		67-121		
1,2-Dibromo-3-chloropropane	20	19.87			99		64-120		
Dibromochloromethane	20	19.2			96		71-120		
1,2-Dibromoethane	20	19.87			99		75-120		
1,2-Dichlorobenzene	20	19.59			98		80-120		
1,3-Dichlorobenzene	20	19.8			99		80-120		
1,4-Dichlorobenzene	20	19.91			100		80-120		
Dichlorodifluoromethane	20	15.76			79		47-124		
1,1-Dichloroethane	20	21.17			106		80-120		
1,2-Dichloroethane	20	21.86			109		73-124		
1,1-Dichloroethene	20	22.69			113		76-124		
cis-1,2-Dichloroethene	20	21.85			109		80-120		
trans-1,2-Dichloroethene	20	21.91			110		80-120		
1,2-Dichloropropane	20	20.5			102		80-120		
cis-1,3-Dichloropropene	20	19.59			98		75-120		
trans-1,3-Dichloropropene	20	18.95			95		76-120		
Ethylbenzene	20	20.55			103		78-120		
Freon 113	20	21.54			108		68-137		
2-Hexanone	100	96.73			97		60-134		
Isopropylbenzene	20	20.22			101		80-120		
Methyl Acetate	20	19.47			97		61-137		
Methyl Tertiary Butyl Ether	20	21.4			107		75-120		
4-Methyl-2-pentanone	100	100.06			100		67-128		
Methylcyclohexane	20	19.25			96		66-126		
Methylene Chloride	20	20.79			104		80-120		
Styrene	20	19.56			98		80-120		
1,1,2,2-Tetrachloroethane	20	20.09			100		72-120		
Tetrachloroethene	20	21.15			106		80-129		
Toluene	20	20.32			102		80-120		
1,2,3-Trichlorobenzene	20	19.13			96		66-120		
1,2,4-Trichlorobenzene	20	18.6			93		70-120		
1,1,1-Trichloroethane	20	22.04			110		67-120		
1,1,2-Trichloroethane	20	20.53			103		80-120		
Trichloroethene	20	21.97			110		80-120		
Trichlorofluoromethane	20	20.45			102		52-143		
Vinyl Chloride	20	17.24			86		63-121		
m+p-Xylene	40	39.76			99		80-120		
o-Xylene	20	19.16			96		80-120		
Xylene (Total)	60	58.92			98		80-120		
	ug/l	ug/l	ug/l	ug/l					

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18030WAF026	Sample number(s): 9427854-9427856								
1,4-Dioxane	1.00	1.17			117		70-130		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180300571305	Sample number(s): 9427854-9427857								
Mercury	0.00100	0.000900			90		80-120		
Batch number: 180301063502	Sample number(s): 9427854-9427857								
Aluminum	2.00	2.03			101		80-120		
Boron	2.00	2.00			100		80-120		
Calcium	4.00	3.97			99		80-120		
Iron	1.00	0.985			98		80-120		
Magnesium	2.00	2.00			100		80-120		
Manganese	0.500	0.519			104		80-120		
Potassium	10	9.84			98		80-120		
Sodium	10	9.86			99		80-120		
Zinc	0.500	0.530			106		80-120		
Batch number: 180311063903A	Sample number(s): 9427854-9427857								
Antimony	0.00600	0.00582			97		80-120		
Arsenic	0.0100	0.0100			100		80-120		
Beryllium	0.00400	0.00396			99		80-120		
Cadmium	0.00500	0.00491			98		80-120		
Chromium	0.0500	0.0505			101		80-120		
Cobalt	0.250	0.242			97		80-120		
Copper	0.0500	0.0516			103		80-120		
Lead	0.0150	0.0152			101		80-120		
Nickel	0.0500	0.0508			102		80-120		
Silver	0.0500	0.0518			104		80-120		
Thallium	0.00200	0.00220			110		80-120		
Vanadium	0.0500	0.0512			102		80-120		
Batch number: 180311063903B	Sample number(s): 9427854-9427857								
Selenium	0.0100	0.0101			101		80-120		
Batch number: 180311063903D	Sample number(s): 9427854-9427857								
Barium	0.0500	0.0492			98		80-120		
	mg/l	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18027987212B	Sample number(s): 9427854-9427855,9427857								
Bromide	7.50	7.33			98		90-110		
Chloride	3.00	2.88			96		90-110		
Nitrate Nitrogen	0.750	0.755			101		90-110		
Nitrite Nitrogen	0.750	0.739			99		90-110		
Sulfate	7.50	7.29			97		90-110		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18030117102A	Sample number(s): 9427854-9427855,9427857								
Total Cyanide	0.200	0.214			107		90-110		
Batch number: 18031107108C	Sample number(s): 9427854-9427857								
Ammonia Nitrogen	1.50	1.61	1.50	1.64	107	109	90-110	2	15
Batch number: 18031108102A	Sample number(s): 9427854-9427855,9427857								
Kjeldahl Nitrogen	5.00	5.29			106		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18027146272A	Sample number(s): 9427854-9427857								
Orthophosphate as P	0.400	0.403			101		95-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18029013203A	Sample number(s): 9427854-9427855,9427857								
Total Alkalinity to pH 4.5	188	178.62			95		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 5180313AA	Sample number(s): 9427854-9427856 UNSPK: 9427854									
Acetone	6 U	150	140.42	150	135.29	94	90	44-177	4	30
Benzene	0.5 U	20	22.22	20	22.42	111	112	78-120	1	30
Bromochloromethane	1 U	20	21.83	20	22.08	109	110	80-125	1	30
Bromodichloromethane	0.5 U	20	21.54	20	21.16	108	106	71-120	2	30
Bromoform	0.5 U	20	18.14	20	17.47	91	87	59-120	4	30
Bromomethane	0.5 U	20	20.69	20	21.49	103	107	44-139	4	30
2-Butanone	3 U	150	156.33	150	154.07	104	103	53-140	1	30
Carbon Disulfide	1 U	20	20.18	20	21.2	101	106	65-128	5	30
Carbon Tetrachloride	0.5 U	20	24.89	20	24.51	124	123	68-128	2	30
Chlorobenzene	0.5 U	20	21.07	20	21.08	105	105	80-120	0	30
Chloroethane	0.5 U	20	19.57	20	21.4	98	107	52-127	9	30
Chloroform	0.5 U	20	23.9	20	23.32	120	117	80-120	2	30
Chloromethane	0.5 U	20	16.86	20	18.53	84	93	57-120	9	30
Cyclohexane	2 U	20	24.71	20	24.34	124*	122*	67-121	2	30
1,2-Dibromo-3-chloropropane	2 U	20	20.91	20	20.31	105	102	64-120	3	30
Dibromochloromethane	0.5 U	20	20.53	20	20.25	103	101	71-120	1	30
1,2-Dibromoethane	0.5 U	20	20.94	20	21.19	105	106	75-120	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	1 U	20	21.37	20	21	107	105	80-120	2	30
1,3-Dichlorobenzene	1 U	20	21.38	20	21.04	107	105	80-120	2	30
1,4-Dichlorobenzene	1 U	20	21.85	20	21.54	109	108	80-120	1	30
Dichlorodifluoromethane	0.5 U	20	17.98	20	18.44	90	92	47-124	2	30
1,1-Dichloroethane	0.5 U	20	22.65	20	22.58	113	113	80-120	0	30
1,2-Dichloroethane	0.5 U	20	23.59	20	22.92	118	115	73-124	3	30
1,1-Dichloroethene	0.5 U	20	26.89	20	27.31	134*	137*	76-124	2	30
cis-1,2-Dichloroethene	0.5 U	20	23.72	20	23.44	119	117	80-120	1	30
trans-1,2-Dichloroethene	0.5 U	20	24.96	20	24.63	125*	123*	80-120	1	30
1,2-Dichloropropane	0.5 U	20	21.84	20	21.73	109	109	80-120	1	30
cis-1,3-Dichloropropene	0.5 U	20	20.79	20	20.79	104	104	75-120	0	30
trans-1,3-Dichloropropene	0.5 U	20	20.07	20	19.36	100	97	76-120	4	30
Ethylbenzene	0.5 U	20	21.4	20	21.51	107	108	78-120	1	30
Freon 113	2 U	20	26.95	20	27.83	135	139*	68-137	3	30
2-Hexanone	3 U	100	102.44	100	99.02	102	99	60-134	3	30
Isopropylbenzene	1 U	20	21.83	20	21.92	109	110	80-120	0	30
Methyl Acetate	1 U	20	21.19	20	21.01	106	105	61-137	1	30
Methyl Tertiary Butyl Ether	0.5 U	20	22.6	20	21.98	113	110	75-120	3	30
4-Methyl-2-pentanone	3 U	100	105.06	100	102.24	105	102	67-128	3	30
Methylcyclohexane	1 U	20	22.98	20	22.39	115	112	66-126	3	30
Methylene Chloride	0.5 U	20	22.86	20	23.23	114	116	80-120	2	30
Styrene	1 U	20	20.56	20	20.69	103	103	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5 U	20	21.45	20	20.67	107	103	72-120	4	30
Tetrachloroethene	0.5 U	20	22.34	20	22.35	112	112	80-129	0	30
Toluene	0.5 U	20	21.33	20	21.23	107	106	80-120	0	30
1,2,3-Trichlorobenzene	1 U	20	21.26	20	22.55	106	113	66-120	6	30
1,2,4-Trichlorobenzene	1 U	20	20.8	20	21.64	104	108	70-120	4	30
1,1,1-Trichloroethane	0.5 U	20	24.51	20	23.6	123*	118	67-120	4	30
1,1,2-Trichloroethane	0.5 U	20	20.77	20	21.25	104	106	80-120	2	30
Trichloroethene	0.5 U	20	23.32	20	23.43	117	117	80-120	1	30
Trichlorofluoromethane	0.5 U	20	23.7	20	24.65	118	123	52-143	4	30
Vinyl Chloride	0.5 U	20	19.37	20	19.66	97	98	63-121	1	30
m+p-Xylene	0.5 U	40	42.63	40	42.55	107	106	80-120	0	30
o-Xylene	0.5 U	20	20.75	20	20.61	104	103	80-120	1	30
Xylene (Total)	0.5 U	60	63.38	60	63.16	106	105	80-120	0	30
	ug/l	**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 18030WAF026	Sample number(s): 9427854-9427856 UNSPK: 9427854									
1,4-Dioxane	0.0649	1.00	1.22	1.00	1.15	115	108	70-130	6	30
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 180300571305	Sample number(s): 9427854-9427857 UNSPK: 9427854									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Mercury	0.000050 U	0.00100	0.000870	0.00100	0.000864	87	86	80-120	1	20
Batch number: 180301063502	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Aluminum	0.0894 U	2.00	1.97	2.00	2.01	98	100	75-125	2	20
Boron	0.0101 U	2.00	2.02	2.00	2.01	101	101	75-125	0	20
Calcium	58.9	4.00	63.13	4.00	63.87	106 (2)	124 (2)	75-125	1	20
Iron	0.0805 U	1.00	0.988	1.00	0.967	99	97	75-125	2	20
Magnesium	24.28	2.00	26.37	2.00	26.63	105 (2)	117 (2)	75-125	1	20
Manganese	2.37	0.500	2.89	0.500	2.93	104 (2)	111 (2)	75-125	1	20
Potassium	0.911	10	10.67	10	10.65	98	97	75-125	0	20
Sodium	1.33	10	11.21	10	11.04	99	97	75-125	2	20
Zinc	0.182	0.500	0.660	0.500	0.675	96	99	75-125	2	20
Batch number: 180311063903A	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Antimony	0.00045 U	0.00600	0.00629	0.00600	0.00593	105	99	75-125	6	20
Arsenic	0.00072 U	0.0100	0.0109	0.0100	0.0115	109	115	75-125	6	20
Beryllium	0.000071 U	0.00400	0.00405	0.00400	0.00421	101	105	75-125	4	20
Cadmium	0.000201	0.00500	0.00515	0.00500	0.00526	99	101	75-125	2	20
Chromium	0.00087 U	0.0500	0.0518	0.0500	0.0522	104	104	75-125	1	20
Cobalt	0.0171	0.250	0.260	0.250	0.259	97	97	75-125	0	20
Copper	0.0295	0.0500	0.0523	0.0500	0.0538	46*	49*	75-125	3	20
Lead	0.00177	0.0150	0.0161	0.0150	0.0158	96	94	75-125	2	20
Nickel	0.00900	0.0500	0.0597	0.0500	0.0611	101	104	75-125	2	20
Silver	0.00015 U	0.0500	0.0507	0.0500	0.0514	101	103	75-125	1	20
Thallium	0.00135	0.00200	0.00352	0.00200	0.00331	108	98	75-125	6	20
Vanadium	0.00021 U	0.0500	0.0530	0.0500	0.0525	106	105	75-125	1	20
Batch number: 180311063903B	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Selenium	0.00050 U	0.0100	0.0102	0.0100	0.00996	102	100	75-125	2	20
Batch number: 180311063903D	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Barium	0.136	0.0500	0.192	0.0500	0.191	111	109	75-125	1	20
	mg/l	**mg/l**	**mg/l**	**mg/l**	**mg/l**					
Batch number: 18027987212B	Sample number(s): 9427854-9427855,9427857 UNSPK: 9427854									
Bromide	1.3 U	25	31.32			125*		90-110		
Chloride	3.97	10	16.02			120*		90-110		
Nitrate Nitrogen	0.25 U	2.50	3.38			135*		90-110		
Nitrite Nitrogen	0.25 U	2.50	3.13			125*		90-110		
Sulfate	11.22	25	42.88			127*		90-110		
Batch number: 18030117102A	Sample number(s): 9427854-9427855,9427857 UNSPK: 9427854									

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l	mg/l					
Total Cyanide	0.0050 U	0.200	0.123			61*		72-114		
Batch number: 18031107108C	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Ammonia Nitrogen	0.050 U	1.00	1.11	1.00	1.02	111*	102	90-110	8	8
Batch number: 18031108102A	Sample number(s): 9427854-9427855,9427857 UNSPK: 9427854									
Kjeldahl Nitrogen	0.50 U	5.00	5.83			117*		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18027146272A	Sample number(s): 9427854-9427857 UNSPK: 9427854									
Orthophosphate as P	0.030 U	0.400	0.412	0.400	0.409	103	102	69-131	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18029013203A	Sample number(s): 9427854-9427855,9427857 UNSPK: 9427854									
Total Alkalinity to pH 4.5	228.07	188	399.53			91		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 180300571305	Sample number(s): 9427854-9427857 BKG: 9427854			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 180301063502	Sample number(s): 9427854-9427857 BKG: 9427854			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Boron	0.0101 U	0.0101 U	0 (1)	20
Calcium	58.9	59.22	1	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	24.28	24.44	1	20
Manganese	2.37	2.39	1	20
Potassium	0.911	0.934	2 (1)	20
Sodium	1.33	1.38	4 (1)	20
Zinc	0.182	0.196	7 (1)	20
Batch number: 180311063903A	Sample number(s): 9427854-9427857 BKG: 9427854			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Cadmium	0.000201	0.000228	13 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.0171	0.0172	1	20
Copper	0.0295	0.0301	2	20
Lead	0.00177	0.00172	3 (1)	20
Nickel	0.00900	0.00945	5 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00135	0.00133	1 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 180311063903B	Sample number(s): 9427854-9427857 BKG: 9427854			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 180311063903D	Sample number(s): 9427854-9427857 BKG: 9427854			
Barium	0.136	0.135	1	20
	mg/l	mg/l		
Batch number: 18027987212B	Sample number(s): 9427854-9427855,9427857 BKG: 9427854			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	3.97	3.91	2 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	11.22	11.09	1 (1)	15
Batch number: 18030117102A	Sample number(s): 9427854-9427855,9427857 BKG: 9427854			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 18031107108C	Sample number(s): 9427854-9427857 BKG: 9427854			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 18031108102A	Sample number(s): 9427854-9427855,9427857 BKG: 9427854			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18027146272A	Sample number(s): 9427854-9427857 BKG: 9427854			
Orthophosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18029013203A	Sample number(s): 9427854-9427855,9427857 BKG: 9427854			
Total Alkalinity to pH 4.5	228.07	229.63	1	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 02/01/2018 15:33

Group Number: 1901931

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: SOM02.2 Volatiles
Batch number: 5180313AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9427854	105	102	98	97
9427855	105	106	98	99
9427856	105	103	98	100
Blank	102	102	98	96
LCS	104	102	98	98
MS	105	106	98	99
MSD	105	103	98	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: 1,4-Dioxane
Batch number: 18030WAF026

	1,4-Dioxane-d8
9427854	28*
9427855	39*
9427856	41*
Blank	42*
LCS	39*
MS	39*
MSD	41*
Limits:	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

37191/1901931/9427854-58

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☐ Bismarck ☐ Duluth ☐ Hibbing ☐ Jefferson City ☒ Minneapolis

Sample Origination State: ☐ KS ☐ MO ☐ WI ☐ MI ☐ ND Other: VT ☐ MN ☐ SD

COC Number: 53490

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering	Company: CT Male Associates
Address: 4300 MarketPointe Dr.	Address: 50 Century Hill Dr.
Name: Michael Dupay	Name: Latham, NY
email: mdupay@barr.com	email:
Copy to: datamgt@barr.com	P.O.
Project Name: SGPP-Bennington	Barr Project No: 45021004.00

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD (Y / N)	Total Number Of Containers	Analysis Requested: Water: ORTHOPHOSPHATE 250 mL (P); METALS + Hg (250 mL P); CYANIDE 250 mL (P); ALKALINITY 250 mL (P); CHLORIDE 250 mL (G); AMMONIA/NITROGEN 250 mL (P); Soil: VOCs 40 mL (G); BR/CL/NI/SO4 100 mL (G); Lab trip blank 250 mL (P); % Solids
Preservative Code									A C E I A A D B A A
Field Filtered Y/N									Y N N N N N N N N
1. SG3-MWBR2-180126	—	—	—	01/26/2018	11:45	GW	Y	36	3 3 3 3 6 3 9 6
2. SG3-LTB137-180126	—	—	—	01/26/2018	—	W	N	2	2
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

BARR USE ONLY		Relinquished by:	On Ice? Y N	Date	Time	Received by:	Date	Time
Sampled by:	KWP							
Barr Proj. Manager:	JTC	Relinquished by:	On Ice? Y N	1/26/18	1620	Received by:	1/27/18	1000
Barr DQ Manager:	MDD	Samples Shipped VIA: ☐ Courier ☑ Federal Express ☐ Sampler ☐ Other:		Air Bill Number:		Requested Due Date: ☐ Standard Turn Around Time ☐ Rush (mm/dd/yyyy)		
Lab Name:	ELLE							
Lab Location:	Lancaster, PA	Lab WO:	Temperature on Receipt (°C): 0.8/1.1	Custody Seal Intact? ☐ Y ☐ N ☐ None				

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

H:\RLG\STDFORMS\Chain Of Custody Form 2015 RLG Rev. 06/16/15

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Sample Administration Receipt Documentation Log

Doc Log ID: 207039

Group Number(s): 1901931

Client: Barr Engineering

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	01/27/2018 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VT		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2 (Trizma 250mL Plastic Bottles) 2 (Unpreserved 250mL Plastic Bottles)

Unpacked by Wyatt Shiffler (12792) at 11:06 on 01/27/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: June 19, 2017

Project: SGPP - North Bennington

Submittal Date: 05/26/2017
Group Number: 1806183
SDG: SPQ24
PO Number: 16.6131
State of Sample Origin: VT

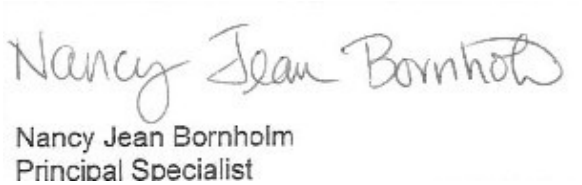
Client Sample Description	Lancaster Labs (LL) #
SG3-MW-7-170524 Grab Groundwater	9016127
SG3-B-12-170524 Grab Groundwater	9016128
SG3-MW-100S-170524 Grab Groundwater	9016129
SG3-MW-100S-170524 MS Grab Groundwater	9016130
SG3-MW-100S-170524 MSD Grab Groundwater	9016131
SG3-MW-100S-170524 Dupl Grab Groundwater	9016132
SG3-FTB01-170524 Blank Water	9016133
SG3-LTB01-170524 Blank Water	9016134
SG3-B-2-1-170525 Grab Groundwater	9016135
SG3-B-2-2-170525 Grab Groundwater	9016136
SG3-EB01-170525 Blank Water	9016137
SG3-RB01-170525 Blank Water	9016138
SG3-RB02-170525 Blank Water	9016139
SG3-VLT-01-170525 Grab Groundwater	9016140
SG3-FD01-170525 Grab Groundwater	9016141

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Barr Engineering Company	Attn: Jonathon Carter
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250

Project Name: SGPP - North Bennington
LL Group #: 1806183

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270D SIM, GC/MS Semivolatiles

Sample #s: 9016127, 9016128, 9016129, 9016130, 9016131, 9016135, 9016136, 9016137, 9016140, 9016141

The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 17150WAP026 (Sample number(s): 9016127-9016131, 9016135-9016137, 9016140-9016141 UNSPK: 9016129)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9016127, 9016128, 9016129, 9016130, 9016131, 9016135, 9016136, 9016137, 9016140, 9016141, Blank, LCS, MS, MSD

EPA 537 Rev. 1.1 modified, Misc. Organics

Sample #s: 9016128, 9016129, 9016130, 9016131, 9016133, 9016134, 9016135, 9016136, 9016137, 9016138, 9016139, 9016141

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample #s: 9016127, 9016140

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

The injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

Batch #: 17151004 (Sample number(s): 9016127-9016131, 9016133-9016141 UNSPK: 9016129)

The recovery(ies) for one or more surrogates exceeded the acceptance window

indicating a positive bias for sample(s) 9016127, 9016140, 9016141

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9016127, 9016128, 9016129, 9016130, 9016131, 9016133, 9016134, 9016135, 9016136, 9016137, 9016138, 9016139, 9016140, 9016141, Blank, LCS, MS, MSD

SW-846 6010C, Metals

Batch #: 171461063501 (Sample number(s): 9016127-9016132, 9016135-9016137, 9016140-9016141 UNSPK: 9016129 BKG: 9016129)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium

SW-846 6020A, Metals

Batch #: 171461063903A (Sample number(s): 9016127-9016132, 9016135-9016137, 9016140-9016141 UNSPK: 9016129 BKG: 9016129)

The recovery(ies) for the following analyte(s) in the LCS exceeded the acceptance window indicating a positive bias: Cadmium

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Antimony, Cadmium

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Chromium

SW-846 9012A, Wet Chemistry

Batch #: 17153117101A (Sample number(s): 9016140-9016141 UNSPK: P17257 BKG: P17257)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Cyanide (water)

SM 2320 B-1997, Wet Chemistry

Batch #: 17150002202A (Sample number(s): 9016127, 9016129-9016132, 9016135-9016137, 9016140 UNSPK: 9016129 BKG: P9016129-P16141)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

Batch #: 17150002202B (Sample number(s): 9016141 UNSPK: P16129 BKG: P16129, P9016141)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Total Alkalinity to pH 4.5

SM 4500-P E-1999, Wet Chemistry

Sample #s: 9016127, 9016128, 9016129, 9016130, 9016131, 9016132

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Description: SG3-MW-7-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016127
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 12:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2401 SDG#: SPQ24-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-7-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016127
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 12:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2401 SDG#: SPQ24-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.053	U	0.053	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**16**		0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**10**		1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
	The injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**5.25**		0.0868	0.400	1
08014	Boron	7440-42-8	0.0083	U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**2.36**		0.0382	0.400	1
01754	**Iron**	7439-89-6	**9.03**		0.0747	0.400	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-7-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016127
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 12:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2401 SDG#: SPQ24-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01757	**Magnesium**	7439-95-4	**1.54**	0.0190	0.200	1
01762	**Potassium**	7440-09-7	**2.21**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**2.82**	0.173	2.00	1
07072	**Zinc**	7440-66-6	**0.0263 J**	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.00067 J**	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0012 J**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0485**	0.00096	0.0040	1
06027	**Beryllium**	7440-41-7	**0.00033 J**	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.0028 J**	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0402**	0.00020	0.0010	1
06033	**Copper**	7440-50-8	**0.0050**	0.00052	0.0040	1
06035	**Lead**	7439-92-1	**0.0080**	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.112**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0054**	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0012**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**4.3**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.88**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**6.7**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.10**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**7.4**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**320**	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-7-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016127
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 12:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2401 SDG#: SPQ24-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2320 B-1997**		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12149	**Bicarbonate Alkalinity**	n.a.	**320**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 12:58	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 12:58	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 15:03	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 10:43	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:10	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:07	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:39	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-7-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016127
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 12:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2401 SDG#: SPQ24-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:39	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:39	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:39	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:07	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:07	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:39	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:04	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 12:12	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 12:12	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:12	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:12	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 12:12	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:18	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:41	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:34	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 17:35	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:35	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:35	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2401

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016127
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s10.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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28.					
29.					
30.					

page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-B-12-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016128
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 13:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2402 SDG#: SPQ24-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-12-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016128
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 13:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2402 SDG#: SPQ24-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.058	U	0.058	0.23	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**100**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**8**		0.6	2	1
10954	**Perfluorodecanoic acid**	335-76-2	**3**		0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**13**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**14**		0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**1**	**J**	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**3**	**J**	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**11**		2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**8**	**J**	3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**11**		0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	Boron	7440-42-8	0.0083	U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**92.3**		0.0382	0.400	1
01754	Iron	7439-89-6	0.0747	U	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**26.2**		0.0190	0.200	1
01762	**Potassium**	7440-09-7	**0.922**	**J**	0.160	1.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-12-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016128
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 13:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2402 SDG#: SPQ24-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01767	**Sodium**	7440-23-5	**0.914 J**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	Arsenic	7440-38-2	0.00068 U	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0544**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	Chromium	7440-47-3	0.00059 U	0.00059	0.0040	1
06032	Cobalt	7440-48-4	0.00020 U	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0016 J**	0.00088	0.0040	1
06039	Nickel	7440-02-0	0.00085 U	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00027 J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**2.3**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.75**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**6.9**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**329**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**329**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-12-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016128
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 13:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2402 SDG#: SPQ24-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 13:20	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 13:20	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 15:17	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 11:03	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:14	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:10	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:44	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:44	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:44	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-12-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016128
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 13:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2402 SDG#: SPQ24-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:10	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:10	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:44	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:06	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 12:24	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 12:24	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:24	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:24	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 12:24	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:15	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:42	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:36	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17153002102A	06/02/2017 16:41	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17153002102A	06/02/2017 16:41	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17153002102A	06/02/2017 16:41	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2402

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016128
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s11.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-MW-100S-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016129
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016129
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051	U	0.051	0.20	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**36**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**3**		0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**4**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**4**	**J**	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**4**	**J**	3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**3**		0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	Boron	7440-42-8	0.0083	U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**85.8**		0.0382	0.400	1
01754	Iron	7439-89-6	0.0747	U	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**25.6**		0.0190	0.200	1
01762	**Potassium**	7440-09-7	**0.762**	**J**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**1.54**	**J**	0.173	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016129
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
Metals	**SW-846 6020A**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	Arsenic	7440-38-2	0.00068 U	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0299**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.00060 J**	0.00059	0.0040	1
06032	Cobalt	7440-48-4	0.00020 U	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0138**	0.00088	0.0040	1
06039	Nickel	7440-02-0	0.00085 U	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00028 J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.5 J**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.46 J**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**7.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**300**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**300**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016129
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		mg/l	mg/l	mg/l	

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 11:52	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 11:52	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 15:31	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 11:24	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 20:06	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 17:48	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:28	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:28	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:28	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:28	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 17:48	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016129
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 17:48	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:28	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 17:23	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 12:36	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 12:36	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:36	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 12:36	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 12:36	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:06	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:44	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:39	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 15:35	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 15:35	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 15:35	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2403

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016129
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s07.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-MW-100S-170524 MS Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016130
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**130**	6	20	1
11997	**Benzene**	71-43-2	**21**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**20**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**19**	0.5	1	1
11997	**Bromoform**	75-25-2	**16**	0.5	4	1
11997	**Bromomethane**	74-83-9	**18**	0.5	1	1
11997	**2-Butanone**	78-93-3	**120**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**22**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**21**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**21**	0.5	1	1
11997	**Chloroethane**	75-00-3	**18**	0.5	1	1
11997	**Chloroform**	67-66-3	**21**	0.5	1	1
11997	**Chloromethane**	74-87-3	**17**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**20**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**17**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**18**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**20**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**20**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**20**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**20**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**20**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**20**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**21**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**23**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**22**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**22**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**19**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**18**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**19**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**21**	0.5	1	1
11997	**Freon 113**	76-13-1	**25**	2	10	1
11997	**2-Hexanone**	591-78-6	**83**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**21**	1	5	1
11997	**Methyl Acetate**	79-20-9	**17**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**20**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**83**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**21**	1	5	1
11997	**Methylene Chloride**	75-09-2	**20**	2	4	1
11997	**Styrene**	100-42-5	**21**	1	5	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MS Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016130
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**18**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**21**	0.5	1	1
11997	**Toluene**	108-88-3	**21**	0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**19**	1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**18**	1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**20**	0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**21**	0.5	1	1
11997	**Trichloroethene**	79-01-6	**21**	0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**21**	0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**18**	0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**42**	0.5	1	1
11997	**o-Xylene**	95-47-6	**20**	0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**62**	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**1.1**	0.053	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**220**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**210**	0.6	2	1
10954	**Perfluorodecanoic acid**	335-76-2	**180**	0.5	2	1
10954	**Perfluoroundecanoic acid**	2058-94-8	**170**	1	3	1
10954	**Perfluorododecanoic acid**	307-55-1	**190**	0.5	2	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**220**	0.5	2	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**190**	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**170**	0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**200**	0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**170**	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**180**	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**200**	2	6	1
10954	**8:2 fluorotelomersulfonate**	39108-34-4	**180**	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**190**	3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**190**	0.5	2	1
10954	**NEtFOSAA**	2991-50-6	**180**	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	**NMeFOSAA**	2355-31-9	**150**	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**170**	3	10	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MS Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016130
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**PFOSA**	754-91-6	**190**	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.24**	0.0868	0.400	1
08014	**Boron**	7440-42-8	**1.87**	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**91.1**	0.0382	0.400	1
01754	**Iron**	7439-89-6	**1.05**	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**28.2**	0.0190	0.200	1
01762	**Potassium**	7440-09-7	**11.3**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**11.9**	0.173	2.00	1
07072	**Zinc**	7440-66-6	**0.507**	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0065**	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0102**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0758**	0.00096	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0040**	0.00011	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0053**	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.0515**	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.246**	0.00020	0.0010	1
06033	**Copper**	7440-50-8	**0.0504**	0.00052	0.0040	1
06035	**Lead**	7439-92-1	**0.0154**	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0601**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0513**	0.00085	0.0040	1
06041	**Selenium**	7782-49-2	**0.0103**	0.00044	0.0040	1
06042	**Silver**	7440-22-4	**0.0544**	0.00012	0.0010	1
06045	**Thallium**	7440-28-0	**0.0019**	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0517**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00092**	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**26.8**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**11.4**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**2.9**	0.25	0.50	5
01506	**Nitrite Nitrogen**	14797-65-0	**2.6**	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**32.2**	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MS Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016130
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.99**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**4.6**	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	**Total Cyanide**	57-12-5	**0.21**	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**369**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.43**	0.030	0.090	1

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 12:14	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 12:14	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 15:44	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 09:21	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MS Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016130
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 20:18	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 17:57	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:33	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:33	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:33	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:33	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 17:57	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 17:57	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:33	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 17:28	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 13:30	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 13:30	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 13:30	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 13:30	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 13:30	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 21:30	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:46	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:40	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 15:42	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MSD Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016131
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l	ug/l	ug/l	
11997	**Acetone**	67-64-1	**130**	6	20	1
11997	**Benzene**	71-43-2	**20**	0.5	1	1
11997	**Bromochloromethane**	74-97-5	**19**	1	5	1
11997	**Bromodichloromethane**	75-27-4	**19**	0.5	1	1
11997	**Bromoform**	75-25-2	**16**	0.5	4	1
11997	**Bromomethane**	74-83-9	**18**	0.5	1	1
11997	**2-Butanone**	78-93-3	**120**	3	10	1
11997	**Carbon Disulfide**	75-15-0	**22**	1	5	1
11997	**Carbon Tetrachloride**	56-23-5	**21**	0.5	1	1
11997	**Chlorobenzene**	108-90-7	**20**	0.5	1	1
11997	**Chloroethane**	75-00-3	**18**	0.5	1	1
11997	**Chloroform**	67-66-3	**20**	0.5	1	1
11997	**Chloromethane**	74-87-3	**18**	0.5	1	1
11997	**Cyclohexane**	110-82-7	**19**	2	5	1
11997	**1,2-Dibromo-3-chloropropane**	96-12-8	**17**	2	5	1
11997	**Dibromochloromethane**	124-48-1	**18**	0.5	1	1
11997	**1,2-Dibromoethane**	106-93-4	**19**	0.5	1	1
11997	**1,2-Dichlorobenzene**	95-50-1	**20**	1	5	1
11997	**1,3-Dichlorobenzene**	541-73-1	**20**	1	5	1
11997	**1,4-Dichlorobenzene**	106-46-7	**20**	1	5	1
11997	**Dichlorodifluoromethane**	75-71-8	**20**	0.5	1	1
11997	**1,1-Dichloroethane**	75-34-3	**20**	0.5	1	1
11997	**1,2-Dichloroethane**	107-06-2	**21**	0.5	1	1
11997	**1,1-Dichloroethene**	75-35-4	**23**	0.5	1	1
11997	**cis-1,2-Dichloroethene**	156-59-2	**21**	0.5	1	1
11997	**trans-1,2-Dichloroethene**	156-60-5	**22**	0.5	1	1
11997	**1,2-Dichloropropane**	78-87-5	**19**	0.5	1	1
11997	**cis-1,3-Dichloropropene**	10061-01-5	**18**	0.5	1	1
11997	**trans-1,3-Dichloropropene**	10061-02-6	**18**	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**21**	0.5	1	1
11997	**Freon 113**	76-13-1	**24**	2	10	1
11997	**2-Hexanone**	591-78-6	**83**	3	10	1
11997	**Isopropylbenzene**	98-82-8	**21**	1	5	1
11997	**Methyl Acetate**	79-20-9	**17**	1	5	1
11997	**Methyl Tertiary Butyl Ether**	1634-04-4	**20**	0.5	1	1
11997	**4-Methyl-2-pentanone**	108-10-1	**83**	3	10	1
11997	**Methylcyclohexane**	108-87-2	**21**	1	5	1
11997	**Methylene Chloride**	75-09-2	**20**	2	4	1
11997	**Styrene**	100-42-5	**20**	1	5	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MSD Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016131
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**	**ug/l**	**ug/l**	
11997	**1,1,2,2-Tetrachloroethane**	79-34-5	**19**	0.5	1	1
11997	**Tetrachloroethene**	127-18-4	**21**	0.5	1	1
11997	**Toluene**	108-88-3	**20**	0.5	1	1
11997	**1,2,3-Trichlorobenzene**	87-61-6	**19**	1	5	1
11997	**1,2,4-Trichlorobenzene**	120-82-1	**18**	1	5	1
11997	**1,1,1-Trichloroethane**	71-55-6	**20**	0.5	1	1
11997	**1,1,2-Trichloroethane**	79-00-5	**20**	0.5	1	1
11997	**Trichloroethene**	79-01-6	**20**	0.5	1	1
11997	**Trichlorofluoromethane**	75-69-4	**21**	0.5	1	1
11997	**Vinyl Chloride**	75-01-4	**18**	0.5	1	1
11997	**m+p-Xylene**	179601-23-1	**42**	0.5	1	1
11997	**o-Xylene**	95-47-6	**20**	0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**62**	0.5	1	1
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**	**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**1.1**	0.053	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**210**	0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**190**	0.6	2	1
10954	**Perfluorodecanoic acid**	335-76-2	**180**	0.5	2	1
10954	**Perfluoroundecanoic acid**	2058-94-8	**200**	1	3	1
10954	**Perfluorododecanoic acid**	307-55-1	**200**	0.5	2	1
10954	**Perfluorotridecanoic acid**	72629-94-8	**220**	0.5	2	1
10954	**Perfluorotetradecanoic acid**	376-06-7	**190**	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**190**	0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**190**	0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**170**	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**190**	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**180**	2	6	1
10954	**8:2 fluorotelomersulfonate**	39108-34-4	**190**	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**190**	3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**200**	0.5	2	1
10954	**NEtFOSAA**	2991-50-6	**190**	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
10954	**NMeFOSAA**	2355-31-9	**160**	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**190**	3	10	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MSD Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016131
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**	**ng/l**	**ng/l**	
10954	**PFOSA**	754-91-6	**180**	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	**Aluminum**	7429-90-5	**2.21**	0.0868	0.400	1
08014	**Boron**	7440-42-8	**1.84**	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**90.3**	0.0382	0.400	1
01754	**Iron**	7439-89-6	**1.03**	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**27.9**	0.0190	0.200	1
01762	**Potassium**	7440-09-7	**11.1**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**11.8**	0.173	2.00	1
07072	**Zinc**	7440-66-6	**0.502**	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	**Antimony**	7440-36-0	**0.0076**	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0116**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0834**	0.00096	0.0040	1
06027	**Beryllium**	7440-41-7	**0.0042**	0.00011	0.0010	1
06028	**Cadmium**	7440-43-9	**0.0063**	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.0527**	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.253**	0.00020	0.0010	1
06033	**Copper**	7440-50-8	**0.0513**	0.00052	0.0040	1
06035	**Lead**	7439-92-1	**0.0166**	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0654**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0515**	0.00085	0.0040	1
06041	**Selenium**	7782-49-2	**0.0104**	0.00044	0.0040	1
06042	**Silver**	7440-22-4	**0.0579**	0.00012	0.0010	1
06045	**Thallium**	7440-28-0	**0.0021**	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.0515**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	**Mercury**	7439-97-6	**0.00096**	0.000050	0.00020	1
Wet Chemistry	**EPA 350.1**		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.0**	0.050	0.10	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**370**	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MSD Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016131
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	**Ortho-Phosphate as P**	7723-14-0	**0.42**	0.030	0.090	1

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 12:36	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 12:36	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 15:58	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 09:41	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 20:21	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:01	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:35	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:35	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:35	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:35	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 MSD Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016131
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:01	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:01	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:35	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 17:31	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 21:31	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 15:49	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Dupl Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016132
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868 U	0.0868	0.400	1
08014	Boron	7440-42-8	0.0083 U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**87.1**	0.0382	0.400	1
01754	Iron	7439-89-6	0.0747 U	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**26.1**	0.0190	0.200	1
01762	**Potassium**	7440-09-7	**0.800 J**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**1.56 J**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	Arsenic	7440-38-2	0.00068 U	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0288**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	Chromium	7440-47-3	0.00059 U	0.00059	0.0040	1
06032	Cobalt	7440-48-4	0.00020 U	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0137**	0.00088	0.0040	1
06039	Nickel	7440-02-0	0.00085 U	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00029 J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**1.5 J**	1.0	2.0	5
00368	**Nitrate Nitrogen**	14797-55-8	**0.46 J**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**7.0**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Dupl Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016132
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2320 B-1997**		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**301**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**301**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 20:14	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 17:54	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:31	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:31	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:31	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:31	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 17:54	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-MW-100S-170524 Dupl Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016132
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 16:00 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2403 SDG#: SPQ24-03DUP

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 17:54	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:31	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 17:26	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 13:18	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 13:18	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 13:18	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 13:18	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 13:18	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:07	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:47	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:41	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 15:57	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 15:57	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 15:57	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FTB01-170524 Blank Water
SGPP - North Bennington

LL Sample # WW 9016133
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017 15:30

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2404 SDG#: SPQ24-04FB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 11:44	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-170524 Blank Water
SGPP - North Bennington

LL Sample # WW 9016134
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2405 SDG#: SPQ24-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-170524 Blank Water
SGPP - North Bennington

LL Sample # WW 9016134
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2405 SDG#: SPQ24-05TB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 11:08	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 11:08	Brett W Kenyon	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 12:05	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-LTB01-170524 Blank Water
SGPP - North Bennington

LL Sample # WW 9016134
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/24/2017

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2405 SDG#: SPQ24-05TB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2405

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016134
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s05.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
2.					
3.					
4.					
5.					
6.					
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11.					
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29.					
30.					

page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-B-2-1-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016135
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2406 SDG#: SPQ24-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-1-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016135
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2406 SDG#: SPQ24-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.052	U	0.052	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**36**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**0.7**	**J**	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**5**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**2**	**J**	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**6**	**J**	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**7**	**J**	3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**4**		0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	Boron	7440-42-8	0.0083	U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**81.6**		0.0382	0.400	1
01754	Iron	7439-89-6	0.0747	U	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**19.4**		0.0190	0.200	1
01762	**Potassium**	7440-09-7	**1.05**		0.160	1.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-1-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016135
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2406 SDG#: SPQ24-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01767	**Sodium**	7440-23-5	**51.6**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	Arsenic	7440-38-2	0.00068 U	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0624**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	Chromium	7440-47-3	0.00059 U	0.00059	0.0040	1
06032	Cobalt	7440-48-4	0.00020 U	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.0046**	0.00088	0.0040	1
06039	Nickel	7440-02-0	0.00085 U	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	Vanadium	7440-62-2	0.00020 U	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**88.0**	10.0	20.0	50
00368	**Nitrate Nitrogen**	14797-55-8	**0.55**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**5.8**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**272**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**272**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-1-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016135
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2406 SDG#: SPQ24-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 13:42	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 13:42	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 16:12	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/08/2017 13:36	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:18	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:19	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:46	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:46	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:46	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:19	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-1-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016135
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2406 SDG#: SPQ24-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:19	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:46	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:09	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 16:35	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/30/2017 22:29	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:35	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:35	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 16:35	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:17	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:49	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:43	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 17:27	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:27	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:27	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2406

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016135
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s12.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-B-2-2-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016136
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2407 SDG#: SPQ24-07

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-2-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016136
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2407 SDG#: SPQ24-07

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.052	U	0.052	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**37**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**1**	**J**	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**4**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**2**	**J**	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**1**	**J**	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**6**		2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**11**		3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**4**		0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	**Boron**	7440-42-8	**0.0180**	**J**	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**101**		0.0382	0.400	1
01754	**Iron**	7439-89-6	**4.84**		0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**25.3**		0.0190	0.200	1
01762	**Potassium**	7440-09-7	**2.24**		0.160	1.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-2-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016136
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2407 SDG#: SPQ24-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01767	**Sodium**	7440-23-5	**172**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0132**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.526**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.00060 J**	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0202**	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.927**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0051**	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00028 J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**293**	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**10.3**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.33**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**306**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**306**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-2-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016136
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2407 SDG#: SPQ24-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 14:04	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 14:04	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 16:25	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 13:27	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:29	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:22	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:48	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:48	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:48	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:48	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:22	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-B-2-2-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016136
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:10 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2407 SDG#: SPQ24-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:22	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:48	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:11	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 16:47	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/30/2017 23:14	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:47	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:47	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 16:47	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:24	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:50	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:44	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 17:13	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:13	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:13	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2407

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016136
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s13.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-EB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016137
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2408 SDG#: SPQ24-08EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-EB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016137
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2408 SDG#: SPQ24-08EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.051	U	0.051	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	Boron	7440-42-8	0.0083	U	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**0.0723**	**J**	0.0382	0.400	1
01754	Iron	7439-89-6	0.0747	U	0.0747	0.400	1
01757	Magnesium	7439-95-4	0.0190	U	0.0190	0.200	1
01762	Potassium	7440-09-7	0.160	U	0.160	1.00	1
01767	**Sodium**	7440-23-5	**0.224**	**J**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054	U	0.0054	0.0400	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-EB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016137
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2408 SDG#: SPQ24-08EB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020A**		**mg/l**		**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048	U	0.00048	0.0020	1
06025	Arsenic	7440-38-2	0.00068	U	0.00068	0.0040	1
06026	Barium	7440-39-3	0.00096	U	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011	U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019	U	0.00019	0.0010	1
06031	Chromium	7440-47-3	0.00059	U	0.00059	0.0040	1
06032	Cobalt	7440-48-4	0.00020	U	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052	U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090	U	0.000090	0.0020	1
06037	Manganese	7439-96-5	0.00088	U	0.00088	0.0040	1
06039	Nickel	7440-02-0	0.00085	U	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044	U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012	U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016	U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00021**	**J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050	U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**		**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	0.25	U	0.25	0.50	1
00224	**Chloride**	16887-00-6	**0.23**	**J**	0.20	0.40	1
00368	Nitrate Nitrogen	14797-55-8	0.050	U	0.050	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.050	U	0.050	0.10	1
00228	Sulfate	14808-79-8	0.30	U	0.30	1.0	1
	EPA 350.1		**mg/l**		**mg/l**	**mg/l**	
12892	Ammonia Nitrogen	7664-41-7	0.050	U	0.050	0.10	1
	EPA 351.2		**mg/l**		**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50	U	0.50	1.0	1
	SW-846 9012A		**mg/l**		**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050	U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**		**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	Total Alkalinity to pH 4.5	n.a.	1.7	U	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	1.7	U	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7	U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**		**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030	U	0.030	0.090	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-EB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016137
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2408 SDG#: SPQ24-08EB

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 11:30	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 11:30	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 16:39	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 13:48	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:33	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:26	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:50	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:50	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:50	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:26	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:26	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:50	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:14	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-EB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016137
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:25 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2408 SDG#: SPQ24-08EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 16:59	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	17146987115A	05/26/2017 16:59	Clinton M Wilson	1
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:59	Clinton M Wilson	1
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 16:59	Clinton M Wilson	1
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 16:59	Clinton M Wilson	1
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:23	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:55	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17151117101B	05/31/2017 10:45	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17151117101B	05/31/2017 07:45	Nancy J Shoop	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 16:58	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 16:58	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 16:58	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2408

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016137
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s06.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-RB01-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016138
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 08:23 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2409 SDG#: SPQ24-09RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 14:08	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-RB02-170525 Blank Water
SGPP - North Bennington

LL Sample # WW 9016139
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 10:56 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2410 SDG#: SPQ24-10RB

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	Perfluorooctanoic acid	335-67-1	0.6	U	0.6	2	1
10954	Perfluorononanoic acid	375-95-1	0.6	U	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	Perfluorohexanoic acid	307-24-4	0.6	U	0.6	2	1
10954	Perfluoroheptanoic acid	375-85-9	0.5	U	0.5	2	1
10954	Perfluorobutanesulfonate	375-73-5	0.8	U	0.8	3	1
10954	Perfluorohexanesulfonate	355-46-4	1	U	1	3	1
10954	Perfluoro-octanesulfonate	1763-23-1	2	U	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	Perfluorobutanoic Acid	375-22-4	3	U	3	10	1
10954	Perfluoropentanoic Acid	2706-90-3	0.5	U	0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 14:29	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-VLT-01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016140
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2411 SDG#: SPQ24-11

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	**Chloroethane**	75-00-3	**0.6**	**J**	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	**Ethylbenzene**	100-41-4	**0.8**	**J**	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-VLT-01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016140
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2411 SDG#: SPQ24-11

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	**m+p-Xylene**	179601-23-1	**1**		0.5	1	1
11997	**o-Xylene**	95-47-6	**1**		0.5	1	1
11997	**Xylene (Total)**	1330-20-7	**2**		0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	**1,4-Dioxane**	123-91-1	**6.4**		0.052	0.21	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**4,700**		6	20	10
10954	**Perfluorononanoic acid**	375-95-1	**3**		0.6	2	1
10954	**Perfluorodecanoic acid**	335-76-2	**0.8**	**J**	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**590**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**280**		0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**9**		0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**48**		1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**35**		2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**130**		3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**92**		0.5	2	1
10954	**NEtFOSAA**	2991-50-6	**2**	**J**	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	**6:2 fluorotelomersulfonate**	27619-97-2	**4**	**J**	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
	The injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-VLT-01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016140
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2411 SDG#: SPQ24-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
08014	**Boron**	7440-42-8	**1.74**	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**137**	0.0382	0.400	1
01754	**Iron**	7439-89-6	**4.09**	0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**75.1**	0.0190	0.200	1
01762	**Potassium**	7440-09-7	**276**	0.160	1.00	1
01767	**Sodium**	7440-23-5	**265**	0.173	2.00	1
07072	**Zinc**	7440-66-6	**0.0745**	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0083**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.0675**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	**Chromium**	7440-47-3	**0.0014 J**	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0050**	0.00020	0.0010	1
06033	**Copper**	7440-50-8	**0.0048**	0.00052	0.0040	1
06035	**Lead**	7439-92-1	**0.0016 J**	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**0.506**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0625**	0.00085	0.0040	1
06041	**Selenium**	7782-49-2	**0.00069 J**	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	**Vanadium**	7440-62-2	**0.00036 J**	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	**Bromide**	24959-67-9	**4.0**	1.3	2.5	5
00224	**Chloride**	16887-00-6	**264**	20.0	40.0	100
00368	**Nitrate Nitrogen**	14797-55-8	**0.62**	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**219**	30.0	100	100
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**1.3**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	**Kjeldahl Nitrogen**	n.a.	**23.0**	5.0	10.0	10
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-VLT-01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016140
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2411 SDG#: SPQ24-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 2320 B-1997**		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**1,010**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**1,010**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
	SM 4500-P E-1999		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 14:26	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 14:26	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 16:53	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/01/2017 22:43	Jason W Knight	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 15:10	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:37	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:29	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-VLT-01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016140
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 09:20 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2411 SDG#: SPQ24-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:51	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:51	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:51	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:51	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:29	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:29	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:51	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:16	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 17:10	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/30/2017 23:29	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 17:10	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 17:10	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/30/2017 23:29	Clinton M Wilson	100
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:12	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:57	Joseph E McKenzie	10
08255	Total Cyanide	SW-846 9012A	1	17153117101A	06/05/2017 07:34	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17153117101A	06/02/2017 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202A	05/30/2017 17:46	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:46	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202A	05/30/2017 17:46	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2411

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016140
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s14.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 1 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	91-57-6	Naphthalene, 2-methyl-	15.04	6	J
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3.	VOCTIC	Total VOC TICs		6	J
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page 1 of 1

FORM I VOA-TIC

Sample Description: SG3-FD01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016141
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2412 SDG#: SPQ24-12FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		ug/l		ug/l	ug/l	
11997	Acetone	67-64-1	6	U	6	20	1
11997	Benzene	71-43-2	0.5	U	0.5	1	1
11997	Bromochloromethane	74-97-5	1	U	1	5	1
11997	Bromodichloromethane	75-27-4	0.5	U	0.5	1	1
11997	Bromoform	75-25-2	0.5	U	0.5	4	1
11997	Bromomethane	74-83-9	0.5	U	0.5	1	1
11997	2-Butanone	78-93-3	3	U	3	10	1
11997	Carbon Disulfide	75-15-0	1	U	1	5	1
11997	Carbon Tetrachloride	56-23-5	0.5	U	0.5	1	1
11997	Chlorobenzene	108-90-7	0.5	U	0.5	1	1
11997	Chloroethane	75-00-3	0.5	U	0.5	1	1
11997	Chloroform	67-66-3	0.5	U	0.5	1	1
11997	Chloromethane	74-87-3	0.5	U	0.5	1	1
11997	Cyclohexane	110-82-7	2	U	2	5	1
11997	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	5	1
11997	Dibromochloromethane	124-48-1	0.5	U	0.5	1	1
11997	1,2-Dibromoethane	106-93-4	0.5	U	0.5	1	1
11997	1,2-Dichlorobenzene	95-50-1	1	U	1	5	1
11997	1,3-Dichlorobenzene	541-73-1	1	U	1	5	1
11997	1,4-Dichlorobenzene	106-46-7	1	U	1	5	1
11997	Dichlorodifluoromethane	75-71-8	0.5	U	0.5	1	1
11997	1,1-Dichloroethane	75-34-3	0.5	U	0.5	1	1
11997	1,2-Dichloroethane	107-06-2	0.5	U	0.5	1	1
11997	1,1-Dichloroethene	75-35-4	0.5	U	0.5	1	1
11997	cis-1,2-Dichloroethene	156-59-2	0.5	U	0.5	1	1
11997	trans-1,2-Dichloroethene	156-60-5	0.5	U	0.5	1	1
11997	1,2-Dichloropropane	78-87-5	0.5	U	0.5	1	1
11997	cis-1,3-Dichloropropene	10061-01-5	0.5	U	0.5	1	1
11997	trans-1,3-Dichloropropene	10061-02-6	0.5	U	0.5	1	1
11997	Ethylbenzene	100-41-4	0.5	U	0.5	1	1
11997	Freon 113	76-13-1	2	U	2	10	1
11997	2-Hexanone	591-78-6	3	U	3	10	1
11997	Isopropylbenzene	98-82-8	1	U	1	5	1
11997	Methyl Acetate	79-20-9	1	U	1	5	1
11997	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1	1
11997	4-Methyl-2-pentanone	108-10-1	3	U	3	10	1
11997	Methylcyclohexane	108-87-2	1	U	1	5	1
11997	Methylene Chloride	75-09-2	2	U	2	4	1
11997	Styrene	100-42-5	1	U	1	5	1
11997	1,1,2,2-Tetrachloroethane	79-34-5	0.5	U	0.5	1	1
11997	Tetrachloroethene	127-18-4	0.5	U	0.5	1	1
11997	Toluene	108-88-3	0.5	U	0.5	1	1
11997	1,2,3-Trichlorobenzene	87-61-6	1	U	1	5	1
11997	1,2,4-Trichlorobenzene	120-82-1	1	U	1	5	1
11997	1,1,1-Trichloroethane	71-55-6	0.5	U	0.5	1	1
11997	1,1,2-Trichloroethane	79-00-5	0.5	U	0.5	1	1
11997	Trichloroethene	79-01-6	0.5	U	0.5	1	1
11997	Trichlorofluoromethane	75-69-4	0.5	U	0.5	1	1
11997	Vinyl Chloride	75-01-4	0.5	U	0.5	1	1
11997	m+p-Xylene	179601-23-1	0.5	U	0.5	1	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016141
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2412 SDG#: SPQ24-12FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/l**		**ug/l**	**ug/l**	
11997	o-Xylene	95-47-6	0.5	U	0.5	1	1
11997	Xylene (Total)	1330-20-7	0.5	U	0.5	1	1
00882	**VOA Library Search**						
	The results from the volatile library search are listed on the attached FORM 1 - VOA-TIC. The qualifiers appearing in the "Q" column are defined on the back of this form.						
GC/MS Semivolatiles	**SW-846 8270D SIM**		**ug/l**		**ug/l**	**ug/l**	
14080	1,4-Dioxane	123-91-1	0.054	U	0.054	0.22	1
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Misc. Organics	**EPA 537 Rev. 1.1 modified**		**ng/l**		**ng/l**	**ng/l**	
10954	**Perfluorooctanoic acid**	335-67-1	**37**		0.6	2	1
10954	**Perfluorononanoic acid**	375-95-1	**1**	**J**	0.6	2	1
10954	Perfluorodecanoic acid	335-76-2	0.5	U	0.5	2	1
10954	Perfluoroundecanoic acid	2058-94-8	1	U	1	3	1
10954	Perfluorododecanoic acid	307-55-1	0.5	U	0.5	2	1
10954	Perfluorotridecanoic acid	72629-94-8	0.5	U	0.5	2	1
10954	Perfluorotetradecanoic acid	376-06-7	0.5	U	0.5	2	1
10954	**Perfluorohexanoic acid**	307-24-4	**4**		0.6	2	1
10954	**Perfluoroheptanoic acid**	375-85-9	**4**		0.5	2	1
10954	**Perfluorobutanesulfonate**	375-73-5	**2**	**J**	0.8	3	1
10954	**Perfluorohexanesulfonate**	355-46-4	**1**	**J**	1	3	1
10954	**Perfluoro-octanesulfonate**	1763-23-1	**6**	**J**	2	6	1
10954	8:2 fluorotelomersulfonate	39108-34-4	4	U	4	10	1
10954	**Perfluorobutanoic Acid**	375-22-4	**11**		3	10	1
10954	**Perfluoropentanoic Acid**	2706-90-3	**4**		0.5	2	1
10954	NEtFOSAA	2991-50-6	1	U	1	3	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.						
10954	NMeFOSAA	2355-31-9	1	U	1	3	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.						
10954	6:2 fluorotelomersulfonate	27619-97-2	3	U	3	10	1
10954	PFOSA	754-91-6	3	U	3	9	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals	**SW-846 6010C**		**mg/l**		**mg/l**	**mg/l**	
01743	Aluminum	7429-90-5	0.0868	U	0.0868	0.400	1
08014	**Boron**	7440-42-8	**0.0194**	**J**	0.0083	0.100	1
01750	**Calcium**	7440-70-2	**105**		0.0382	0.400	1
01754	**Iron**	7439-89-6	**5.02**		0.0747	0.400	1
01757	**Magnesium**	7439-95-4	**26.4**		0.0190	0.200	1
01762	**Potassium**	7440-09-7	**2.44**		0.160	1.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016141
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2412 SDG#: SPQ24-12FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01767	**Sodium**	7440-23-5	**180**	0.173	2.00	1
07072	Zinc	7440-66-6	0.0054 U	0.0054	0.0400	1
	SW-846 6020A		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00048 U	0.00048	0.0020	1
06025	**Arsenic**	7440-38-2	**0.0133**	0.00068	0.0040	1
06026	**Barium**	7440-39-3	**0.599**	0.00096	0.0040	1
06027	Beryllium	7440-41-7	0.00011 U	0.00011	0.0010	1
06028	Cadmium	7440-43-9	0.00019 U	0.00019	0.0010	1
06031	Chromium	7440-47-3	0.00059 U	0.00059	0.0040	1
06032	**Cobalt**	7440-48-4	**0.0200**	0.00020	0.0010	1
06033	Copper	7440-50-8	0.00052 U	0.00052	0.0040	1
06035	Lead	7439-92-1	0.000090 U	0.000090	0.0020	1
06037	**Manganese**	7439-96-5	**1.05**	0.00088	0.0040	1
06039	**Nickel**	7440-02-0	**0.0052**	0.00085	0.0040	1
06041	Selenium	7782-49-2	0.00044 U	0.00044	0.0040	1
06042	Silver	7440-22-4	0.00012 U	0.00012	0.0010	1
06045	Thallium	7440-28-0	0.00016 U	0.00016	0.0010	1
06048	Vanadium	7440-62-2	0.00020 U	0.00020	0.0010	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	**mg/l**	
01505	Bromide	24959-67-9	1.3 U	1.3	2.5	5
00224	**Chloride**	16887-00-6	**302**	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	**Sulfate**	14808-79-8	**10.7**	1.5	5.0	5
	EPA 350.1		**mg/l**	**mg/l**	**mg/l**	
12892	**Ammonia Nitrogen**	7664-41-7	**0.31**	0.050	0.10	1
	EPA 351.2		**mg/l**	**mg/l**	**mg/l**	
00217	Kjeldahl Nitrogen	n.a.	0.50 U	0.50	1.0	1
	SW-846 9012A		**mg/l**	**mg/l**	**mg/l**	
08255	Total Cyanide	57-12-5	0.0050 U	0.0050	0.010	1
	SM 2320 B-1997		**mg/l as CaCO3**	**mg/l as CaCO3**	**mg/l as CaCO3**	
12150	**Total Alkalinity to pH 4.5**	n.a.	**301**	1.7	5.0	1
12149	**Bicarbonate Alkalinity**	n.a.	**301**	1.7	5.0	1
12148	Carbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016141
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2412 SDG#: SPQ24-12FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Wet Chemistry	**SM 4500-P E-1999**		**mg/l**	**mg/l**	**mg/l**	
00226	Ortho-Phosphate as P	7723-14-0	0.030 U	0.030	0.090	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11997	SOM02.2 Volatiles	SW-846 8260C	1	L171531AA	06/02/2017 14:48	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	L171531AA	06/02/2017 14:48	Brett W Kenyon	1
14080	1,4-Dioxane	SW-846 8270D SIM	1	17150WAP026	06/07/2017 17:06	Holly B Ziegler	1
14258	1,4-Diox Mini SIM Ext	SW-846 3510C	1	17150WAP026	05/30/2017 22:30	Kate E Lutte	1
10954	19 PFCs	EPA 537 Rev. 1.1 modified	1	17151004	06/06/2017 15:30	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Rev. 1.1 modified	1	17151004	05/31/2017 16:00	Devon M Whooley	1
01743	Aluminum	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
08014	Boron	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	171461063501	05/30/2017 21:40	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06025	Arsenic	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06026	Barium	SW-846 6020A	1	171461063903D	06/07/2017 18:32	Scott P Cuff	1
06027	Beryllium	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06028	Cadmium	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06031	Chromium	SW-846 6020A	1	171461063903A	06/09/2017 08:53	Scott P Cuff	1
06032	Cobalt	SW-846 6020A	1	171461063903A	06/09/2017 08:53	Scott P Cuff	1
06033	Copper	SW-846 6020A	1	171461063903A	06/09/2017 08:53	Scott P Cuff	1
06035	Lead	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06037	Manganese	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06039	Nickel	SW-846 6020A	1	171461063903A	06/09/2017 08:53	Scott P Cuff	1
06041	Selenium	SW-846 6020A	1	171461063903B	06/07/2017 18:32	Scott P Cuff	1
06042	Silver	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1

*=This limit was used in the evaluation of the final result

Sample Description: SG3-FD01-170525 Grab Groundwater
SGPP - North Bennington

LL Sample # GW 9016141
LL Group # 1806183
Account # 37191

Project Name: SGPP - North Bennington

Collected: 05/25/2017 by LC

Submitted: 05/26/2017 09:30
Reported: 06/19/2017 16:10

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Q2412 SDG#: SPQ24-12FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06045	Thallium	SW-846 6020A	1	171461063903A	06/07/2017 18:32	Scott P Cuff	1
06048	Vanadium	SW-846 6020A	1	171461063903A	06/09/2017 08:53	Scott P Cuff	1
00259	Mercury	SW-846 7470A	1	171460571306	05/31/2017 18:24	Parker D Lindstrom	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	171461063501	05/30/2017 06:55	Lisa J Cooke	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	171461063903	05/31/2017 06:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	171460571306	05/31/2017 00:45	Denise L Trimby	1
01505	Bromide	EPA 300.0	1	17146987115A	05/26/2017 17:22	Clinton M Wilson	5
00224	Chloride	EPA 300.0	1	17146987115A	05/30/2017 23:44	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 17:22	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	17146987115A	05/26/2017 17:22	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	17146987115A	05/26/2017 17:22	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	17157107102B	06/06/2017 20:14	Samuel J Weaver	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	17151108101A	06/01/2017 02:59	Joseph E McKenzie	1
08255	Total Cyanide	SW-846 9012A	1	17153117101A	06/05/2017 07:36	Dein K Bernot	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	17151108101A	05/31/2017 09:30	Nancy J Shoop	1
08256	Cyanide Water Distillation	SW-846 9012A	1	17153117101A	06/02/2017 17:00	Barbara A Washington	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-1997	1	17150002202B	05/30/2017 16:03	Ian D Toomey	1
12149	Bicarbonate Alkalinity	SM 2320 B-1997	1	17150002202B	05/30/2017 16:03	Ian D Toomey	1
12148	Carbonate Alkalinity	SM 2320 B-1997	1	17150002202B	05/30/2017 16:03	Ian D Toomey	1
00226	Ortho-Phosphate as P	SM 4500-P E-1999	1	17147022602A	05/27/2017 06:50	Daniel S Smith	1

*=This limit was used in the evaluation of the final result

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Q2412

Lab Name: Lancaster Laboratories Contract:_____
Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____
Matrix: (soil/water) WATER Lab Sample ID: 9016141
Sample wt/vol: 5.0 (g/mL)mL Lab File ID:HP09915.i/17jun02a.b/lu02s15.d
Level: (low/med) LOW Date Received: 05/26/17
% Moisture: not dec. Date Analyzed: 06/02/17
Column: (pack/cap) CAP Dilution Factor: 1.0
CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	VOCTIC	Total VOC TICs		0	U
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page 1 of 1

FORM I VOA-TIC

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1806183
Reported: 06/19/2017 16:10

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result		MDL**	LOQ
	ug/l		ug/l	ug/l
Batch number: L171531AA	Sample number(s): 9016127-9016131,9016134-9016137,9016140-9016141			
Acetone	6	U	6	20
Benzene	0.5	U	0.5	1
Bromochloromethane	1	U	1	5
Bromodichloromethane	0.5	U	0.5	1
Bromoform	0.5	U	0.5	4
Bromomethane	0.5	U	0.5	1
2-Butanone	3	U	3	10
Carbon Disulfide	1	U	1	5
Carbon Tetrachloride	0.5	U	0.5	1
Chlorobenzene	0.5	U	0.5	1
Chloroethane	0.5	U	0.5	1
Chloroform	0.5	U	0.5	1
Chloromethane	0.5	U	0.5	1
Cyclohexane	2	U	2	5
1,2-Dibromo-3-chloropropane	2	U	2	5
Dibromochloromethane	0.5	U	0.5	1
1,2-Dibromoethane	0.5	U	0.5	1
1,2-Dichlorobenzene	1	U	1	5
1,3-Dichlorobenzene	1	U	1	5
1,4-Dichlorobenzene	1	U	1	5
Dichlorodifluoromethane	0.5	U	0.5	1
1,1-Dichloroethane	0.5	U	0.5	1
1,2-Dichloroethane	0.5	U	0.5	1
1,1-Dichloroethene	0.5	U	0.5	1
cis-1,2-Dichloroethene	0.5	U	0.5	1
trans-1,2-Dichloroethene	0.5	U	0.5	1
1,2-Dichloropropane	0.5	U	0.5	1
cis-1,3-Dichloropropene	0.5	U	0.5	1
trans-1,3-Dichloropropene	0.5	U	0.5	1
Ethylbenzene	0.5	U	0.5	1
Freon 113	2	U	2	10
2-Hexanone	3	U	3	10
Isopropylbenzene	1	U	1	5
Methyl Acetate	1	U	1	5
Methyl Tertiary Butyl Ether	0.5	U	0.5	1
4-Methyl-2-pentanone	3	U	3	10
Methylcyclohexane	1	U	1	5
Methylene Chloride	2	U	2	4
Styrene	1	U	1	5
1,1,2,2-Tetrachloroethane	0.5	U	0.5	1

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1806183
Reported: 06/19/2017 16:10

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	ug/l		ug/l	ug/l
Tetrachloroethene	0.5	U	0.5	1
Toluene	0.5	U	0.5	1
1,2,3-Trichlorobenzene	1	U	1	5
1,2,4-Trichlorobenzene	1	U	1	5
1,1,1-Trichloroethane	0.5	U	0.5	1
1,1,2-Trichloroethane	0.5	U	0.5	1
Trichloroethene	0.5	U	0.5	1
Trichlorofluoromethane	0.5	U	0.5	1
Vinyl Chloride	0.5	U	0.5	1
m+p-Xylene	0.5	U	0.5	1
o-Xylene	0.5	U	0.5	1
Xylene (Total)	0.5	U	0.5	1
Batch number: 17150WAP026	Sample number(s): 9016127-9016131,9016135-9016137,9016140-9016141			
1,4-Dioxane	0.050	U	0.050	0.20
	ng/l		ng/l	ng/l
Batch number: 17151004	Sample number(s): 9016127-9016131,9016133-9016141			
Perfluorooctanoic acid	0.6	U	0.6	2
Perfluorononanoic acid	0.6	U	0.6	2
Perfluorodecanoic acid	0.5	U	0.5	2
Perfluoroundecanoic acid	1	U	1	3
Perfluorododecanoic acid	0.5	U	0.5	2
Perfluorotridecanoic acid	0.5	U	0.5	2
Perfluorotetradecanoic acid	0.5	U	0.5	2
Perfluorohexanoic acid	0.6	U	0.6	2
Perfluoroheptanoic acid	0.5	U	0.5	2
Perfluorobutanesulfonate	0.8	U	0.8	3
Perfluorohexanesulfonate	1	U	1	3
Perfluoro-octanesulfonate	2	U	2	6
8:2 fluorotelomersulfonate	4	U	4	10
Perfluorobutanoic Acid	3	U	3	10
Perfluoropentanoic Acid	0.5	U	0.5	2
NEtFOSAA	1	U	1	3
NMeFOSAA	1	U	1	3
6:2 fluorotelomersulfonate	3	U	3	10
PFOSA	3	U	3	9
	mg/l		mg/l	mg/l
Batch number: 171460571306	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141			
Mercury	0.000050	U	0.000050	0.00020
Batch number: 171461063501	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141			
Aluminum	0.0868	U	0.0868	0.400
Boron	0.0083	U	0.0083	0.100
Calcium	0.0382	U	0.0382	0.400
Iron	0.0747	U	0.0747	0.400
Magnesium	0.0190	U	0.0190	0.200
Potassium	0.160	U	0.160	1.00
Sodium	0.173	U	0.173	2.00

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Quality Control Summary

Client Name: C. T. Male Associates Group Number: 1806183
Reported: 06/19/2017 16:10

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Zinc	0.0054 U	0.0054	0.0400
Batch number: 171461063903A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141		
Antimony	0.00048 U	0.00048	0.0020
Arsenic	0.00068 U	0.00068	0.0040
Beryllium	0.00011 U	0.00011	0.0010
Cadmium	0.00019 U	0.00019	0.0010
Chromium	0.00059 U	0.00059	0.0040
Cobalt	0.00020 U	0.00020	0.0010
Copper	0.00052 U	0.00052	0.0040
Lead	0.000090 U	0.000090	0.0020
Manganese	0.00088 U	0.00088	0.0040
Nickel	0.00085 U	0.00085	0.0040
Silver	0.00012 U	0.00012	0.0010
Thallium	0.00016 U	0.00016	0.0010
Vanadium	0.00020 U	0.00020	0.0010
Batch number: 171461063903B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141		
Selenium	0.00044 U	0.00044	0.0040
Batch number: 171461063903D	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141		
Barium	0.00096 U	0.00096	0.0040
Batch number: 17146987115A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141		
Bromide	0.25 U	0.25	0.50
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 17151108101A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141		
Kjeldahl Nitrogen	0.50 U	0.50	1.0
Batch number: 17151117101B	Sample number(s): 9016127-9016130,9016132,9016135-9016137		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17153117101A	Sample number(s): 9016140-9016141		
Total Cyanide	0.0050 U	0.0050	0.010
Batch number: 17157107102B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 17147022602A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141		
Ortho-Phosphate as P	0.030 U	0.030	0.090
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 17150002202A	Sample number(s): 9016127,9016129-9016132,9016135-9016137,9016140		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17150002202B	Sample number(s): 9016141		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 17153002102A	Sample number(s): 9016128		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

Method Blank (continued)

Analysis Name	Result		MDL**	LOQ
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3
Total Alkalinity to pH 4.5	1.7	U	1.7	5.0

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L171531AA	Sample number(s): 9016127-9016131,9016134-9016137,9016140-9016141								
Acetone	150	137.37	150	135.07	92	90	50-168	2	30
Benzene	20	18.88	20	18.89	94	94	78-120	0	30
Bromochloromethane	20	19.02	20	18.96	95	95	80-125	0	30
Bromodichloromethane	20	17.83	20	18.02	89	90	80-120	1	30
Bromoform	20	16.28	20	16.09	81	80	64-120	1	30
Bromomethane	20	19.33	20	19.14	97	96	49-121	1	30
2-Butanone	150	123.64	150	124.7	82	83	53-140	1	30
Carbon Disulfide	20	19.4	20	19.34	97	97	63-122	0	30
Carbon Tetrachloride	20	18.59	20	18.67	93	93	76-123	0	30
Chlorobenzene	20	19.24	20	19.18	96	96	80-120	0	30
Chloroethane	20	18.77	20	18.62	94	93	51-121	1	30
Chloroform	20	18.95	20	19.08	95	95	80-120	1	30
Chloromethane	20	17.06	20	17.01	85	85	57-120	0	30
Cyclohexane	20	16.16	20	16.26	81	81	67-121	1	30
1,2-Dibromo-3-chloropropane	20	17.78	20	17.67	89	88	59-120	1	30
Dibromochloromethane	20	17.49	20	17.44	87	87	78-120	0	30
1,2-Dibromoethane	20	19.63	20	19.59	98	98	75-120	0	30
1,2-Dichlorobenzene	20	19.35	20	19.46	97	97	80-120	1	30
1,3-Dichlorobenzene	20	18.94	20	18.93	95	95	80-120	0	30
1,4-Dichlorobenzene	20	19.14	20	19.37	96	97	80-120	1	30
Dichlorodifluoromethane	20	17.11	20	16.86	86	84	54-122	1	30
1,1-Dichloroethane	20	18.68	20	18.48	93	92	80-120	1	30
1,2-Dichloroethane	20	19.65	20	19.88	98	99	66-128	1	30
1,1-Dichloroethene	20	20.44	20	20.58	102	103	76-124	1	30
cis-1,2-Dichloroethene	20	19.78	20	19.55	99	98	80-120	1	30
trans-1,2-Dichloroethene	20	20.11	20	19.91	101	100	80-120	1	30
1,2-Dichloropropane	20	18.09	20	18.14	90	91	80-120	0	30
cis-1,3-Dichloropropene	20	17.88	20	17.94	89	90	75-120	0	30
trans-1,3-Dichloropropene	20	18.49	20	18.54	92	93	76-120	0	30
Ethylbenzene	20	19	20	19.18	95	96	78-120	1	30
Freon 113	20	20.46	20	20.3	102	101	68-129	1	30
2-Hexanone	100	83.97	100	85.12	84	85	49-137	1	30
Isopropylbenzene	20	19.41	20	19.4	97	97	80-120	0	30
Methyl Acetate	20	17.5	20	17.32	87	87	61-137	1	30
Methyl Tertiary Butyl Ether	20	18.79	20	18.83	94	94	75-120	0	30
4-Methyl-2-pentanone	100	83.62	100	84.31	84	84	56-131	1	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Methylcyclohexane	20	17.57	20	17.91	88	90	66-126	2	30
Methylene Chloride	20	18.77	20	18.63	94	93	80-120	1	30
Styrene	20	19.31	20	19.57	97	98	80-120	1	30
1,1,2,2-Tetrachloroethane	20	18.75	20	18.9	94	94	72-120	1	30
Tetrachloroethene	20	18.73	20	18.76	94	94	80-129	0	30
Toluene	20	19.04	20	19.15	95	96	80-120	1	30
1,2,3-Trichlorobenzene	20	18.4	20	18.52	92	93	51-120	1	30
1,2,4-Trichlorobenzene	20	17.94	20	18.01	90	90	58-120	0	30
1,1,1-Trichloroethane	20	17.39	20	17.58	87	88	67-120	1	30
1,1,2-Trichloroethane	20	19.66	20	19.83	98	99	80-120	1	30
Trichloroethene	20	18.49	20	18.55	92	93	80-120	0	30
Trichlorofluoromethane	20	19.24	20	18.87	96	94	57-134	2	30
Vinyl Chloride	20	17.41	20	17.26	87	86	63-121	1	30
m+p-Xylene	40	38.97	40	38.83	97	97	80-120	0	30
o-Xylene	20	18.87	20	19.13	94	96	80-120	1	30
Xylene (Total)	60	57.84	60	57.96	96	97	80-120	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 17150WAP026	Sample number(s): 9016127-9016131,9016135-9016137,9016140-9016141								
1,4-Dioxane	1.00	1.12			112		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 17151004	Sample number(s): 9016127-9016131,9016133-9016141								
Perfluorooctanoic acid	200	161.1			81		70-130		
Perfluorononanoic acid	200	195.59			98		70-130		
Perfluorodecanoic acid	200	158.38			79		70-130		
Perfluoroundecanoic acid	200	186.04			93		70-130		
Perfluorododecanoic acid	200	196.93			98		70-130		
Perfluorotridecanoic acid	200	200.56			100		70-130		
Perfluorotetradecanoic acid	200	182.69			91		70-130		
Perfluorohexanoic acid	200	161.75			81		70-130		
Perfluoroheptanoic acid	200	180.95			90		70-130		
Perfluorobutanesulfonate	176.8	152.76			86		70-130		
Perfluorohexanesulfonate	189.2	162.27			86		70-130		
Perfluoro-octanesulfonate	191.2	165.73			87		70-130		
8:2 fluorotelomersulfonate	191.6	185.6			97		70-130		
Perfluorobutanoic Acid	200	172.82			86		70-130		
Perfluoropentanoic Acid	200	180.32			90		70-130		
NEtFOSAA	200	153.7			77		70-130		
NMeFOSAA	200	153.08			77		70-130		
6:2 fluorotelomersulfonate	189.6	174.15			92		70-130		
PFOSA	200	158.35			79		70-130		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 171460571306	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Mercury	0.00100	0.000896			90		80-120		

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: 171461063501	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Aluminum	2.00	2.21			111		80-120		
Boron	2.00	1.83			92		80-120		
Calcium	4.00	4.08			102		80-120		
Iron	1.00	1.03			103		80-120		
Magnesium	2.00	2.09			104		80-120		
Potassium	10	10.17			102		80-120		
Sodium	10	10.24			102		80-120		
Zinc	0.500	0.507			101		80-120		
Batch number: 171461063903A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Antimony	0.00600	0.00658			110		80-120		
Arsenic	0.0100	0.0114			114		80-120		
Beryllium	0.00400	0.00478			120		80-120		
Cadmium	0.00500	0.00616			123*		80-120		
Chromium	0.0500	0.0519			104		80-120		
Cobalt	0.250	0.251			100		80-120		
Copper	0.0500	0.0524			105		80-120		
Lead	0.0150	0.0173			115		80-120		
Manganese	0.0500	0.0580			116		80-120		
Nickel	0.0500	0.0514			103		80-120		
Silver	0.0500	0.0590			118		80-120		
Thallium	0.00200	0.00198			99		80-120		
Vanadium	0.0500	0.0502			100		80-120		
Batch number: 171461063903B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Selenium	0.0100	0.0115			115		80-120		
Batch number: 171461063903D	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Barium	0.0500	0.0542			108		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 17146987115A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141								
Bromide	7.50	7.36			98		90-110		
Chloride	3.00	2.95			98		90-110		
Nitrate Nitrogen	0.750	0.738			98		90-110		
Nitrite Nitrogen	0.750	0.750			100		90-110		
Sulfate	7.50	7.31			97		90-110		
Batch number: 17151108101A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141								
Kjeldahl Nitrogen	5.00	4.97			99		90-110		
Batch number: 17151117101B	Sample number(s): 9016127-9016130,9016132,9016135-9016137								
Total Cyanide	0.200	0.207			103		90-110		
Batch number: 17153117101A	Sample number(s): 9016140-9016141								
Total Cyanide	0.200	0.215			108		90-110		
Batch number: 17157107102B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141								
Ammonia Nitrogen	1.50	1.49	1.50	1.48	99	99	90-110	0	15

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

LCS/LCSD (continued)

Analysis Name	LCS Spike Added		LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l		mg/l	mg/l	mg/l					
	mg/l		mg/l	mg/l	mg/l					
Batch number: 17147022602A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141									
Ortho-Phosphate as P	0.400		0.400			100		95-105		
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17150002202A	Sample number(s): 9016127,9016129-9016132,9016135-9016137,9016140									
Total Alkalinity to pH 4.5	188		187.36			100		77-114		
Batch number: 17150002202B	Sample number(s): 9016141									
Total Alkalinity to pH 4.5	188		187.36			100		77-114		
Batch number: 17153002102A	Sample number(s): 9016128									
Total Alkalinity to pH 4.5	188		170.63			91		77-114		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc		MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ug/l		ug/l	ug/l	ug/l	ug/l					
Batch number: L171531AA	Sample number(s): 9016127-9016131,9016134-9016137,9016140-9016141 UNSPK: 9016129										
Acetone	6	U	150	132.46	150	129.51	88	86	50-168	2	30
Benzene	0.5	U	20	20.74	20	20.21	104	101	78-120	3	30
Bromochloromethane	1	U	20	20.19	20	19.39	101	97	80-125	4	30
Bromodichloromethane	0.5	U	20	19.21	20	18.53	96	93	80-120	4	30
Bromoform	0.5	U	20	16.19	20	15.92	81	80	64-120	2	30
Bromomethane	0.5	U	20	17.7	20	17.61	88	88	49-121	1	30
2-Butanone	3	U	150	124.31	150	123.8	83	83	53-140	0	30
Carbon Disulfide	1	U	20	21.84	20	21.59	109	108	63-122	1	30
Carbon Tetrachloride	0.5	U	20	21.5	20	21.02	107	105	76-123	2	30
Chlorobenzene	0.5	U	20	20.76	20	20.3	104	102	80-120	2	30
Chloroethane	0.5	U	20	18.39	20	18.22	92	91	51-121	1	30
Chloroform	0.5	U	20	20.81	20	20.47	104	102	80-120	2	30
Chloromethane	0.5	U	20	17.48	20	17.58	87	88	57-120	1	30
Cyclohexane	2	U	20	19.78	20	19.46	99	97	67-121	2	30
1,2-Dibromo-3-chloropropane	2	U	20	16.65	20	17.21	83	86	59-120	3	30
Dibromochloromethane	0.5	U	20	17.89	20	17.78	89	89	78-120	1	30
1,2-Dibromoethane	0.5	U	20	19.64	20	19.41	98	97	75-120	1	30
1,2-Dichlorobenzene	1	U	20	19.95	20	19.96	100	100	80-120	0	30
1,3-Dichlorobenzene	1	U	20	19.93	20	20.01	100	100	80-120	0	30
1,4-Dichlorobenzene	1	U	20	20.18	20	20.2	101	101	80-120	0	30
Dichlorodifluoromethane	0.5	U	20	20.16	20	19.62	101	98	54-122	3	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
1,1-Dichloroethane	0.5	U	20	20.22	20	19.91	101	100	80-120	2	30
1,2-Dichloroethane	0.5	U	20	20.95	20	20.69	105	103	66-128	1	30
1,1-Dichloroethene	0.5	U	20	23.19	20	22.78	116	114	76-124	2	30
cis-1,2-Dichloroethene	0.5	U	20	21.55	20	21.28	108	106	80-120	1	30
trans-1,2-Dichloroethene	0.5	U	20	22.45	20	21.89	112	109	80-120	3	30
1,2-Dichloropropane	0.5	U	20	19.07	20	18.98	95	95	80-120	0	30
cis-1,3-Dichloropropene	0.5	U	20	18.27	20	18.09	91	90	75-120	1	30
trans-1,3-Dichloropropene	0.5	U	20	18.66	20	18.46	93	92	76-120	1	30
Ethylbenzene	0.5	U	20	20.96	20	20.66	105	103	78-120	1	30
Freon 113	2	U	20	24.78	20	23.87	124	119	68-129	4	30
2-Hexanone	3	U	100	82.91	100	83.14	83	83	49-137	0	30
Isopropylbenzene	1	U	20	21.31	20	20.88	107	104	80-120	2	30
Methyl Acetate	1	U	20	17.17	20	17.02	86	85	61-137	1	30
Methyl Tertiary Butyl Ether	0.5	U	20	19.96	20	19.74	100	99	75-120	1	30
4-Methyl-2-pentanone	3	U	100	82.86	100	82.58	83	83	56-131	0	30
Methylcyclohexane	1	U	20	21.1	20	20.72	106	104	66-126	2	30
Methylene Chloride	2	U	20	20.07	20	19.5	100	98	80-120	3	30
Styrene	1	U	20	20.72	20	20.44	104	102	80-120	1	30
1,1,2,2-Tetrachloroethane	0.5	U	20	18.21	20	18.5	91	93	72-120	2	30
Tetrachloroethene	0.5	U	20	21.42	20	20.89	107	104	80-129	2	30
Toluene	0.5	U	20	20.91	20	20.41	105	102	80-120	2	30
1,2,3-Trichlorobenzene	1	U	20	18.7	20	18.73	94	94	51-120	0	30
1,2,4-Trichlorobenzene	1	U	20	18.21	20	18.43	91	92	58-120	1	30
1,1,1-Trichloroethane	0.5	U	20	19.84	20	19.68	99	98	67-120	1	30
1,1,2-Trichloroethane	0.5	U	20	20.53	20	19.96	103	100	80-120	3	30
Trichloroethene	0.5	U	20	20.97	20	20.39	105	102	80-120	3	30
Trichlorofluoromethane	0.5	U	20	21.39	20	20.73	107	104	57-134	3	30
Vinyl Chloride	0.5	U	20	18.47	20	18.33	92	92	63-121	1	30
m+p-Xylene	0.5	U	40	42.09	40	41.68	105	104	80-120	1	30
o-Xylene	0.5	U	20	20.34	20	19.9	102	99	80-120	2	30
Xylene (Total)	0.5	U	60	62.42	60	61.58	104	103	80-120	1	30
	ug/l		**ug/l**	**ug/l**	**ug/l**	**ug/l**					
Batch number: 17150WAP026	Sample number(s): 9016127-9016131,9016135-9016137,9016140-9016141 UNSPK: 9016129										
1,4-Dioxane	0.051	U	1.06	1.11	1.05	1.11	105	106	70-130	0	30
	ng/l		**ng/l**	**ng/l**	**ng/l**	**ng/l**					
Batch number: 17151004	Sample number(s): 9016127-9016131,9016133-9016141 UNSPK: 9016129										
Perfluorooctanoic acid	35.81		200.84	223.33	200.36	211.64	93	88	70-130	5	30
Perfluorononanoic acid	2.81		200.84	205.16	200.36	191.7	101	94	70-130	7	30
Perfluorodecanoic acid	0.5	U	200.84	178.09	200.36	181.65	89	91	70-130	2	30
Perfluoroundecanoic acid	1	U	200.84	168.19	200.36	199.26	84	99	70-130	17	30
Perfluorododecanoic acid	0.5	U	200.84	191.11	200.36	197.69	95	99	70-130	3	30
Perfluorotridecanoic acid	0.5	U	200.84	218.27	200.36	218.91	109	109	70-130	0	30
Perfluorotetradecanoic acid	0.5	U	200.84	193.23	200.36	191.12	96	95	70-130	1	30
Perfluorohexanoic acid	3.92		200.84	170.96	200.36	190.91	83	93	70-130	11	30

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	4.19	200.84	203.37	200.36	193.36	99	94	70-130	5	30
Perfluorobutanesulfonate	0.8 U	177.55	174.26	177.12	165.22	98	93	70-130	5	30
Perfluorohexanesulfonate	1 U	190	184.57	189.54	185.81	97	98	70-130	1	30
Perfluoro-octanesulfonate	4.04	192.01	195.64	191.55	181.21	100	92	70-130	8	30
8:2 fluorotelomersulfonate	4 U	192.41	181.73	191.95	188.78	94	98	70-130	4	30
Perfluorobutanoic Acid	3.65	200.84	188.88	200.36	193.65	92	95	70-130	2	30
Perfluoropentanoic Acid	3.29	200.84	187.67	200.36	198.14	92	97	70-130	5	30
NEtFOSAA	1 U	200.84	181.44	200.36	190.29	90	95	70-130	5	30
NMeFOSAA	1 U	200.84	154.82	200.36	161.06	77	80	70-130	4	30
6:2 fluorotelomersulfonate	3 U	190.4	168.63	189.94	191.92	89	101	70-130	13	30
PFOSA	3 U	200.84	190.04	200.36	177	95	88	70-130	7	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 171460571306	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Mercury	0.000050 U	0.00100	0.000919	0.00100	0.000960	92	96	80-120	4	20
Batch number: 171461063501	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Aluminum	0.0868 U	2.00	2.24	2.00	2.21	112	111	75-125	1	20
Boron	0.0083 U	2.00	1.87	2.00	1.84	93	92	75-125	1	20
Calcium	85.81	4.00	91.13	4.00	90.32	133 (2)	113 (2)	75-125	1	20
Iron	0.0747 U	1.00	1.05	1.00	1.03	105	103	75-125	2	20
Magnesium	25.65	2.00	28.17	2.00	27.9	126 (2)	113 (2)	75-125	1	20
Potassium	0.762	10	11.28	10	11.11	105	103	75-125	2	20
Sodium	1.54	10	11.91	10	11.77	104	102	75-125	1	20
Zinc	0.0054 U	0.500	0.507	0.500	0.502	101	100	75-125	1	20
Batch number: 171461063903A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Antimony	0.00048 U	0.00600	0.00652	0.00600	0.00760	109	127*	75-125	15	20
Arsenic	0.00068 U	0.0100	0.0102	0.0100	0.0116	102	116	75-125	13	20
Beryllium	0.00011 U	0.00400	0.00397	0.00400	0.00424	99	106	75-125	6	20
Cadmium	0.00019 U	0.00500	0.00527	0.00500	0.00629	105	126*	75-125	18	20
Chromium	0.000597	0.0500	0.0515	0.0500	0.0527	102	104	75-125	2	20
Cobalt	0.00020 U	0.250	0.246	0.250	0.253	98	101	75-125	3	20
Copper	0.00052 U	0.0500	0.0504	0.0500	0.0513	101	103	75-125	2	20
Lead	0.000090 U	0.0150	0.0154	0.0150	0.0166	102	110	75-125	8	20
Manganese	0.0138	0.0500	0.0601	0.0500	0.0654	93	103	75-125	9	20
Nickel	0.00085 U	0.0500	0.0513	0.0500	0.0515	103	103	75-125	0	20
Silver	0.00012 U	0.0500	0.0544	0.0500	0.0579	109	116	75-125	6	20
Thallium	0.00016 U	0.00200	0.00191	0.00200	0.00211	96	106	75-125	10	20
Vanadium	0.000275	0.0500	0.0517	0.0500	0.0515	103	102	75-125	0	20
Batch number: 171461063903B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Selenium	0.00044 U	0.0100	0.0103	0.0100	0.0104	103	104	75-125	1	20
Batch number: 171461063903D	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Barium	0.0299	0.0500	0.0758	0.0500	0.0834	92	107	75-125	10	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 17146987115A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Bromide	1.3 U	25	26.76			107		90-110		
Chloride	1.54	10	11.42			99		90-110		
Nitrate Nitrogen	0.456	2.50	2.89			97		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.60			104		90-110		
Sulfate	7.01	25	32.19			101		90-110		
Batch number: 17151108101A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Kjeldahl Nitrogen	0.50 U	5.00	4.57			91		90-110		
Batch number: 17151117101B	Sample number(s): 9016127-9016130,9016132,9016135-9016137 UNSPK: 9016129									
Total Cyanide	0.0050 U	0.200	0.210			105		72-114		
Batch number: 17153117101A	Sample number(s): 9016140-9016141 UNSPK: P017257									
Total Cyanide	0.0050 U	0.200	0.135			68*		72-114		
Batch number: 17157107102B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Ammonia Nitrogen	0.050 U	1.00	0.989	1.00	0.997	99	100	90-110	1	8
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 17147022602A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 UNSPK: 9016129									
Ortho-Phosphate as P	0.030 U	0.400	0.426	0.400	0.418	107	105	69-131	2	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 17150002202A	Sample number(s): 9016127,9016129-9016132,9016135-9016137,9016140 UNSPK: 9016129									
Total Alkalinity to pH 4.5	300.31	188	368.76	188	370.09	36*	37*	77-114	0	10
Batch number: 17150002202B	Sample number(s): 9016141 UNSPK: 9016129									
Total Alkalinity to pH 4.5	300.31	188	368.76	188	370.09	36*	37*	77-114	0	10
Batch number: 17153002102A	Sample number(s): 9016128 UNSPK: P022876									
Total Alkalinity to pH 4.5	210.09	188	377.67			89		77-114		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 171460571306	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Mercury	0.000050 U	0.000050 U	0 (1)	20

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 171461063501	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Aluminum	0.0868 U	0.0868 U	0 (1)	20
Boron	0.0083 U	0.0083 U	0 (1)	20
Calcium	85.81	87.12	2	20
Iron	0.0747 U	0.0747 U	0 (1)	20
Magnesium	25.65	26.13	2	20
Potassium	0.762	0.800	5 (1)	20
Sodium	1.54	1.56	1 (1)	20
Zinc	0.0054 U	0.0054 U	0 (1)	20
Batch number: 171461063903A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Antimony	0.00048 U	0.00048 U	0 (1)	20
Arsenic	0.00068 U	0.00068 U	0 (1)	20
Beryllium	0.00011 U	0.00011 U	0 (1)	20
Cadmium	0.00019 U	0.00019 U	0 (1)	20
Chromium	0.000597	0.00059 U	200* (1)	20
Cobalt	0.00020 U	0.00020 U	0 (1)	20
Copper	0.00052 U	0.00052 U	0 (1)	20
Lead	0.000090 U	0.000090 U	0 (1)	20
Manganese	0.0138	0.0137	1 (1)	20
Nickel	0.00085 U	0.00085 U	0 (1)	20
Silver	0.00012 U	0.00012 U	0 (1)	20
Thallium	0.00016 U	0.00016 U	0 (1)	20
Vanadium	0.000275	0.000285	4 (1)	20
Batch number: 171461063903B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Selenium	0.00044 U	0.00044 U	0 (1)	20
Batch number: 171461063903D	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Barium	0.0299	0.0288	4	20
	mg/l	mg/l		
Batch number: 17146987115A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Bromide	1.3 U	1.3 U	0 (1)	15
Chloride	1.54	1.54	0 (1)	15
Nitrate Nitrogen	0.456	0.458	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	7.01	6.99	0 (1)	15
Batch number: 17151108101A	Sample number(s): 9016127-9016130,9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Kjeldahl Nitrogen	0.50 U	0.50 U	0 (1)	20
Batch number: 17151117101B	Sample number(s): 9016127-9016130,9016132,9016135-9016137 BKG: 9016129			
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17153117101A	Sample number(s): 9016140-9016141 BKG: P017257			

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Quality Control Summary

Client Name: C. T. Male Associates
Reported: 06/19/2017 16:10

Group Number: 1806183

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Total Cyanide	0.0050 U	0.0050 U	0 (1)	20
Batch number: 17157107102B	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 17147022602A	Sample number(s): 9016127-9016132,9016135-9016137,9016140-9016141 BKG: 9016129			
Ortho-Phosphate as P	0.030 U	0.030 U	0 (1)	6
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 17150002202A	Sample number(s): 9016127,9016129-9016132,9016135-9016137,9016140 BKG: 9016129			
Total Alkalinity to pH 4.5	300.31	301.29	0	5
Batch number: 17150002202B	Sample number(s): 9016141 BKG: 9016141			
Total Alkalinity to pH 4.5	301.25	304.74	1	5
Batch number: 17153002102A	Sample number(s): 9016128 BKG: P022876			
Total Alkalinity to pH 4.5	210.09	207.56	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: L171531AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9016127	102	101	98	98
9016128	100	101	98	98
9016129	101	102	97	97
9016130	102	102	99	100
9016131	100	101	99	100
9016134	101	101	99	97
9016135	100	99	98	97
9016136	103	104	97	97
9016137	101	103	97	98
9016140	102	102	98	98
9016141	103	102	97	98
Blank	101	102	98	98
LCS	99	101	99	101
LCSD	100	100	100	101
MS	102	102	99	100
MSD	100	101	99	100

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Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1806183
Reported: 06/19/2017 16:10

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SOM02.2 Volatiles
Batch number: L171531AA

Limits:	80-116	77-113	80-113	78-113

Analysis Name: 1,4-Dioxane
Batch number: 17150WAP026

	1,4-Dioxane-d8
9016127	31*
9016128	44*
9016129	41*
9016130	42*
9016131	42*
9016135	46*
9016136	41*
9016137	38*
9016140	28*
9016141	34*
Blank	44*
LCS	44*
MS	42*
MSD	42*
Limits:	70-130

Analysis Name: 19 PFCs
Batch number: 17151004

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9016127	77	97	98	74	69*	75
9016128	82	98	108	88	79	85
9016129	76	98	97	75	69*	77
9016130	78	88	87	79	73	79
9016131	82	96	103	76	71	84
9016133	80	83	80	84	70	73
9016134	86	89	88	85	77	80
9016135	75	86	93	80	75	73
9016136	83	98	103	94	78	89
9016137	80	89	85	76	76	76
9016138	79	92	84	74	72	73
9016139	76	84	77	69*	67*	71
9016140	47*	122	396*	63*	115	85
9016141	78	91	103	69*	62*	66*
Blank	76	78	78	75	70	73
LCS	79	78	81	81	81	81
MS	78	88	87	79	73	79
MSD	82	96	103	76	71	84
Limits:	70-130	70-130	70-130	70-130	70-130	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Group Number: 1806183
Reported: 06/19/2017 16:10

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 19 PFCs
Batch number: 17151004

	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	13C2-8:2-FTS
9016127	127	78	80	103	74	132*
9016128	118	83	77	94	88	99
9016129	91	76	70	75	78	102
9016130	101	72	60*	66*	76	95
9016131	110	78	77	92	81	111
9016133	98	79	77	97	70	97
9016134	93	82	102	93	88	111
9016135	96	76	87	90	76	89
9016136	118	89	84	102	72	102
9016137	103	79	78	89	77	88
9016138	105	76	68*	73	78	105
9016139	120	78	77	92	74	100
9016140	121	63*	82	80	70	116
9016141	100	78	81	103	84	138*
Blank	98	74	63*	76	80	87
LCS	101	82	70	80	78	86
MS	101	72	60*	66*	76	95
MSD	110	78	77	92	81	111
Limits:	70-130	70-130	70-130	70-130	70-130	70-130

	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA	13C8-PFOSA
9016127	69*	57*	64*	43*	53*	44*
9016128	67*	77	83	65*	68*	63*
9016129	62*	65*	71	62*	65*	48*
9016130	73	79	71	69*	72	44*
9016131	75	74	74	75	74	50*
9016133	70	70	86	65*	66*	46*
9016134	74	73	85	70	72	53*
9016135	62*	62*	66*	61*	62*	55*
9016136	65*	65*	74	67*	63*	48*
9016137	70	72	84	68*	64*	53*
9016138	73	65*	76	67*	63*	40*
9016139	65*	74	77	58*	62*	44*
9016140	53*	70	66*	59*	57*	30*
9016141	70	81	77	65*	70	37*
Blank	62*	67*	71	65*	68*	43*
LCS	68*	74	71	72	71	35*
MS	73	79	71	69*	72	44*
MSD	75	74	74	75	74	50*
Limits:	70-130	70-130	70-130	70-130	70-130	70-130

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1806183 Sample #: 9016127-41

COC#: 17060

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: LC, RH	
Phone #: 518-786-7502	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only

SF#: 293903

SCR#: 206616

Preservation Codes

H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Water: Potable	Water: NPDES	Water: Surface	Other: Blank water	Total # of Containers	Preservation: H	N				B	S	S					Remarks
													TCL VOAs (8260C)	TAL Metals + B (SW-846)	1,4-Dioxane (8270 ISO DL SIM)	Br-, Cl-, SO4-, NO2, NO3 (300.0)	ortho-PO4 (SM 4500-P E)	CN (9012A)	NH3 (EPA 350.1)	TKN (EPA 351.2)	Alk, Bicarb, Carb. (2320 B)	19 PFCs (EPA 537 mod.)	PFC Precursors (TOP Assay)	
SG3-MW-7-170524	5/24/17	1220	X				X					14	X	X	X	X	X	X	X	X	X	X	X		o-PO4, NO2 and NO3 have a 48 hr hold time *
SG3-B-12-170524	5/24/17	1325	X				X					14	X	X	X	X	X	X	X	X	X	X	X		
SG3-MW-100S-170524	5/24/17	1600	X				X					42	X	X	X	X	X	X	X	X	X	X	X		MS/MSD Here
SG3-FTB01-170524	5/24/17	1530	X								X	1										X			
SG3-LTB01-170524	5/24/17	—									X	3	X									X			
SG3-B-21-170525	5/25/17	0910	X				X					15	X	X	X	X	X	X	X	X	X	X	X		Lab Metals QC Here
SG3-B-2-2-170525	5/25/17	1010	X				X					14	X	X	X	X	X	X	X	X	X	X	X		
SG3-EB01-170525	5/25/17	0825	X								X	14	X	X	X	X	X	X	X	X	X	X	X		
SG3-RB01-170525	5/25/17	0823	X								X	2										X			
SG3-RB02-170525	5/25/17	1056	X								X	2										X			

Analyses Requested

Remarks

* o-PO4, NO2 and NO3 have a 48 hr hold time

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH ☒

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: K.moine@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

Relinquished by:	Date	Time	Received by:	Date	Time
Lauren Comer	5/25/17	1515			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	5/26/17	9:30

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx ✓ Other _____

Temperature upon receipt 1.8-2.2 °C

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Environmental Services Analysis Request/Chain of Custody

Acct. #: 37191 Group #: 1806183 Sample #: 9016127-41

COC#: 17060

Client: C.T. Male Associates	
Project Name/#: SGPP - Bennington	Site ID:
Project Manager: Kirk Moline	P.O. #: 16.6131
Sampler: LC, RH	
Phone #: 518-786-7502	Quote #: 214135
State where sample(s) were collected: VT	

For Lab Use Only

SF#: 293903

SCR#: 206616

Sample Identification	Collection Date	Collection Time	Grab	Composite	Matrix: Soil	Sediment	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	Preservation Codes: H	N				B	S	S					Analyses Requested: TCL VOAs (8260C)	TAL Metals + B (SW-846)	1,4-Dioxane (8270 ISO DL SIM)	Br-, Cl-, SO4-, NO2, NO3 (300.0)	ortho-PO4 (SM 4500-P E)	CN (9012A)	NH3 (EPA 350.1)	TKN (EPA 351.2)	Alk, Bicarb, Carb. (2320 B)	19 PFCs (EPA 537 mod.)	PFC Precursors (TOP Assay)	
SG3-VLT-01-170525	5/25/17	0920	X				X					14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SG3-FD01-170525	5/25/17	—	X				X					14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Preservation Codes: H = HCl; T = Thiosulfate; N = HNO_3; B = NaOH; S = H_2SO_4; P = H_3PO_4; O = Other

Remarks

ortho-PO4, NO2 and NO3 have a 48 hr hold time *

Turnaround Time Requested (TAT) (please check): Standard ☒ RUSH

(RUSH TAT is subject to Eurofins Lancaster Laboratories approval and surcharges.)

Date results are needed:

E-mail address to send RUSH results: k.moline@ctmale.com

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☑ MA MCP ☐ TX TRRP - 13 ☐

Type III (Reduced non-CLP) ☐ CT RCP ☐

Type IV (CLP SOW) ☐ ASP Type A ☐

Type VI (Raw Data Only) ☐ ASP Type B ☐

EDD Format: EQuIS

If site-specific QC (MS/MSD/Dup) required, indicate QC samples and submit triplicate volume.

	Relinquished by:	Date	Time	Received by:	Date	Time
1	Larene Cann	5/25/17	1515			
2	Relinquished by:	Date	Time	Received by:	Date	Time
3	Relinquished by:	Date	Time	Received by:	Date	Time
4	Relinquished by:	Date	Time	Received by:	Date	Time
5	Relinquished by:	Date	Time	Received by:	5/26/17	9:30

Airbill No.:

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt 1.8-2.2 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 184769

Group Number(s): 1806183

Client: C.T. MALE ASSOCIATES

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/26/2017 9:30
Number of Packages:	4	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Wendy Wakeley (1669) at 11:08 on 05/26/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.8	DT	Wet	Y	Bagged	N
2	DT146	2.2	DT	Wet	Y	Bagged	N
3	DT146	1.9	DT	Wet	Y	Bagged	N
4	DT146	2.0	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SG3-MW-7-170524	13	14	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Appendix C

QA/QC Summary and Tables

Appendix C.1 QAQC Analytical Data
Appendix C.2 Analytical Data Validation

Appendix C.1

QAQC Analytical Data

validation reports provided upon request

Table C.1.1
Footnote and Qualifier Definitions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Footnote / Qualifier	Definition
--	Not analyzed/Not available.
N	Sample Type: Normal
FD	Sample Type: Field Duplicate
*	Estimated value, QA/QC criteria not met.
**	Unusable value, QA/QC criteria not met.
a	Estimated value, calculated using some or all values that are estimates.
b	Potential false positive value based on blank data validation procedures. Concentrations identified as potential false positive are excluded from calculations.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analyte has been "tentatively identified" or considered "presumptively" present.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected above the level of the reported sample method detection limit (MDL).
UB	The Analyte was not detected substantially above the level reported in the associated laboratory, equipment, field, or trip blank.
UJ	The analyte was analyzed for, but was not detected. The reported MDL and limit of quantitation (LOQ) are approximate and may be inaccurate or imprecise.

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		FTB01	RB01	RB02	FB01	FB02	FB03	FB04	FB05	FB06	FB07	FB08	FBS01	FB09	FB10	FBS02	FBS03	FBS04
Sample Date		5/24/2017	5/25/2017	5/25/2017	8/15/2017	8/18/2017	8/21/2017	8/22/2017	8/23/2017	8/24/2017	8/25/2017	8/25/2017	8/27/2017	8/28/2017	8/28/2017	8/28/2017	8/29/2017	8/30/2017
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	--	--	--	--	< 3 U	< 3 U	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	< 4 U	--	--	--	--	< 4 U	< 4 U	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	--	--	--	--	< 1 U	< 1 U	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	< 1 UJ	--	--	--	--	< 1 U	< 1 U	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 3 UJ	< 3 UJ	< 3 UJ	--	--	--	--	< 3 UJ	< 3 UJ	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**0.7 J**	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		FB11	CANOPY1	CANOPY2	FBS05	FB12-170911	RAS-EQPIECE#1-NOSECONE	RAS-EQPIECE#2-SENSOR	RAS-EQPIECE#3-DELRIN	RAS-EQPIECE#4-PACKER#1	RAS-EQ#5-ACOUSTICCUP	RAS-EQPIECE#6-PACKER #2	RAS-EQPIECE#7-CALIPERTIP	RAS-EQ#8-PACKERPART#18	RAS-EQ#9-INSITUCABLETERM
Sample Date		9/05/2017	9/06/2017	9/06/2017	9/07/2017	9/11/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017	9/15/2017
Parameter	Units														
Per- and Polyfluoroalkyl Substances															
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	< 3 U	< 3 U	--	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	< 4 U	< 4 U	--	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**2**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**17**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**3**	< 0.6 U	**0.8 J**	< 0.6 U	< 0.6 U	**5**
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**2 J**
Perfluorooctanesufonic acid (PFOS)	ng/l	--	< 3 UJ	< 3 UJ	--	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 U	< 3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**10**	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**580**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
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Location		RAS-EQ#10-PACKERPART#23	FBS06	FB13	TROLL/ CABLE-RB1	TROLL/ CABLE-RB2	TROLL/ CABLE-RB3	TROLL/ CABLE-RB4	TROLL/ CABLE-RB5	TROLL/ CABLE-RB6	TROLL/ CABLE-RB7	TROLL/ CABLE-RB8	FBS07	FLATWATER	10" CASING	TOTE2	TOTE1
Sample Date		9/15/2017	9/20/2017	9/21/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/26/2017	9/26/2017	9/26/2017
Parameter	Units																
Per- and Polyfluoroalkyl Substances																	
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	--	--	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	--	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	--	--	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	< 4 U	--	< 4 U	< 4 U	< 4 U	< 4 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	**0.8 J**	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	**7 J**	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	**3 J**	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	**0.9 J**	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	**2 J**	**12**	< 0.5 U	**13**	**3**	**9**	< 0.5 U	**0.9 J**	< 0.5 U	< 0.5 U	**1 J**	< 0.5 U	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**2 J**	**4**	< 1 U	**1 J**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	**0.9 J**	**4**	< 0.6 U	**5**	**1 J**	**2**	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	**3**	< 0.6 U	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**5**	< 0.6 U	**6**	**2 J**	**5**	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**0.7 J**	< 0.6 U	< 0.6 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 3 U	--	--	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	--	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**2 J**	**3 J**	< 2 U	< 2 U	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	**71**	**430**	**16**	**440**	**97**	**320**	**21**	**32**	< 0.6 UJ	< 0.6 U	**3**	< 0.6 U	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**6**	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
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Location		6" CASING	SAMPLE SLEEVE	FB14	FBS08	FBS09	Sonic	RAS-EQPIECE9-INSITUCABLE	RAS-EQPIECE#9-TIP	RAS-EQPIECE#9-CAP	FBS10	RB01		RB02		RB03	
Sample Date		9/26/2017	9/26/2017	9/27/2017	9/28/2017	9/29/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/04/2017	10/05/2017		10/05/2017		10/05/2017	
Parameter	Units																
Per- and Polyfluoroalkyl Substances																	
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 UJ	< 3 U	--	--	--	< 3 U	< 3 U	< 3 U	< 3 U	--	< 3 U	< 3 U	< 3 U	< 2 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	--	--	--	< 4 UJ	< 4 U	< 4 U	< 4 U	--	< 4 U	< 2 U	< 4 U	< 2 U	< 4 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 0.4 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 0.4 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	**0.9 J**	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.3 U	< 0.8 U	< 0.3 U	< 0.8 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 2 U	< 3 U	< 2 U	< 3 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.8 J	< 0.5 U	< 0.4 U	< 0.5 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	**0.8 J**	**0.9 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 3 UJ	< 3 U	--	--	--	< 3 UJ	< 3 U	< 3 U	< 3 U	--	< 3 UJ	< 0.3 UJ	< 3 UJ	< 0.3 UJ	< 3 UJ	< 0.3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 0.8 U	< 2 U	< 0.7 U	< 2 U	< 0.8 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**34**	**21**	**4**	< 0.6 U	< 0.6 U	1	< 0.6 U	< 0.3 U	< 0.6 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U	< 1 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		RB04		RB05	RB06	FTB01		RB07	RB08	SONIC2 PUMP1	SONIC2 PUMP2	RB11	RB12	RB13	RB14	RB15	RB16	RB05
Sample Date		10/05/2017		10/05/2017	10/05/2017	10/05/2017		10/05/2017	10/05/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 2 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 2 U	< 4 U	< 4 U	< 4 U	< 2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 2 U	< 2 UJ	< 2 UJ	< 2 UJ	< 2 UJ	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.3 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.3 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 2 U	< 3 U	< 3 U	< 3 U	< 2 U	< 3 U	< 3 U	< 3 U	< 3 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.7 J**	< 0.4 U	< 0.4 U	**1 J**	< 0.4 U	**0.6 J**	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.8 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**0.6 J**	**0.4 J**	**0.3 J**	**4**	**0.5 J**	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 3 UJ	< 0.3 U	< 3 UJ	< 3 UJ	< 3 UJ	< 0.3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 0.8 U	< 2 U	< 2 U	< 2 U	< 0.8 U	< 2 U	< 2 U	< 2 U	< 2 U	< 0.8 U	< 0.8 U	< 0.7 U	**3**	< 0.8 U	< 0.7 U	< 0.8 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	**3**	**1**	**0.5 J**	**8**	**1**	**0.8 J**	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		RB06	RB07	RB08	RB09	RB10	FBS11	FBS12	RBPLASTIC	RBRIGTANK	RBROD	RBCASING	RBCORE	9" CASING	RBIBC1	RBIBC2	FBS13	RB01A
Sample Date		10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/06/2017	10/07/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/11/2017	10/12/2017	10/12/2017	10/12/2017	10/13/2017	10/17/2017
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 2 U	< 3 U	< 3 U	--	< 3 U	< 3 U	< 4 U	< 4 U	< 4 U	< 3 U	< 3 U	--	--	--	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	--	--	--	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	--	< 0.4 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.4 U	--	--	--	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	--	< 0.4 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.4 U	--	--	--	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**14 J**	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	**0.8 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.6 R**	< 0.4 U	< 0.4 U	**1 R**	< 0.5 U	**0.9 R**	**0.7 R**	**3**	**0.6 J**	**0.7 R**	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	**0.4 J**	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	**4 J**	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	**0.4 J**	< 0.3 U	**8 J**	**0.4 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	**1 J**	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	--	< 0.3 UJ	< 0.3 UJ	< 0.4 UJ	< 0.4 UJ	< 0.4 UJ	< 0.3 UJ	< 0.3 UJ	--	--	--	< 0.3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.8 U	< 1 U	< 1 U	< 1 U	< 0.8 U	**2 J**	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	**0.9 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.9 R**	< 0.3 U	< 0.3 U	**2 R**	< 0.4 U	**1 R**	**1 R**	**7 J**	**2 J**	**0.9 J**	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	**3 J**	**0.5 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	**0.8 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		RB06A	RB11A	RB12A	RB13A	RB14A	RB15A	RB16A	RB17	RB18	RB19	FTB01	FBS14	FTB01	RB01	RB02	RB03	RB04
Sample Date		10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/18/2017	10/19/2017	10/19/2017	10/19/2017	10/19/2017	10/19/2017
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	--	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 UJ	< 0.4 UJ	< 0.4 UJ	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 UJ	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.7 U	< 0.7 U	< 0.7 U	**0.9 J**	**0.9 J**	< 0.7 U	< 0.8 U	< 0.7 U	**0.9 J**	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.8 J**	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 UJ	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		RB05	RB06	RB07	RB08	RB09	FBS15	RB01	FTB88	RB02	FTB01	FTB01	FTB01	FBS16	FBS17	PUMP300	FTB01	FTB01
Sample Date		10/19/2017	10/19/2017	10/19/2017	10/19/2017	10/19/2017	10/20/2017	10/20/2017	10/20/2017	10/20/2017	10/23/2017	10/24/2017	10/25/2017	10/25/2017	10/25/2017	10/25/2017	10/26/2017	10/27/2017
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.6 J**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.7 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 0.3 U	**1 R**	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 0.3 U	< 0.3 U	**1**	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location / Sample Date		HAMMER-EZ 11/07/2017	COMPRESSOR OIL 11/07/2017	RASSEM PACK 11/07/2017	RAS GRN WINCH 11/07/2017	RAS BL WINCH 11/07/2017	SONIC BARREL 11/07/2017	COOLER/ BAG H20 11/09/2017	COMPRESSOR TESTH20 11/09/2017	RB01 11/11/2017	RB02 11/11/2017	WINDSHIELD FLUID 11/13/2017	BLADDER PUMP-RAS 11/16/2017	STANDPIPE-RAS 11/16/2017	BLADDERINSERT-RAS 11/16/2017	AIR-DISCHARGE-RAS 11/16/2017	PVC 11/21/2017
Parameter	Units																
Per- and Polyfluoroalkyl Substances																	
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	--	< 3 U	< 3 U	< 3 U	< 3 UJ	< 3 U	< 3 U	< 3 UJ	< 3 UJ	< 2000 U	< 3 UJ	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	--	< 2 U	< 2 U	< 2 UJ	< 2 UJ	< 2 U	< 2 U	< 2 UJ	< 2 UJ	< 1000 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 300 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	--	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 300 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	**3 J**	< 2 U	< 1000 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	--	--	< 0.4 U	**0.8 J**	**0.8 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 300 U	**0.8 J**	< 0.4 U	**0.9 J**	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	--	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 300 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	--	--	< 0.3 U	< 0.3 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U	**0.6 J**	< 0.3 U	< 200 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	--	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 200 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	**0.4 J**
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	--	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 500 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	--	--	< 0.3 U	**1**	**2**	< 0.3 U	< 0.3 U	**0.7 J**	**0.7 J**	< 0.3 U	< 200 U	**1**	< 0.3 U	**1**	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	--	--	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	--	--	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 200 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	--	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 300 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	< 0.93 U	< 0.99 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	< 0.93 UJ	< 0.99 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	< 0.93 UJ	< 0.99 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	< 0.93 UJ	< 0.99 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.28 U	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	**1.2 J**	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	< 0.28 U	< 0.30 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.28 R	< 0.30 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.28 UJ	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.28 U	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.28 UJ	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	< 0.28 U	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	< 0.28 UJ	< 0.30 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.42 U	< 0.45 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	< 0.28 U	< 0.30 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	< 0.28 UJ	< 0.30 UJ	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	**0.36 J**	< 0.30 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.28 R	< 0.30 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.28 UJ	< 0.30 R	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		INDUCTION TOOL	CAMERA	PUMP	TRILENE	TROLL	RIG4	PUMP14 E14	PUMP06 J18	WIRE	PIPE	TOTE1	TOTE2	RIG4CLN H2OPUMP	BENTONITE	HAMMER	PUMP	REDI-FLOW
Sample Date		11/21/2017	11/27/2017	11/28/2017	11/29/2017	11/29/2017	12/01/2017	12/03/2017	12/03/2017	12/03/2017	12/03/2017	12/05/2017	12/05/2017	12/05/2017	12/06/2017	12/07/2017	1/10/2018	1/16/2018
Parameter	Units																	
Per- and Polyfluoroalkyl Substances																		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 UJ	< 3 UJ	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 5 U	--	< 5 UJ	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 3 U	--	< 3 UJ	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.6 J**	< 0.4 U	< 0.4 U	< 0.7 U	--	< 0.7 U	< 0.9 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 U	**0.6 J**	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.7 U	--	< 0.7 U	< 0.9 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	**0.5 J**	< 0.3 U	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	**3 J**	< 2 U	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U	**4 J**	< 2 UJ	< 3 U	--	< 3 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	**0.9 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.7 J**	< 0.4 U	< 0.7 U	--	< 0.7 U	< 0.9 U	< 0.9 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	**1**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**3**	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.7 U	--	< 0.7 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	**0.7 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	**0.3 J**	**2**	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.4 U	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.4 U	< 0.4 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.3 UJ	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.5 UJ	--	< 0.5 UJ	< 0.9 UJ	< 0.9 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	**0.8 J**	< 0.8 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.7 UJ	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 1 U	--	< 1 U	< 0.4 U	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	**5**	**0.4 J**	**0.5 J**	< 0.3 U	**0.4 J**	< 0.3 UJ	**0.3 J**	< 0.3 U	< 0.3 U	**0.4 J**	**2**	**0.3 J**	**0.9 J**	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	**0.3 J**	< 0.3 U	**0.9 J**	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**3**	< 0.3 U	< 0.5 U	--	< 0.5 U	< 2 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 R	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.5 U	--	< 0.5 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.7 U	--	< 0.7 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.22 J**	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.10 U	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.10 U	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.30 U	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.20 U	--	--	--

Table C.1.2
Analytical Results - Rinsate Blanks and Field Blanks
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Location		PIPE	PUMP	FB01	FB01	PVC
Sample Date		1/17/2018	1/19/2018	1/19/2018	1/20/2018	1/24/2018
Parameter	Units					
Per- and Polyfluoroalkyl Substances						
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 0.9 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	**0.4 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/g	--	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/g	--	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/g	--	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/g	--	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/g	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	ng/g	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	ng/g	--	--	--	--	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	ng/g	--	--	--	--	--
Perfluorohexane sulfonate (PFHxS)	ng/g	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	ng/g	--	--	--	--	--
Perfluorononanoic acid (PFNA)	ng/g	--	--	--	--	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/g	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	ng/g	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/g	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	ng/g	--	--	--	--	--
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	--	--	--	--	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	--	--	--	--	--

Table C.1.3
Analytical Results - Equipment Blank
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

	Location Sample Date	EB01 5/25/2017
Parameter	Units	
General Parameters		
Alkalinity, bicarbonate, as CaCO3	mg/l	< 1.7 U
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 U
Alkalinity, total, as CaCO3	mg/l	< 1.7 U
Bromide	mg/l	< 0.25 U
Chloride	mg/l	**0.23 J**
Cyanide	mg/l	< 0.0050 U
Nitrogen, ammonia, as N	mg/l	< 0.050 U
Nitrogen, nitrate, as N	mg/l	< 0.050 U
Nitrogen, nitrite, as N	mg/l	< 0.050 U
Nitrogen, total kjeldahl (TKN)	mg/l	< 0.50 U
Orthophosphate, as P	mg/l	< 0.030 U
Sulfate, as SO4	mg/l	< 0.30 U
Metals		
Aluminum	mg/l	< 0.0868 U
Antimony	mg/l	< 0.00048 U
Arsenic	mg/l	< 0.00068 U
Barium	mg/l	< 0.00096 U
Beryllium	mg/l	< 0.00011 U
Boron	mg/l	< 0.0083 U
Cadmium	mg/l	< 0.00019 U
Calcium	mg/l	**0.0723 J**
Chromium	mg/l	< 0.00059 U
Cobalt	mg/l	< 0.00020 U
Copper	mg/l	< 0.00052 U
Iron	mg/l	< 0.0747 U
Lead	mg/l	< 0.000090 U
Magnesium	mg/l	< 0.0190 U
Manganese	mg/l	< 0.00088 U
Mercury	mg/l	< 0.000050 U
Nickel	mg/l	< 0.00085 U
Potassium	mg/l	< 0.160 U
Selenium	mg/l	< 0.00044 U
Silver	mg/l	< 0.00012 U
Sodium	mg/l	**0.224 J**
Thallium	mg/l	< 0.00016 U
Vanadium	mg/l	**0.00021 J**
Zinc	mg/l	< 0.0054 U
SVOCs		
1,4-Dioxane	ug/l	< 0.051 UJ

Table C.1.3
Analytical Results - Equipment Blank
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location Sample Date		EB01 5/25/2017
Parameter	Units	
VOCs		
1,1,1-Trichloroethane	ug/l	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U
1,3-Dichlorobenzene	ug/l	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U
2-Hexanone	ug/l	< 3 U
Acetone	ug/l	< 6 U
Benzene	ug/l	< 0.5 U
Bromochloromethane	ug/l	< 1 U
Bromodichloromethane	ug/l	< 0.5 U
Bromoform	ug/l	< 0.5 U
Bromomethane	ug/l	< 0.5 U
Carbon disulfide	ug/l	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U
Chloroethane	ug/l	< 0.5 U
Chloroform	ug/l	< 0.5 U
Chloromethane	ug/l	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U
Cyclohexane	ug/l	< 2 U
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U
Methyl acetate	ug/l	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U
Methylcyclohexane	ug/l	< 1 U
Methylene chloride	ug/l	< 2 U
Styrene	ug/l	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U
Toluene	ug/l	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U
Vinyl chloride	ug/l	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U
Xylene, o	ug/l	< 0.5 U
Xylene, total	ug/l	< 0.5 U

Table C.1.3
Analytical Results - Equipment Blank
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location Sample Date		EB01 5/25/2017
Parameter	Units	
Per- and Polyfluoroalkyl Substances		
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 UJ
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 2 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		LTB01	LTB01	LTB02	LTB03	LTB04	LTB05	LTB06	LTB07	LTB08	LTB09	Trip Blank	LTB11	LTB12	LTB10	LTB13	LTB14	LTB15	LTB16
Sample Date		5/24/2017	8/14/2017	8/14/2017	8/16/2017	8/16/2017	8/18/2017	8/18/2017	8/21/2017	8/21/2017	8/23/2017	8/24/2017	8/29/2017	8/29/2017	8/29/2017	8/30/2017	8/30/2017	9/05/2017	9/05/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	--	--	--	--	--	--	--	--	< 3 U	< 3 U	--	--	< 3 U	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	--	--	--	--	--	--	--	--	< 4 U	< 4 U	--	--	< 4 U	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	--	--	--	--	--	--	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	--	--	--	--	--	--	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ	--	--	--	--	--	--	--	--	< 3 UJ	< 3 UJ	--	--	< 3 UJ	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.8 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		Trip Blank	Trip Blank	LTB17	LTB18	LTB19	LTB19	LTB20	LTB21	LTB22	LTB24	LTB23	LTB25	LTB26	LTB27	LTB29	LTB30	LTB32	LTB33
Sample Date		9/05/2017	9/05/2017	9/06/2017	9/06/2017	9/06/2017	9/07/2017	9/07/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/11/2017	9/11/2017	9/11/2017	9/12/2017	9/12/2017	9/13/2017	9/13/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	--	--	< 3 U	--	--	--	--	< 3 U	< 3 U	--	--	< 3 U	--	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	--	--	< 4 U	--	--	--	--	< 4 U	< 4 U	--	--	< 4 U	--	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--	< 1 U	< 1 U	--	--	< 1 U	--	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ	< 3 UJ	--	--	< 3 UJ	--	--	--	--	< 3 UJ	< 3 UJ	--	--	< 3 UJ	--	--	--	--
Perfluorooctanoic acid (PFOA)	ng/l	**1 J**	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		LTB35	LTB36	LTB38	LTB39	LTB40	LTB41	LTB43	LTB44	LTB45	LTB47	LTB48	LTB49	LTB50	LTB49	LTB50	LTB51	LTB52	LTB53
Sample Date		9/18/2017	9/18/2017	9/19/2017	9/19/2017	9/20/2017	9/20/2017	9/21/2017	9/21/2017	9/21/2017	9/22/2017	9/22/2017	9/23/2017	9/23/2017	9/25/2017	9/25/2017	9/26/2017	9/26/2017	9/27/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	--	< 3 U	--	--	--	< 3 U	--	--	--	--	--	--	< 3 U	< 3 U	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	--	< 4 U	--	--	--	< 4 U	--	--	--	--	--	--	< 4 U	< 4 U	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	--	< 1 U	--	--	--	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	--	< 1 U	--	--	--	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1 J**	< 0.5 U	< 0.5 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	--	< 3 UJ	--	--	--	< 3 UJ	--	--	--	--	--	--	< 3 UJ	< 3 UJ	--	--	--
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		LTB54	LTB55	LTB56	Trip Blank	LTB57	LTB58	Trip Blank	LTB59	LTB60	Trip Blank	LTB61	LTB62	Trip Blank	LTB01		LTB63	LTB64	LTB65
Sample Date		9/27/2017	9/28/2017	9/28/2017	9/28/2017	9/29/2017	9/29/2017	9/29/2017	10/03/2017	10/03/2017	10/03/2017	10/04/2017	10/04/2017	10/04/2017	10/05/2017		10/05/2017	10/05/2017	10/05/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	< 3 U	< 3 U	--	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	--	--	< 4 U	--	--	< 4 U	--	--	< 4 U	--	--	< 4 U	< 4 U	< 2 U	--	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	< 1 U	< 0.4 U	--	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	< 1 U	< 0.4 U	--	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 2 U	< 2 UJ	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	**1 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	**0.8 J**	**0.8 J**	**0.5 R**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 0.8 U	< 0.8 UJ	< 0.8 U	< 0.8 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	--	--	< 3 UJ	--	--	< 3 U	--	--	< 3 UJ	--	--	< 3 UJ	< 3 UJ	< 0.3 UJ	--	--	--
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 UJ	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	**1 J**	**0.8 J**	**0.6 R**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
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Location		LTB66	Trip Blank	Trip Blank	LTB67	LTB68	LTB69	LTB70	Trip Blank	LTB71	LTB72	LTB73	LTB74	Trip Blank	LTB75	LTB76	Trip Blank	LTB77	LTB78
Sample Date		10/05/2017	10/05/2017	10/05/2017	10/09/2017	10/09/2017	10/10/2017	10/10/2017	10/10/2017	10/11/2017	10/11/2017	10/12/2017	10/12/2017	10/12/2017	10/13/2017	10/13/2017	10/13/2017	10/16/2017	10/16/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	< 3 U	< 3 U	--	--	--	--	< 3 U	< 3 U	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	< 2 U	< 4 U	--	--	--	--	< 2 U	< 2 U	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	< 0.4 U	< 1 U	--	--	--	--	< 0.4 U	< 0.4 U	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	< 0.4 U	< 1 U	--	--	--	--	< 0.4 U	< 0.4 U	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.8 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 3 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	**0.7 R**	< 0.4 U	< 0.5 U	**0.6 R**	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.8 U	< 0.7 U	< 2 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	< 0.3 UJ	< 3 UJ	--	--	--	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	--	--	< 0.3 UJ	--	--	< 0.3 UJ	--	--
Perfluorooctanoic acid (PFOA)	ng/l	**0.8 R**	< 0.3 U	< 0.6 U	**0.8 R**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
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Location		Trip Blank	LTB01	LTB79	LTB80	Trip Blank	LTB81	LTB82	LTB01	LTB83	LTB84	Trip Blank	LTB85	LTB86	Trip Blank		LTB87	LTB89	LTB90
Sample Date		10/16/2017	10/17/2017	10/17/2017	10/17/2017	10/17/2017	10/18/2017	10/18/2017	10/19/2017	10/19/2017	10/19/2017	10/19/2017	10/20/2017	10/20/2017	10/20/2017		10/20/2017	10/21/2017	10/21/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	< 3 U	< 3 U	--	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	< 2 U	< 2 U	--	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	< 0.4 U	< 0.4 U	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	< 0.4 U	< 0.4 U	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 UJ	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.7 UJ	< 0.7 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.3 UJ	< 0.3 UJ	--	--	< 0.3 UJ	--	--	< 0.3 UJ	--	--	< 0.3 UJ	--	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	--	--
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 0.3 U	**0.9 R**	< 0.3 UJ	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
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Location		LTB01	LTB91	LTB92	LTB01	LTB93	LTB94	LTB01	LTB95	LTB96	Trip Blank	LTB01	Trip Blank	LTB01	LTB97	LTB98	LTB100	LTB99	LTB101
Sample Date		10/23/2017	10/23/2017	10/23/2017	10/24/2017	10/24/2017	10/24/2017	10/25/2017	10/25/2017	10/25/2017	10/25/2017	10/26/2017	10/26/2017	10/27/2017	10/30/2017	10/30/2017	10/31/2017	10/31/2017	11/01/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	--	--	< 3 U	--	--	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	--	--	< 3 U	< 3 U	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	--	--	< 2 U	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	--	--	< 2 U	< 2 U	--
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	--	--	< 0.4 U	< 0.4 U	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	--	--	< 0.4 U	--	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	--	--	< 0.4 U	< 0.4 U	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.8 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.3 UJ	--	--	< 0.3 UJ	--	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	--	--	< 0.3 UJ	< 0.3 UJ	--
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.3 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 R	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
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Location		LTB102	LTB103	LTB104	LTB105	LTB01	Trip Blank	Trip Blank	LTB01	LTB01	LTB02	LTB107	LTB108	LTB01	LTB02	LTB109	LTB01	LTB02	LTB110
Sample Date		11/01/2017	11/02/2017	11/02/2017	11/03/2017	11/07/2017	11/08/2017	11/09/2017	11/16/2017	11/28/2017	11/28/2017	11/29/2017	11/29/2017	11/30/2017	11/30/2017	12/01/2017	12/05/2017	12/05/2017	12/06/2017
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	--	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 1 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	--	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 1 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.7 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.7 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.6 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 U	< 0.3 U	< 1 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	--	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.9 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.5 J**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
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Location		LTB111	LTB01	LTB02	LTB112	LTB113	LTB01	LTB02	LTB01	LTB02	LTB03	LTB04	LTB120	LTB121	LTB122	LTB123	LTB124	LTB125	LTB126
Sample Date		12/06/2017	12/08/2017	12/08/2017	12/09/2017	12/10/2017	12/16/2017	12/16/2017	12/17/2017	12/17/2017	12/17/2017	12/17/2017	12/21/2017	12/21/2017	1/04/2018	1/04/2018	1/10/2018	1/10/2018	1/16/2018
Parameter	Units																		
Per- and Polyfluoroalkyl Substances																			
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.8 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	**0.8 J**	**1 J**	**1 J**	**1 J**	**1 J**	**1 J**	**1 J**	**1 J**	**1 J**	**1 J**	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.7 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**3**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.6 J**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 1 UJ	< 1 UJ	< 1 UJ	< 0.9 U	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 U	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 UJ	< 0.9 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**15**	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	**0.4 J**	< 0.3 U	**0.6 J**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**4**	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoropentanoic acid (PFPeA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.4
Analytical Results - Trip Blanks PFAS
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		LTB127	LTB128	LTB130	LTB131	LTB132	LTB133	LTB134	LTB136
Sample Date		1/16/2018	1/17/2018	1/19/2018	1/19/2018	1/20/2018	1/22/2018	1/24/2018	1/26/2018
Parameter	Units								
Per- and Polyfluoroalkyl Substances									
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.9 U	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.9 UJ	< 0.9 U	< 0.9 U	< 0.9 U	< 1 U	< 1 U	< 0.9 U	< 0.9 U
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.6 J**
Perfluoropentanoic acid (PFPeA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.5
Analytical Results - Trip Blanks VOC
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		LTB01	Trip Blank	LTB28	LTB31	LTB34	LTB37	LTB42	LTB05	LTB06	LTB133
Sample Date		5/24/2017	8/30/2017	9/11/2017	9/12/2017	9/13/2017	9/19/2017	9/21/2017	12/17/2017	12/17/2017	1/20/2018
Parameter	Units										
VOCs											
1,1,1-Trichloroethane	ug/l	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Acetone	ug/l	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, total	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table C.1.6
Analytical Treated Water Results - PFAS
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Location		FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A	FILT-WTR-FRAC-TANK-A
Date		8/29/2017	9/08/2017	10/03/2017	10/06/2017	10/17/2017	11/01/2017	11/08/2017	11/16/2017	12/02/2017	12/08/2017	12/16/2017
Sample Type		N	N	N	N	N	N	N	N	N	N	N
Parameter	Units											
Per- and Polyfluoroalkyl Substances												
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 4 U	< 3 U	< 3 UJ
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 4 U	< 4 U	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 1 U	< 0.9 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 1 U	< 0.9 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.8 U	< 0.8 U	< 0.8 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	**0.3 J**	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.6 U	**1 J**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	**0.7 J**	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	**1 J**	< 0.3 U	< 0.3 U	< 0.4 U	**0.7 J**	< 0.4 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.6 U	< 0.6 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 3 UJ	< 3 R	< 3 UJ	< 3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.4 UJ	< 1 UJ	< 0.9 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 0.7 U	< 0.8 U	< 0.7 U	< 0.8 U	< 1 U	**0.8 J**	< 0.4 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	< 0.6 U	**1 J**	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.5 J**	< 2 UB	**0.5 J**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 2 U	< 2 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 UJ	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 U	< 1 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.4 U	< 0.4 U

Table C.1.6
Analytical Treated Water Results - PFAS
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Bennington, VT
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Location		FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-B	FILT-WTR-FRAC-TANK-C	FILT-WTR-FRAC-TANK-C	FILT-WTR-FRAC-TANK-C	FILT-WTR-FRAC-TANK-C
Date		9/29/2017	10/07/2017	10/16/2017	10/23/2017	11/03/2017	11/10/2017	11/21/2017	12/02/2017	12/10/2017	10/05/2017	10/13/2017	10/19/2017	10/27/2017
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units													
Per- and Polyfluoroalkyl Substances														
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 2 U	< 3 U	< 3 U	< 3 U	< 3 U	**3 J**	< 4 U	< 3 U	**4 J**	< 3 U	< 3 U	< 3 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 4 U	< 2 U	< 2 U	< 2 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.9 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.9 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.8 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 U	< 0.8 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorobutanoic acid (PFBA)	ng/l	< 3 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 3 U	< 2 U	< 2 U	< 2 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	**0.9 J**	< 0.5 U	< 0.7 UB	**0.7 J**	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 U	**1 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.8 J**	< 0.3 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.4 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	**0.3 J**	**0.9 J**	< 0.4 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.4 J**	< 0.4 U	< 0.6 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 3 U	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.4 UJ	< 0.9 UJ	< 3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 2 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	< 1 U	< 0.4 U	< 2 U	< 0.7 U	< 0.8 U	< 0.7 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.6 U	**0.6 J**	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	**1**	**2**	< 0.3 U	**4**	**1**	**1**	**0.5 J**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.3 J**	**1 J**	< 2 U	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 UJ	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U	< 0.3 U	**2 J**	< 0.3 U	< 0.3 U	< 0.3 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U	< 0.4 U	< 1 U	< 0.4 U	< 0.4 U	< 0.4 U

Table C.1.6
Analytical Treated Water Results - PFAS
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Location		FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-D	FILT-WTR-FRAC-TANK-E	FILT-WTR-FRAC-TANK-E
Date		10/12/2017	10/19/2017	10/26/2017	11/07/2017	11/14/2017	11/28/2017	12/03/2017	12/11/2017	12/05/2017	12/09/2017
Sample Type		N	N	N	N	N	N	N	N	N	N
Parameter	Units										
Per- and Polyfluoroalkyl Substances											
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 4 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 3 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.9 U	< 0.4 U	< 1 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.9 U	< 0.4 U	< 1 U
Perfluorobutane sulfonate (PFBS)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.4 J**	< 0.3 U	**0.4 J**	< 0.4 U
Perfluorobutanoic acid (PFBA)	ng/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 3 U
Perfluorodecanoic acid (PFDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.8 UB	< 0.4 U	< 1 UB
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U
Perfluoroheptanoic acid (PFHpA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.8 J**	< 0.3 U	**0.8 J**	< 0.4 U
Perfluorohexane sulfonate (PFHxS)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U
Perfluorohexanoic acid (PFHxA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.9 J**	< 0.4 U	**0.9 J**	< 0.5 U
Perfluorononanoic acid (PFNA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.4 J**	< 0.4 U	**0.4 J**	< 0.5 U
Perfluorooctanesufonic acid (PFOS)	ng/l	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.3 UJ	< 0.9 UJ	< 0.3 UJ	< 1 UJ
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 0.8 U	< 0.8 U	< 0.7 U	< 0.7 U	< 0.8 U	< 0.7 U	**1 J**	< 0.4 U	**1 J**	< 0.5 U
Perfluorooctanoic acid (PFOA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**0.3 J**	**2**	**0.4 J**	**2**	**0.7 J**
Perfluoropentanoic acid (PFPeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	**1**	< 2 U	**1**	< 3 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.4 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 UJ	< 0.3 U	< 0.4 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.4 U	< 0.5 U

Table C.1.7
QA/QC Sample Description
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Sample Date	Sample Type	Sample Name	Description
5/24/2017	TB	LTB01	Trip Blank
5/24/2017	FB	FTB01	Field Blank
5/25/2017	RB	RB01	Rinsate Blank
5/25/2017	EB	EB01	Equipment Blank
5/25/2017	RB	RB02	Rinsate Blank
8/14/2017	TB	LTB01	Trip Blank
8/14/2017	TB	LTB02	Trip Blank
8/15/2017	FB	FB01	Field Blank, direct pour into container at S41
8/16/2017	TB	LTB03	Trip Blank
8/16/2017	TB	LTB04	Trip Blank
8/18/2017	TB	LTB05	Trip Blank
8/18/2017	TB	LTB06	Trip Blank
8/18/2017	FB	FB02	Field Blank, rinsate of sampling bowls and spoons at BG1
8/21/2017	TB	LTB07	Trip Blank
8/21/2017	TB	LTB08	Trip Blank
8/21/2017	FB	FB03	Field Blank, direct pour into container at S48
8/22/2017	FB	FB04	Field Blank, direct pour into container at S36
8/23/2017	FB	FB05	Field Blank, rinsate of sampling bowls and spoons at BG2
8/23/2017	TB	LTB09	Trip Blank
8/24/2017	FB	FB06	Field Blank, direct pour into container at S32
8/24/2017	TB	Trip Blank	Trip Blank
8/25/2017	FB	FB07	Field Blank, rinsate of sampling bowls and spoons at S31
8/25/2017	FB	FB08	Field Blank, direct pour into container at S12
8/27/2017	FB	FBS01	Field Blank, direct pour into container at D18
8/28/2017	FB	FB09	Field Blank, rinsate of sampling bowls and spoons at S11
8/28/2017	FB	FB10	Field Blank, direct pour into container at S14
8/28/2017	FB	FBS02	Field Blank, direct pour into container at D03
8/29/2017	TB	LTB11	Trip Blank
8/29/2017	TB	LTB12	Trip Blank
8/29/2017	TB	LTB10	Trip Blank
8/29/2017	FB	FBS03	Field Blank, rinsate of sampling bowls and spoons at D14
8/30/2017	TB	LTB13	Trip Blank
8/30/2017	TB	LTB14	Trip Blank
8/30/2017	TB	Trip Blank	Trip Blank
8/30/2017	FB	FBS04	Field Blank, rinsate of sampling bowls and spoons at D19
9/5/2017	TB	LTB15	Trip Blank
9/5/2017	TB	LTB16	Trip Blank
9/5/2017	TB	Trip Blank	Trip Blank
9/5/2017	TB	Trip Blank	Trip Blank
9/5/2017	FB	FB11	Field Blank, rinsate of sampling bowl at S01
9/6/2017	TB	LTB17	Trip Blank
9/6/2017	TB	LTB18	Trip Blank
9/6/2017	RB	Canopy1	Rinsate blank of pop up canopy purchased from Home Depot
9/6/2017	RB	Canopy2	Rinsate blank of pop up canopy purchased from Home Depot
9/6/2017	TB	LTB19	Trip Blank
9/7/2017	TB	LTB19	Trip Blank
9/7/2017	TB	LTB20	Trip Blank
9/7/2017	FB	FBS05	Field Blank, rinsate of sampling bowls and spoons at D23
9/8/2017	TB	LTB21	Trip Blank
9/8/2017	TB	LTB22	Trip Blank
9/8/2017	TB	LTB24	Trip Blank
9/8/2017	TB	LTB23	Trip Blank
9/11/2017	TB	LTB25	Trip Blank
9/11/2017	TB	LTB26	Trip Blank

Table C.1.7
QA/QC Sample Description
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Sample Date	Sample Type	Sample Name	Description
9/11/2017	TB	LTB27	Trip Blank
9/11/2017	TB	LTB28	Trip Blank
9/11/2017	FB	FB12	Field Blank, rinsate of peristaltic pump silicone tubing and groundwater tubing supplied by Cascade at S34
9/12/2017	TB	LTB29	Trip Blank
9/12/2017	TB	LTB30	Trip Blank
9/12/2017	TB	LTB31	Trip Blank
9/13/2017	TB	LTB32	Trip Blank
9/13/2017	TB	LTB33	Trip Blank
9/13/2017	TB	LTB34	Trip Blank
9/15/2017	RB	RAS-EQPIECE#1-Nosecone	Rinsate blank of optical televiewer nose cone (delrin)
9/15/2017	RB	RAS-EQPIECE#2-SENSOR	Rinsate blank of EM flowmeter, Century Mftg #9724 (delrin)
9/15/2017	RB	RAS-EQPIECE#3-DELRINPIECE	Rinse blank of electrical tool, Century Mftg #8144 (delrin)
9/15/2017	RB	RAS-EQPIECE#4-PACKER#1	Rinsate blank of waterline straddle packer (#1)
9/15/2017	RB	RAS-EQPIECE#5-AcousticCup	Rinsate blank of acoustic cup, Century Mftg #9804
9/15/2017	RB	RAS-EQPIECE#6-Packer #2	Rinsate blank of waterline straddle packer (#2), bladder element
9/15/2017	RB	RAS-EQPIECE#7-CALIPERTIP	Rinsate blank of 3-arm caliper, Century Mftg #9065
9/15/2017	RB	RAS-EQPIECE#8-PACKERPART#18	Rinsate blank of water straddle packer part #23 (non-thermal mitigation)
9/15/2017	RB	RAS-EQPIECE#9-InsituCABLETERM	Rinsate blank of InSitu cable termination part
9/15/2017	RB	RAS-EQPIECE#10-PACKERPART#23	Rinsate blank of water straddle packer part #23 (non-thermal mitigation)
9/18/2017	TB	LTB35	Trip Blank
9/18/2017	TB	LTB36	Trip Blank
9/19/2017	TB	LTB37	Trip Blank
9/19/2017	TB	LTB38	Trip Blank
9/19/2017	TB	LTB39	Trip Blank
9/20/2017	TB	LTB40	Trip Blank
9/20/2017	TB	LTB41	Trip Blank
9/20/2017	FB	FBS06	Field Blank, direct pour into container at D16
9/21/2017	TB	LTB42	Trip Blank
9/21/2017	TB	LTB43	Trip Blank
9/21/2017	TB	LTB44	Trip Blank
9/21/2017	TB	LTB45	Trip Blank
9/21/2017	FB	FB13	Field Blank, rinsate of sampling bowls and spoons at S25
9/22/2017	TB	LTB47	Trip Blank
9/22/2017	TB	LTB48	Trip Blank
9/23/2017	TB	LTB49	Trip Blank
9/23/2017	TB	LTB50	Trip Blank
9/25/2017	TB	LTB49	Trip Blank
9/25/2017	TB	LTB50	Trip Blank
9/25/2017	RB	Troll/Cable-RB1	Rinsate blank of 150' cable sn 541354 and Level Troll sn 540138
9/25/2017	RB	Troll/Cable-RB2	Rinsate blank of 150' cable sn 541344 and Level Troll sn 538467
9/25/2017	RB	Troll/Cable-RB3	Rinsate blank of 250' cable sn 541355 and Level Troll sn 534653
9/25/2017	RB	Troll/Cable-RB4	Rinsate blank of 150' cable sn 541343 and Level Troll sn 538353
9/25/2017	RB	Troll/Cable-RB5	Rinsate blank of 150' cable sn 541345 and Level Troll sn 512372
9/25/2017	RB	Troll/Cable-RB6	Rinsate blank of 225' cable sn 541346 and Level Troll sn 540141
9/25/2017	RB	Troll/Cable-RB7	Rinsate blank of 75' cable sn 541342 and Level Troll sn 538471
9/25/2017	RB	Troll/Cable-RB8	Rinsate blank of 75' cable sn 541326 and Level Troll sn 535830
9/26/2017	TB	LTB51	Trip Blank
9/26/2017	TB	LTB52	Trip Blank
9/26/2017	FB	FBS07	Field Blank, rinsate of sampling bowls and spoons at D11
9/26/2017	RB	Flatwater	Rinsate blank of water truck integrated container for Rig #2 (Sonic mini-crawler)
9/26/2017	RB	10" Casing	Rinsate blank of 10" casing for Rig #2 (Sonic mini-crawler)

Table C.1.7
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Sample Date	Sample Type	Sample Name	Description
9/26/2017	RB	Tote2	Rinsate blank of water storage tote two of two for Rig #2 (Sonic mini-crawler)
9/26/2017	RB	Tote1	Rinsate blank of water storage tote one of two for Rig #2 (Sonic mini-crawler)
9/26/2017	RB	6" Casing	Rinsate blank of 6" casing for Rig #2 (Sonic mini-crawler)
9/26/2017	RB	Sample Sleeve	Rinsate blank of plastic sample sleeve used by Rig#2 (Sonic mini-crawler)
9/27/2017	TB	LTB53	Trip Blank
9/27/2017	TB	LTB54	Trip Blank
9/27/2017	FB	FB14	Field Blank, direct pour into container at S40
9/28/2017	FB	FBS08	Field Blank, rinsate of sampling bowls and spoons at SG3-MW17-BR1
9/28/2017	TB	LTB55	Trip Blank
9/28/2017	TB	LTB56	Trip Blank
9/28/2017	TB	Trip Blank	Trip Blank
9/29/2017	TB	LTB57	Trip Blank
9/29/2017	TB	LTB58	Trip Blank
9/29/2017	TB	Trip Blank	Trip Blank
9/29/2017	FB	FBS09	Field Blank, direct pour into container at SG3-MW17-BR1
10/3/2017	TB	LTB59	Trip Blank
10/3/2017	TB	LTB60	Trip Blank
10/3/2017	TB	Trip Blank	Trip Blank
10/3/2017	RB	Sonic_Pump_1	Cascade's proactive submersible pump
10/3/2017	RB	RAS-EQPIECE#9-In Situ Cable	Rinsate blank of InSitu cable - Resampled after additional cleaning
10/3/2017	RB	RAS-EQPIECE#9-Tip	Rinsate blank of InSitu cable termination tip only - Resampled after additional cleaning
10/3/2017	RB	RAS-EQPIECE#9-Cap	Rinsate blank of InSitu cable termination plastic cap only - Resampled after additional cleaning
10/4/2017	TB	LTB61	Trip Blank
10/4/2017	TB	LTB62	Trip Blank
10/4/2017	TB	TRIP BLANK	Trip Blank
10/4/2017	FB	FBS10	Field Blank, direct pour into container at SG3-MW17-BR1
10/5/2017	TB	LTB01	Trip Blank
10/5/2017	TB	LTB63	Trip Blank
10/5/2017	TB	LTB64	Trip Blank
10/5/2017	TB	LTB65	Trip Blank
10/5/2017	TB	LTB66	Trip Blank
10/5/2017	TB	Trip Blank	Trip Blank
10/5/2017	TB	TRIP BLANK	Trip Blank
10/5/2017	RB	RB01	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB02	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB03	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB04	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB05	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB06	Rinsate blank of transducer (on COC# 555188)
10/5/2017	FB	FTB01	Field Blank
10/5/2017	RB	RB07	Rinsate blank of transducer (on COC# 555188)
10/5/2017	RB	RB08	Rinsate blank of transducer (on COC# 555188)
10/6/2017	RB	FBSONIC2PUMP1	Rinsate blank of submersible pump one of two for Rig #2 (Sonic mini-crawler)
10/6/2017	RB	FBSONIC2PUMP2	Rinsate blank of submersible pump two of two for Rig #2 (Sonic mini-crawler)
10/6/2017	RB	RB11	Rinsate blank of 500' Gal wire (on COC# 555190)
10/6/2017	RB	RB12	Rinsate blank of 200' SS wire (on COC# 555190)
10/6/2017	RB	RB13	Rinsate blank of 500' Gal wire (on COC# 555190)
10/6/2017	RB	RB14	Rinsate blank of 200' SS wire (on COC# 555190)

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QA/QC Sample Description
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Sample Date	Sample Type	Sample Name	Description
10/6/2017	RB	RB15	Rinsate blank of 200' SS wire (on COC# 555190)
10/6/2017	RB	RB16	Rinsate blank of SS clamps (on COC# 555190)
10/6/2017	RB	RB05	Rinse blank of transducer (on COC# 555188)
10/6/2017	RB	RB06	Rinsate blank of transducer (on COC# 555188)
10/6/2017	RB	RB07	Rinsate blank of transducer (on COC# 555188)
10/6/2017	RB	RB08	Rinsate blank of transducer (on COC# 555188)
10/6/2017	RB	RB09	Rinsate blank of transducer (on COC# 555190)
10/6/2017	RB	RB10	Rinsate blank of transducer (on COC# 555190)
10/7/2017	FB	FBS11	Field Blank, rinsate of sampling bowls and spoons at D10
10/9/2017	TB	LTB67	Trip Blank
10/9/2017	TB	LTB68	Trip Blank
10/10/2017	TB	LTB69	Trip Blank
10/10/2017	TB	LTB70	Trip Blank
10/10/2017	TB	TRIP BLANK	Trip Blank
10/11/2017	TB	LTB71	Trip Blank
10/11/2017	TB	LTB72	Trip Blank
10/11/2017	FB	FBS12	Field Blank, direct pour into container at SG3-MW17-BR2
10/11/2017	RB	RBPLASTIC	Rinsate blank of plastic sample sleeve used by Rig#3 (Sonic full-size-crawler)
10/11/2017	RB	RBRIGTANK	Rinsate blank of water truck integrated container for Rig#3 (Sonic full-size-crawler)
10/11/2017	RB	RBROD	Rinsate blank of drilling rods for Rig#3 (Sonic full-size-crawler)
10/11/2017	RB	RBCASING	Rinsate blank of drill casing for Rig#3 (Sonic full-size-crawler)
10/11/2017	RB	RBCORE	Rinsate blank of core-sampling barrel for Rig#3 (Sonic full-size-crawler)
10/12/2017	TB	LTB73	Trip Blank
10/12/2017	TB	LTB74	Trip Blank
10/12/2017	TB	Trip Blank	Trip Blank
10/12/2017	RB	9" CASING	Rinsate blank of 9" casing for Rig#3 (Sonic full-size-crawler)
10/12/2017	RB	RBIBC1	Field Blank of water storage tote two of two for Rig#3 (Sonic full-size-crawler)
10/12/2017	RB	RBIBC2	Field Blank of water storage tote one of two for Rig#3 (Sonic full-size-crawler)
10/13/2017	TB	LTB75	Trip Blank
10/13/2017	TB	LTB76	Trip Blank
10/13/2017	TB	Trip Blank	Trip Blank
10/13/2017	FB	FBS13	Field Blank, rinsate of sampling bowls and spoons at SG3-MW17-BR2
10/16/2017	TB	LTB77	Trip Blank
10/16/2017	TB	LTB78	Trip Blank
10/16/2017	TB	TRIP BLANK	Trip Blank
10/17/2017	TB	LTB01	Trip Blank
10/17/2017	TB	LTB79	Trip Blank
10/17/2017	TB	LTB80	Trip Blank
10/17/2017	TB	TRIP BLANK	Trip Blank
10/17/2017	RB	RB01A	Rinsate blank of transducer (on COC# 533995)
10/17/2017	RB	RB06A	Rinsate blank of transducer (on COC# 533995)
10/17/2017	RB	RB11A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB12A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB13A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB14A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB15A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB16A	Rinsate blank of cable (on COC# 533995)
10/17/2017	RB	RB17	Rinsate blank of braided fishing line (on COC# 533995)
10/17/2017	RB	RB18	Rinsate blank of monofilament fishing line (on COC# 533995)

Table C.1.7
QA/QC Sample Description
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Sample Date	Sample Type	Sample Name	Description
10/17/2017	RB	RB19	Rinsate blank of monofilament fishing line (on COC# 533239)
10/17/2017	FB	FTB01	Field Blank
10/18/2017	TB	LTB81	Trip Blank
10/18/2017	TB	LTB82	Trip Blank
10/18/2017	FB	FBS14	Field Blank, direct pour into container at D15
10/19/2017	TB	LTB01	Trip Blank
10/19/2017	TB	LTB83	Trip Blank
10/19/2017	TB	LTB84	Trip Blank
10/19/2017	TB	Trip Blank	Trip Blank
10/19/2017	FB	FTB01	Field Blank
10/19/2017	RB	RB01	Rinsate blank of HDPE tubing (on COC# 555838)
10/19/2017	RB	RB02	Rinse blank of bailer (on COC# 555838)
10/19/2017	RB	RB03	Rinse blank of silicon tubing (on COC# 555838)
10/19/2017	RB	RB04	Rinse blank of Slug #1 (on COC# 555838)
10/19/2017	RB	RB05	Rinse blank of Slug #2 (on COC# 555838)
10/19/2017	RB	RB06	Rinse blank of Slug #3 (on COC# 555838)
10/19/2017	RB	RB07	Rinse blank of Slug #4 (on COC# 555838)
10/19/2017	RB	RB08	Rinse blank of Slug #5 (on COC# 555838)
10/19/2017	RB	RB09	Rinse of mason twine (on COC# 555838)
10/20/2017	TB	LTB85	Trip Blank
10/20/2017	TB	LTB86	Trip Blank
10/20/2017	TB	TRIP BLANK	Trip Blank
10/20/2017	FB	FBS15	Field Blank, direct pour into container at SG3-MW17-BR4
10/20/2017	RB	RB01	Rinsate Blank
10/20/2017	TB	LTB87	Trip Blank
10/20/2017	FB	FTB88	Field Blank
10/20/2017	RB	RB02	Rinsate Blank
10/21/2017	TB	LTB89	Trip Blank
10/21/2017	TB	LTB90	Trip Blank
10/23/2017	TB	LTB01	Trip Blank
10/23/2017	TB	LTB91	Trip Blank
10/23/2017	TB	LTB92	Trip Blank
10/23/2017	FB	FTB01	Field Blank
10/24/2017	TB	LTB01	Trip Blank
10/24/2017	TB	LTB93	Trip Blank
10/24/2017	TB	LTB94	Trip Blank
10/24/2017	FB	FTB01	Field Blank
10/25/2017	TB	LTB01	Trip Blank
10/25/2017	TB	LTB95	Trip Blank
10/25/2017	TB	LTB96	Trip Blank
10/25/2017	TB	TRIP BLANK	Trip Blank
10/25/2017	FB	FTB01	Field Blank
10/25/2017	FB	FBS16	Field Blank, rinsate of sampling bowls and spoons at SG3-MW177-BR4
10/25/2017	FB	FBS17	Field Blank, direct pour into container at SG3-MW17-BR4
10/25/2017	RB	PUMP300	Rinsate blank of Cascade's pump that can pump water from 300 feet
10/26/2017	TB	LTB01	Trip Blank
10/26/2017	TB	TRIP BLANK	Trip Blank
10/26/2017	FB	FTB01	Field Blank
10/27/2017	TB	LTB01	Trip Blank
10/27/2017	FB	FTB01	Field Blank
10/30/2017	TB	LTB97	Trip Blank
10/30/2017	TB	LTB98	Trip Blank
10/31/2017	TB	LTB100	Trip Blank

Table C.1.7
QA/QC Sample Description
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Sample Date	Sample Type	Sample Name	Description
10/31/2017	TB	LTB99	Trip Blank
11/1/2017	TB	LTB101	Trip Blank
11/1/2017	TB	LTB102	Trip Blank
11/2/2017	TB	LTB103	Trip Blank
11/2/2017	TB	LTB104	Trip Blank
11/3/2017	TB	LTB105	Trip Blank
11/7/2017	TB	LTB01	Trip Blank
11/7/2017	RB	HAMMER-EZ	Product sample of grease used in the downhole hammer
11/7/2017	RB	COMPRESSOR	Product sample of compressor oil
11/7/2017	RB	RASSEM PACK	Same rinse location as sample "RAS-EQPIECE#4-PACKER#1" collected on 9/15/17 after thermal decontamination
11/7/2017	RB	RAS GRN WINCH	Rinsate blank of end of cable and flexible tether end of winch line where downhole logging tools connect
11/7/2017	RB	RAS BL WINCH	Rinsate blank of end of cable and flexible tether end of winch line where downhole logging tools connect
11/7/2017	RB	SONIC BARREL	Rinsate blank of sonic coring barrel mobilized to site on 11/7/17
11/8/2017	TB	Trip Blank	Trip Blank
11/9/2017	TB	TRIP BLANK	Trip Blank
11/9/2017	RB	COOLER/BAGH20	Rinse blank of water in lab supplied bag in cooler before air compressor test
11/9/2017	RB	COMPRESSORTESTH20	Rinse blank of water in lab supplied bag in cooler after bubbling air from the air compressor through the water for 10 minutes
11/11/2017	RB	RB01	Rinsate Blank
11/11/2017	RB	RB02	Rinsate Blank
11/13/2017	RB	WINDSHIELD FLUID	Washer fluid Cascade used in their trash pump as antifreeze
11/16/2017	TB	LTB01	Trip Blank
11/16/2017	RB	RB-BLADDERPUMP-RAS	RAS's blabber pump frame
11/16/2017	RB	STANDPIPE-RAS	Rinsate of drop pipe used for discrete interval sampling
11/16/2017	RB	BLADDERINSERT-RAS	Rinsate of bladder for pump
11/16/2017	RB	AIR-DISCHARGE-RAS	Rinsate of air discharge line used to power the bladder pump
11/21/2017	RB	PVC	Rinsate of 4" PVC installed in SG3-MW17-BR1
11/21/2017	RB	RB-INDUCTIONTOOL	Rinsate of RAS's downhole geopysical tool
11/27/2017	RB	CAMERA	Rinsate Blank
11/28/2017	TB	LTB01	Trip Blank
11/28/2017	TB	LTB02	Trip Blank
11/28/2017	RB	PUMP	Rinsate Blank
11/29/2017	TB	LTB107	Trip Blank
11/29/2017	TB	LTB108	Trip Blank
11/29/2017	RB	TRILENE	Rinsate fishing line used to hang level trolls in wells
11/29/2017	RB	TROLL	Rinsate of level troll
11/30/2017	TB	LTB01	Trip Blank
11/30/2017	TB	LTB02	Trip Blank
12/1/2017	TB	LTB109	Trip Blank
12/1/2017	RB	RIG_4	Rinseate of drill rig water system tank
12/3/2017	RB	PUMP14E14	PUMP14E14
12/3/2017	RB	PUMP06J18	PUMP06J18
12/3/2017	RB	WIRE	Rinse blank of replacement wire for drill rig winch
12/3/2017	RB	PIPE	PIPE
12/5/2017	TB	LTB01	Trip Blank
12/5/2017	TB	LTB02	Trip Blank
12/5/2017	RB	Tote1	Tote 1
12/5/2017	RB	Tote2	Tote 2
12/5/2017	RB	RIG_4_CLNH2OPUMP	Rinse blank of Rig# 4 clean water trash pump
12/6/2017	TB	LTB110	Trip Blank

Table C.1.7
QA/QC Sample Description
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Sample Date	Sample Type	Sample Name	Description
12/6/2017	TB	LTB111	Trip Blank
12/6/2017	RB	BENTONITE	Bentonite
12/7/2017	RB	HAMMER	Rinsate of the downhole hammer
12/8/2017	TB	LBT01	Trip Blank
12/8/2017	TB	LBT02	Trip Blank
12/9/2017	TB	LTB112	Trip Blank
12/10/2017	TB	LTB113	Trip Blank
12/16/2017	TB	LTB01	Trip Blank
12/16/2017	TB	LTB02	Trip Blank
12/17/2017	TB	LTB01	Trip Blank
12/17/2017	TB	LTB02	Trip Blank
12/17/2017	TB	LTB03	Trip Blank
12/17/2017	TB	LTB04	Trip Blank
12/17/2017	TB	LTB05	Trip Blank
12/17/2017	TB	LTB06	Trip Blank
12/21/2017	TB	LTB120	Trip Blank
12/21/2017	TB	LTB121	Trip Blank
1/4/2018	TB	LTB122	Trip Blank
1/4/2018	TB	LTB123	Trip Blank
1/10/2018	TB	LTB124	Trip Blank
1/10/2018	TB	LTB125	Trip Blank
1/10/2018	RB	PUMP	Rinsate Blank of new pump used for geophysical flow logging
1/16/2018	TB	LTB126	Trip Blank
1/16/2018	TB	LTB127	Trip Blank
1/16/2018	RB	REDI-FLOW	Rinse blank of a Grundfos redi-flow sampling pump
1/17/2018	TB	LTB128	Trip Blank
1/17/2018	RB	PIPE	Rinse blank from 2" drop pipe used for discrete interval sampling
1/19/2018	TB	LTB130	Trip Blank
1/19/2018	TB	LTB131	Trip Blank
1/19/2018	RB	PUMP	Rinse blank from replacement Grundfos redi-flow pump
1/19/2018	FB	FB01	Field Blank
1/20/2018	TB	LTB-132	Trip Blank
1/20/2018	TB	LTB133	Trip Blank
1/20/2018	FB	FB01	Field Blank
1/22/2018	TB	LTB133	Trip Blank
1/24/2018	TB	LTB134	Trip Blank
1/24/2018	RB	PVC	Rinsate blank of 4" PVC installed in SG3-MW17-SG3
1/26/2018	TB	LTB136	Trip Blank

Appendix C.2

Analytical Data Validation

ENVIRONMENTAL® STANDARDS

Setting the Standards for Innovative Environmental Solutions

Background

For the Village of North Bennington Vermont Site, C.T. Male and Barr collectively submitted 146 sample delivery groups (SDGs) for samples of various matrices to Eurofins Lancaster Laboratories Environmental, LLC. (ELLE), for analyses. The 146 SDGs encompassed a total of 1,090 samples including 967 soil samples, 77 ground water samples, 16 water quality control matrix samples, nine miscellaneous solid material samples, five sediment samples, four investigative derived waste samples, four surface water samples, two waste water samples, two oil samples, two not otherwise specified liquid samples, one sludge sample, and one analytical water sample. Of the total 1,090 samples, 906 samples were analyzed for perfluorinated and polyfluorinated alkyl substances (PFASs).

ELLE provided an electronic data deliverable (EDD), a limited data package (equivalent to a New York State Department of Environmental Conservation [NYSDEC] Analytical Services Protocol [ASP] Category A deliverable), and a full data package (equivalent to a NYSDEC ASP Category B deliverable) for each SDG. These data were received by Environmental Standards, Inc. (Environmental Standards), for management of the project database and data quality assessment activities.

Data validation was performed by Environmental Standards in accordance with the "Initial Site Characterization Investigation Work Plan Saint-Gobain Performance Plastics Site 1030 Water Street, Village of North Bennington, Bennington County Vermont" (Work Plan, April 2016). A minimum of 10% of the investigative samples will be randomly selected for full data validation (*e.g.*, Category B). The remaining 90% of investigative samples will undergo a limited data validation effort (*e.g.*, Category A or DUSR).

Collectively, for analyses included in the project, the full data validation, labeled as Category B in the database, includes the rigorous review of all tabulated QC summary forms and raw data associated with the following QC measures.

Table 1: Category B Data Validation Elements

- Preparation and analysis holding times
- Blank analysis results
- Second-source initial calibration verification (ICV) recoveries
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Surrogate compound recoveries
- Field duplicate precision
- Sample condition upon laboratory receipt
- Initial calibrations
- Continuing calibration verification (CCV) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Mass spectrometer tuning injections
- Analytical sequence

Table 1: Category B Data Validation Elements

- Labeled pre-extraction internal standard recoveries
- Pre-injection internal standard responses
- Qualitative identification
- Quantitation of results
- Detection limit standard results
- Calibration check standard recoveries
- Serial dilution results
- Interference check sample results
- Inductively coupled plasma-mass spectrometry (ICP-MS) internal standard results
- Post-digestion spike results

Collectively, for analyses included in the project, the limited data validation, labeled as DUSR in the database, includes the review of all tabulated QC summary forms associated with the following QC measures; however, raw data was not evaluated.

Table 2: DUSR Data Validation Elements

- Preparation and analysis holding times
- Sample condition upon laboratory receipt
- Blank analysis results
- Initial calibrations
- Second-source ICV recoveries
- CCV recoveries
- LCS/LCSD results
- MS/MSD results
- Surrogate compound recoveries
- Mass spectrometer tuning injections
- Labeled pre-extraction internal standard recoveries
- Pre-injection internal standard responses
- Field duplicate precision
- Calibration check standard recoveries
- Detection limit standard results
- Interference check sample results
- Serial dilution results
- Post-digestion spike results
- ICP-MS internal standard results
- Analytical sequence

Collectively, for analyses included in the project, the limited data validation, labeled as Category A in the database, includes the review of the tabulated QC summary forms associated with the following QC measures; however, raw data was not evaluated.

Table 3: Category A Data Validation Elements

- Preparation and analysis holding times
- Blank analysis results
- LCS/LCSD results
- Surrogate recoveries
- Sample condition upon laboratory receipt
- MS/MSD results
- Labeled pre-extraction internal standard recoveries

A summary of the data validation performed for the investigative samples and associated field duplicate samples is presented in Table 4. The percent Category B is determined by the following equation.

Percent Category B Calculation

$$= \frac{\text{Number of Results Category B}}{\text{Total Number of Results}} \text{x} 100$$

Table 4: Percent Category B Validation for Each Matrix and Method Code											
Method Code	Method Definition	Soil %	Sediment %	Sludge %	Miscellaneous Solid %	Ground Water %	Soil/Water Quality %	Surface Water %	Waste Water %	Oil %	Not Specified Liquid %
D422	Grain Size	10	--	--	--	--	--	--	--	--	--
E300.0	Anions	--	--	--	--	12	--	--	--	--	--
E350.1	Ammonia Nitrogen	--	--	--	--	25	--	--	--	--	--
E351.2	Total Kjeldahl Nitrogen	--	--	--	--	25	--	--	--	--	--
E537	PFAS	34	100	100	73	93	90	100	100	100	100
E680	PCB Congeners	83	--	--	--	--	--	--	--	--	--
SM 2540G	Percent Moisture	15	--	--	--	--	50	--	--	--	--
SM2320B	Alkalinity	--	--	--	--	14	--	--	--	--	--
SM4500-P-E	Orthophosphate	--	--	--	--	24	--	--	--	--	--
SM5310B	Total Organic Carbon	15	--	--	--	--	50	--	--	--	--
SW6010C	ICP Metals	11	--	--	--	13	50	--	--	--	--
SW6020A	ICP-MS Metals	11	--	--	--	14	50	--	--	--	--
SW7470A	Mercury	--	--	--	--	14	--	--	--	--	--

Table 4: Percent Category B Validation for Each Matrix and Method Code											
Method Code	Method Definition	Soil %	Sediment %	Sludge %	Miscellaneous Solid %	Ground Water %	Soil/Water Quality %	Surface Water %	Waste Water %	Oil %	Not Specified Liquid %
SW7471B	Mercury	9	--	--	--	--	--	--	--	--	--
SW8081B	Pesticides	67	--	--	--	21	--	--	--	--	--
SW8082A	Polychlorinated Biphenyls	22	--	--	--	21	--	--	--	--	--
SW8260C	Volatile Organic Compounds	22	--	--	--	14	50	--	--	--	--
8270D	Semivolatile Organic Compounds (SVOC)	22	--	--	--	21	--	--	--	--	--
SW8270D SIM	SVOC with Selected Ion Monitoring	--	--	--	--	31	--	--	--	--	--
SW9012A	Cyanide	67	--	--	--	14	--	--	--	--	--
SW9045	pH	13	--	--		--	50				

-- Indicates that no analyses were performed for this method and matrix combination or Category B Validation was not performed for this method and matrix combination.

Overall Data Usability and Qualification

The 1,090 samples collected and analyzed generated a total of 33,725 results and, specifically, 12,582 PFAS results. Based on the data validation performed, 159 of the results were qualified as "unusable" ("R"). The following list details the conditions in which these results were qualified.

- 132 of the PFAS results were qualified as "unusable" due to sample misidentification (e.g., possible sample switch during extraction of analysis).
- 11 of the PFAS results were qualified as "unusable" due to very low internal standard recoveries.
- 8 of the carbonate alkalinity results were qualified as "unusable" due to very low matrix spike recoveries.
- 3 nitrate nitrogen results, three nitrite nitrogen results, and one *ortho*-phosphate result were qualified as "unusable" due to performing the analyses past 2× their respective holding times.
- 1 pesticide result was qualified as "unusable" due to a high performance evaluation mixture (DDT breakdown) result.

Overall, the percentage of usable results was determined to be 99.53% with 0.47% unusable results. *For PFASs, the percentage of usable results was determined to be 99.86% with 0.14% unusable results.*

Based on the data validation performed overall, 7,077 results were qualified (*e.g.*, "J," "JN," "R," "UB," or "UJ) due reason identified in the validation reports. The percentage of unqualified results was 80.02% with 20.98% qualified results. A total of 102 results were qualified due to method, preparation, or equipment blank contamination.

Based on the data validation performed for PFASs, 2,003 results were qualified (*e.g.*, "J," "JN," "R," "UB," or "UJ) due reason identified in the validation reports. The percentage of unqualified PFAS results was 84.08% with 15.92% qualified results. A total of 28 results were qualified due to method, preparation, or equipment blank contamination.

$$\%\ \text{Usable Calculation}$$

$$= \frac{\text{Number of Usable Results (Results not Rejected)}}{\text{Total Number of Results}} \text{x}100$$

Summary of Data Qualifier Reasons

As a result of the data validation performed on the Bennington samples, Table 5 provides a summary of the reasons for qualification were observed by Environmental Standards. The top five qualifications applied to the analytical data were 1) reported positive results between the reporting limit and method detection limit, 2) laboratory duplicate imprecision, 3) high MS and/or MSD recoveries, 4) out-of-criteria internal standard recoveries, and 5) imprecision between the MS and MSD results.

Table 5: Reasons for Qualification and Percent Qualified		
Reason Code	Definition	Percent Qualified
CI	Chromatographic Interference	0.219
CVH	CCV evaluation criteria not met, potential high bias	0.046
CVL	CCV evaluation criteria not met, potential low bias	0.162
EB	Equipment blank contamination	0.092
EC	Result exceeds the calibration range, potential bias indeterminate	0.139
FB	Field blank contamination	0.046
FD	Field duplicate imprecision, potential bias indeterminate	1.235
HAL	Holding time – preparation to analysis, potential low bias	0.035
HC	Holding time – collection to analysis, potential bias indeterminate	0.035
HCL	Holding time – collection to analysis, potential low bias	0.312
HPL	Holding time – collection to preparation, potential low bias	0.242
IB	Instrument (including initial calibration or continuing calibration) blank contamination	0.15
IC	Initial calibration evaluation criteria not met, potential bias indeterminate	0.012
ICH	Initial calibration evaluation criteria not met, potential high bias	0.069
IS	Internal standard evaluation criteria not met, potential bias indeterminate	10.229
LAH	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential high bias	0.981
LAL	Laboratory control sample/laboratory control sample duplicate recovery criteria not met, potential low bias	0.289
LD	Laboratory duplicate precision criteria not met, potential bias indeterminate	19.384
LP	LCS/LCSD precision criteria not met, potential bias indeterminate	0.150
MA	MS and/or MSD recovery criteria not met, potential bias indeterminate	0.369
MAH	MS and/or MSD recovery criteria not met, potential high bias	14.154

Table 5: Reasons for Qualification and Percent Qualified		
Reason Code	Definition	Percent Qualified
MAL	MA and/or MSD recovery criteria not met, potential low bias	7.366
MB	Method blank or preparation blank contamination	0.877
MP	MS/MSD precision criteria not met, potential bias indeterminate	8.104
PJ	Professional judgement, potential bias indeterminate	1.87
PMH	Performance evaluation mixture criteria not met, potential high bias	0.035
PML	Performance evaluation mixture criteria not met, potential low bias	0.023
PS	Low percent solids could affect accuracy, potential bias indeterminate	1.559
RL	The analysis meets all qualitative identification criteria, but the measured concentration is less than the quantitation or reporting limit, potential bias indeterminate	30.778
SC	RPD between two columns exceeds criteria, potential bias indeterminate	0.012
SD	Serial Dilution results did not meet evaluation criteria, potential bias indeterminate	0.762
SP	Sample preservation/cooler temperature, potential bias indeterminate	0.023
SPL	Sample preservation/cooler temperature, potential low bias	0.139
TB	Trip blank contamination	0.104

Table C.2.1
Revisions Requested by Environmental Standards
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Lab Report	Validation Level	Revisions
SGB06	Level 2A/4	PFAS results for sample SG3-S42-170816 revised because an incorrect sample volume was used to calculate results (95.14 instead of 20 mL)
SGB07	Level 2A	Sample ID and collection date revised for one sample to match COC record
SGB15	Level 2A	Sodium and zinc were original reported from an analytical run with a contaminated method blank; results were re-reported from a compliant analysis.
SGB16	Level 2A/4	Revised due to ICP/MS data issue
SGB31	Level 2A	TOC method blank result(s) revised from 50,000 mg/kg to ND
SGB33	Level 2A/4	TOC method blank result(s) revised from 50,000 mg/kg to ND; TOC analysis times revised
SGB34	Level 2A/4	TOC method blank result(s) revised from 50,000 mg/kg to ND; TOC analysis times revised
SGB36	Level 2A/4	Revised to include boron
SGB37	Level 2A	TOC method blank result(s) revised from 50,000 mg/kg to ND
SGB41	Level 2A/4	Revised to include boron
SGB48	Level 2A/4	Revised to include boron
SGB49	Level 2A	Lab stated TOC analysis times of QC for sample times
SGB50	Level 2A	Lab stated TOC analysis times of QC for sample times
SGB51	Level 2A	Lab stated TOC analysis times of QC for sample times
SGB59	Level 2A/4	Revised to include boron
SGB61	Level 2A	Revised to add missing TOC laboratory duplicate and TOC case narrative
SGB74	Level 2A	Revision for sample IDs
SGB85	Level 2A	Revised for "B" flags missing for PFAS in one sample
SGB90	Level 2A	Lab stated TOC analysis times of QC for sample times
SGB95	Level 4	Lab stated TOC analysis times of QC for sample times
SGB96	Level 2A	Revised to remove state of NY references since VT state of origin
SGB97	Level 2A	Revised to remove state of NY references since VT state of origin
SGN01	Level 2A	Revised to add Bennington as the project
SNB01	Level 2A	Revised to correct boron from dissolved to total
SNB04	Level 2A	Revised to correct Sample ID
SNB11	Level 2A	Revised with updated sample receipt log (trip blanks not on COC)
SGB06	Level 2A/4	Revised to include boron
SNB17	Level 2A/4	Revised to correct boron from dissolved to total
SNB20	Level 2A/4	Revised to correct boron from dissolved to total
SNB31	Level 4	Incorrect prep factors (results are high by a factor of 10; LOQs high by a factor of 2)
SNB38	Level 2A/4	Revised Windshield fluid MDLs/LOQs based on incorrect prep factors
SNB49	Level 4	Revised to change sample IDs from LBT to LTB for trip blanks
SNB51	Level 4	Revised to correct sample IDs that included an extra number
SNB73	Level 4	Revision requested - Ca, K, and Na reported as dissolved but should be total
SNB82	Level 4	Revision requested to corrct sample ID.

Appendix D

Statistical Evaluation

Appendix D.1a Statistical Evaluation: Soil
Appendix D.1b Statistical Evaluation: Groundwater
Appendix D.2 Background PFOA in Soil

Appendix D.1a

Statistical Evaluation: Soil

resourceful. naturally.
engineering and environmental consultants

BARR

Technical Memorandum

To: File
From: Denise Levitan, Stephanie Theriault, and Michael Dupay
Subject: Statistical Evaluation: Soil
Date: March 15, 2018
Project: Saint-Gobain Performance Plastics CSM Site Investigation

Introduction

The purpose of the statistical evaluation on soil data collected within the investigation area was to determine what, if any, relationship exists between total organic carbon (TOC), metals, and per- and polyfluoroalkyl substances (PFAS) concentrations and evaluate any distributional relationships, such as spatial (depth or distance). These potential relationships may assist in further understanding the complexities of the PFAS fate and transport as well as identify potential alternative sources of PFAS to the investigation area. Results from this evaluation can then be used to further refine the Conceptual Site Model (CSM).

Data and Methods

The soil data included in the analysis are from the following investigations:

- The CSM Site Investigation,
- The shallow soil sampling performed in 2016 by C.T. Male at and near the former Water Street Chemfab facility (C.T. Male, 2016), and
- The former Water Street Chemfab facility site investigation in 2016 (Water Street SI).

All soil samples were analyzed for PFAS, TOC, and moisture content. Analyses for soil pH and the PFAS compounds perfluorobutanoic acid (PFBA) and perfluoropentanoic acid (PFPeA) were performed only on samples collected as part of the CSM Site Investigation. At the request of the Vermont Department of Environmental Conservation (VTDEC), soil samples collected from the deep soil borings and bedrock monitoring wells completed as part of the CSM Site Investigation were also analyzed for target-analyte-list (TAL) metals/cations. Metals/cations were not analyzed in soil samples collected from the shallow soil borings completed as part of the CSM Site Investigation or in any of the samples collected as part of the 2016 investigations at and near the former Water Street facility.

Two statistical software programs, ProUCL and R, were used to evaluate the data. ProUCL was primarily used to calculate summary statistics and R was used to assess the potential for statistically significant geochemical relationships observed between parameters and space. A more robust description of the methodologies used is included below.

Statistical Evaluation

A statistical evaluation of the soil data from the investigations listed above was performed using ProUCL Version 5.1.002 software (U.S. EPA, 2016). ProUCL was specifically chosen for the evaluation due to its ability to properly account for datasets with a high proportion of non-detect concentrations.

Summary Statistics

The summary statistics calculated for the dataset include concentrations for minimum and maximum (i.e., the data range), a measure of central tendency (an average or alternate measure for datasets for which there may be limitations affecting calculations of averages), the total number of samples collected, and the percentage of values reported as non-detect. For the purposes of this analysis, data were divided into four groups: Bennington Landfill, the former Water Street Chemfab facility, "other," and background.

The measure of central tendency for each parameter-group pair was determined using the decision process outlined in Table 1 below. These decisions are based on regulatory technical documents, including the U.S. EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance; U.S. EPA, 2009), the ProUCL Version 5.1.002 Technical Guide: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations (ProUCL Technical Guide; U.S. EPA, 2015), and the ITRC Guidance Document: Groundwater Statistics and Monitoring Compliance (ITRC Guidance; ITRC, 2013). Additionally, for the purpose of this analysis, non-detects were included in the calculation of the measure of central tendency at the detection limit.

The calculation of a measure of central tendency and range of the data is a first step in the assessment of whether the geographically diverse investigation area is geochemically diverse as well. In order to assess whether the area is geochemically diverse and thus to develop an understanding of geochemical relationships for PFAS, statistical summaries, including an overall measure of central tendency, are presented in order to look at overall data spread. Further analysis reevaluates the data when classified by locational groups, such as locations near known surface activities like the Bennington Landfill and former Water Street Chemfab facility or different depth levels, that may cluster near or far (numerically) from the center. More focused geographical results are discussed below.

Table 1 Summary of Non-Substitution Approaches for Measures of Central Tendency

Sample Size	Non-Detect Frequency	Measure of Central Tendency	Citations
All	0%	Arithmetic mean	For datasets with no non-detects, the Kaplan-Meier mean is equal to the arithmetic mean (Helsel, 2012).
	≤50%	Kaplan-Meier mean	• Kaplan Meier recommended (U.S. EPA, 2009 pg. 15-3) "*The guidance generally favors the use of the …Kaplan-Meier or Robust ROS* [regression on order statistics] *methods which can address the problem of multiple detection limits.*" • Robust ROS ruled out (U.S. EPA, 2009 pg. 8-24) Robust ROS underlying assumptions: "*Data must be normal or normalized…*" • Limit at 50% non-detects (U.S. EPA, 2009 pg. 8-23) "*Kaplan-Meier should not be used when more than 50% of the data are non-detects.*"
	>51%	Median value. If median is a non-detect, report as a less-than value.	• Site-specific method (U.S. EPA, 2015 sec. 1.12): "*For data sets with low detection frequencies, other measures such as the median or mode represent better estimates (with lesser uncertainty) of the population measure of central tendency.*"
	100%	Not reported (n/a)	For datasets with no detected data, no measure of central tendency will be reported.

Geochemical Statistical Evaluations

For the purposes of this assessment, the soil statistical evaluation was limited to select parameters, including the 14 PFAS parameters, 22 metals, TOC, pH, and moisture content. Table 2 lists these parameters as well as the total number of samples evaluated and the number and percentage of those with concentrations below the detection limit. The soil statistical evaluation includes 147 samples collected from shallow soils sampling conducted in March-May 2016 by C.T. Male (C.T. Male, 2016), 54 samples from the Former Water Street Chemfab Facility Site Investigation in 2016, and 568 samples collected as part of the CSM Site Investigation. Twenty of the C.T. Male 2016 samples were collected from five locations at the former Water Street facility.

Table 2 List of Parameters Included in Statistical Analyses

Parameter	#Samples	#Non-Detects	%Non-Detects
Aluminum	301	0	0%
Antimony	301	61	20%
Arsenic	301	0	0%
Barium	301	0	0%
Beryllium	301	0	0%
Cadmium	301	8	3%
Calcium	301	1	0%
Carbon, total organic	769	52	7%
Chromium	301	0	0%
Cobalt	301	0	0%
Copper	301	0	0%
Iron	301	0	0%
Lead	301	0	0%
Magnesium	301	0	0%
Manganese	301	0	0%
Moisture	771	0	0%
Nickel	301	0	0%
Perfluorobutane sulfonate (PFBS)	758	756	100%
Perfluorobutanoic acid (PFBA)	568	506	89%
Perfluorodecanoic acid (PFDA)	758	650	86%
Perfluorododecanoic acid (PFDoA / PFDoDA)	758	703	93%
Perfluoroheptanoic acid (PFHpA)	758	722	95%
Perfluorohexane sulfonate (PFHxS)	758	757	100%
Perfluorohexanoic acid (PFHxA)	758	688	91%
Perfluorononanoic acid (PFNA)	758	633	84%
Perfluorooctane sulfonate (PFOS)	758	613	81%
Perfluorooctanoic acid (PFOA)	758	374	49%
Perfluoropentanoic acid (PFPeA)	568	562	99%
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	758	717	95%
Perfluorotridecanoic acid (PFTrDA / PFTriA)	758	728	96%
Perfluoroundecanoic acid (PFUnA / PFUnDA)	758	687	91%

Parameter	#Samples	#Non-Detects	%Non-Detects
pH	566	0	0%
Potassium	301	0	0%
Selenium	301	66	22%
Silver	301	98	33%
Sodium	301	65	22%
Thallium	301	8	3%
Vanadium	301	0	0%
Zinc	301	0	0%

Although the soil samples were analyzed for a number of parameters, this statistical analysis primarily focused on evaluating the differences in concentrations of PFAS and metals among groupings thought to potentially impact attenuation in soils and on correlative relationships between parameters. The following potential correlations were evaluated:

- Spatial Correlations – Parameter-Depth: surface (0 to 1.5 feet below ground surface [bgs]), shallow (1.5 to 5.0 feet bgs), and deep (greater than 5 feet bgs);
- Spatial Correlations – Parameter-Distance: distance from the former Water Street Facility and geographic area (background, landfill, Water Street, and "other"); and
- Parameter-Parameter: TOC, PFOA, and selected metals (calcium and iron were selected as potentially representative non-transition and transition metals, respectively, and as metals that have been observed in other studies to potentially impact PFAS behavior in soils [Ferrey et al., 2012]);

Several visual and statistical evaluation tools, including box-and-whisker plots, scatter plots, and analysis of variance (ANOVA), were utilized to evaluate parameter-spatial correlations, whereas parameter-parameter correlations were evaluated using monotonic trend analysis. Initial evaluations indicated a positive and statistically significant relationship between PFOA and TOC. Therefore, the analyses described above were also conducted on PFOA concentrations normalized to TOC. These analyses were conducted using the R statistical environment (R Core Team, 2017).

Visual Evaluation: Box-and-Whisker and Scatter Plots

Two types of plots were produced to initially visualize the large amount of data: box-and-whisker plots and scatter (x-y) plots. Box-and-whisker plots visually illustrate the spread of a dataset and can be used to discern group differences. Scatter (x-y) plots show the relative variation between two variables.

Box-and-whisker plots consist of a central box, with the lower limit of the box indicating the first quartile (25th percentile of the data) and the upper limit of the box indicating the third quartile (75th percentile of the data). The height of the box (the difference between the first and third quartiles) is called the interquartile range. Within the box is a heavy line indicating the median (50th percentile of the data). Extending in each direction from the box are "whiskers," which extend to values within one and a half times the interquartile range from each end of the box. Values beyond the whiskers are potential outliers.

Because the range of measured values for most parameters in this investigation spanned one or more orders of magnitude, logarithmic axes were used for parameters other than pH. Symbol color and/or shape were used to distinguish values below detection limits from detected values and to differentiate by sample collection location. Except as otherwise noted, values below detection limits were plotted at the detection limit and were included in plot computations, such as box-and-whisker plot quartiles.

Analysis of Variance

The non-parametric ANOVA Kruskal-Wallis test was used to assess whether statistically significant differences existed among distance and depth groupings. For parameters with >15% non-detects, all values below the highest detection limit were reset as 0 for the test (Helsel, 2012). An alpha of 0.002 (based on a Bonferroni correction) was used to assess the significance of the results.

If the Kruskal-Wallis test indicated statistical significance, a post-hoc Dunn test was conducted to assess between-group differences. The Holm correction was used to control for family-wide error rate in these tests (Gardener, 2017).

Monotonic Trend Analysis

Correlations between parameters were assessed using Kendall's tau for monotonic trend. Kendall's tau is a non-parametric statistical test used to assess whether two parameters systematically increase (significant positive correlation) or decrease (significant negative correlation) together, but it does not require the change to follow a specific pattern (e.g., linear).

TOC Normalized Analysis

The conceptual modeling described in the Draft CSM Report (Barr, 2017) used TOC concentrations to characterize PFOA retention in soils. The distribution of PFOA concentrations normalized to TOC concentrations was analyzed using several of the univariate methods described above; correlations with metals parameters and distances from the former Water Street facility and from Bennington Landfill were evaluated. Due to the variability in PFOA detection limits, calculations involving the PFOA to TOC ratio included only samples for which PFOA concentrations were above the detection limit.

Multivariate Analysis

Agglomerative hierarchical clustering (AHC) analysis was previously conducted on PFAS in groundwater (Barr, 2017). Complementary AHC analysis was attempted for PFAS in soil. However, the high proportion of non-detect samples for PFAS other than PFOA limited the coverage of the analysis. Preliminary AHC results did not yield meaningfully interpretable results with the potential to indicate distinct signatures for potential sources or areas. Thus, AHC was not included in the soil statistical analysis.

Results

Summary Statistics

Calculated summary statistics are included in Table 3 (attached), and associated ProUCL outputs are included in Attachment A.

Geochemical Statistical Evaluations

TOC and PFAS

Box-and-whisker plots of PFAS concentrations grouped by depth levels are presented in Figure 1. These plots show that the surface soils (0-1.5 feet bgs) generally contain a higher proportion of detected PFAS relative to shallow (1.5-5 feet bgs) and, particularly, deep (greater than 5 feet bgs) soils. Among the PFAS with the greatest number of detected measurements (PFNA, PFOS, and PFOA), the median concentrations of these PFAS in the surface soils are greater than those in the shallow and deep soils. Box-and-whisker plots of PFAS concentrations grouped by location are shown on Figure 2. On this figure, the boxes labeled "Other" represent non-landfill, non-Water Street samples. The spread of these data, as indicated by the interquartile range, is larger than for samples from the landfill. However, samples from the four background locations and Water Street have a similar spread in TOC and PFOA concentrations, though PFOA concentrations in Water Street samples are generally higher than other locations.

As previously indicated, concentrations were evaluated at different locations and depths. Depth-related ANOVA results indicate that the difference in TOC and PFOA concentrations among depth groupings was statistically significant (based on the reported p-value), when assessed using the Kruskal-Wallis test (Table 4). A reported p-value of less than 0.002 in the Kruskal-Wallis test, and less than 0.05 with the Holm correction in the Dunn test, is considered statistically significant (i.e., a statistically significant difference between the compared groups exists). For TOC, all three depth classifications were statistically significantly different from one another. For PFOA, surface and shallow soil concentrations were not significantly different from each other, but both were statistically significantly different from deep soils.

As for ANOVA results among the four locations (background, Water Street, landfill, and "other"), TOC concentrations were significantly different between landfill and "other", but PFOA concentrations were statistically significantly different between background and landfill as well as "other" and landfill and between Water Street and each of the other three locations. Conversely, PFOA concentrations were not statistically significantly different between background and "other," and TOC concentrations were not significantly different between background and either "other" or landfill and between Water Street and any of the other locations.

Table 4 Results (p-values) from Kruskal-Wallis and Dunn Tests

	Kruskal-Wallis Test Results		Post-Hoc Dunn Test Results for Depth Groupings		
Parameter	Depth	Location	Deep-Shallow	Deep-Surface	Shallow-Surface
TOC	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
PFOA	**0.000**	**0.000**	**0.000**	**0.000**	0.232
Aluminum	0.066	**0.001**	NA	NA	NA
Antimony	0.082	0.267	NA	NA	NA
Arsenic	0.011	0.917	NA	NA	NA
Barium	**0.001**	0.195	0.774	**0.000**	0.102
Beryllium	**0.000**	**0.000**	**0.006**	**0.000**	**0.048**
Cadmium	0.637	0.315	NA	NA	NA
Calcium	**0.000**	**0.000**	0.120	**0.000**	0.244
Chromium	0.368	**0.000**	NA	NA	NA

Parameter	Kruskal-Wallis Test Results		Post-Hoc Dunn Test Results for Depth Groupings		
	Depth	Location	Deep-Shallow	Deep-Surface	Shallow-Surface
Cobalt	**0.000**	0.004	0.185	**0.000**	0.232
Copper	0.011	0.530	NA	NA	NA
Iron	**0.000**	0.082	0.202	**0.000**	0.132
Lead	0.003	0.006	NA	NA	NA
Magnesium	**0.000**	**0.000**	**0.005**	**0.000**	0.407
Manganese	0.071	0.680	NA	NA	NA
Nickel	**0.000**	0.869	0.129	**0.000**	0.176
pH	**0.000**	**0.000**	0.658	**0.001**	**0.007**
Potassium	0.227	**0.000**	NA	NA	NA
Selenium	0.665	0.051	NA	NA	NA
Silver	0.004	0.325	NA	NA	NA
Sodium	**0.000**	**0.000**	**0.001**	**0.000**	0.423
Thallium	**0.000**	**0.000**	0.106	**0.000**	0.173
Vanadium	0.792	**0.000**	NA	NA	NA
Zinc	0.349	0.029	NA	NA	NA

Values in **bold** indicate significant p-values. A p-value is considered significant if less than 0.002 in the Kruskal-Wallis test and less than 0.05 with the Holm correction in the Dunn test.
NA indicates that a post-hoc Dunn test was not conducted because the result of the Kruskal-Wallis test was not statistically significant.
Results from location Dunn tests not shown. Dunn tests for location were conducted only for TOC, PFOA, and pH, as metals were not evaluated at background or Water Street locations. The pH Dunn test did not include Water Street samples, for which pH was not measured.

Metals

Box-and-whisker plots of metals grouped by depth are shown on Figure 3. For most constituents, the overall data spread was similar among depth classes. Most parameters also did not exhibit statistically significant differences between surface and shallow soil samples and between shallow and deep soil samples. However, most parameters had statistically significant concentration differences between surface and deep soil samples (Table 4).

Metals were not measured in the four background samples, the C.T. Male 2016 samples, or in the Water Street SI samples and therefore were not included in the statistical evaluation. However, pH of the background samples was measured and differed significantly among the location groups; background was statistically significantly different from both landfill and "other" samples, but landfill and "other" samples were not statistically significantly different. The most distinct (statistically significant) differences were seen in major non-transition metals (calcium, magnesium, potassium, and sodium) as well as aluminum, chromium, and thallium (Table 4).

Monotonic Trend Analysis

Based on the results of the monotonic trend analysis, TOC and PFOA were positively correlated across the investigation area. The only other parameter with which PFOA showed a statistically significant positive correlation was silver. PFOA was negatively correlated with pH, which may be indicative of the effect pH,

in addition to TOC, has on a soil's ability to retain PFAS (Ferrey et al., 2012). Calcium and iron were correlated with a number of other metals and with TOC, but these correlations were generally opposite (i.e., a negative correlation with calcium corresponded with a positive correlation with iron), likely indicative of different soil composition types.

In terms of distance from the former Water Street facility, PFOA decreased significantly with increasing distance and, as previously noted, with depth. Other parameters, such as aluminum, chromium, magnesium, potassium, sodium, and vanadium, had similar negative correlation relationships with increasing distance from the former Water Street facility.

Correlation coefficients are presented in Table 5. Scatter plots illustrating the relationships between TOC and PFAS and PFOA and various inorganic constituents are shown on Figure 4 and Figure 5, respectively.

Table 5 Kendall's Tau Correlation Coefficients

	TOC	PFOA	pH	Calcium	Iron	Facility Distance	Top Depth
TOC	NA	**0.240**	0.013	**0.501**	**-0.239**	-0.096	**-0.512**
PFOA	**0.240**	NA	**-0.252**	0.012	0.040	**-0.333**	**-0.342**
Aluminum	-0.119	0.115	-0.124	**-0.233**	**0.445**	**-0.154**	0.090
Antimony	-0.030	0.118	-0.106	-0.061	**0.332**	-0.183	0.036
Arsenic	-0.080	0.039	-0.066	-0.083	**0.503**	-0.206	**0.128**
Barium	-0.134	-0.022	-0.082	-0.115	**0.427**	-0.029	0.172
Beryllium	**-0.428**	-0.034	-0.153	**-0.396**	**0.561**	0.086	**0.487**
Cadmium	-0.081	0.118	-0.170	-0.124	**0.447**	-0.098	0.147
Calcium	**0.501**	0.012	**0.326**	NA	**-0.278**	-0.229	**-0.356**
Chromium	0.133	0.139	-0.016	0.036	**0.305**	**-0.335**	-0.168
Cobalt	-0.166	-0.022	-0.096	-0.193	**0.528**	-0.011	**0.201**
Copper	-0.113	0.051	-0.147	**-0.233**	**0.591**	-0.105	**0.162**
Iron	**-0.239**	0.040	-0.158	**-0.278**	NA	-0.033	**0.294**
Lead	0.033	0.138	-0.170	-0.053	**0.414**	-0.168	0.003
Magnesium	**0.528**	0.067	**0.251**	**0.777**	**-0.236**	**-0.271**	**-0.408**
Manganese	-0.088	0.072	-0.133	-0.122	**0.461**	-0.077	0.125
Nickel	**-0.216**	0.040	-0.136	**-0.233**	**0.714**	-0.147	**0.271**
pH	0.013	**-0.252**	NA	**0.326**	-0.158	-0.111	0.063
Potassium	0.009	0.062	0.062	0.028	**0.232**	**-0.300**	-0.046
Selenium	0.056	0.177	-0.181	-0.136	**0.274**	-0.037	-0.021
Silver	0.167	**0.212**	-0.149	0.063	0.160	-0.081	-0.121
Sodium	0.148	0.166	0.019	0.162	0.007	**-0.288**	**-0.267**
Thallium	**-0.257**	-0.115	-0.097	**-0.235**	**0.352**	0.112	**0.296**
Vanadium	-0.005	0.137	-0.147	-0.108	**0.498**	**-0.220**	0.021
Zinc	-0.070	0.143	**-0.223**	-0.144	**0.598**	-0.160	0.122

Values in **bold** indicate statistically significant correlations
More saturated green shading indicates stronger positive correlations; more saturated blue indicates stronger negative correlations.

Spatial Distribution

As noted, the distance from the former Water Street facility was significantly negatively correlated with several parameters, meaning that these parameters decreased with increasing distance from the facility. Additionally, all of these parameters were statistically significantly different between landfill and "other"

areas. Thus, it is possible that the high number of soil samples taken from the landfill (232 total landfill samples, 447 "other" samples, 74 Water Street SI samples, 18 background samples) may have biased the results of the monotonic trend analysis.

Figure 6 shows concentrations of PFAS and other parameters in surface soil with distance from the former Water Street facility. For several PFAS compounds, detected concentrations decreased with increasing distance from the facility. However, concentrations also generally showed a spike within landfill samples.

PFOA:TOC Ratio

Figure 7 shows plots of PFOA:TOC and PFOA with distance from the former Water Street facility and from Bennington Landfill. These plots include linear trend lines based on detected values from landfill and "other" samples. Both the PFOA:TOC and PFOA trends decreased with distance from the former Water Street facility and increased with distance from Bennington Landfill. The trend was stronger for distance away from the former Water Street Facility compared to distance away from Bennington Landfill for both PFOA:TOC and PFOA. In addition, the trend was stronger for PFOA:TOC than for PFOA alone. The stronger trend associated with the PFOA:TOC ratio compared with PFOA alone substantiates the use of TOC in evaluating soil PFOA concentrations in the investigation area.

Figure 8 shows box-and-whisker plots of PFOA concentrations and PFOA:TOC ratios for surface samples divided by area and for all samples divided by depth level. When only PFOA concentrations in the surface samples are considered, landfill samples are significantly different from background, Water Street, and "other" samples, and Water Street and "other" samples are significantly different from each other but not from background. In addition, PFOA concentrations in deep samples are significantly different from shallow and surface samples. However, when PFOA concentrations are normalized to TOC concentrations, Water Street samples are significantly different from the other three locations, landfill samples are not significantly different from "other" samples or background, and deep samples are not significantly different from shallow samples, though the ratios in surface samples are significantly different from shallow and deep samples. These post-hoc significance groupings are indicated on Figure 8 by lettering statistically significant groupings as "a" or "b" and overlapping groupings as "ab." PFOA concentrations below detection limits are included in Figure 8 for PFOA concentrations but not for ratios; the among-group analysis remains true even when non-detect PFOA concentrations are not considered. These results further suggest that TOC is a factor in controlling soil PFOA concentrations.

Figure 9 and Table 6 show the relationship of the PFOA:TOC ratio to other parameters. Generally, the PFOA:TOC ratio exhibited similar but inverse correlations as TOC, with which it was significantly negatively correlated, although it was also significantly negatively correlated with distance from the former Water Street facility. These results suggest that the overall amount of TOC may be responsible for more of the data variation than PFOA.

Table 6 Results of Kendall's Tau Correlation Evaluation for PFOA:TOC Ratio

Parameter	p-value	tau
Facility Distance	**0.000**	**-0.331**
Top Depth	**0.003**	**0.234**
TOC	**0.000**	**-0.330**
PFOA	**0.000**	**0.537**
Aluminum	**0.008**	**0.484**
Antimony	1.000	0.144
Arsenic	1.000	0.165
Barium	1.000	0.191
Beryllium	0.177	0.366
Cadmium	1.000	0.070
Calcium	**0.004**	**-0.509**
Chromium	0.607	0.298
Cobalt	1.000	0.078
Copper	1.000	0.056
Iron	0.281	0.343
Lead	1.000	0.014
Magnesium	**0.004**	**-0.507**
Manganese	1.000	0.162
Nickel	0.776	0.280
pH	0.412	-0.189
Potassium	0.172	0.370
Selenium	1.000	0.176
Silver	1.000	-0.118
Sodium	1.000	0.221
Thallium	1.000	0.106
Vanadium	1.000	0.241
Zinc	1.000	0.147

Values in **bold** indicate statistically significant correlations.
Correlation assessed including only samples with detected PFOA concentrations.

Summary

Soil concentrations of the parameters assessed in this report were variable throughout the investigation area.

The concentration of a number of parameters varied significantly with soil depth. Organic parameters (PFAS and TOC) and several major non-transition metals (calcium, magnesium) were notably higher in concentration in the surface soils than in the deep soils, whereas iron and trace metals (such as copper and nickel) increased in concentration with depth. The higher concentration of PFAS in surface soils relative to deep soils is consistent with atmospheric deposition and/or infiltration from the surface. The

higher concentrations of organic carbon at the surface are consistent with a soil weathering profile (Langmuir, 1997).

Different sections of the investigation area had different geochemical patterns. Although there was a decreasing trend in PFOA and in PFOA:TOC with increasing distance from the former Water Street facility, PFOA concentration was not significantly different between "other" samples and background. In addition, the median PFOA concentration was statistically significantly different (higher) in the "other" samples than in landfill samples, but the highest PFOA concentrations were found in soils from the landfill. These results suggest that some surface activities (such as those at the landfill or at the former Water Street Chemfab facility) may lead to highly localized variations in soil chemistry that have the potential to confound interpretation of larger-scale patterns.

Interactions between parameters in soil samples also appear to account for some of the observed concentration variability. For example, pH and PFOA are significantly negatively correlated. This relationship may be due to a lesser ability of acidic soils to sorb or otherwise retain PFAS. The significant correlation between PFOA and TOC likely indicates both a better retention of PFAS by organic material and the higher concentrations of both at shallower depths (Ferrey et al., 2012). However, a spatial trend (albeit a weak one) emerges more strongly when PFOA is normalized to TOC. This relationship suggests that evaluating these parameters together, as done in the CSM, can assist in interpretation of chemical variability in the investigation area.

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Attachments

Table 3	Summary Statistics
Figure 1	Box Plots of PFAS Concentrations by Depth
Figure 2	Box Plots of PFAS Concentrations by Location
Figure 3	Box Plots of Inorganic Concentrations by Depth
Figure 4	Scatter Plots of PFAS Concentrations by TOC Concentrations
Figure 5	Scatter Plots of Inorganic Concentrations by PFOA Concentrations
Figure 6	Plots of Surface Concentrations by Distance from Former Water Street Chemfab Facility
Figure 7	Plots of PFOA:TOC Ratios by Distance from Former Water Street Chemfab Facility
Figure 8	Box Plots of PFOA Concentrations and PFOA:TOC Ratios by Surface Location and Depth
Figure 9	Scatter Plots of Inorganic Concentrations by PFOA:TOC Ratios
Attachment A.1	ProUCL Output: Summary Statistics – All Depths
Attachment A.2	ProUCL Output: Summary Statistics – 0-1.5

Table

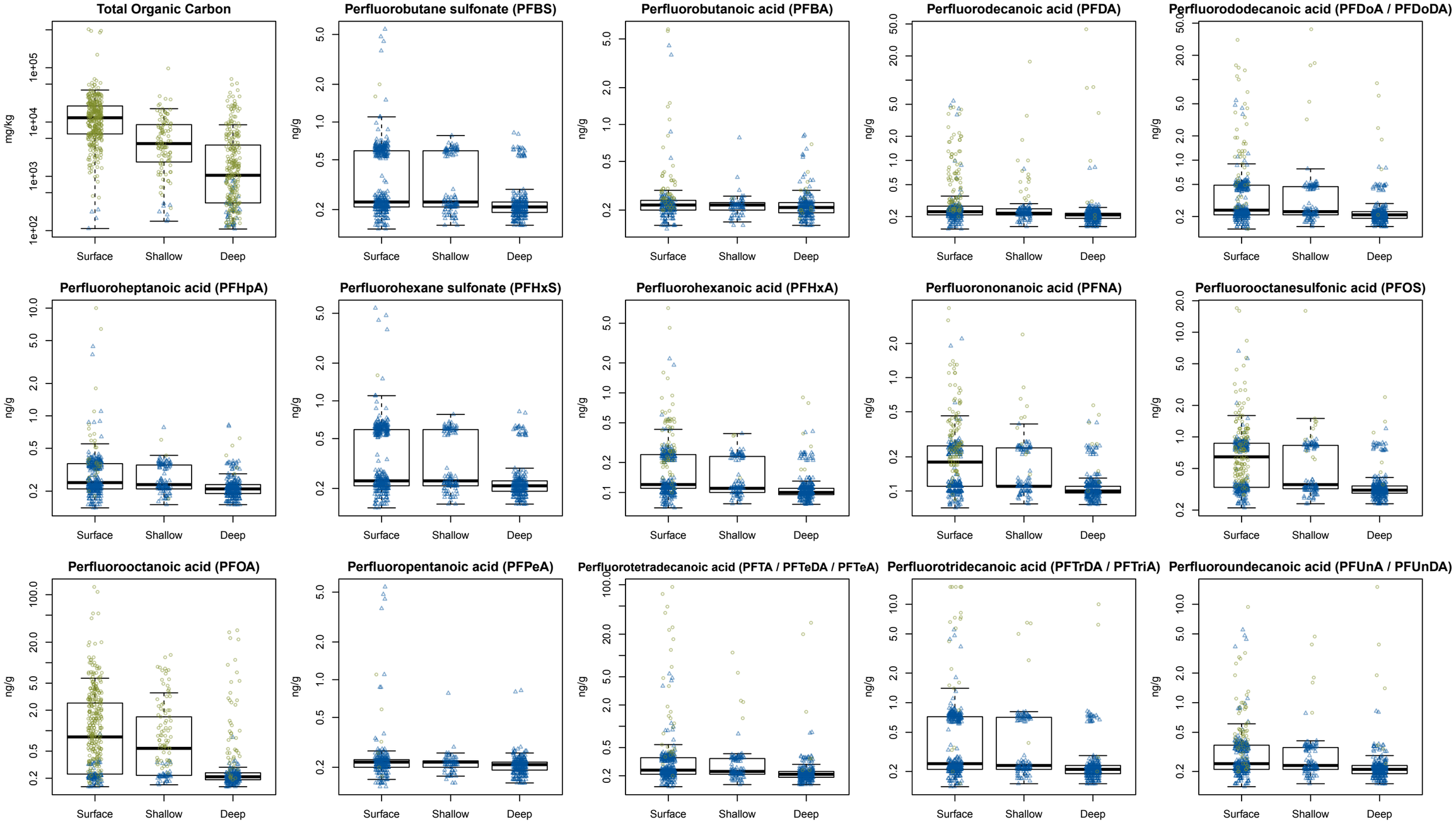
Table 3
Summary Statistics
Appendix D.1a - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT

Depth	Location	Parameter	Units	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median
All Sample Depths	Landfill	Organic Carbon, total	mg/kg	232	216	16	6.90%	107	913	118	512000	17993	16768	2030
		Perfluorooctane sulfonate (PFOS)	ppb	232	39	193	83.19%	0.21	6.6	0.28	17	2.567	0.609	0.3
		Perfluorooctanoic acid (PFOA)	ppb	232	55	177	76.29%	0.15	0.8	0.16	130	7.504	1.895	0.21
		Aluminum	mg/kg	175	175	0	0.00%	N/A	N/A	551	36300	8910	8910	7960
		Antimony	mg/kg	175	129	46	26.29%	0.0732	0.253	0.0827	1.58	0.227	0.188	0.146
		Arsenic	mg/kg	175	175	0	0.00%	N/A	N/A	1.26	235	11.47	11.47	8.07
		Barium	mg/kg	175	175	0	0.00%	N/A	N/A	5.14	7290	202.2	202.2	72
		Beryllium	mg/kg	175	175	0	0.00%	N/A	N/A	0.128	13.4	1.307	1.307	0.684
		Cadmium	mg/kg	175	168	7	4.00%	0.0298	0.0435	0.0377	5.05	0.401	0.386	0.187
		Calcium	mg/kg	175	174	1	0.57%	74.20	74.20	70.1	110000	19415	19304	2890
		Chromium	mg/kg	175	175	0	0.00%	N/A	N/A	0.727	45.4	8.584	8.584	6.97
		Cobalt	mg/kg	175	175	0	0.00%	N/A	N/A	0.301	671	26.34	26.34	14.9
		Copper	mg/kg	175	175	0	0.00%	N/A	N/A	1.49	161	25.49	25.49	20.8
		Iron	mg/kg	175	175	0	0.00%	N/A	N/A	1730	435000	36906	36906	25100
		Lead	mg/kg	175	175	0	0.00%	N/A	N/A	3.61	139	17.21	17.21	14.4
		Magnesium	mg/kg	175	175	0	0.00%	N/A	N/A	116	52100	8503	8503	3020
		Manganese	mg/kg	175	175	0	0.00%	N/A	N/A	4.24	76000	1920	1920	570
		Nickel	mg/kg	175	175	0	0.00%	N/A	N/A	1.6	224	27.36	27.36	19.8
		Potassium	mg/kg	175	175	0	0.00%	N/A	N/A	128	5960	1091	1091	954
		Selenium	mg/kg	175	148	27	15.43%	0.0799	0.268	0.0879	0.981	0.255	0.229	0.198
		Silver	mg/kg	175	105	70	40.00%	0.0229	0.125	0.0263	16.3	0.426	0.265	0.0389
		Sodium	mg/kg	175	112	63	36.00%	13.3	217	14.1	105	32.47	27.82	28.9
		Thallium	mg/kg	175	168	7	4.00%	0.02	0.10	0.0258	67.3	1.007	0.968	0.271
		Vanadium	mg/kg	175	175	0	0.00%	N/A	N/A	2.12	79.6	13.84	13.84	12.2
		Zinc	mg/kg	175	175	0	0.00%	N/A	N/A	2.14	805	74.82	74.82	49.8
	Other	Organic Carbon, total	mg/kg	443	414	31	6.97%	119	501	140	52600	10853	10107	6950
		Perfluorooctane sulfonate (PFOS)	ppb	443	96	349	78.43%	0.23	2.1	0.28	4.4	0.927	0.396	0.36
		Perfluorooctanoic acid (PFOA)	ppb	443	263	182	40.90%	0.15	0.89	0.18	45	2.263	1.401	0.43
		Aluminum	mg/kg	126	126	0	0.00%	N/A	N/A	1240	28100	10786	10786	9755
		Antimony	mg/kg	126	111	15	11.90%	0.0692	0.108	0.0782	0.627	0.198	0.184	0.155
		Arsenic	mg/kg	126	126	0	0.00%	N/A	N/A	0.579	73.4	9.746	9.746	8.73
		Barium	mg/kg	126	126	0	0.00%	N/A	N/A	8.54	2850	101.8	101.8	61.7
		Beryllium	mg/kg	126	126	0	0.00%	N/A	N/A	0.0937	2.36	0.518	0.518	0.45
		Cadmium	mg/kg	126	125	1	0.79%	0.0255	0.0255	0.0457	0.701	0.236	0.234	0.197
		Calcium	mg/kg	126	126	0	0.00%	N/A	N/A	163	232000	32166	32166	28050
		Chromium	mg/kg	126	126	0	0.00%	N/A	N/A	1.69	32.1	12.91	12.91	11.9
		Cobalt	mg/kg	126	126	0	0.00%	N/A	N/A	1.06	433	18.13	18.13	11.75
		Copper	mg/kg	126	126	0	0.00%	N/A	N/A	3.93	73.6	22.25	22.25	19.2
		Iron	mg/kg	126	126	0	0.00%	N/A	N/A	2140	47800	23139	23139	22350
		Lead	mg/kg	126	126	0	0.00%	N/A	N/A	4.44	81.1	21.16	21.16	16.1
		Magnesium	mg/kg	126	126	0	0.00%	N/A	N/A	305	62900	14551	14551	13650
		Manganese	mg/kg	126	126	0	0.00%	N/A	N/A	21.4	20200	938.3	938.3	614.5
		Nickel	mg/kg	126	126	0	0.00%	N/A	N/A	3.68	60.3	22.06	22.06	19.6
		Potassium	mg/kg	126	126	0	0.00%	N/A	N/A	364	4850	1539	1539	1370
		Selenium	mg/kg	126	87	39	30.95%	0.0743	0.342	0.0888	0.786	0.232	0.188	0.171
		Silver	mg/kg	126	98	28	22.22%	0.0217	0.0337	0.0244	2.03	0.127	0.104	0.0457
		Sodium	mg/kg	126	124	2	1.59%	80.3	100	15.9	655	143.5	142.1	93.15
		Thallium	mg/kg	126	125	1	0.79%	0.0263	0.0263	0.0314	9.06	0.293	0.291	0.159
		Vanadium	mg/kg	126	126	0	0.00%	N/A	N/A	2.65	37	15.41	15.41	14.65
		Zinc	mg/kg	126	126	0	0.00%	N/A	N/A	10	140	61.8	61.8	61.3
	Background	Organic Carbon, total	mg/kg	18	18	0	0.00%	N/A	N/A	319	58000	13587	13587	5055
		Perfluorooctane sulfonate (PFOS)	ppb	18	4	14	77.78%	0.31	0.49	0.42	1.1	0.78	0.415	0.8
		Perfluorooctanoic acid (PFOA)	ppb	18	10	8	44.44%	0.21	0.24	0.37	7.2	2.197	1.314	1.55
	Water Street	Organic Carbon, total	mg/kg	74	69	5	6.76%	109	177	434	97300	8257	7706	4095
		Perfluorooctane sulfonate (PFOS)	ppb	74	7	67	90.54%	0.71	1.5	0.76	1.9	1.173	0.756	0.8
		Perfluorooctanoic acid (PFOA)	ppb	74	64	10	13.51%	0.32	0.36	0.49	30	6.162	5.373	3.4

Table 3
Summary Statistics
Appendix D.1a - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT

Depth	Location	Parameter	Units	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median
Samples collected from 0-1.5' bgs	Landfill	Organic Carbon, total	mg/kg	66	66	0	0.00%	N/A	N/A	1170	512000	47168	47168	16000
		Perfluorooctane sulfonate (PFOS)	ppm	66	31	35	53.03%	0.21	6.6	0.28	17	2.482	1.295	0.34
		Perfluorooctanoic acid (PFOA)	ppm	66	38	28	42.42%	0.15	0.23	0.16	130	10.59	6.162	0.215
		Aluminum	mg/kg	30	30	0	0.00%	N/A	N/A	2280	11100	5690	5690	5335
		Antimony	mg/kg	30	20	10	33.33%	0.0782	0.107	0.0894	0.417	0.19	0.154	0.125
		Arsenic	mg/kg	30	30	0	0.00%	N/A	N/A	3.46	34.9	7.162	7.162	6.045
		Barium	mg/kg	30	30	0	0.00%	N/A	N/A	19	78.2	46.97	46.97	53.75
		Beryllium	mg/kg	30	30	0	0.00%	N/A	N/A	0.128	0.616	0.294	0.294	0.257
		Cadmium	mg/kg	30	29	1	3.33%	0.0369	0.0369	0.0698	0.306	0.14	0.136	0.11
		Calcium	mg/kg	30	30	0	0.00%	N/A	N/A	70.1	108000	50422	50422	53450
		Chromium	mg/kg	30	30	0	0.00%	N/A	N/A	2.9	12.6	7.106	7.106	6.21
		Cobalt	mg/kg	30	30	0	0.00%	N/A	N/A	4.75	79.7	11.71	11.71	9.14
		Copper	mg/kg	30	30	0	0.00%	N/A	N/A	6.89	33.7	15.2	15.2	13.65
		Iron	mg/kg	30	30	0	0.00%	N/A	N/A	8500	30000	15462	15462	14600
		Lead	mg/kg	30	30	0	0.00%	N/A	N/A	4.07	42.2	13.46	13.46	10.45
		Magnesium	mg/kg	30	30	0	0.00%	N/A	N/A	517	36500	19621	19621	20550
		Manganese	mg/kg	30	30	0	0.00%	N/A	N/A	219	1690	455.5	455.5	404.5
		Nickel	mg/kg	30	30	0	0.00%	N/A	N/A	6.64	24.3	12.04	12.04	11.75
		Potassium	mg/kg	30	30	0	0.00%	N/A	N/A	431	1750	872.9	872.9	803.5
		Selenium	mg/kg	30	28	2	6.67%	0.103	0.107	0.0934	0.981	0.235	0.225	0.158
		Silver	mg/kg	30	22	8	26.67%	0.0245	0.0335	0.0263	5.47	0.587	0.437	0.0549
		Sodium	mg/kg	30	27	3	10.00%	13.3	17.9	23.2	56.8	36.73	34.39	36.4
		Thallium	mg/kg	30	28	2	6.67%	0.0971	0.102	0.0359	0.252	0.149	0.144	0.146
		Vanadium	mg/kg	30	30	0	0.00%	N/A	N/A	3.51	22.2	9.727	9.727	8.315
		Zinc	mg/kg	30	30	0	0.00%	N/A	N/A	14	133	41.87	41.87	35.8
Samples collected from 0-1.5' bgs (continued)	Other	Organic Carbon, total	mg/kg	254	253	2	0.78%	221	242	405	52600	14166	14057	12700
		Perfluorooctane sulfonate (PFOS)	ppb	252	89	165	64.96%	0.23	2.1	0.28	4.4	0.916	0.512	0.63
		Perfluorooctanoic acid (PFOA)	ppb	252	187	67	26.38%	0.15	0.89	0.18	45	2.564	1.93	0.895
		Aluminum	mg/kg	50	50	0	0.00%	N/A	N/A	1240	22200	10041	10041	8610
		Antimony	mg/kg	50	46	4	8.00%	0.0693	0.108	0.0873	0.627	0.226	0.214	0.178
		Arsenic	mg/kg	50	50	0	0.00%	N/A	N/A	2.54	17	8.485	8.485	7.87
		Barium	mg/kg	50	50	0	0.00%	N/A	N/A	15.9	1470	90.71	90.71	58.6
		Beryllium	mg/kg	50	50	0	0.00%	N/A	N/A	0.112	0.834	0.427	0.427	0.417
		Cadmium	mg/kg	50	50	0	0.00%	N/A	N/A	0.0457	0.568	0.258	0.258	0.239
		Calcium	mg/kg	50	50	0	0.00%	N/A	N/A	545	90000	25668	25668	16050
		Chromium	mg/kg	50	50	0	0.00%	N/A	N/A	3.92	26.5	12.49	12.49	11.9
		Cobalt	mg/kg	50	50	0	0.00%	N/A	N/A	2.02	355	17.9	17.9	10.25
		Copper	mg/kg	50	50	0	0.00%	N/A	N/A	4.09	56.2	21.29	21.29	18.5
		Iron	mg/kg	50	50	0	0.00%	N/A	N/A	6130	40700	22030	22030	21700
		Lead	mg/kg	50	50	0	0.00%	N/A	N/A	6.06	81.1	31.68	31.68	24.7
		Magnesium	mg/kg	50	50	0	0.00%	N/A	N/A	530	44900	13030	13030	10750
		Manganese	mg/kg	50	50	0	0.00%	N/A	N/A	144	14700	934.9	934.9	600.5
		Nickel	mg/kg	50	50	0	0.00%	N/A	N/A	4.25	45.2	19.1	19.1	17.05
		Potassium	mg/kg	50	50	0	0.00%	N/A	N/A	413	2790	1225	1225	1195
		Selenium	mg/kg	50	40	10	20.00%	0.085	0.342	0.0976	0.451	0.258	0.231	0.237
		Silver	mg/kg	50	45	5	10.00%	0.0217	0.0334	0.026	1.87	0.166	0.152	0.0739
		Sodium	mg/kg	50	50	0	0.00%	N/A	N/A	42.7	567	149.7	149.7	90
		Thallium	mg/kg	50	50	0	0.00%	N/A	N/A	0.0314	9.06	0.341	0.341	0.149
		Vanadium	mg/kg	50	50	0	0.00%	N/A	N/A	4.64	27.6	15.39	15.39	15.4
		Zinc	mg/kg	50	50	0	0.00%	N/A	N/A	13.4	140	66.75	66.75	64.65
	Background	Organic Carbon, total	mg/kg	12	12	0	0.00%	N/A	N/A	2980	58000	19258	19258	9210
		Perfluorooctane sulfonate (PFOS)	ppb	12	4	8	66.67%	0.31	0.49	0.42	1.1	0.78	0.468	0.385
		Perfluorooctanoic acid (PFOA)	ppb	12	8	4	33.33%	0.21	0.24	0.68	7.2	2.585	1.793	1.1
	Water Street	Organic Carbon, total	mg/kg	36	34	2	5.56%	109	169	434	35000	8008	7569	4845
		Perfluorooctane sulfonate (PFOS)	ppb	36	5	31	86.11%	0.71	1.5	0.76	1.9	1.162	0.776	0.785
		Perfluorooctanoic acid (PFOA)	ppb	36	33	3	8.33%	0.32	0.32	0.49	20	4.953	4.567	3.7

Figures



BOX PLOTS OF PFAS CONCENTRATIONS BY DEPTH
Bennington, VT
Saint-Gobain

FIGURE 1

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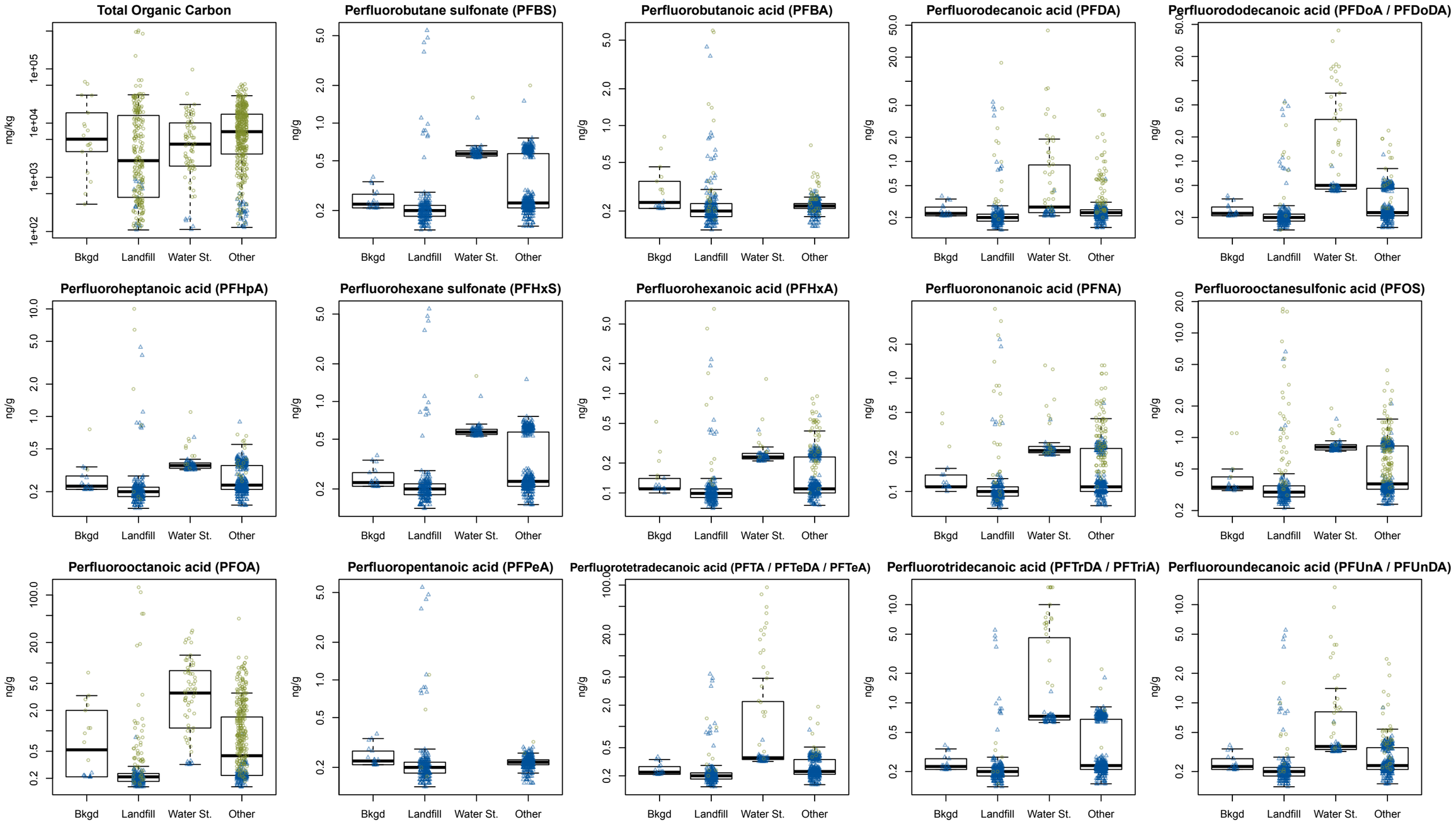

BOX PLOTS OF PFAS CONCENTRATIONS BY LOCATION
Bennington, VT
Saint-Gobain

FIGURE 2

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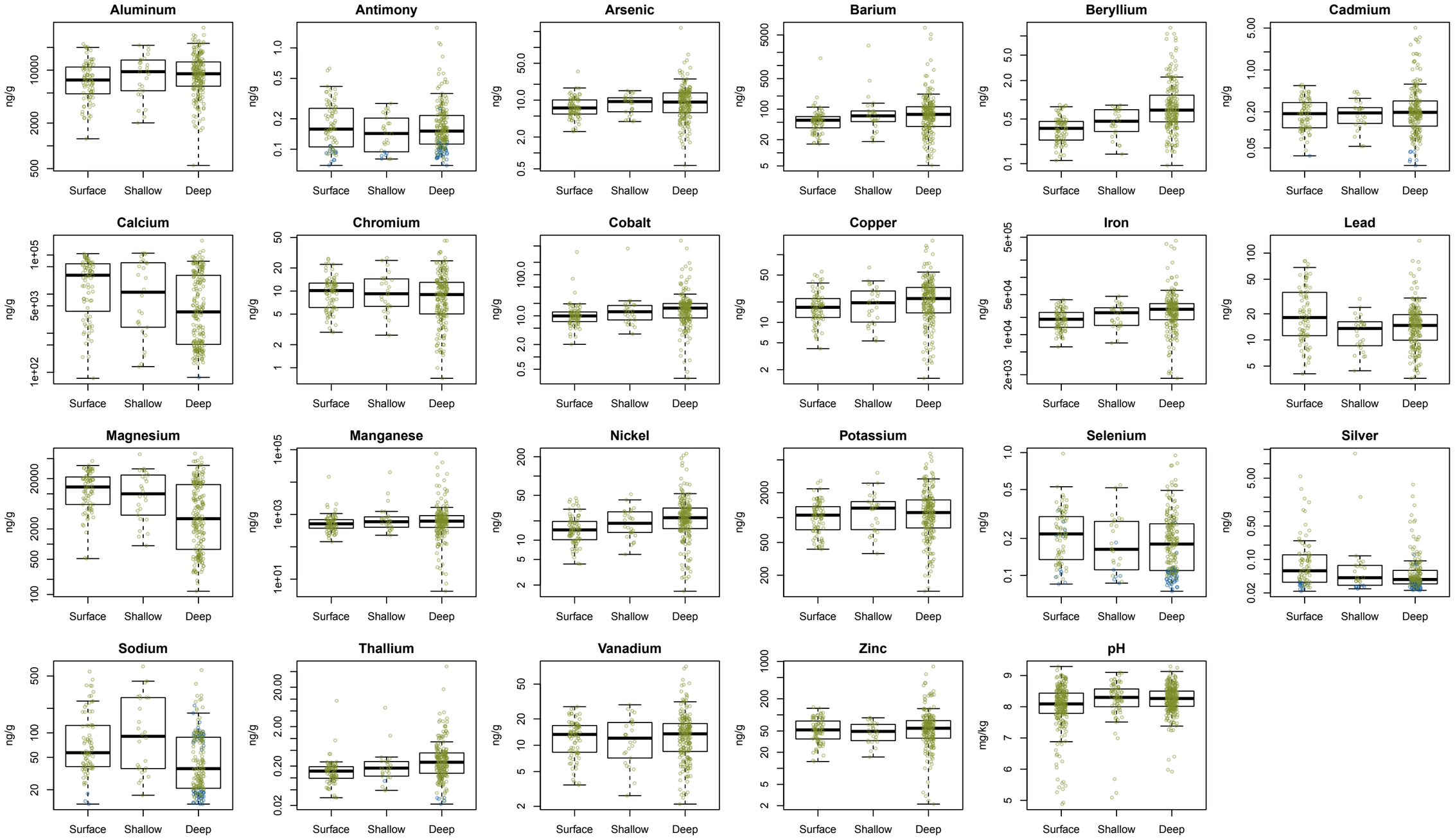

BOX PLOTS OF INORGANIC CONCENTRATIONS BY DEPTH
Bennington, VT
Saint-Gobain

FIGURE 3

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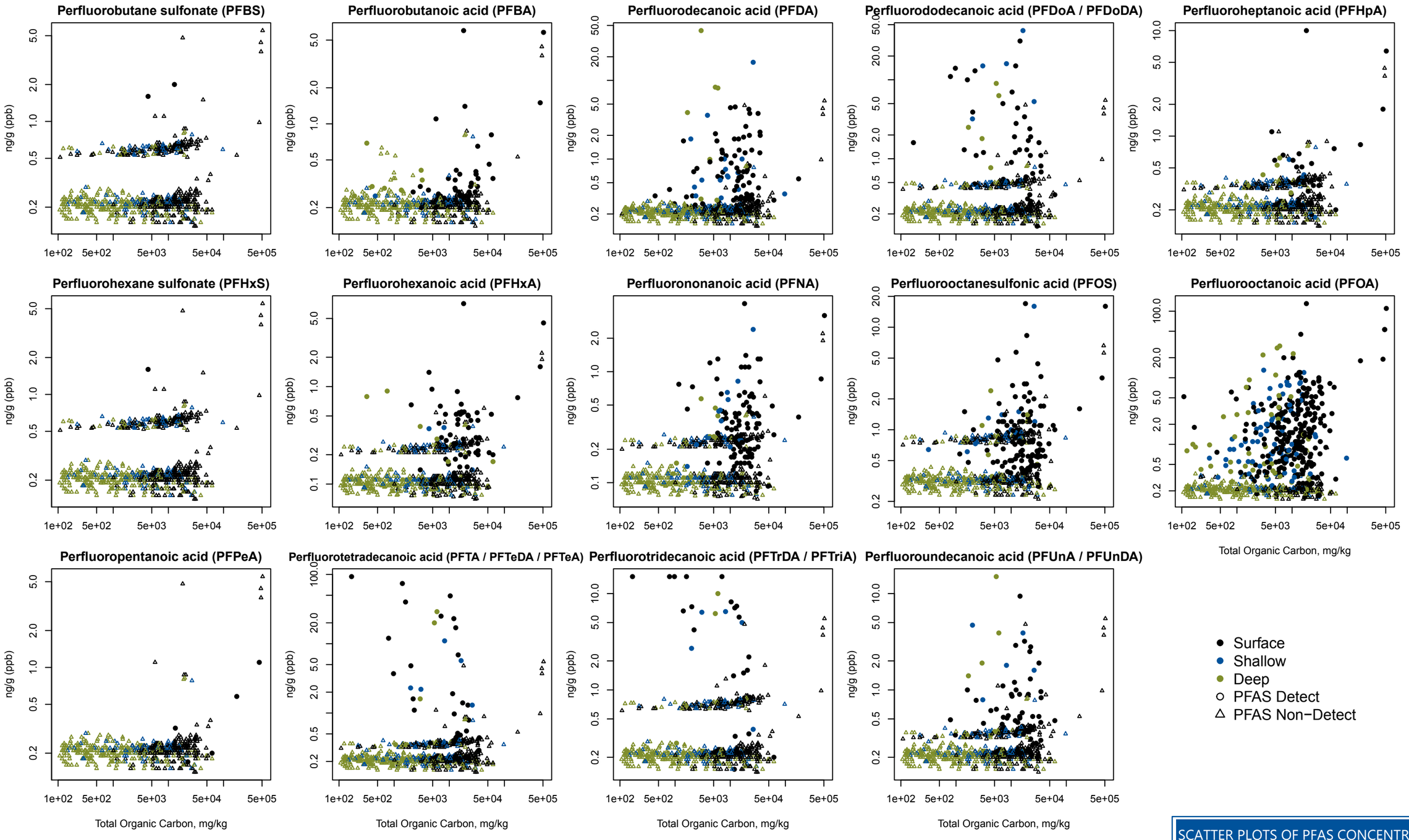

SCATTER PLOTS OF PFAS CONCENTRATIONS
BY TOC CONCENTRATIONS
Bennington, VT
Saint-Gobain

FIGURE 4

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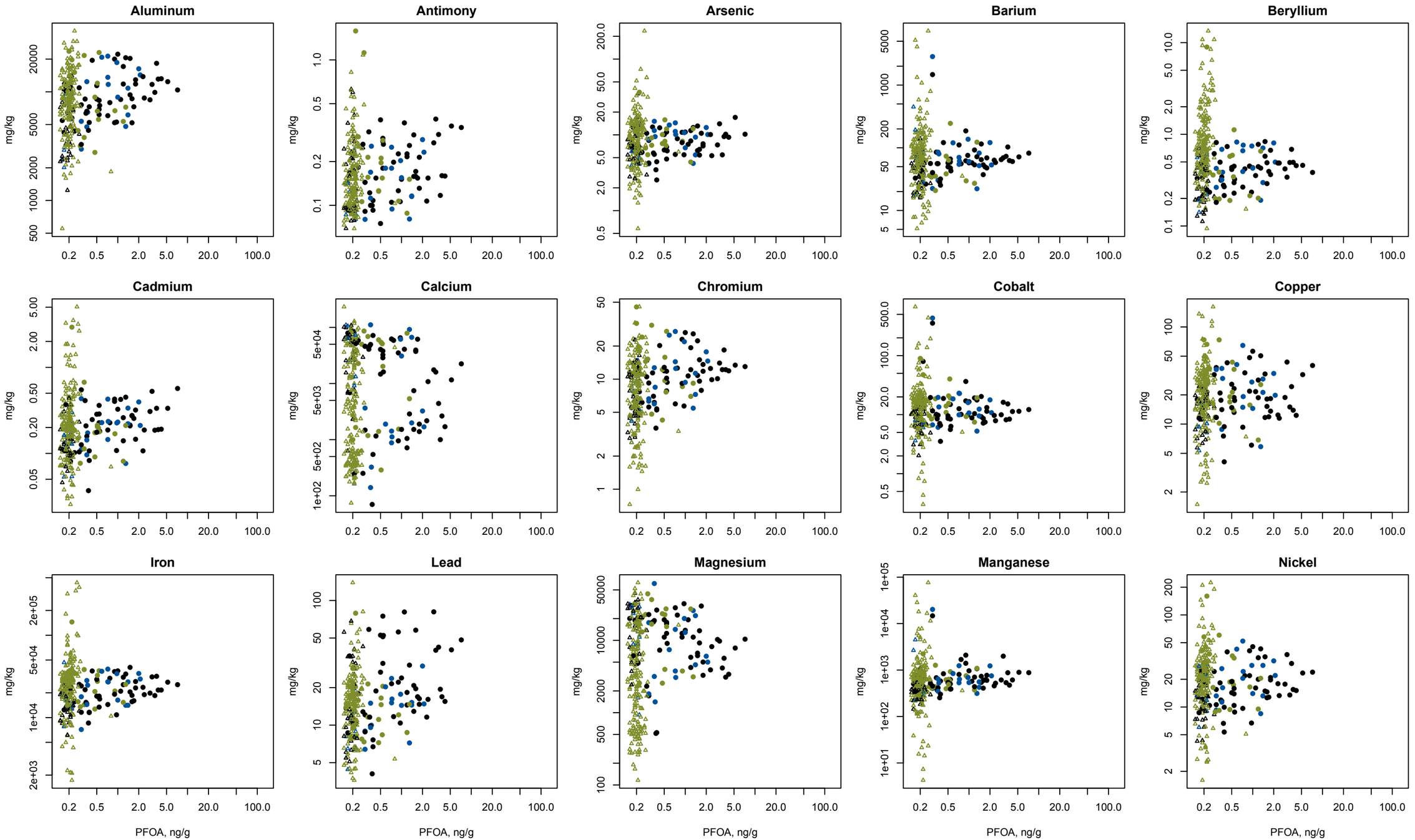

SCATTER PLOTS OF INORGANIC CONCENTRATIONS BY PFOA CONCENTRATIONS
Bennington, VT
Saint-Gobain

FIGURE 5 Page 1 of 2

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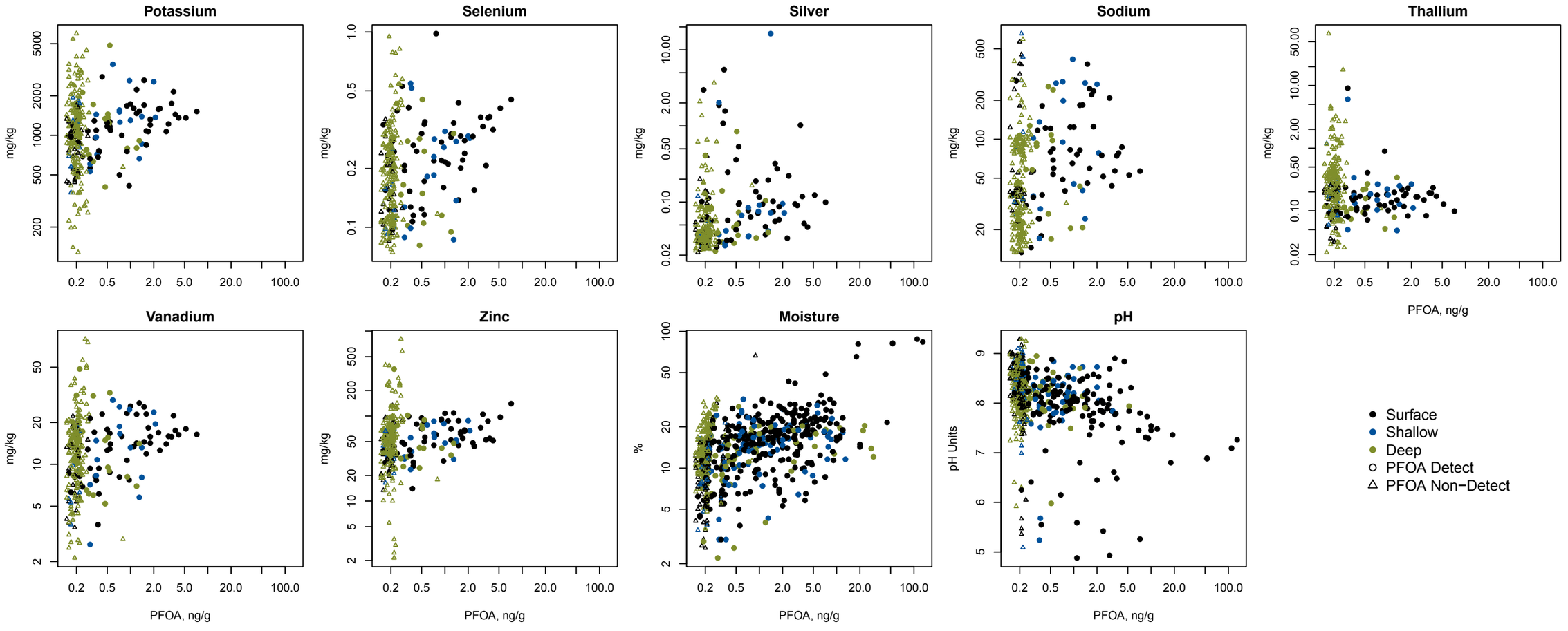
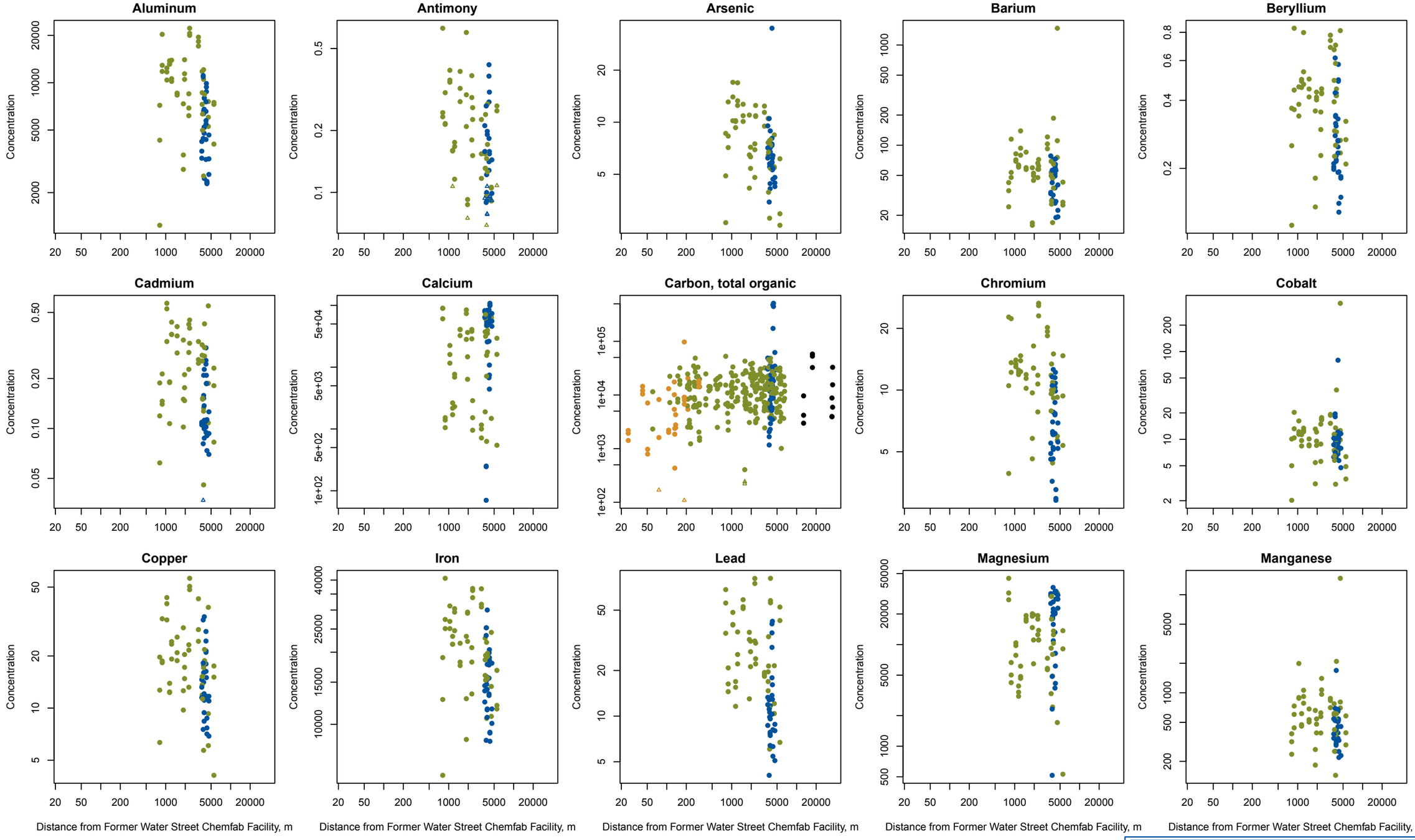


SCATTER PLOTS OF INORGANIC CONCENTRATIONS BY PFOA CONCENTRATIONS
Bennington, VT
Saint-Gobain

FIGURE 5 Page 2 of 2



PLOTS OF SURFACE CONCENTRATIONS BY DISTANCE FROM FORMER WATER STREET CHEMFAB FACILITY
Bennington, VT
Saint-Gobain

FIGURE 6 Page 1 of 3

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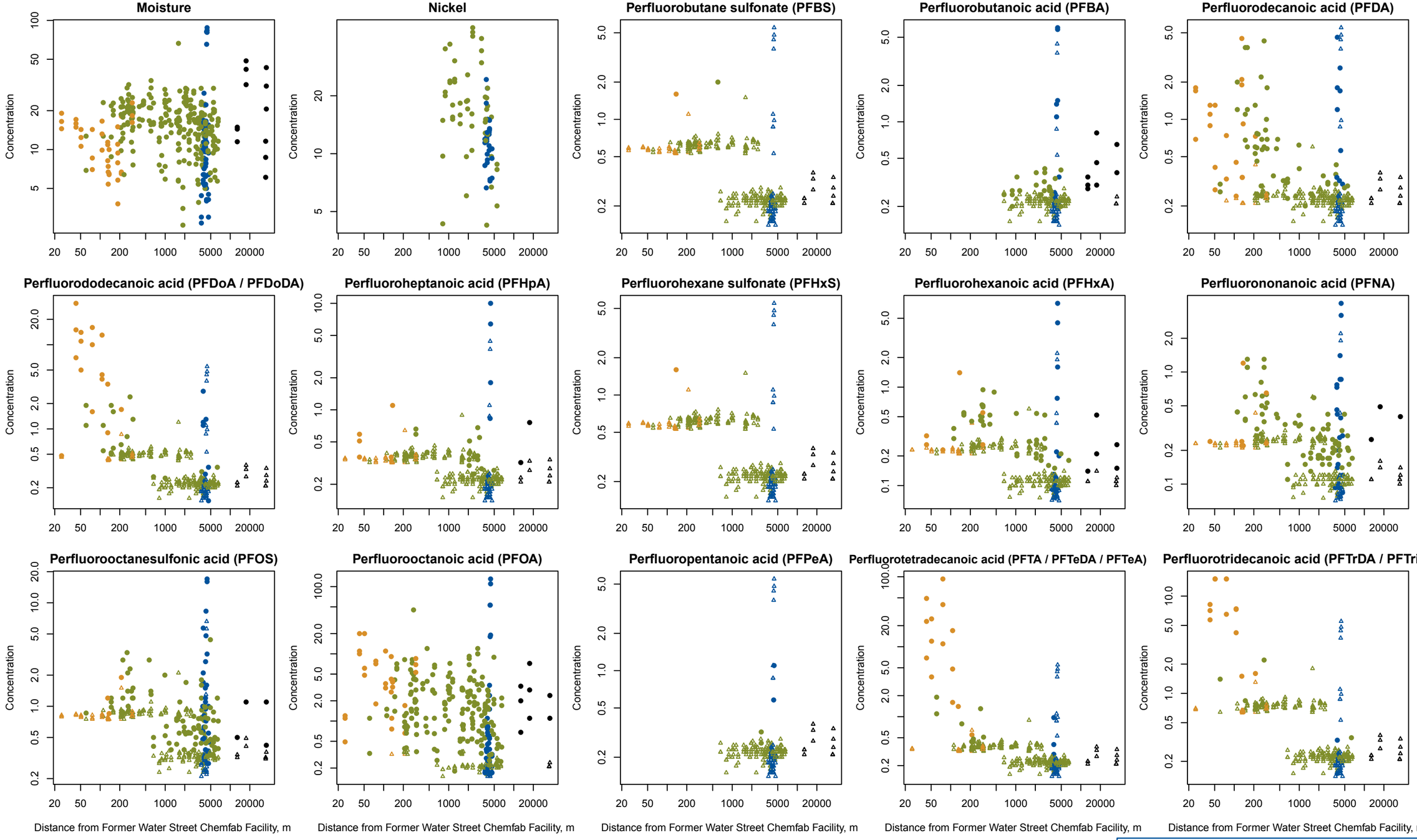

PLOTS OF SURFACE CONCENTRATIONS BY DISTANCE
FROM FORMER WATER STREET CHEMFAB FACILITY
Bennington, VT
Saint-Gobain

FIGURE 6 Page 2 of 3

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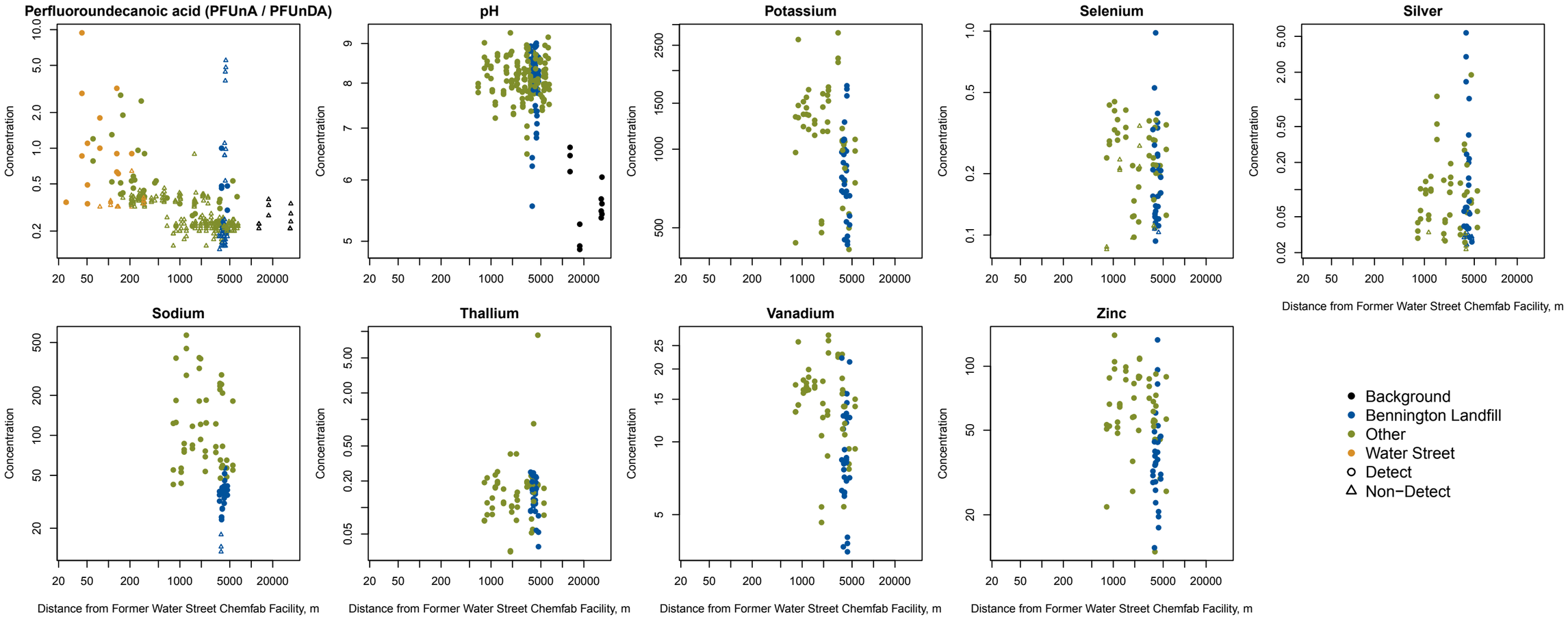

PLOTS OF SURFACE CONCENTRATIONS BY DISTANCE FROM FORMER WATER STREET CHEMFAB FACILITY
Bennington, VT
Saint-Gobain

FIGURE 6 Page 3 of 3

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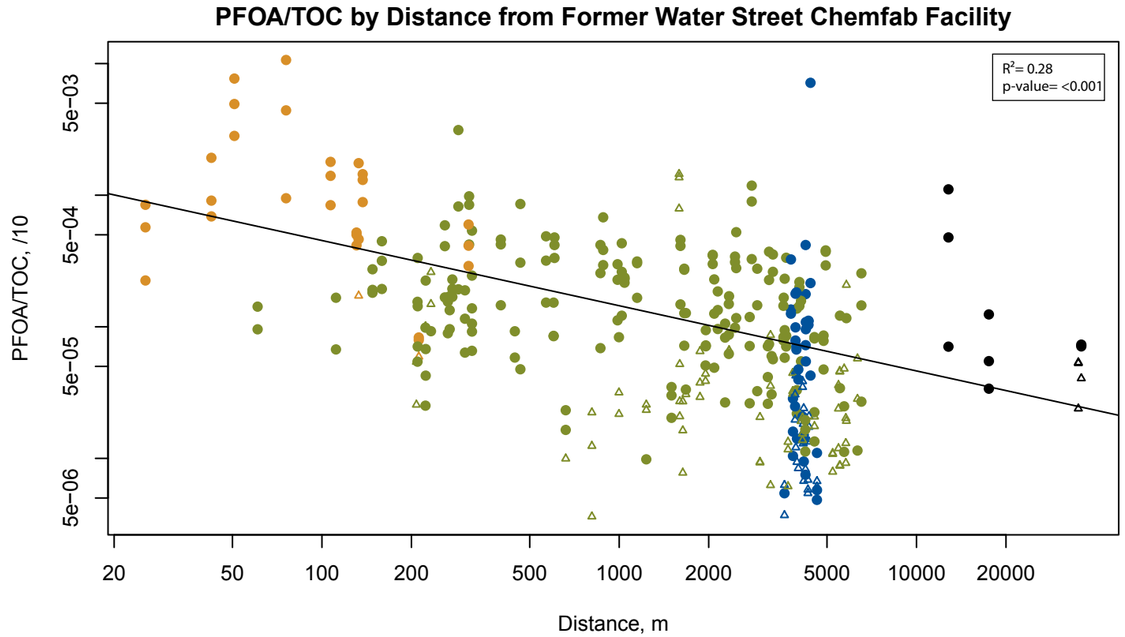
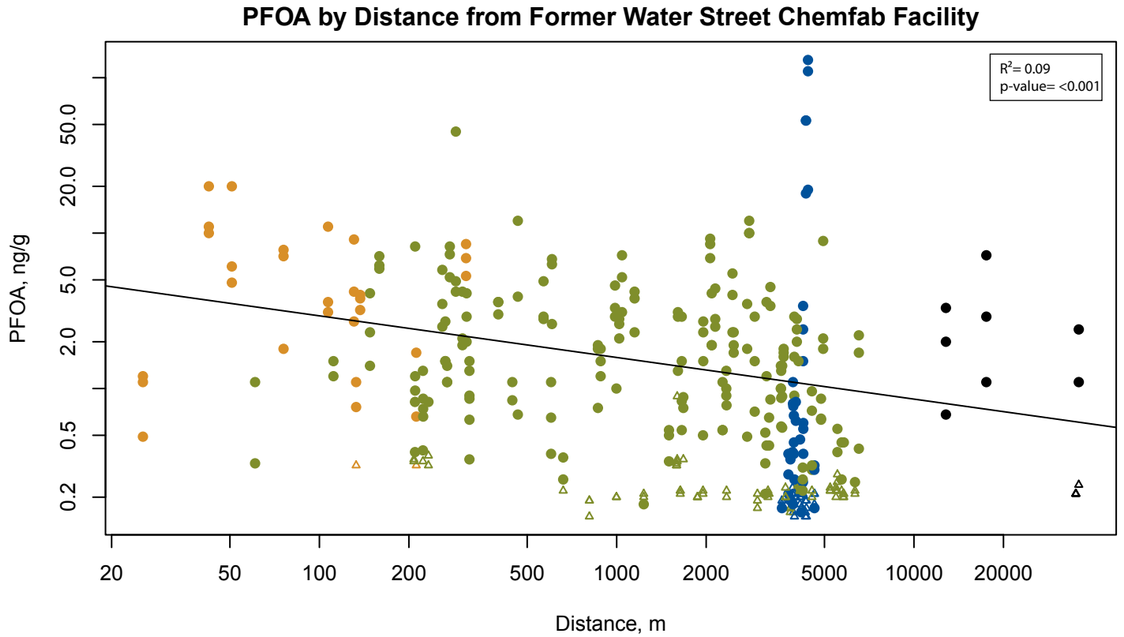
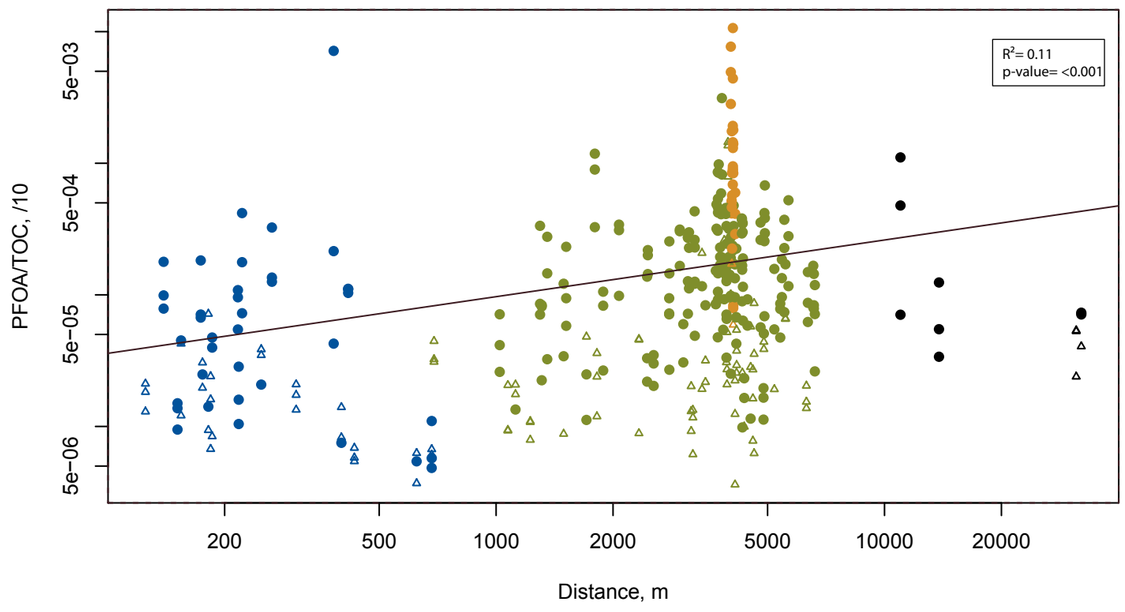
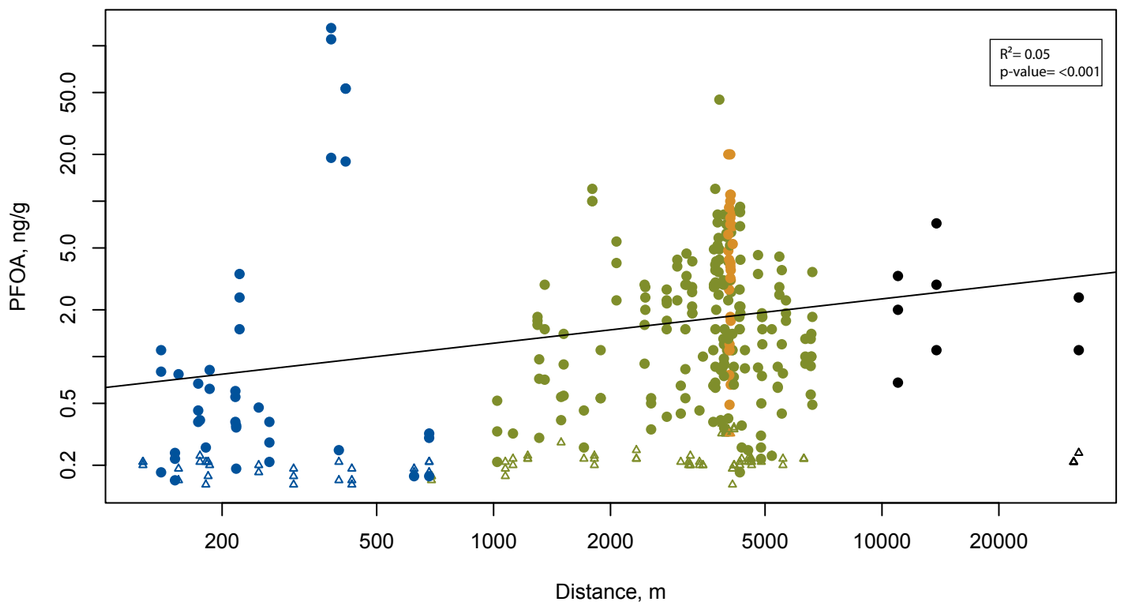




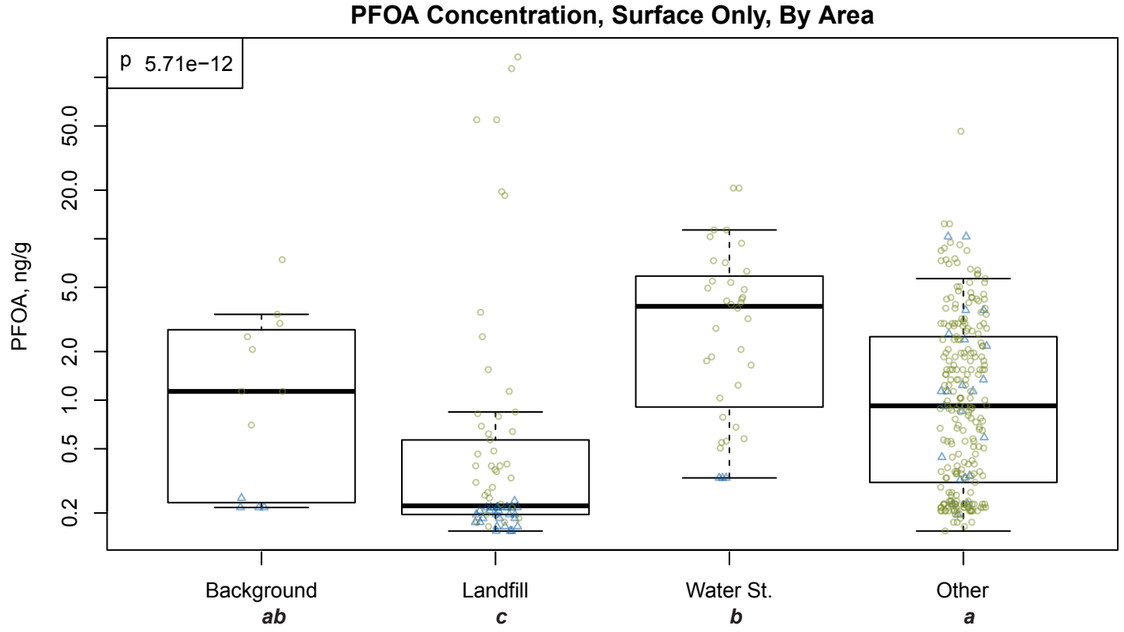


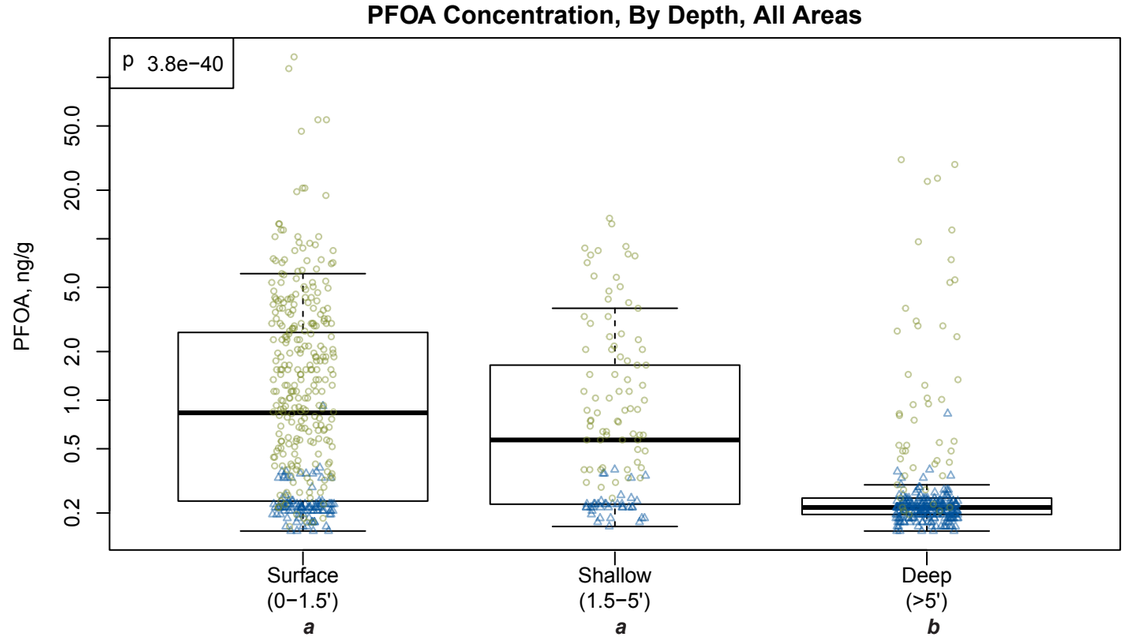


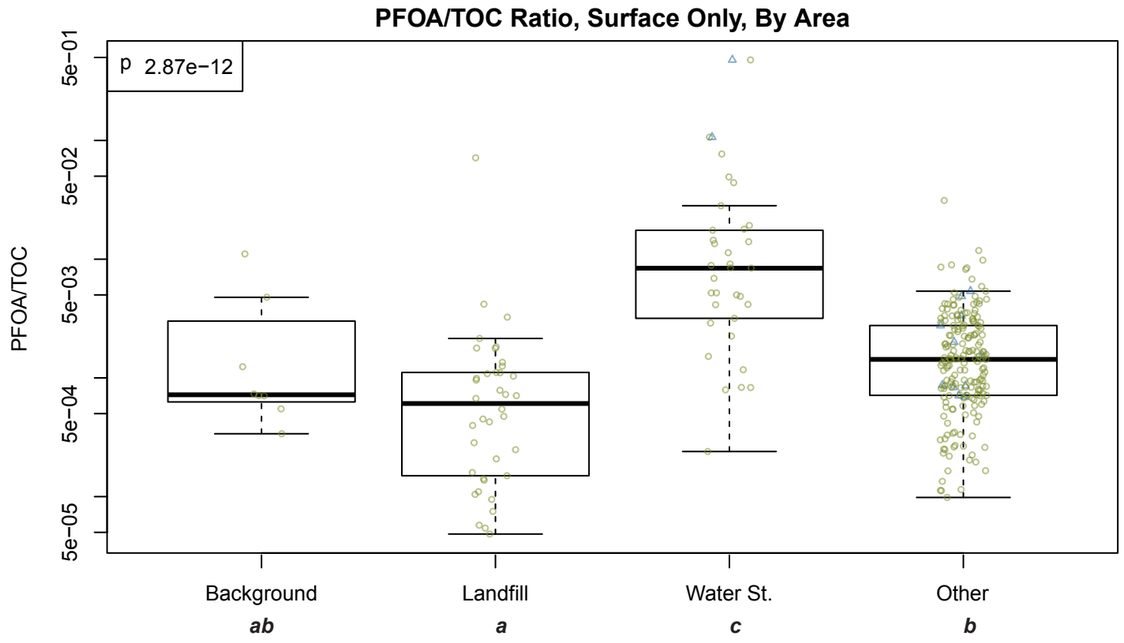
Background
Bennington Landfill
Other
Water Street
Detect
Non−Detect
Trend

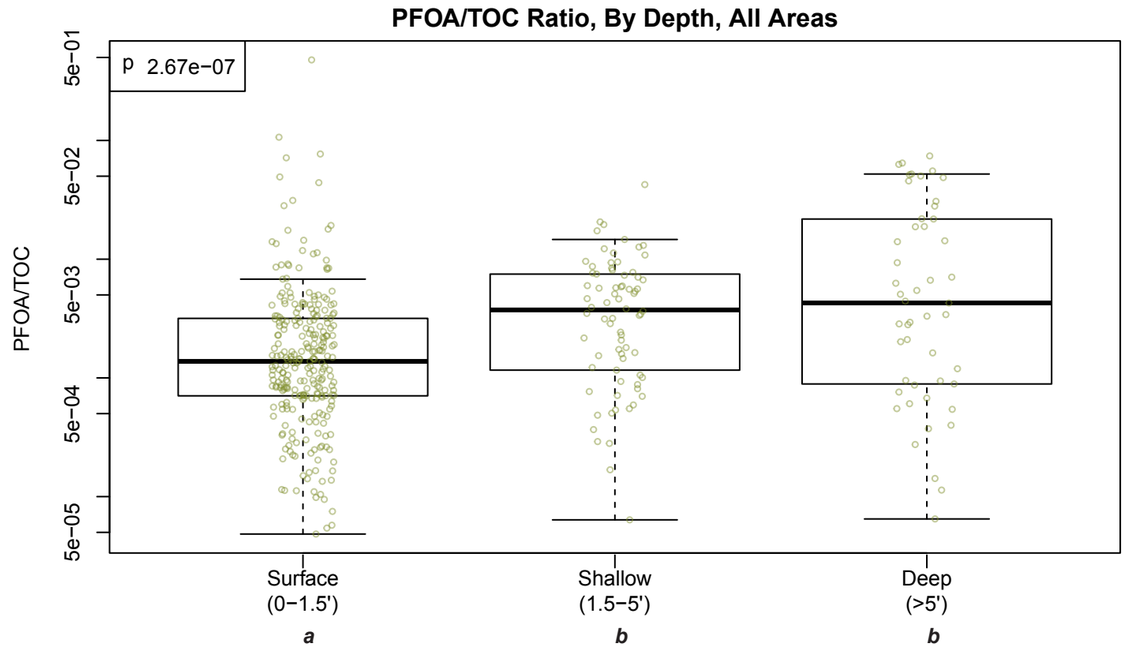
PLOTS OF PFOA AND PFOA:TOC RATIOS BY DISTANCE FROM FORMER WATER STREET CHEMFAB FACILITY AND BENNINGTON LANDFILL
Bennington, VT
Saint-Gobain

FIGURE 7





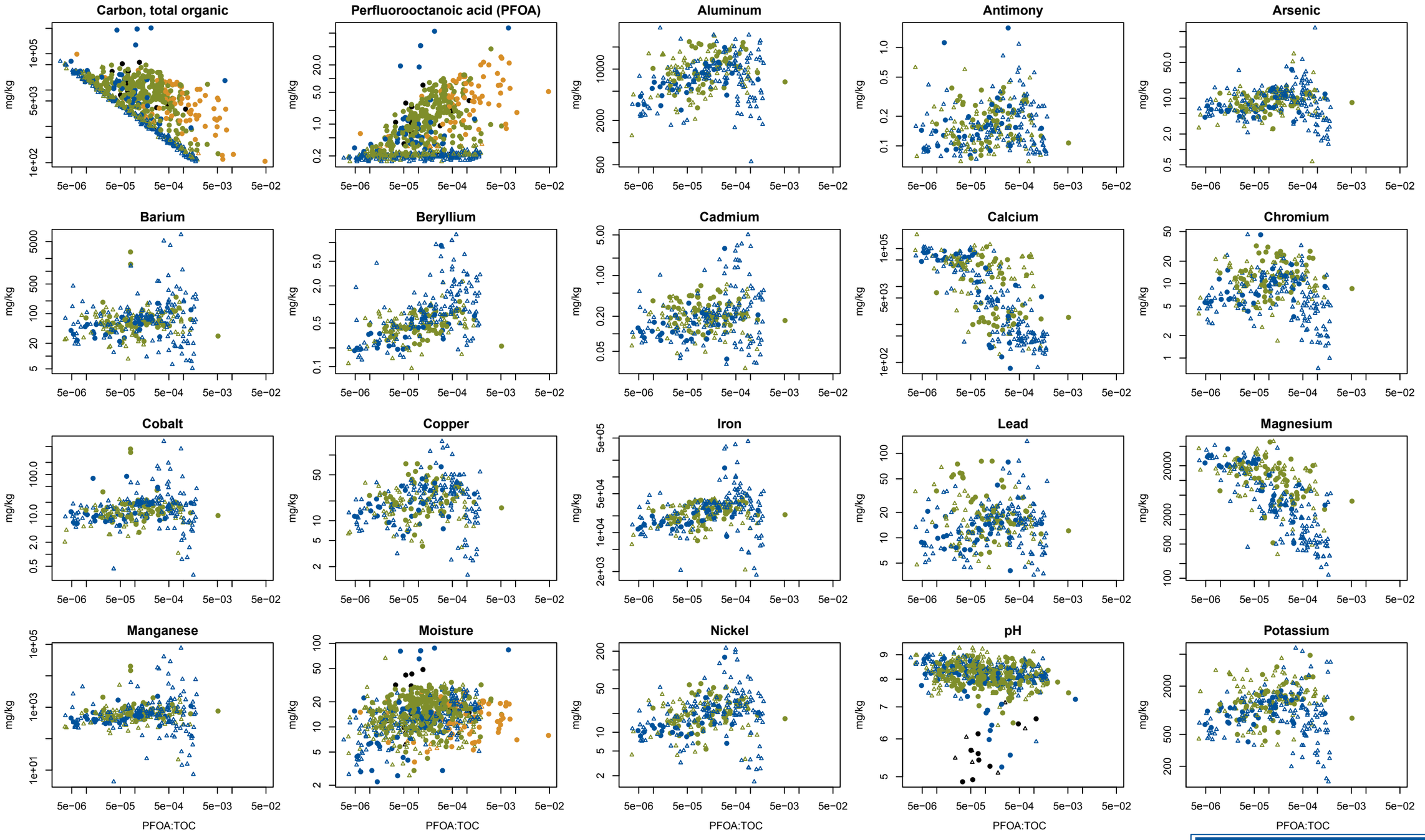




Note: Letter groupings (*a*, *b*) indicate statistically significant groups. Combined letter groupings (*ab*) indicate overlap with both statistically signifcant groups.
Data include this investigation and 2016 C.T. Male samples.

BOX PLOTS OF PFOA CONCENTRATIONS AND PFOA:TOC RATIOS BY SURFACE LOCATION AND DEPTH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE 8

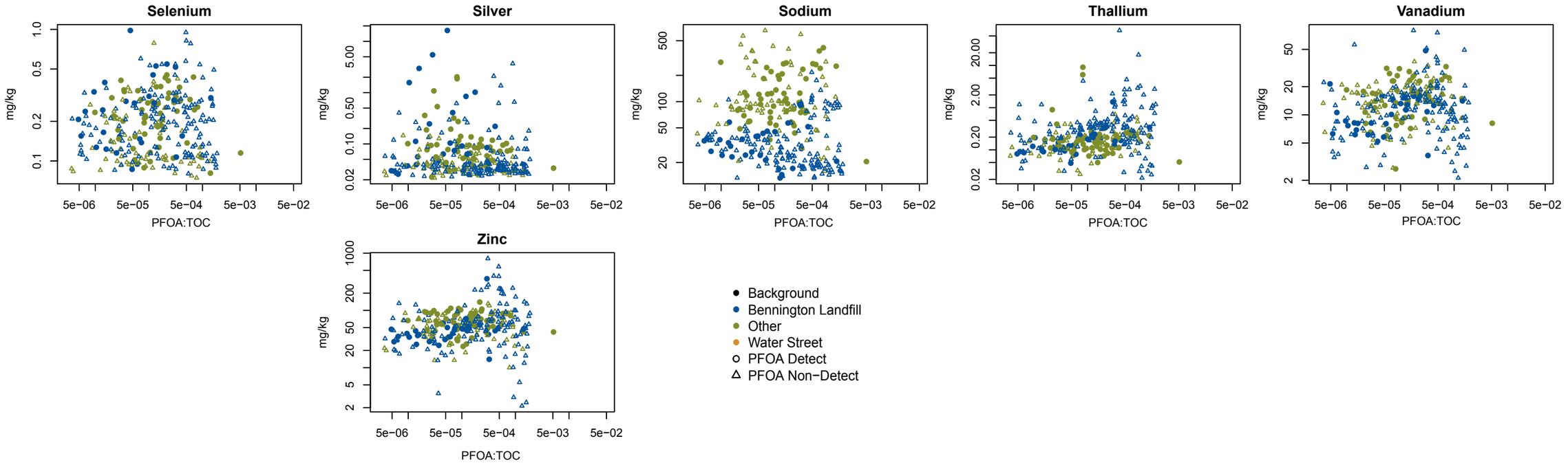
Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D Statistical Evaluation\Appendix D.1a - Statistical Eval Soil\pieces\Figures



SCATTER PLOTS OF INORGANIC CONCENTRATIONS BY PFOA:TOC RATIOS
Bennington, VT
Saint-Gobain

FIGURE 9 Page 1 of 2

Barr Footer: P:\Mpls\45 VT\02\45021004 SGP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D Statistical Evaluation\Appendix D.1a - Statistical Eval Soil\pieces\Figures



SCATTER PLOTS OF INORGANIC CONCENTRATIONS BY PFOA:TOC RATIOS
Bennington, VT
Saint-Gobain

FIGURE 9 Page 2 of 2

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Attachments

Attachment A.1

ProUCL Output: Summary Statistics – All Depths

	General Statistics on Uncensored Data
Date/Time of Computation	ProUCL 5.13/8/2018 12:10:41 PM
User Selected Options	
From File	ProUCL-180308_a.xls
Full Precision	OFF

From File: ProUCL-180308_a.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Aluminum (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	8910	32843485	5731	0.643
Aluminum (other)	126	0	126	0	0.00%	N/A	N/A	10786	31369870	5601	0.519
Antimony (bennington landfill)	175	0	129	46	26.29%	0.0732	0.253	0.188	0.0331	0.182	0.966
Antimony (other)	126	0	111	15	11.90%	0.0692	0.108	0.184	0.0104	0.102	0.555
Arsenic (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	11.47	348.7	18.67	1.628
Arsenic (other)	126	0	126	0	0.00%	N/A	N/A	9.746	62.61	7.913	0.812
Barium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	202.2	552071	743	3.675
Barium (other)	126	0	126	0	0.00%	N/A	N/A	101.8	77955	279.2	2.743
Beryllium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	1.307	4.07	2.017	1.543
Beryllium (other)	126	0	126	0	0.00%	N/A	N/A	0.518	0.0981	0.313	0.605
Cadmium (bennington landfill)	175	0	168	7	4.00%	0.0298	0.0435	0.386	0.463	0.68	1.764
Cadmium (other)	126	0	125	1	0.79%	0.0255	0.0255	0.234	0.019	0.138	0.589
Calcium (bennington landfill)	175	0	174	1	0.57%	74.2	74.2	19304	8.761E+8	29599	1.533
Calcium (other)	126	0	126	0	0.00%	N/A	N/A	32166	1.193E+9	34539	1.074
Chromium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	8.584	41.75	6.462	0.753
Chromium (other)	126	0	126	0	0.00%	N/A	N/A	12.91	40.1	6.332	0.49
Cobalt (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	26.34	4056	63.69	2.418
Cobalt (other)	126	0	126	0	0.00%	N/A	N/A	18.13	2356	48.54	2.677
Copper (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	25.49	508	22.54	0.884
Copper (other)	126	0	126	0	0.00%	N/A	N/A	22.25	183.6	13.55	0.609
Iron (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	36906	3.181E+9	56400	1.528
Iron (other)	126	0	126	0	0.00%	N/A	N/A	23139	78917525	8884	0.384
Lead (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	17.21	232.2	15.24	0.886
Lead (other)	126	0	126	0	0.00%	N/A	N/A	21.16	249.9	15.81	0.747
Magnesium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	8503	1.283E+8	11328	1.332
Magnesium (other)	126	0	126	0	0.00%	N/A	N/A	14551	1.264E+8	11243	0.773
Manganese (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	1920	49777974	7055	3.675
Manganese (other)	126	0	126	0	0.00%	N/A	N/A	938.3	4819822	2195	2.34
Nickel (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	27.36	1054	32.46	1.186
Nickel (other)	126	0	126	0	0.00%	N/A	N/A	22.06	141.1	11.88	0.538
Potassium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	1091	650468	806.5	0.739
Potassium (other)	126	0	126	0	0.00%	N/A	N/A	1539	647577	804.7	0.523
Selenium (bennington landfill)	175	0	148	27	15.43%	0.0799	0.268	0.229	0.0238	0.154	0.673
Selenium (other)	126	0	87	39	30.95%	0.0743	0.342	0.188	0.0139	0.118	0.626
Silver (bennington landfill)	175	0	105	70	40.00%	0.0229	0.125	0.265	1.82	1.349	5.081
Silver (other)	126	0	98	28	22.22%	0.0217	0.0337	0.104	0.0677	0.26	2.503
Sodium (bennington landfill)	175	0	112	63	36.00%	13.3	217	27.82	175	13.23	0.476
Sodium (other)	126	0	124	2	1.59%	80.3	100	142.1	14977	122.4	0.861
Thallium (bennington landfill)	175	0	168	7	4.00%	0.0216	0.102	0.968	27.49	5.243	5.416
Thallium (other)	126	0	125	1	0.79%	0.0263	0.0263	0.291	0.899	0.948	3.255
Vanadium (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	13.84	124.8	11.17	0.807
Vanadium (other)	126	0	126	0	0.00%	N/A	N/A	15.41	50.04	7.074	0.459
Zinc (bennington landfill)	175	0	175	0	0.00%	N/A	N/A	74.82	8910	94.4	1.262
Zinc (other)	126	0	126	0	0.00%	N/A	N/A	61.8	684.4	26.16	0.423

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Aluminum (bennington landfill)	175	0	551	36300	8910	7960	32843485	5731	4507	1.694	0.643
Aluminum (other)	126	0	1240	28100	10786	9755	31369870	5601	5782	0.659	0.519
Antimony (bennington landfill)	129	0	0.0827	1.58	0.227	0.166	0.0394	0.198	0.0623	4.206	0.875
Antimony (other)	111	0	0.0782	0.627	0.198	0.163	0.0101	0.101	0.0756	1.778	0.509

Arsenic (bennington landfill)	175	0	1.26	235	11.47	8.07	348.7	18.67	5.678	10.11	1.628
Arsenic (other)	126	0	0.579	73.4	9.746	8.73	62.61	7.913	3.64	5.541	0.812
Barium (bennington landfill)	175	0	5.14	7290	202.2	72	552071	743	56.63	7.66	3.675
Barium (other)	126	0	8.54	2850	101.8	61.7	77955	279.2	31.06	8.704	2.743
Beryllium (bennington landfill)	175	0	0.128	13.4	1.307	0.684	4.07	2.017	0.559	3.636	1.543
Beryllium (other)	126	0	0.0937	2.36	0.518	0.45	0.0981	0.313	0.196	3.171	0.605
Cadmium (bennington landfill)	168	0	0.0377	5.05	0.401	0.19	0.48	0.693	0.128	3.951	1.729
Cadmium (other)	125	0	0.0457	0.701	0.236	0.197	0.019	0.138	0.11	1.172	0.584
Calcium (bennington landfill)	174	0	70.1	110000	19415	2995	8.841E+8	29734	4008	1.551	1.531
Calcium (other)	126	0	163	232000	32166	28050	1.193E+9	34539	38273	2.048	1.074
Chromium (bennington landfill)	175	0	0.727	45.4	8.584	6.97	41.75	6.462	4.937	2.68	0.753
Chromium (other)	126	0	1.69	32.1	12.91	11.9	40.1	6.332	4.722	0.803	0.49
Cobalt (bennington landfill)	175	0	0.301	671	26.34	14.9	4056	63.69	8.955	7.8	2.418
Cobalt (other)	126	0	1.06	433	18.13	11.75	2356	48.54	5.441	7.789	2.677
Copper (bennington landfill)	175	0	1.49	161	25.49	20.8	508	22.54	14.38	3.125	0.884
Copper (other)	126	0	3.93	73.6	22.25	19.2	183.6	13.55	10.16	1.492	0.609
Iron (bennington landfill)	175	0	1730	435000	36906	25100	3.181E+9	56400	14233	5.19	1.528
Iron (other)	126	0	2140	47800	23139	22350	78917525	8884	10007	0.14	0.384
Lead (bennington landfill)	175	0	3.61	139	17.21	14.4	232.2	15.24	8.258	4.254	0.886
Lead (other)	126	0	4.44	81.1	21.16	16.1	249.9	15.81	7.858	1.944	0.747
Magnesium (bennington landfill)	175	0	116	52100	8503	3020	1.283E+8	11328	3723	1.619	1.332
Magnesium (other)	126	0	305	62900	14551	13650	1.264E+8	11243	9563	1.583	0.773
Manganese (bennington landfill)	175	0	4.24	76000	1920	570	49777974	7055	392.9	8.124	3.675
Manganese (other)	126	0	21.4	20200	938.3	614.5	4819822	2195	275.8	7.539	2.34
Nickel (bennington landfill)	175	0	1.6	224	27.36	19.8	1054	32.46	12.16	3.963	1.186
Nickel (other)	126	0	3.68	60.3	22.06	19.6	141.1	11.88	10.01	0.976	0.538
Potassium (bennington landfill)	175	0	128	5960	1091	954	650468	806.5	487.8	3.074	0.739
Potassium (other)	126	0	364	4850	1539	1370	647577	804.7	562.6	1.27	0.523
Selenium (bennington landfill)	148	0	0.0879	0.981	0.255	0.217	0.0238	0.154	0.1	2.268	0.604
Selenium (other)	87	0	0.0888	0.786	0.232	0.218	0.0134	0.116	0.119	1.474	0.499
Silver (bennington landfill)	105	0	0.0263	16.3	0.426	0.0501	2.997	1.731	0.023	7.901	4.066
Silver (other)	98	0	0.0244	2.03	0.127	0.0576	0.0856	0.293	0.0328	5.509	2.303
Sodium (bennington landfill)	112	0	14.1	105	32.47	31.2	155.3	12.46	11.27	2.06	0.384
Sodium (other)	124	0	15.9	655	143.5	93.15	15226	123.4	53.6	1.873	0.86
Thallium (bennington landfill)	168	0	0.0258	67.3	1.007	0.288	28.77	5.364	0.229	11.63	5.327
Thallium (other)	125	0	0.0314	9.06	0.293	0.16	0.912	0.955	0.0771	8.099	3.256
Vanadium (bennington landfill)	175	0	2.12	79.6	13.84	12.2	124.8	11.17	6.064	3.171	0.807
Vanadium (other)	126	0	2.65	37	15.41	14.65	50.04	7.074	7.339	0.562	0.459
Zinc (bennington landfill)	175	0	2.14	805	74.82	49.8	8910	94.4	27.87	4.43	1.262
Zinc (other)	126	0	10	140	61.8	61.3	684.4	26.16	28.54	0.296	0.423

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Aluminum (bennington landfill)	175	0	2964	4160	5150	7960	11050	12000	15060	19850	29100
Aluminum (other)	126	0	4435	5570	6393	9755	13975	16100	19750	20950	23450
Antimony (bennington landfill)	175	0	0.0894	0.0999	0.104	0.146	0.209	0.232	0.308	0.429	1.09
Antimony (other)	126	0	0.0935	0.107	0.115	0.155	0.233	0.249	0.299	0.365	0.571
Arsenic (bennington landfill)	175	0	3.568	4.516	5.23	8.07	13.65	14.34	17.48	24.36	45.23
Arsenic (other)	126	0	4.605	5.7	6.258	8.73	11.08	12.4	13.7	14.93	46.58
Barium (bennington landfill)	175	0	19.5	28.46	35.25	72	116	135.6	216.6	434.7	4369
Barium (other)	126	0	26.4	38.5	43.63	61.7	89.2	93.5	120.5	154	1164
Beryllium (bennington landfill)	175	0	0.202	0.291	0.341	0.684	1.29	1.55	2.88	4.817	10.8
Beryllium (other)	126	0	0.227	0.341	0.361	0.45	0.644	0.686	0.775	0.902	2.025
Cadmium (bennington landfill)	175	0	0.0704	0.0916	0.104	0.187	0.283	0.338	0.661	1.808	3.325
Cadmium (other)	126	0	0.0938	0.123	0.141	0.197	0.306	0.334	0.433	0.517	0.648
Calcium (bennington landfill)	175	0	289.2	377.6	445	2890	26550	44200	72300	84870	105780
Calcium (other)	126	0	976.5	1540	2035	28050	50825	60600	68000	89825	125500
Chromium (bennington landfill)	175	0	2.654	4.108	4.63	6.97	11.4	11.94	13.96	18.49	35.75
Chromium (other)	126	0	5.635	7.86	8.705	11.9	14.98	18.6	22.5	25.03	29.98
Cobalt (bennington landfill)	175	0	5.296	7.278	8.365	14.9	20.15	21.16	39.16	76.48	256.2
Cobalt (other)	126	0	5.515	7.47	8.405	11.75	15.58	16.6	18.95	22.58	276.3
Copper (bennington landfill)	175	0	7.21	10.96	11.75	20.8	32.25	34.34	42.96	51.94	130.1

Copper (other)	126	0	8.71	12.3	12.88	19.2	26.93	29.1	41.9	48.03	71.33
Iron (bennington landfill)	175	0	9386	13960	15450	25100	34650	37100	54300	90720	355360
Iron (other)	126	0	11700	14600	17400	22350	29375	30400	35500	36975	40650
Lead (bennington landfill)	175	0	6.428	8.026	8.78	14.4	19.75	20.74	28.28	41.08	79.67
Lead (other)	126	0	8.135	10.4	11.53	16.1	23.28	28.8	41.45	55.85	79.4
Magnesium (bennington landfill)	175	0	448.6	594.2	702.5	3020	11900	17600	28060	31630	44542
Magnesium (other)	126	0	2760	4850	5890	13650	19225	20100	27450	33175	57125
Manganese (bennington landfill)	175	0	175.2	301.6	333	570	925.5	1056	2090	5680	31546
Manganese (other)	126	0	277.5	391	421.5	614.5	780.3	843	1065	1423	12285
Nickel (bennington landfill)	175	0	7.254	10.4	11.9	19.8	29.4	31.58	44.52	74.14	195.2
Nickel (other)	126	0	9.215	12.6	13.83	19.6	28.3	30.9	38.65	45.05	56.65
Potassium (bennington landfill)	175	0	420.2	567.8	648.5	954	1300	1402	1678	2417	4357
Potassium (other)	126	0	598.5	951	1048	1370	1798	2050	2660	2970	4208
Selenium (bennington landfill)	175	0	0.105	0.114	0.127	0.198	0.278	0.296	0.402	0.541	0.852
Selenium (other)	126	0	0.0933	0.103	0.106	0.171	0.275	0.292	0.354	0.405	0.447
Silver (bennington landfill)	175	0	0.0271	0.0301	0.0311	0.0389	0.0738	0.0906	0.254	0.712	4.138
Silver (other)	126	0	0.0269	0.0305	0.0317	0.0457	0.0843	0.0933	0.132	0.253	1.673
Sodium (bennington landfill)	175	0	16.5	18.38	19.75	28.9	41.65	45.9	89.86	98.39	145.4
Sodium (other)	126	0	46.15	59.4	70.25	93.15	189.3	235	285.5	396.8	585
Thallium (bennington landfill)	175	0	0.0766	0.112	0.133	0.271	0.449	0.542	1.19	2.292	8.039
Thallium (other)	126	0	0.0717	0.0985	0.106	0.159	0.206	0.223	0.274	0.429	4.739
Vanadium (bennington landfill)	175	0	5.078	6.286	7.205	12.2	15.85	16.46	20.46	33.27	61.09
Vanadium (other)	126	0	6.805	8.9	9.85	14.65	19.58	21.5	24.7	27.48	33.3
Zinc (bennington landfill)	175	0	19.88	30.38	34.4	49.8	72.2	79.18	132.2	237.6	445.1
Zinc (other)	126	0	28.1	36.5	42.03	61.3	80.05	87.2	95.4	101.3	128.5

	General Statistics on Uncensored Data
Date/Time of Computation	ProUCL 5.13/8/2018 12:12:04 PM
User Selected Options	
From File	ProUCL-180308_b.xls
Full Precision	OFF

From File: ProUCL-180308_b.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Carbon, total organic (background)	18	0	18	0	0.00%	N/A	N/A	13587	3.260E+8	18055	1.329
Carbon, total organic (bennington landfill)	232	0	216	16	6.90%	107	913	16768	4.000E+9	63246	3.772
Carbon, total organic (other)	445	2	414	31	6.97%	119	501	10107	95361082	9765	0.966
Carbon, total organic (water street)	74	0	69	5	6.76%	109	177	7706	1.546E+8	12432	1.613
Perfluorobutane sulfonate (PFBS) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (bennington landfill)	232	0	0	232	100.00%	0.14	5.5	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (other)	445	2	1	444	99.78%	0.15	1.5	0.154	0.00767	0.0876	0.568
Perfluorobutane sulfonate (PFBS) (water street)	74	0	1	73	98.65%	0.51	1.1	0.525	0.0158	0.126	0.24
Perfluorobutanoic acid (PFBA) (background)	18	0	8	10	55.56%	0.21	0.24	0.313	0.0275	0.166	0.53
Perfluorobutanoic acid (PFBA) (bennington landfill)	232	0	21	211	90.95%	0.14	4.4	0.215	0.301	0.548	2.552
Perfluorobutanoic acid (PFBA) (other)	318	129	33	285	89.62%	0.15	0.29	0.167	0.00269	0.0519	0.311
Perfluorobutanoic acid (PFBA) (water street)	0	74	0	0	NaN%	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (bennington landfill)	232	0	15	217	93.53%	0.14	5.5	0.273	1.353	1.163	4.267
Perfluorodecanoic acid (PFDA) (other)	445	2	62	383	86.07%	0.15	0.6	0.234	0.141	0.375	1.602
Perfluorodecanoic acid (PFDA) (water street)	74	0	34	40	54.05%	0.2	0.43	1.384	25.91	5.09	3.678
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
rfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	232	0	10	222	95.69%	0.14	5.5	0.193	0.16	0.401	2.078
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	445	2	19	426	95.73%	0.15	1.2	0.182	0.0394	0.199	1.089
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	74	0	26	48	64.86%	0.41	0.86	3.258	47.44	6.888	2.114
Perfluoroheptanoic acid (PFHpA) (background)	18	0	2	16	88.89%	0.21	0.34	0.247	0.0162	0.127	0.514
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	232	0	7	225	96.98%	0.14	4.4	0.221	0.596	0.772	3.488
Perfluoroheptanoic acid (PFHpA) (other)	445	2	17	428	96.18%	0.15	0.89	0.161	0.00363	0.0602	0.373
Perfluoroheptanoic acid (PFHpA) (water street)	74	0	10	64	86.49%	0.3	0.64	0.332	0.0121	0.11	0.332
Perfluorohexane sulfonate (PFHxS) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	232	0	0	232	100.00%	0.14	5.5	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (other)	445	2	0	445	100.00%	0.15	1.5	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (water street)	74	0	1	73	98.65%	0.51	1.1	0.525	0.0158	0.126	0.24
Perfluorohexanoic acid (PFHxA) (background)	18	0	5	13	72.22%	0.1	0.14	0.143	0.0102	0.101	0.706
Perfluorohexanoic acid (PFHxA) (bennington landfill)	232	0	11	221	95.26%	0.07	2.2	0.135	0.309	0.556	4.111
Perfluorohexanoic acid (PFHxA) (other)	445	2	45	400	89.89%	0.075	0.6	0.108	0.013	0.114	1.059
Perfluorohexanoic acid (PFHxA) (water street)	74	0	9	65	87.84%	0.2	0.43	0.23	0.0213	0.146	0.634
Perfluorononanoic acid (PFNA) (background)	18	0	3	15	83.33%	0.1	0.16	0.147	0.0125	0.112	0.763
Perfluorononanoic acid (PFNA) (bennington landfill)	232	0	24	208	89.66%	0.071	2.2	0.141	0.15	0.387	2.752
Perfluorononanoic acid (PFNA) (other)	445	2	83	362	81.35%	0.075	0.6	0.132	0.0256	0.16	1.21
Perfluorononanoic acid (PFNA) (water street)	74	0	16	58	78.38%	0.2	0.43	0.255	0.034	0.184	0.723
Perfluorooctanesulfonic acid (PFOS) (background)	18	0	4	14	77.78%	0.31	0.49	0.415	0.0611	0.247	0.596
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	232	0	39	193	83.19%	0.21	6.6	0.609	3.872	1.968	3.233
Perfluorooctanesulfonic acid (PFOS) (other)	445	2	96	349	78.43%	0.23	2.1	0.396	0.179	0.423	1.069
Perfluorooctanesulfonic acid (PFOS) (water street)	74	0	7	67	90.54%	0.71	1.5	0.756	0.0297	0.172	0.228
Perfluorooctanoic acid (PFOA) (background)	18	0	10	8	44.44%	0.21	0.24	1.314	3.003	1.733	1.319
Perfluorooctanoic acid (PFOA) (bennington landfill)	232	0	55	177	76.29%	0.15	0.8	1.895	148.7	12.2	6.435
Perfluorooctanoic acid (PFOA) (other)	445	2	263	182	40.90%	0.15	0.89	1.401	8.157	2.856	2.039
Perfluorooctanoic acid (PFOA) (water street)	74	0	64	10	13.51%	0.32	0.36	5.373	42.04	6.484	1.207
Perfluoropentanoic acid (PFPeA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluoropentanoic acid (PFPeA) (bennington landfill)	232	0	4	228	98.28%	0.14	5.5	0.147	0.00491	0.07	0.476
Perfluoropentanoic acid (PFPeA) (other)	318	129	2	316	99.37%	0.15	0.29	0.151	1.2912E-4	0.0114	0.0753
Perfluoropentanoic acid (PFPeA) (water street)	0	74	0	0	NaN%	N/A	N/A	N/A	N/A	N/A	N/A
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
radecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	232	0	8	224	96.55%	0.14	5.5	0.153	0.00951	0.0975	0.638
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	445	2	10	435	97.75%	0.15	0.89	0.164	0.0138	0.117	0.715
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	74	0	23	51	68.92%	0.3	0.64	5.944	251.3	15.85	2.667
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	232	0	6	226	97.41%	0.14	5.5	0.144	5.7863E-4	0.0241	0.167
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	445	2	4	441	99.10%	0.15	1.8	0.16	0.0141	0.119	0.743
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	74	0	20	54	72.97%	0.61	1.3	2.626	16.39	4.048	1.542
Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	18	0	0	18	100.00%	0.21	0.37	N/A	N/A	N/A	N/A

rfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	232	0	11	221	95.26%	0.14	5.5	0.158	0.0142	0.119	0.754
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	445	2	36	409	91.91%	0.15	0.89	0.192	0.047	0.217	1.132
Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	74	0	24	50	67.57%	0.3	0.64	0.984	4.51	2.124	2.159

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Carbon, total organic (background)	18	0	319	58000	13587	5055	3.260E+8	18055	5986	1.663	1.329
Carbon, total organic (bennington landfill)	216	0	118	512000	17993	2895	4.294E+9	65532	3963	6.635	3.642
Carbon, total organic (other)	414	2	140	52600	10853	7800	94736888	9733	7917	1.508	0.897
Carbon, total organic (water street)	69	0	434	97300	8257	5050	1.636E+8	12792	5100	5.257	1.549
Perfluorobutane sulfonate (PFBS) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (bennington landfill)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (other)	1	2	2	2	2	2	N/A	N/A	0	N/A	N/A
Perfluorobutane sulfonate (PFBS) (water street)	1	0	1.6	1.6	1.6	1.6	N/A	N/A	0	N/A	N/A
Perfluorobutanoic acid (PFBA) (background)	8	0	0.28	0.81	0.441	0.365	0.0368	0.192	0.111	1.304	0.435
Perfluorobutanoic acid (PFBA) (bennington landfill)	21	0	0.17	6	0.944	0.26	2.87	1.694	0.089	2.711	1.794
Perfluorobutanoic acid (PFBA) (other)	33	129	0.19	0.69	0.286	0.25	0.00892	0.0945	0.0593	2.628	0.33
Perfluorobutanoic acid (PFBA) (water street)	0	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (bennington landfill)	15	0	0.19	17	2.171	0.56	18.27	4.274	0.549	3.401	1.969
Perfluorodecanoic acid (PFDA) (other)	62	2	0.2	4.3	0.748	0.535	0.714	0.845	0.348	2.956	1.13
Perfluorodecanoic acid (PFDA) (water street)	34	0	0.24	43	2.776	0.815	54.41	7.376	0.719	5.225	2.658
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
rfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	10	0	0.14	5.3	1.346	0.935	2.557	1.599	0.912	2.014	1.188
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	19	2	0.26	2.4	0.887	0.59	0.423	0.65	0.474	1.054	0.733
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	26	0	0.48	42	8.514	4.7	96.12	9.804	5.411	2.128	1.152
Perfluoroheptanoic acid (PFHpA) (background)	2	0	0.32	0.76	0.54	0.54	0.0968	0.311	0.326	N/A	0.576
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	7	0	0.17	10	2.797	0.83	15.04	3.878	0.979	1.434	1.386
Perfluoroheptanoic acid (PFHpA) (other)	17	2	0.25	0.68	0.422	0.37	0.0209	0.144	0.133	0.619	0.342
Perfluoroheptanoic acid (PFHpA) (water street)	10	0	0.33	1.1	0.526	0.47	0.0505	0.225	0.163	2.101	0.427
Perfluorohexane sulfonate (PFHxS) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (other)	0	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (water street)	1	0	1.6	1.6	1.6	1.6	N/A	N/A	0	N/A	N/A
Perfluorohexanoic acid (PFHxA) (background)	5	0	0.14	0.52	0.256	0.21	0.0241	0.155	0.089	1.729	0.607
Perfluorohexanoic acid (PFHxA) (bennington landfill)	11	0	0.12	7.1	1.441	0.22	5.195	2.279	0.148	2.032	1.582
Perfluorohexanoic acid (PFHxA) (other)	45	2	0.1	0.94	0.387	0.37	0.0415	0.204	0.237	0.822	0.526
Perfluorohexanoic acid (PFHxA) (water street)	9	0	0.23	1.4	0.444	0.3	0.138	0.371	0.0593	2.65	0.835
Perfluorononanoic acid (PFNA) (background)	3	0	0.25	0.49	0.38	0.4	0.0147	0.121	0.133	-0.722	0.319
Perfluorononanoic acid (PFNA) (bennington landfill)	24	0	0.084	4.1	0.737	0.265	1.099	1.048	0.237	2.273	1.423
Perfluorononanoic acid (PFNA) (other)	83	2	0.11	1.3	0.369	0.28	0.0676	0.26	0.148	2.013	0.704
Perfluorononanoic acid (PFNA) (water street)	16	0	0.22	1.3	0.446	0.26	0.118	0.343	0.0593	1.842	0.768
Perfluorooctanesulfonic acid (PFOS) (background)	4	0	0.42	1.1	0.78	0.8	0.138	0.371	0.445	-0.0401	0.476
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	39	0	0.28	17	2.567	0.94	18.89	4.346	0.83	2.665	1.693
Perfluorooctanesulfonic acid (PFOS) (other)	96	2	0.28	4.4	0.927	0.73	0.45	0.671	0.4	2.563	0.724
Perfluorooctanesulfonic acid (PFOS) (water street)	7	0	0.76	1.9	1.173	1.1	0.138	0.372	0.297	1.276	0.317
Perfluorooctanoic acid (PFOA) (background)	10	0	0.37	7.2	2.197	1.55	4.055	2.014	1.275	1.915	0.917
Perfluorooctanoic acid (PFOA) (bennington landfill)	55	0	0.16	130	7.504	0.4	597.1	24.43	0.297	4.07	3.256
Perfluorooctanoic acid (PFOA) (other)	263	2	0.18	45	2.263	1.3	12.03	3.468	1.231	7.677	1.533
Perfluorooctanoic acid (PFOA) (water street)	64	0	0.49	30	6.162	3.95	44.7	6.686	4.374	1.968	1.085
Perfluoropentanoic acid (PFPeA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluoropentanoic acid (PFPeA) (bennington landfill)	4	0	0.17	1.1	0.513	0.39	0.188	0.434	0.304	1.081	0.847
Perfluoropentanoic acid (PFPeA) (other)	2	129	0.26	0.32	0.29	0.29	0.0018	0.0424	0.0445	N/A	0.146
Perfluoropentanoic acid (PFPeA) (water street)	0	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
radecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	8	0	0.2	1.3	0.499	0.32	0.166	0.408	0.119	1.532	0.817
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	10	2	0.37	1.9	0.772	0.495	0.26	0.51	0.17	1.446	0.661
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	23	0	0.35	93	18.46	6.9	607.9	24.66	9.414	1.91	1.336
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	6	0	0.15	0.39	0.258	0.24	0.0083	0.0911	0.0964	0.394	0.353
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	4	2	0.35	2.2	1.198	1.12	0.631	0.794	0.778	0.481	0.663
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	20	0	1.5	15	8.07	6.85	21.09	4.592	3.336	0.508	0.569
Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
rfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	11	0	0.2	1.6	0.501	0.34	0.186	0.431	0.208	2.046	0.861
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	36	2	0.21	2.8	0.644	0.43	0.366	0.605	0.17	2.478	0.94
Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	24	0	0.34	15	2.405	0.95	11.39	3.375	0.801	2.817	1.403

Percentiles using all Detects (Ds) and Non-Detects (NDs)											
Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Carbon, total organic (background)	18	0	726	1918	3055	5055	14033	25700	38830	53665	57133
Carbon, total organic (bennington landfill)	232	0	220.4	357.8	429.5	2030	13275	17080	29280	33840	467390
Carbon, total organic (other)	445	2	472.4	1782	2690	6950	14600	16260	22600	30220	44380
Carbon, total organic (water street)	74	0	588.3	1456	1620	4095	9840	12500	16610	19850	51821
Perfluorobutane sulfonate (PFBS) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
Perfluorobutane sulfonate (PFBS) (bennington landfill)	232	0	0.16	0.17	0.18	0.2	0.22	0.22	0.24	0.392	4.183
Perfluorobutane sulfonate (PFBS) (other)	445	2	0.2	0.21	0.21	0.23	0.57	0.59	0.636	0.66	0.71
Perfluorobutane sulfonate (PFBS) (water street)	74	0	0.53	0.54	0.54	0.57	0.6	0.61	0.627	0.64	1.235
Perfluorobutanoic acid (PFBA) (background)	18	0	0.21	0.21	0.213	0.235	0.338	0.368	0.517	0.674	0.783
Perfluorobutanoic acid (PFBA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.23	0.24	0.337	0.597	4.183
Perfluorobutanoic acid (PFBA) (other)	318	129	0.19	0.2	0.21	0.22	0.23	0.24	0.25	0.272	0.38
Perfluorobutanoic acid (PFBA) (water street)	0	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
Perfluorodecanoic acid (PFDA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.22	0.23	0.27	0.919	4.738
Perfluorodecanoic acid (PFDA) (other)	445	2	0.2	0.21	0.21	0.23	0.25	0.26	0.306	0.6	1.912
Perfluorodecanoic acid (PFDA) (water street)	74	0	0.21	0.22	0.223	0.25	0.72	0.952	1.97	4.11	17.6
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
rfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.22	0.23	0.26	0.842	4.676
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	445	2	0.2	0.21	0.21	0.23	0.46	0.48	0.51	0.54	1.256
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	74	0	0.423	0.43	0.44	0.48	1.775	3.6	10.7	15	33.97
Perfluoroheptanoic acid (PFHpA) (background)	18	0	0.21	0.21	0.21	0.225	0.278	0.304	0.333	0.403	0.689
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	232	0	0.16	0.172	0.18	0.2	0.22	0.22	0.24	0.505	4.183
Perfluoroheptanoic acid (PFHpA) (other)	445	2	0.2	0.21	0.21	0.23	0.35	0.36	0.38	0.4	0.572
Perfluoroheptanoic acid (PFHpA) (water street)	74	0	0.32	0.32	0.33	0.34	0.368	0.37	0.421	0.551	0.764
Perfluorohexane sulfonate (PFHxS) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	232	0	0.16	0.17	0.18	0.2	0.22	0.22	0.24	0.392	4.183
Perfluorohexane sulfonate (PFHxS) (other)	445	2	0.2	0.21	0.21	0.23	0.57	0.59	0.63	0.658	0.71
Perfluorohexane sulfonate (PFHxS) (water street)	74	0	0.53	0.54	0.54	0.57	0.6	0.61	0.627	0.64	1.235
Perfluorohexanoic acid (PFHxA) (background)	18	0	0.11	0.11	0.11	0.11	0.14	0.146	0.225	0.299	0.476
Perfluorohexanoic acid (PFHxA) (bennington landfill)	232	0	0.082	0.088	0.09	0.099	0.11	0.11	0.13	0.395	2.107
Perfluorohexanoic acid (PFHxA) (other)	445	2	0.099	0.1	0.1	0.11	0.23	0.24	0.26	0.378	0.641
Perfluorohexanoic acid (PFHxA) (water street)	74	0	0.21	0.216	0.22	0.23	0.24	0.25	0.267	0.345	0.779
Perfluorononanoic acid (PFNA) (background)	18	0	0.11	0.11	0.11	0.11	0.14	0.152	0.295	0.414	0.475
Perfluorononanoic acid (PFNA) (bennington landfill)	232	0	0.0821	0.089	0.091	0.1	0.11	0.11	0.14	0.425	2.338
Perfluorononanoic acid (PFNA) (other)	445	2	0.099	0.1	0.1	0.11	0.24	0.25	0.28	0.42	0.977
Perfluorononanoic acid (PFNA) (water street)	74	0	0.21	0.22	0.22	0.23	0.24	0.25	0.361	0.505	1.227
Perfluorooctanesulfonic acid (PFOS) (background)	18	0	0.32	0.32	0.32	0.335	0.418	0.462	0.68	1.1	1.1
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	232	0	0.25	0.27	0.27	0.3	0.343	0.368	0.927	1.88	13.61
Perfluorooctanesulfonic acid (PFOS) (other)	445	2	0.3	0.31	0.32	0.36	0.83	0.852	0.93	1.2	2.212
Perfluorooctanesulfonic acid (PFOS) (water street)	74	0	0.75	0.75	0.76	0.8	0.85	0.86	0.887	1.135	1.608
Perfluorooctanoic acid (PFOA) (background)	18	0	0.21	0.21	0.213	0.525	1.775	2.24	3.02	3.885	6.537
Perfluorooctanoic acid (PFOA) (bennington landfill)	232	0	0.17	0.18	0.18	0.21	0.233	0.26	0.546	1.245	53
Perfluorooctanoic acid (PFOA) (other)	445	2	0.2	0.21	0.22	0.43	1.6	2	3.6	5.68	9.648
Perfluorooctanoic acid (PFOA) (water street)	74	0	0.353	0.608	0.77	3.4	7.05	8.08	11.7	20.7	28.54
Perfluoropentanoic acid (PFPeA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
Perfluoropentanoic acid (PFPeA) (bennington landfill)	232	0	0.16	0.17	0.18	0.2	0.22	0.22	0.24	0.415	4.183
Perfluoropentanoic acid (PFPeA) (other)	318	129	0.19	0.2	0.21	0.22	0.23	0.23	0.25	0.26	0.28
Perfluoropentanoic acid (PFPeA) (water street)	0	74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
radecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.22	0.23	0.259	0.789	4.183
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	445	2	0.2	0.21	0.21	0.23	0.34	0.36	0.38	0.4	0.667
uorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	74	0	0.32	0.32	0.33	0.36	1.55	2.86	19.1	32.85	79.13
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.22	0.22	0.25	0.453	4.183
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	445	2	0.2	0.21	0.21	0.23	0.68	0.71	0.76	0.798	0.871
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	74	0	0.64	0.646	0.653	0.71	1.575	5.28	7.37	15	15
Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	18	0	0.21	0.21	0.21	0.225	0.263	0.276	0.333	0.345	0.365
rfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	232	0	0.16	0.18	0.18	0.2	0.22	0.23	0.26	0.789	4.183
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	445	2	0.2	0.21	0.21	0.23	0.35	0.36	0.39	0.42	1.094
Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	74	0	0.32	0.32	0.33	0.36	0.625	0.842	1.87	3.9	10.91

Attachment A.2

ProUCL Output: Summary Statistics – 0-1.5

	General Statistics on Uncensored Data	
Date/Time of Computation	ProUCL 5.13/8/2018 12:11:33 PM	
User Selected Options		
From File	ProUCL-180308_c.xls	
Full Precision	OFF	

From File: ProUCL-180308_c.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Aluminum (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	5690	6834748	2614	0.459
Aluminum (other)	50	0	50	0	0.00%	N/A	N/A	10041	25917542	5091	0.507
Antimony (bennington landfill)	30	0	20	10	33.33%	0.0782	0.107	0.154	0.00794	0.0891	0.578
Antimony (other)	50	0	46	4	8.00%	0.0693	0.108	0.214	0.0143	0.12	0.559
Arsenic (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	7.162	30.03	5.48	0.765
Arsenic (other)	50	0	50	0	0.00%	N/A	N/A	8.485	12.24	3.498	0.412
Barium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	46.97	286.1	16.91	0.36
Barium (other)	50	0	50	0	0.00%	N/A	N/A	90.71	40676	201.7	2.223
Beryllium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	0.294	0.0168	0.13	0.44
Beryllium (other)	50	0	50	0	0.00%	N/A	N/A	0.427	0.0316	0.178	0.416
Cadmium (bennington landfill)	30	0	29	1	3.33%	0.0369	0.0369	0.136	0.00393	0.0627	0.459
Cadmium (other)	50	0	50	0	0.00%	N/A	N/A	0.258	0.017	0.131	0.506
Calcium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	50422	1.036E+9	32190	0.638
Calcium (other)	50	0	50	0	0.00%	N/A	N/A	25668	7.117E+8	26678	1.039
Chromium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	7.106	8.318	2.884	0.406
Chromium (other)	50	0	50	0	0.00%	N/A	N/A	12.49	28.11	5.301	0.424
Cobalt (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	11.71	175.1	13.23	1.13
Cobalt (other)	50	0	50	0	0.00%	N/A	N/A	17.9	2399	48.98	2.737
Copper (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	15.2	49.87	7.062	0.465
Copper (other)	50	0	50	0	0.00%	N/A	N/A	21.29	143.2	11.97	0.562
Iron (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	15462	26615007	5159	0.334
Iron (other)	50	0	50	0	0.00%	N/A	N/A	22030	64373584	8023	0.364
Lead (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	13.46	99.42	9.971	0.741
Lead (other)	50	0	50	0	0.00%	N/A	N/A	31.68	389.6	19.74	0.623
Magnesium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	19621	1.125E+8	10607	0.541
Magnesium (other)	50	0	50	0	0.00%	N/A	N/A	13030	93028816	9645	0.74
Manganese (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	455.5	71519	267.4	0.587
Manganese (other)	50	0	50	0	0.00%	N/A	N/A	934.9	4090452	2022	2.163
Nickel (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	12.04	16.66	4.082	0.339
Nickel (other)	50	0	50	0	0.00%	N/A	N/A	19.1	105.5	10.27	0.538
Potassium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	872.9	126604	355.8	0.408
Potassium (other)	50	0	50	0	0.00%	N/A	N/A	1225	268438	518.1	0.423
Selenium (bennington landfill)	30	0	28	2	6.67%	0.103	0.107	0.225	0.03	0.173	0.769
Selenium (other)	50	0	40	10	20.00%	0.085	0.342	0.231	0.0107	0.104	0.448
Silver (bennington landfill)	30	0	22	8	26.67%	0.0245	0.0335	0.437	1.229	1.109	2.535
Silver (other)	50	0	45	5	10.00%	0.0217	0.0334	0.152	0.0882	0.297	1.957
Sodium (bennington landfill)	30	0	27	3	10.00%	13.3	17.9	34.39	100.2	10.01	0.291
Sodium (other)	50	0	50	0	0.00%	N/A	N/A	149.7	14742	121.4	0.811
Thallium (bennington landfill)	30	0	28	2	6.67%	0.0971	0.102	0.144	0.00387	0.0622	0.433
Thallium (other)	50	0	50	0	0.00%	N/A	N/A	0.341	1.6	1.265	3.706
Vanadium (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	9.727	23	4.796	0.493
Vanadium (other)	50	0	50	0	0.00%	N/A	N/A	15.39	28.43	5.332	0.346
Zinc (bennington landfill)	30	0	30	0	0.00%	N/A	N/A	41.87	602	24.54	0.586
Zinc (other)	50	0	50	0	0.00%	N/A	N/A	66.75	651.9	25.53	0.383

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Aluminum (bennington landfill)	30	0	2280	11100	5690	5335	6834748	2614	3024	0.515	0.459
Aluminum (other)	50	0	1240	22200	10041	8610	25917542	5091	4841	0.665	0.507
Antimony (bennington landfill)	20	0	0.0894	0.417	0.19	0.158	0.00855	0.0924	0.0689	1.154	0.487
Antimony (other)	46	0	0.0873	0.627	0.226	0.212	0.0141	0.119	0.0964	1.559	0.527

Arsenic (bennington landfill)	30	0	3.46	34.9	7.162	6.045	30.03	5.48	1.586	4.758	0.765
Arsenic (other)	50	0	2.54	17	8.485	7.87	12.24	3.498	3.61	0.377	0.412
Barium (bennington landfill)	30	0	19	78.2	46.97	53.75	286.1	16.91	18.53	-0.0987	0.36
Barium (other)	50	0	15.9	1470	90.71	58.6	40676	201.7	22.09	6.791	2.223
Beryllium (bennington landfill)	30	0	0.128	0.616	0.294	0.257	0.0168	0.13	0.102	0.993	0.44
Beryllium (other)	50	0	0.112	0.834	0.427	0.417	0.0316	0.178	0.129	0.657	0.416
Cadmium (bennington landfill)	29	0	0.0698	0.306	0.14	0.111	0.00384	0.062	0.035	1.154	0.443
Cadmium (other)	50	0	0.0457	0.568	0.258	0.239	0.017	0.131	0.139	0.549	0.506
Calcium (bennington landfill)	30	0	70.1	108000	50422	53450	1.036E+9	32190	39214	-0.159	0.638
Calcium (other)	50	0	545	90000	25668	16050	7.117E+8	26678	22157	0.979	1.039
Chromium (bennington landfill)	30	0	2.9	12.6	7.106	6.21	8.318	2.884	2.365	0.466	0.406
Chromium (other)	50	0	3.92	26.5	12.49	11.9	28.11	5.301	3.351	0.861	0.424
Cobalt (bennington landfill)	30	0	4.75	79.7	11.71	9.14	175.1	13.23	2.824	4.996	1.13
Cobalt (other)	50	0	2.02	355	17.9	10.25	2399	48.98	4.455	6.924	2.737
Copper (bennington landfill)	30	0	6.89	33.7	15.2	13.65	49.87	7.062	6.071	1.2	0.465
Copper (other)	50	0	4.09	56.2	21.29	18.5	143.2	11.97	8.525	1.205	0.562
Iron (bennington landfill)	30	0	8500	30000	15462	14600	26615007	5159	4893	0.892	0.334
Iron (other)	50	0	6130	40700	22030	21700	64373584	8023	8451	0.272	0.364
Lead (bennington landfill)	30	0	4.07	42.2	13.46	10.45	99.42	9.971	4.04	2.004	0.741
Lead (other)	50	0	6.06	81.1	31.68	24.7	389.6	19.74	15.94	0.96	0.623
Magnesium (bennington landfill)	30	0	517	36500	19621	20550	1.125E+8	10607	12750	-0.31	0.541
Magnesium (other)	50	0	530	44900	13030	10750	93028816	9645	8895	1.209	0.74
Manganese (bennington landfill)	30	0	219	1690	455.5	404.5	71519	267.4	159.4	3.563	0.587
Manganese (other)	50	0	144	14700	934.9	600.5	4090452	2022	294.3	6.698	2.163
Nickel (bennington landfill)	30	0	6.64	24.3	12.04	11.75	16.66	4.082	3.047	1.325	0.339
Nickel (other)	50	0	4.25	45.2	19.1	17.05	105.5	10.27	8.673	0.913	0.538
Potassium (bennington landfill)	30	0	431	1750	872.9	803.5	126604	355.8	329.9	1.031	0.408
Potassium (other)	50	0	413	2790	1225	1195	268438	518.1	392.9	0.844	0.423
Selenium (bennington landfill)	28	0	0.0934	0.981	0.235	0.177	0.0319	0.179	0.0801	3.019	0.761
Selenium (other)	40	0	0.0976	0.451	0.258	0.254	0.00936	0.0968	0.116	0.108	0.376
Silver (bennington landfill)	22	0	0.0263	5.47	0.587	0.0689	1.668	1.292	0.0607	3.13	2.199
Silver (other)	45	0	0.026	1.87	0.166	0.09	0.0982	0.313	0.064	4.43	1.889
Sodium (bennington landfill)	27	0	23.2	56.8	36.73	37.1	58.66	7.659	5.041	0.413	0.209
Sodium (other)	50	0	42.7	567	149.7	90	14742	121.4	51.96	1.573	0.811
Thallium (bennington landfill)	28	0	0.0359	0.252	0.149	0.15	0.00385	0.0621	0.0667	0.00413	0.417
Thallium (other)	50	0	0.0314	9.06	0.341	0.149	1.6	1.265	0.0704	6.959	3.706
Vanadium (bennington landfill)	30	0	3.51	22.2	9.727	8.315	23	4.796	3.958	1.041	0.493
Vanadium (other)	50	0	4.64	27.6	15.39	15.4	28.43	5.332	3.781	0.194	0.346
Zinc (bennington landfill)	30	0	14	133	41.87	35.8	602	24.54	12.31	2.284	0.586
Zinc (other)	50	0	13.4	140	66.75	64.65	651.9	25.53	25.43	0.315	0.383

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Aluminum (bennington landfill)	30	0	2450	3274	3400	5335	7365	7970	9430	10441	11042
Aluminum (other)	50	0	4286	5878	6465	8610	12775	13320	18420	20165	21416
Antimony (bennington landfill)	30	0	0.0906	0.0924	0.0941	0.125	0.189	0.201	0.278	0.34	0.403
Antimony (other)	50	0	0.0958	0.114	0.127	0.178	0.268	0.291	0.353	0.39	0.613
Arsenic (bennington landfill)	30	0	4.403	4.778	5.338	6.045	7.118	7.368	8.972	10.06	27.82
Arsenic (other)	50	0	4.138	5.45	6.19	7.87	10.88	11.08	12.74	13.69	16.95
Barium (bennington landfill)	30	0	26	28.38	32.05	53.75	56.53	58.96	65.35	72.65	76.72
Barium (other)	50	0	25.75	41.38	45.08	58.6	74.7	82.74	111.4	130.9	840.8
Beryllium (bennington landfill)	30	0	0.178	0.193	0.199	0.257	0.342	0.422	0.487	0.539	0.605
Beryllium (other)	50	0	0.228	0.268	0.294	0.417	0.489	0.505	0.705	0.789	0.824
Cadmium (bennington landfill)	30	0	0.0802	0.0926	0.096	0.11	0.179	0.191	0.229	0.251	0.292
Cadmium (other)	50	0	0.108	0.145	0.15	0.239	0.339	0.368	0.428	0.492	0.558
Calcium (bennington landfill)	30	0	3994	10130	25750	53450	73275	79680	85630	99875	105970
Calcium (other)	50	0	1045	1520	1960	16050	39050	40700	65790	79585	89657
Chromium (bennington landfill)	30	0	3.558	4.844	5.145	6.21	9.593	10.34	11.51	11.93	12.48
Chromium (other)	50	0	5.799	9.206	9.615	11.9	13.98	14.76	20.41	22.87	26.16
Cobalt (bennington landfill)	30	0	6.353	6.79	7.14	9.14	10.6	11.18	12.79	18.87	62.24
Cobalt (other)	50	0	4.989	6.444	7.703	10.25	13.35	14.96	17.81	19.81	198.9
Copper (bennington landfill)	30	0	7.665	9.276	11.03	13.65	17.9	18.76	24.73	30.23	33.29

Copper (other)	50	0	9.695	12.56	13.3	18.5	24.28	28.54	40.37	46.14	53.41
Iron (bennington landfill)	30	0	9263	11340	11600	14600	18375	19180	20800	24490	28637
Iron (other)	50	0	11960	15120	16200	21700	27275	29400	31910	36530	38838
Lead (bennington landfill)	30	0	6.214	7.586	7.875	10.45	13.2	14.18	29.1	38.26	41.74
Lead (other)	50	0	11.57	15.34	16.9	24.7	42.08	51.44	57.88	71.93	81
Magnesium (bennington landfill)	30	0	4108	7790	11475	20550	28075	30460	32120	33365	35630
Magnesium (other)	50	0	3389	4890	5705	10750	17875	19300	28450	31165	38677
Manganese (bennington landfill)	30	0	249.7	300	322.5	404.5	520	537.2	647.3	685.8	1401
Manganese (other)	50	0	291	389.8	411.3	600.5	799.5	876.6	1061	1725	8521
Nickel (bennington landfill)	30	0	7.356	8.912	9.33	11.75	13.25	13.78	15.42	20.28	23.6
Nickel (other)	50	0	8.113	10.26	12.65	17.05	23.55	24.66	35.3	40.31	44.02
Potassium (bennington landfill)	30	0	462.6	549.4	660.8	803.5	1053	1082	1303	1655	1736
Potassium (other)	50	0	528.8	761.2	974.3	1195	1465	1540	1694	2194	2712
Selenium (bennington landfill)	30	0	0.111	0.122	0.124	0.158	0.248	0.287	0.361	0.468	0.849
Selenium (other)	50	0	0.111	0.143	0.163	0.237	0.313	0.337	0.366	0.409	0.443
Silver (bennington landfill)	30	0	0.0284	0.0299	0.0304	0.0549	0.183	0.225	1.075	2.34	4.745
Silver (other)	50	0	0.0288	0.0332	0.0374	0.0739	0.118	0.129	0.278	0.455	1.483
Sodium (bennington landfill)	30	0	22.67	27.18	28.85	36.4	39.6	40.62	42.1	48.89	55.26
Sodium (other)	50	0	53.43	57.12	60.88	90	202	236.4	324.8	382.7	509.7
Thallium (bennington landfill)	30	0	0.0779	0.0918	0.0983	0.146	0.194	0.201	0.231	0.242	0.251
Thallium (other)	50	0	0.0712	0.0832	0.0991	0.149	0.19	0.197	0.236	0.406	5.059
Vanadium (bennington landfill)	30	0	4.007	6.178	6.44	8.315	12.6	12.86	15.81	18.93	21.97
Vanadium (other)	50	0	8.676	11.18	12.68	15.4	17.8	18.34	23	24.73	26.91
Zinc (bennington landfill)	30	0	20.59	27.94	28.83	35.8	44.93	47.28	62.52	90.04	122.3
Zinc (other)	50	0	35.09	49.6	51.65	64.65	87.73	89.2	97.31	106.7	124.8

	General Statistics on Uncensored Data	
Date/Time of Computation	ProUCL 5.13/8/2018 12:12:44 PM	
User Selected Options		
From File	ProUCL-180308_d.xls	
Full Precision	OFF	

From File: ProUCL-180308_d.xls

General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Carbon, total organic (background)	12	0	12	0	0.00%	N/A	N/A	19258	3.952E+8	19879	1.032
Carbon, total organic (bennington landfill)	66	0	66	0	0.00%	N/A	N/A	47168	1.275E+10	112901	2.394
Carbon, total organic (other)	255	1	253	2	0.78%	221	242	14057	93820732	9686	0.689
Carbon, total organic (water street)	36	0	34	2	5.56%	109	169	7569	60519152	7779	1.028
Perfluorobutane sulfonate (PFBS) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (bennington landfill)	66	0	0	66	100.00%	0.14	5.5	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (other)	254	2	1	253	99.61%	0.15	1.5	0.157	0.0134	0.116	0.737
Perfluorobutane sulfonate (PFBS) (water street)	36	0	1	35	97.22%	0.51	1.1	0.54	0.0321	0.179	0.332
Perfluorobutanoic acid (PFBA) (background)	12	0	8	4	33.33%	0.21	0.24	0.364	0.0334	0.183	0.502
Perfluorobutanoic acid (PFBA) (bennington landfill)	66	0	14	52	78.79%	0.14	4.4	0.387	1.015	1.007	2.606
Perfluorobutanoic acid (PFBA) (other)	154	102	26	128	83.12%	0.15	0.28	0.175	0.00307	0.0554	0.317
Perfluorobutanoic acid (PFBA) (water street)	0	36	0	0	NaN%	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (bennington landfill)	66	0	9	57	86.36%	0.14	5.5	0.335	0.477	0.691	2.065
Perfluorodecanoic acid (PFDA) (other)	254	2	56	198	77.95%	0.15	0.6	0.287	0.234	0.484	1.687
Perfluorodecanoic acid (PFDA) (water street)	36	0	21	15	41.67%	0.2	0.43	0.701	0.735	0.857	1.224
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
uorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	66	0	7	59	89.39%	0.14	5.5	0.24	0.16	0.4	1.663
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	254	2	19	235	92.52%	0.15	1.2	0.208	0.0678	0.26	1.255
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	36	0	18	18	50.00%	0.41	0.86	3.693	39.28	6.268	1.697
Perfluoroheptanoic acid (PFHpA) (background)	12	0	2	10	83.33%	0.21	0.34	0.267	0.0232	0.152	0.57
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	66	0	6	60	90.91%	0.14	4.4	0.425	2.037	1.427	3.359
Perfluoroheptanoic acid (PFHpA) (other)	254	2	15	239	94.09%	0.15	0.89	0.169	0.0055	0.0742	0.44
Perfluoroheptanoic acid (PFHpA) (water street)	36	0	5	31	86.11%	0.3	0.64	0.34	0.02	0.142	0.416
Perfluorohexane sulfonate (PFHxS) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	66	0	0	66	100.00%	0.14	5.5	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (other)	254	2	0	254	100.00%	0.15	1.5	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (water street)	36	0	1	35	97.22%	0.51	1.1	0.54	0.0321	0.179	0.332
Perfluorohexanoic acid (PFHxA) (background)	12	0	5	7	58.33%	0.1	0.14	0.165	0.014	0.118	0.716
Perfluorohexanoic acid (PFHxA) (bennington landfill)	66	0	8	58	87.88%	0.07	2.2	0.285	1.045	1.022	3.588
Perfluorohexanoic acid (PFHxA) (other)	254	2	40	214	84.25%	0.075	0.6	0.127	0.0191	0.138	1.09
Perfluorohexanoic acid (PFHxA) (water street)	36	0	7	29	80.56%	0.2	0.43	0.254	0.0414	0.204	0.802
Perfluorononanoic acid (PFNA) (background)	12	0	3	9	75.00%	0.1	0.16	0.17	0.0172	0.131	0.77
Perfluorononanoic acid (PFNA) (bennington landfill)	66	0	18	48	72.73%	0.071	2.2	0.276	0.421	0.649	2.351
Perfluorononanoic acid (PFNA) (other)	254	2	76	178	70.08%	0.075	0.6	0.166	0.0367	0.192	1.156
Perfluorononanoic acid (PFNA) (water street)	36	0	9	27	75.00%	0.2	0.43	0.277	0.0613	0.248	0.895
Perfluorooctanesulfonic acid (PFOS) (background)	12	0	4	8	66.67%	0.31	0.49	0.468	0.0833	0.289	0.617
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	66	0	31	35	53.03%	0.21	6.6	1.295	9.119	3.02	2.331
Perfluorooctanesulfonic acid (PFOS) (other)	254	2	89	165	64.96%	0.23	2.1	0.512	0.266	0.515	1.007
Perfluorooctanesulfonic acid (PFOS) (water street)	36	0	5	31	86.11%	0.71	1.5	0.776	0.047	0.217	0.28
Perfluorooctanoic acid (PFOA) (background)	12	0	8	4	33.33%	0.21	0.24	1.793	3.781	1.944	1.084
Perfluorooctanoic acid (PFOA) (bennington landfill)	66	0	38	28	42.42%	0.15	0.23	6.162	497.3	22.3	3.619
Perfluorooctanoic acid (PFOA) (other)	254	2	187	67	26.38%	0.15	0.89	1.93	12.23	3.497	1.812
Perfluorooctanoic acid (PFOA) (water street)	36	0	33	3	8.33%	0.32	0.32	4.567	23.25	4.822	1.056
Perfluoropentanoic acid (PFPeA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
Perfluoropentanoic acid (PFPeA) (bennington landfill)	66	0	4	62	93.94%	0.14	5.5	0.166	0.0176	0.133	0.798
Perfluoropentanoic acid (PFPeA) (other)	154	102	2	152	98.70%	0.15	0.28	0.152	2.6497E-4	0.0163	0.107
Perfluoropentanoic acid (PFPeA) (water street)	0	36	0	0	NaN%	N/A	N/A	N/A	N/A	N/A	N/A
otetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
decanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	66	0	4	62	93.94%	0.14	5.5	0.163	0.0127	0.112	0.691
erfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	254	2	10	244	96.06%	0.15	0.89	0.175	0.0239	0.155	0.885
otetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	36	0	15	21	58.33%	0.3	0.64	9.964	450.8	21.23	2.131
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
luorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	66	0	3	63	95.45%	0.14	5.5	0.146	7.1010E-4	0.0266	0.182
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	254	2	4	250	98.43%	0.15	1.8	0.167	0.0246	0.157	0.939
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	36	0	14	22	61.11%	0.61	1.3	3.834	25.78	5.078	1.324

Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	12	0	0	12	100.00%	0.21	0.37	N/A	N/A	N/A	N/A
ıoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	66	0	8	58	87.88%	0.14	5.5	0.179	0.0172	0.131	0.731
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	254	2	36	218	85.83%	0.15	0.89	0.224	0.08	0.283	1.262
Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	36	0	15	21	58.33%	0.3	0.64	0.842	2.503	1.582	1.879

General Statistics for Raw Data Sets using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Carbon, total organic (background)	12	0	2980	58000	19258	9210	3.952E+8	19879	8540	1.134	1.032
Carbon, total organic (bennington landfill)	66	0	1170	512000	47168	16000	1.275E+10	112901	14440	3.572	2.394
Carbon, total organic (other)	253	1	405	52600	14166	12700	93406370	9665	9429	1.237	0.682
Carbon, total organic (water street)	34	0	434	35000	8008	5400	62449534	7903	5715	1.548	0.987
Perfluorobutane sulfonate (PFBS) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (bennington landfill)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorobutane sulfonate (PFBS) (other)	1	2	2	2	2	2	N/A	N/A	0	N/A	N/A
Perfluorobutane sulfonate (PFBS) (water street)	1	0	1.6	1.6	1.6	1.6	N/A	N/A	0	N/A	N/A
Perfluorobutanoic acid (PFBA) (background)	8	0	0.28	0.81	0.441	0.365	0.0368	0.192	0.111	1.304	0.435
Perfluorobutanoic acid (PFBA) (bennington landfill)	14	0	0.2	6	1.284	0.255	4.039	2.01	0.0741	2.064	1.565
Perfluorobutanoic acid (PFBA) (other)	26	102	0.2	0.41	0.282	0.27	0.00376	0.0613	0.0519	0.776	0.218
Perfluorobutanoic acid (PFBA) (water street)	0	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (bennington landfill)	9	0	0.3	4.6	1.491	1.2	2.013	1.419	1.275	1.452	0.951
Perfluorodecanoic acid (PFDA) (other)	56	2	0.2	4.3	0.762	0.445	0.786	0.886	0.289	2.805	1.164
Perfluorodecanoic acid (PFDA) (water street)	21	0	0.24	4.5	1.056	0.73	1.004	1.002	0.682	2.206	0.949
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ıorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	7	0	0.14	2.8	1.026	1.1	0.84	0.917	1.112	1.275	0.894
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	19	2	0.26	2.4	0.887	0.59	0.423	0.65	0.474	1.054	0.733
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	18	0	0.48	31	6.976	4.15	60.37	7.77	4.596	1.907	1.114
Perfluoroheptanoic acid (PFHpA) (background)	2	0	0.32	0.76	0.54	0.54	0.0968	0.311	0.326	N/A	0.576
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	6	0	0.18	10	3.235	1.315	16.43	4.054	1.668	1.207	1.253
Perfluoroheptanoic acid (PFHpA) (other)	15	2	0.25	0.68	0.419	0.37	0.0203	0.143	0.133	0.729	0.34
Perfluoroheptanoic acid (PFHpA) (water street)	5	0	0.36	1.1	0.584	0.51	0.093	0.305	0.222	1.681	0.522
Perfluorohexane sulfonate (PFHxS) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (other)	0	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorohexane sulfonate (PFHxS) (water street)	1	0	1.6	1.6	1.6	1.6	N/A	N/A	0	N/A	N/A
Perfluorohexanoic acid (PFHxA) (background)	5	0	0.14	0.52	0.256	0.21	0.0241	0.155	0.089	1.729	0.607
Perfluorohexanoic acid (PFHxA) (bennington landfill)	8	0	0.12	7.1	1.83	0.495	6.734	2.595	0.549	1.589	1.418
Perfluorohexanoic acid (PFHxA) (other)	40	2	0.1	0.94	0.384	0.34	0.0414	0.204	0.23	0.804	0.53
Perfluorohexanoic acid (PFHxA) (water street)	7	0	0.23	1.4	0.474	0.3	0.178	0.422	0.0593	2.331	0.89
Perfluorononanoic acid (PFNA) (background)	3	0	0.25	0.49	0.38	0.4	0.0147	0.121	0.133	-0.722	0.319
Perfluorononanoic acid (PFNA) (bennington landfill)	18	0	0.084	4.1	0.806	0.405	1.219	1.104	0.443	2.328	1.37
Perfluorononanoic acid (PFNA) (other)	76	2	0.11	1.3	0.357	0.265	0.069	0.263	0.141	2.187	0.735
Perfluorononanoic acid (PFNA) (water street)	9	0	0.22	1.3	0.502	0.24	0.199	0.447	0.0297	1.312	0.889
Perfluorooctanesulfonic acid (PFOS) (background)	4	0	0.42	1.1	0.78	0.8	0.138	0.371	0.445	-0.0401	0.476
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	31	0	0.28	17	2.482	0.94	17.24	4.153	0.83	2.803	1.673
Perfluorooctanesulfonic acid (PFOS) (other)	89	2	0.28	4.4	0.916	0.72	0.475	0.689	0.385	2.597	0.752
Perfluorooctanesulfonic acid (PFOS) (water street)	5	0	0.76	1.9	1.162	1.1	0.202	0.45	0.371	1.404	0.387
Perfluorooctanoic acid (PFOA) (background)	8	0	0.68	7.2	2.585	2.2	4.332	2.081	1.631	1.796	0.805
Perfluorooctanoic acid (PFOA) (bennington landfill)	38	0	0.16	130	10.59	0.42	839.7	28.98	0.326	3.29	2.737
Perfluorooctanoic acid (PFOA) (other)	187	2	0.18	45	2.564	1.5	15.17	3.895	1.423	7.375	1.519
Perfluorooctanoic acid (PFOA) (water street)	33	0	0.49	20	4.953	3.9	24.31	4.931	3.41	1.861	0.996
Perfluoropentanoic acid (PFPeA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluoropentanoic acid (PFPeA) (bennington landfill)	4	0	0.17	1.1	0.513	0.39	0.188	0.434	0.304	1.081	0.847
Perfluoropentanoic acid (PFPeA) (other)	2	102	0.26	0.32	0.29	0.29	0.0018	0.0424	0.0445	N/A	0.146
Perfluoropentanoic acid (PFPeA) (water street)	0	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ɒtetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	4	0	0.2	0.97	0.465	0.345	0.12	0.346	0.148	1.676	0.745
erfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	10	2	0.37	1.9	0.772	0.495	0.26	0.51	0.17	1.446	0.661
ɒtetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	15	0	0.44	93	23.49	12	823.1	28.69	16.31	1.464	1.221
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
luorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	3	0	0.15	0.33	0.227	0.2	0.00863	0.0929	0.0741	1.185	0.41
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	4	2	0.35	2.2	1.198	1.12	0.631	0.794	0.778	0.481	0.663
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	14	0	1.5	15	8.9	7.35	26.17	5.116	6.597	0.119	0.575
Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ıoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	8	0	0.2	1	0.416	0.38	0.0715	0.267	0.2	1.684	0.642
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	36	2	0.21	2.8	0.644	0.43	0.366	0.605	0.17	2.478	0.94

Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	15	0	0.34	9.4	1.597	0.86	5.389	2.321	0.371	3.102	1.453

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Carbon, total organic (background)	12	0	3925	4014	4135	9210	32575	32740	50890	55195	57439
Carbon, total organic (bennington landfill)	66	0	3715	6170	8223	16000	29475	31200	41600	378000	491200
Carbon, total organic (other)	255	1	4006	5964	6490	12700	19650	21300	26640	32030	46988
Carbon, total organic (water street)	36	0	883.5	1480	1753	4845	10825	13100	17900	20900	30485
Perfluorobutane sulfonate (PFBS) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
Perfluorobutane sulfonate (PFBS) (bennington landfill)	66	0	0.15	0.17	0.18	0.2	0.22	0.23	0.87	3.05	5.045
Perfluorobutane sulfonate (PFBS) (other)	254	2	0.2	0.21	0.22	0.24	0.6	0.62	0.65	0.674	0.744
Perfluorobutane sulfonate (PFBS) (water street)	36	0	0.53	0.53	0.54	0.56	0.59	0.59	0.625	0.755	1.425
Perfluorobutanoic acid (PFBA) (background)	12	0	0.21	0.216	0.233	0.3	0.4	0.444	0.631	0.722	0.792
Perfluorobutanoic acid (PFBA) (bennington landfill)	66	0	0.155	0.17	0.18	0.21	0.23	0.25	0.985	3.15	5.87
Perfluorobutanoic acid (PFBA) (other)	154	102	0.19	0.2	0.21	0.22	0.24	0.25	0.267	0.294	0.389
Perfluorobutanoic acid (PFBA) (water street)	0	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perfluorodecanoic acid (PFDA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
Perfluorodecanoic acid (PFDA) (bennington landfill)	66	0	0.16	0.18	0.18	0.21	0.238	0.32	1.75	4.225	5.045
Perfluorodecanoic acid (PFDA) (other)	254	2	0.2	0.21	0.22	0.23	0.26	0.27	0.577	0.764	2.952
Perfluorodecanoic acid (PFDA) (water street)	36	0	0.21	0.21	0.22	0.3	0.898	1.1	1.8	2.025	3.66
Perfluorododecanoic acid (PFDoA / PFDoDA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
ıorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)	66	0	0.155	0.18	0.18	0.21	0.23	0.29	1.15	3.475	5.045
Perfluorododecanoic acid (PFDoA / PFDoDA) (other)	254	2	0.2	0.21	0.22	0.24	0.49	0.504	0.53	0.577	1.741
Perfluorododecanoic acid (PFDoA / PFDoDA) (water street)	36	0	0.42	0.43	0.43	0.595	4.025	5	12	14.25	25.4
Perfluoroheptanoic acid (PFHpA) (background)	12	0	0.21	0.21	0.21	0.255	0.323	0.328	0.339	0.529	0.714
Perfluoroheptanoic acid (PFHpA) (bennington landfill)	66	0	0.15	0.17	0.18	0.2	0.22	0.23	0.87	3.225	7.66
Perfluoroheptanoic acid (PFHpA) (other)	254	2	0.2	0.21	0.22	0.25	0.36	0.37	0.39	0.41	0.623
Perfluoroheptanoic acid (PFHpA) (water street)	36	0	0.32	0.32	0.32	0.34	0.36	0.36	0.45	0.603	0.939
Perfluorohexane sulfonate (PFHxS) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
Perfluorohexane sulfonate (PFHxS) (bennington landfill)	66	0	0.15	0.17	0.18	0.2	0.22	0.23	0.87	3.05	5.045
Perfluorohexane sulfonate (PFHxS) (other)	254	2	0.2	0.21	0.22	0.24	0.6	0.62	0.65	0.67	0.719
Perfluorohexane sulfonate (PFHxS) (water street)	36	0	0.53	0.53	0.54	0.56	0.59	0.59	0.625	0.755	1.425
Perfluorohexanoic acid (PFHxA) (background)	12	0	0.11	0.11	0.11	0.13	0.165	0.198	0.255	0.377	0.491
Perfluorohexanoic acid (PFHxA) (bennington landfill)	66	0	0.0765	0.087	0.091	0.1	0.11	0.12	0.485	1.825	5.41
Perfluorohexanoic acid (PFHxA) (other)	254	2	0.1	0.11	0.11	0.12	0.25	0.26	0.29	0.514	0.655
Perfluorohexanoic acid (PFHxA) (water street)	36	0	0.21	0.21	0.21	0.225	0.24	0.24	0.31	0.46	1.103
Perfluorononanoic acid (PFNA) (background)	12	0	0.11	0.11	0.11	0.13	0.183	0.232	0.385	0.441	0.48
Perfluorononanoic acid (PFNA) (bennington landfill)	66	0	0.08	0.092	0.0935	0.11	0.148	0.27	0.815	1.775	3.515
Perfluorononanoic acid (PFNA) (other)	254	2	0.1	0.11	0.11	0.18	0.25	0.26	0.357	0.511	1.1
Perfluorononanoic acid (PFNA) (water street)	36	0	0.21	0.21	0.218	0.22	0.24	0.24	0.335	0.788	1.265
Perfluorooctanesulfonic acid (PFOS) (background)	12	0	0.32	0.32	0.32	0.385	0.493	0.498	1.04	1.1	1.1
Perfluorooctanesulfonic acid (PFOS) (bennington landfill)	66	0	0.24	0.28	0.3	0.34	1	1.3	4	6.375	16.35
Perfluorooctanesulfonic acid (PFOS) (other)	254	2	0.3	0.33	0.33	0.63	0.88	0.894	1.07	1.4	2.8
Perfluorooctanesulfonic acid (PFOS) (water street)	36	0	0.74	0.75	0.75	0.785	0.823	0.84	0.995	1.275	1.76
Perfluorooctanoic acid (PFOA) (background)	12	0	0.21	0.216	0.233	1.1	2.525	2.8	3.26	5.055	6.771
Perfluorooctanoic acid (PFOA) (bennington landfill)	66	0	0.165	0.18	0.19	0.215	0.53	0.67	2.9	44.5	117
Perfluorooctanoic acid (PFOA) (other)	254	2	0.21	0.22	0.303	0.895	2.375	2.9	4.47	6.97	10.94
Perfluorooctanoic acid (PFOA) (water street)	36	0	0.51	0.66	0.94	3.7	5.5	6.9	10.5	13.25	20
Perfluoropentanoic acid (PFPeA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
Perfluoropentanoic acid (PFPeA) (bennington landfill)	66	0	0.15	0.17	0.18	0.2	0.22	0.23	0.87	3.05	5.045
Perfluoropentanoic acid (PFPeA) (other)	154	102	0.19	0.2	0.21	0.22	0.23	0.234	0.25	0.26	0.28
Perfluoropentanoic acid (PFPeA) (water street)	0	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
otetradecanoic acid (PFTA / PFTeDA / PFTeA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
ecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)	66	0	0.155	0.18	0.18	0.21	0.23	0.24	0.92	3.05	5.045
erfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (other)	254	2	0.2	0.21	0.22	0.24	0.36	0.374	0.397	0.424	0.989
otetradecanoic acid (PFTA / PFTeDA / PFTeA) (water street)	36	0	0.32	0.32	0.32	0.345	5.325	12	32.5	55.25	86.35
Perfluorotridecanoic acid (PFTrDA / PFTriA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
luorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)	66	0	0.15	0.17	0.18	0.2	0.22	0.23	0.87	3.05	5.045
Perfluorotridecanoic acid (PFTrDA / PFTriA) (other)	254	2	0.2	0.21	0.22	0.24	0.728	0.744	0.78	0.82	1.14
Perfluorotridecanoic acid (PFTrDA / PFTriA) (water street)	36	0	0.63	0.64	0.64	0.695	6.725	7.3	15	15	15
Perfluoroundecanoic acid (PFUnA / PFUnDA) (background)	12	0	0.21	0.21	0.21	0.235	0.293	0.32	0.339	0.354	0.367
ıoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)	66	0	0.16	0.18	0.18	0.21	0.23	0.3	0.925	3.05	5.045
Perfluoroundecanoic acid (PFUnA / PFUnDA) (other)	254	2	0.2	0.21	0.22	0.24	0.37	0.38	0.417	0.53	1.582
Perfluoroundecanoic acid (PFUnA / PFUnDA) (water street)	36	0	0.32	0.32	0.32	0.35	0.688	0.86	1.05	2.975	7.23

Appendix D.1b

Statistical Evaluation: Groundwater

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BARR

Technical Memorandum

To: File
From: Stephanie Theriault and Denise Levitan
Subject: Statistical Evaluation: Groundwater
Date: March 9, 2018
Project: Saint-Gobain Performance Plastics CSM Site Investigation

Introduction

Groundwater quality data collected as part of the CSM site investigation (CSM SI) and site investigation activities in 2016 at the former Water Street Chemfab facility (Water Street SI; C.T. Male, 2016) were evaluated to determine what, if any, differences (or similarities) in water quality exist between Bennington Landfill (landfill), Water Street, and locations elsewhere in the investigation area (non-landfill or other; these data exclude both landfill and former Water Street facility samples). It is important to note that the analyses described in this memo included investigation data only, and any findings from these analyses may not necessarily be consistent with findings from analyses including a more comprehensive groundwater data set (e.g., private well sampling data). Additionally, only the latest sample collected from the bedrock wells completed as part of the CSM Site Investigation and from the Water Street monitoring wells (December 2016) was included in the analysis.

Water samples were collected during the CSM SI from permanent and temporary monitoring wells that were installed at 29 locations and six previously existing landfill monitoring wells. Samples were collected during the Water Street SI from the eleven monitoring wells completed at seven locations around the Water Street property. One sample from the landfill leachate vault was collected and evaluated as part of the groundwater analytical results. Of the temporary and permanent monitoring well samples, 15 were collected at locations outside of the landfill, 19 at the landfill, and one at a background location. Five of the landfill samples were collected from bedrock monitoring wells.

The primary analyses of the groundwater quality data included a groundwater-type analysis (using major cation and anion concentrations) and a statistical evaluation consisting of calculation of summary statistics, box-and-whisker data plotting, and analysis of variance (ANOVA) testing. The evaluation was conducted on the two sets of two groups of data (representing landfill and non-landfill areas and Water Street and non-Water Street areas), with focus on PFOA and PFOS concentrations, and including investigation data only. For the purposes of this investigation, comparisons were not made to background groundwater quality or the leachate vault as only one sample of each was available at the time of evaluation. The methodology and results of the analyses are discussed below.

Methods

Water Type Analysis

In order to determine the "type" of groundwater a sample represents, relative concentrations of major cations and anions are plotted on Stiff and Piper diagrams. Stiff diagrams are plots presenting water chemistry as shapes reflecting the geochemical signature of the water sample and allowing for a visual

comparison of water types between samples. Piper diagrams are plots of major ion chemistry that are used to differentiate between water types, and to identify potential mixing of water types (Helsel and Hirsch, 2002). The comparisons of water type provided by Stiff and Piper plots can be used to evaluate spatial differences in water chemistry (depth and/or distance).

Statistical Evaluation

A statistical evaluation of the groundwater data from the investigation was performed using ProUCL Version 5.1.002 software (U.S. EPA, 2016). ProUCL was specifically chosen for the evaluation due to its ability to properly account for datasets with a high proportion of non-detect concentrations.

Summary Statistics

The summary statistics calculated for the dataset include concentrations for minimum, maximum, a measure of central tendency (an average or alternate measure for datasets for which there may be limitations affecting calculations of averages), the total number of samples collected, and the percentage of values reported as non-detect. For the purposes of this analysis, investigation data were divided into four groups: Bennington Landfill, Water Street, non-landfill (which is also non-Water Street), and background. The background group contains only one sample. The parameters analyzed include PFAS, target-analyte-list (TAL) metals/cations (including cyanide and mercury), anions, ammonia, orthophosphate, total Kjeldahl nitrogen, 1,4-dioxane, and VOCs. Not all of these parameters were available for analysis for all samples.

The measure of central tendency for each parameter-group pair was determined using the decision process outlined in Table 1 below. These decisions are based on regulatory technical documents, including the EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance; U.S. EPA, 2009), the ProUCL Version 5.1.002 Technical Guide: Statistical Software for Environmental Applications for Data Sets with and without Non-detect Observations (ProUCL Technical Guide; U.S. EPA, 2015), and the ITRC Guidance Document: Groundwater Statistics and Monitoring Compliance (ITRC Guidance; ITRC, 2013). Additionally, for the purpose of this analysis, non-detects were included in the calculation of the measure of central tendency at the detection limit.

Table 1 Summary of Non-Substitution Approaches for Measures of Central Tendency

Sample Size	Non-Detect Frequency	Measure of Central Tendency	Citations
All	0%	Arithmetic mean	For datasets with no non-detects, the Kaplan-Meier mean is equal to the arithmetic mean (Helsel, 2012).
	≤50%	Kaplan-Meier (KM) mean	• Kaplan Meier recommended (U.S. EPA 2009, pg. 15-3) *"The guidance generally favors the use of the …Kaplan-Meier or Robust ROS* [regression on order statistics] *methods which can address the problem of multiple detection limits"* • Robust ROS ruled out (U.S. EPA 2009, pg. 8-24) Robust ROS underlying assumptions: *"Data must be normal or normalized…"* • Limit at 50% non-detects (U.S. EPA 2009, pg. 8-23) *"Kaplan-Meier should not be used when more than 50% of the data are non-detects."*

Sample Size	Non-Detect Frequency	Measure of Central Tendency	Citations
	>51%	Median value. If median is a non-detect, report as a less-than value	• Site-specific method (U.S. EPA 2015, sec. 1.12): *"For data sets with low detection frequencies, other measures such as the median or mode represent better estimates (with lesser uncertainty) of the population measure of central tendency."*
	100%	Not reported (n/a)	For datasets with no detected data, no measure of central tendency will be reported.

Box-and-Whisker Plots

Box-and-whisker plots were created for the PFAS compounds. These plots visually illustrate the spread of a dataset and can be used to discern group differences. Box-and-whisker plots consist of a central box, with the lower limit of the box indicating the first quartile (25th percentile of the data) and the upper limit of the box indicating the third quartile (75th percentile of the data). The height of the box (the difference between the first and third quartiles) is called the interquartile range. Within the box is a heavy line indicating the median (50th percentile of the data). Extending in each direction from the box are "whiskers," which extend to values within one and a half times the interquartile range from each end of the box. Values beyond the whiskers are potential outliers.

ANOVA

The non-parametric ANOVA Tarone-Ware Test was used to assess whether statistically significant differences existed among groupings. An alpha value of 0.05 was used to assess the significance of the results. The Tarone-Ware Test is appropriate for datasets that are not normally distributed and contain non-detects (U.S. EPA, 2015). This test was used to determine if the PFOA and PFOS median concentrations at the Bennington Landfill are less than or equal to the median concentrations within the non-landfill samples and whether PFOA and PFOS median concentrations at the former Water Street Chemfab facility are less than or equal to the median concentrations within the non-Water Street samples.

Results

Groundwater Type

Based on the results of the Piper diagrams (Figure 1), the majority of the groundwater samples collected at Water Street, Bennington Landfill, and outside of the landfill for the investigations are characterized as calcium-bicarbonate type water. The background sample (BG4) is also a calcium-bicarbonate type water. This suggests that most of the investigation groundwater samples were collected from a chemically similar source, such as the same aquifer. Notable exceptions are non-landfill samples D03 (calcium-chloride type), S08 (mixed), and S49 (sodium-chloride type); Water Street samples MW05 (sodium-chloride type), MW04, MW04S, MW06, and MW06S (mixed); and landfill samples S28 and B-2-2 (both sodium-chloride type). D03 and S08 are both located along the northern edge of Corrective Action Area II (CAAII) and S49 is the farthest south groundwater sample, located just outside of the southern edge of CAAII along a stream. Additionally, S28 is the easternmost sample collected at the landfill, located along Hewitt Brook; B-2-2 is also east of the landfill, south of the leachate collection system. The leachate sample, although not a groundwater sample, is characterized as a sodium-bicarbonate type. The mixed-type and sodium-chloride water compositions found in several of the Water Street and non-landfill wells are consistent with nearby road salting.

The Stiff diagrams (Figure 2) for the investigation groundwater samples also support these water-type characterizations; the majority of the samples display a similar shape except for the Piper diagram outliers (D03, S08, S28, S49, B-2-2, MW04, MW04S, MW05, MW06, and MW06S) and the leachate vault.

Statistical Evaluation

Summary Statistics

Within the CSM SI data, a large proportion of the PFAS compounds were non-detect (i.e., below quantifiable laboratory detection limits). Only two PFAS compounds were detected in the background sample (BG4): perfluoroheptanoic acid (PFHpA) at 0.9 J ng/L and PFOA at 6 ng/L. Outside of the Bennington Landfill and away from Water Street, PFOS concentrations ranged from non-detect (<0.8) to 23 ng/L at S03 and PFOA concentrations ranged from 5 to 850 ng/L at S34. S03 is located beyond the northern boundary of CAAII, within the Town of Shaftsbury. S34 is located on the eastern side of Corrective Action Area I (CAAI), along the Walloomsac River, just north of VT 279. Based on the proportion of non-detect results in samples collected outside of the landfill, the measure of central tendency for PFOS is 4.7 ng/L (KM mean) and for PFOA is 129.9 ng/L (arithmetic mean).

Within Bennington Landfill, PFOS concentrations in investigation groundwater samples from the unconsolidated aquifer ranged from 2 J to 12 ng/L and PFOA concentrations ranged from 12 to 160 ng/L. The highest concentration of PFOS in a groundwater sample from the landfill area was at S28 (12 ng/L), which is east of the landfill near Hewitt Brook. The highest concentrations of PFOA in groundwater samples from the landfill was at SG3-MW17-01 (160 ng/L), which is located downgradient (east) of the leachate vault. The concentrations of PFOS and PFOA in the leachate vault were 35 J and 4,700 ng/L, respectively. Based on the proportion of non-detect results in samples collected in the landfill, the measure of central tendency for PFOS is 5.2 ng/L (KM mean) and for PFOA is 67.2 ng/L (arithmetic mean). Results of the summary statistics are in Table 2. Associated ProUCL outputs are included in Attachment A.

The bedrock monitoring wells within the Bennington Landfill area had PFOS concentrations ranging from non-detect (<0.4) to 2 J ng/L and PFOA concentrations ranging from <0.6 B to 160 ng/L. The highest concentrations of PFOS, PFOA, and several other PFAS compounds were detected in SG3-MW17-BR2, which is located directly downgradient (southwest) of the capped landfill extent. Based on the proportion of non-detect results in bedrock well samples collected at the landfill, the measure of central tendency for PFOS is <0.7 ng/L (median) and for PFOA is 48.3 ng/L (KM mean). Results of the summary statistics are in Table 2. Associated ProUCL outputs are included in Attachment A. When groundwater samples from the unconsolidated and bedrock aquifers at Bennington Landfill are combined, the PFOA KM mean is 3.8 ng/L, and the PFOA KM mean is 62.2 ng/L.

Among the wells at Water Street, PFOS concentrations ranged from non-detect (<2) to 17 ng/L and PFOA concentrations ranged from 59 to 4800 ng/L. The second-highest PFOS concentration (14 ng/L) and the highest concentrations of PFOA and several other PFAS compounds were found in well MW02. Based on the proportion of non-detect results in samples collected at Water Street, the measure of central tendency for PFOS is 4.6 ng/L (KM mean) and for PFOA is 1,700 ng/L (arithmetic mean). Results of the summary statistics are summarized in Table 2. Associated ProUCL outputs are included in Attachment A.

Box-and-Whisker Plots

Box-and-whisker plots of PFAS concentrations grouped by location are shown on Figure 3. No differences between Bennington Landfill and non-landfill samples for the PFAS compounds are apparent on these plots. Concentrations of several PFAS compounds are noticeably greater in the Water Street groundwater samples than in groundwater from other locations. It is notable, however, that the median and range of PFOS concentrations in the Water Street samples do not appear different from other areas.

ANOVA

The median concentrations of PFOS and PFOA in investigation samples collected at Bennington Landfill and outside the landfill were compared, using the unconsolidated aquifer samples and samples from all wells. No statistically significant differences were found between the samples collected outside of the landfill and groundwater samples collected from monitoring wells located at the landfill, both exclusive and inclusive of bedrock well samples. ANOVA results are included in Attachment B.

The median concentrations of PFOS and PFOA in investigation samples collected at the former Water Street Chemfab facility and away from the facility were compared. All non-Water Street samples were considered together in the comparison because no statistically significant differences were found among them. The median concentration of PFOS in Water Street samples was not significantly different from the concentration in non-Water Street samples. However, the concentration of PFOA in the Water Street samples was significantly different than the concentration in non-Water Street samples.

Summary

The majority of groundwater samples collected across the investigation area are characterized as calcium-bicarbonate type water, except for a few samples collected along the edges of the investigation area and at the southern edge of the former Water Street Chemfab facility. These results suggest that the water samples were collected from a chemically similar source of water, such as the same aquifer.

The distributions of PFOS and PFOA concentrations were similar between Bennington Landfill and non-landfill locations (excluding wells at the former Water Street Chemfab facility), despite relatively large differences in individual PFOA concentrations. For PFOA, the highest concentrations (excluding the Water Street and leachate vault results) are located throughout the investigation area, with concentrations greater than 200 ng/L at S34 (south; non-landfill), D03 (north; non-landfill), and SG3-MW17-05 (south; non-landfill) and a maximum landfill concentration of 160 ng/L at SG3-MW17-BR2. Concentrations of PFOA at the former Water Street facility are greater than 200 ng/L in samples from all wells except MW07, with a maximum of 4,800 ng/L in MW02. For PFOS, the highest groundwater concentrations measured were located along the outer edges of the investigation areas and at Water Street, with concentrations greater than 10 ng/L at S03 (north; non-landfill), S41 (south; non-landfill), S28 (east; Bennington Landfill), MW02 (Water Street), and MW05 (Water Street).

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Attachments

Table 1	Summary of Non-Substitution Approaches for Measures of Central Tendency (in text)
Table 2	Summary Statistics
Figure 1	Piper Diagrams
Figure 2	Stiff Diagrams
Figure 3	Box-and-Whisker Plots
Attachment A	ProUCL Output: Summary Statistics
Attachment B	ProUCL Output: ANOVA

Table

Appendix D.1b, Table 2a
Summary Statistics - General Parameters
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

General (mg/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
Alkalinity, bicarbonate, as CaCO3	Background	1	1	0	0.0%	N/A	N/A	43.4	43.4	43.4	N/A	NR	43.4
Alkalinity, bicarbonate, as CaCO3	Bennington Landfill	19	19	0	0.00%	N/A	N/A	28.1	642	302.6	N/A	NR	302.6
Alkalinity, bicarbonate, as CaCO3	Other	14	14	0	0.00%	N/A	N/A	126	429	273.4	N/A	NR	273.4
Alkalinity, bicarbonate, as CaCO3	Water Street	11	11	0	0.00%	N/A	N/A	168	589	317.4	N/A	NR	317.4
Alkalinity, carbonate, as CaCO3	Background	1	0	1	100.0%	1.7	1.7	N/A	N/A	N/A	N/A	NR	N/A
Alkalinity, carbonate, as CaCO3	Bennington Landfill	19	0	19	100.00%	1.7	1.7	N/A	N/A	N/A	N/A	NR	N/A
Alkalinity, carbonate, as CaCO3	Other	14	0	14	100.00%	1.7	1.7	N/A	N/A	N/A	N/A	NR	N/A
Alkalinity, carbonate, as CaCO3	Water Street	11	0	11	100.00%	1.7	1.7	N/A	N/A	N/A	N/A	NR	N/A
Alkalinity, total, as CaCO3	Background	1	1	0	0.0%	N/A	N/A	43.4	43.4	43.4	N/A	NR	43.4
Alkalinity, total, as CaCO3	Bennington Landfill	19	19	0	0.00%	N/A	N/A	28.1	642	302.6	N/A	NR	302.6
Alkalinity, total, as CaCO3	Other	14	14	0	0.00%	N/A	N/A	126	429	273.4	N/A	NR	273.4
Alkalinity, total, as CaCO3	Water Street	11	11	0	0.00%	N/A	N/A	168	589	317.4	N/A	NR	317.4
Bromide	Background	1	0	1	100.0%	1.3	1.3	N/A	N/A	N/A	N/A	NR	N/A
Bromide	Bennington Landfill	19	0	19	100.00%	1.3	1.3	N/A	N/A	N/A	N/A	NR	N/A
Bromide	Other	14	1	13	92.86%	1.3	1.3	3.3	3.3	3.3	1.443	<1.3	<1.3
Chloride	Background	1	1	0	0.0%	N/A	N/A	1.8	1.8	1.8	N/A	NR	1.8
Chloride	Bennington Landfill	19	19	0	0.00%	N/A	N/A	1	293	45.84	N/A	NR	45.84
Chloride	Other	14	14	0	0.00%	N/A	N/A	4.4	881	145.5	N/A	NR	145.5
Chloride	Water Street	11	11	0	0.00%	N/A	N/A	5.8	526	217.2	N/A	NR	217.2
Cyanide	Bennington Landfill	19	0	19	100.00%	0.005	0.005	N/A	N/A	N/A	N/A	NR	N/A
Cyanide	Water Street	11	0	11	100.00%	0.005	0.005	N/A	N/A	N/A	N/A	NR	N/A
Nitrogen, ammonia, as N	Background	1	0	1	100.0%	0.05	0.05	N/A	N/A	N/A	N/A	NR	N/A
Nitrogen, ammonia, as N	Bennington Landfill	19	9	10	52.63%	0.05	0.05	0.069	1.2	0.377	0.205	<0.05	<0.05
Nitrogen, ammonia, as N	Other	14	7	7	50.00%	0.05	0.05	0.052	0.26	0.113	0.0817	NR	0.0817
Nitrogen, nitrate, as N	Background	1	1	0	0.0%	N/A	N/A	1.1	1.1	1.1	N/A	NR	1.1
Nitrogen, nitrate, as N	Bennington Landfill	19	6	13	68.42%	0.25	0.25	0.4	0.88	0.583	0.355	<0.25	<0.25
Nitrogen, nitrate, as N	Other	14	7	7	50.00%	0.25	0.25	0.28	6	1.667	0.959	NR	0.959
Nitrogen, nitrite, as N	Background	1	0	1	100.0%	0.25	0.25	N/A	N/A	N/A	N/A	NR	N/A
Nitrogen, nitrite, as N	Bennington Landfill	19	0	19	100.00%	0.25	0.25	N/A	N/A	N/A	N/A	NR	N/A
Nitrogen, nitrite, as N	Other	14	0	14	100.00%	0.25	25	N/A	N/A	N/A	N/A	NR	N/A
Nitrogen, total kjeldahl	Bennington Landfill	19	6	13	68.42%	0.5	1.3	1	7.4	3.067	1.313	<0.5	<0.5
Nitrogen, total kjeldahl	Other	14	3	11	78.57%	0.5	0.5	0.63	2.1	1.16	0.641	<0.5	<0.5
Nitrogen, total kjeldahl (TKN)	Background	1	0	1	100.0%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Orthophosphate, as P	Background	1	0	1	100.0%	0.03	0.03	N/A	N/A	N/A	N/A	NR	N/A
Orthophosphate, as P	Bennington Landfill	19	5	14	73.68%	0.03	0.03	0.044	0.22	0.117	0.0529	<0.03	<0.03
Orthophosphate, as P	Other	14	1	13	92.86%	0.03	0.03	0.052	0.052	0.052	0.0316	<0.03	<0.03
Sulfate, as SO4	Background	1	1	0	0.0%	N/A	N/A	9.1	9.1	9.1	N/A	NR	9.1
Sulfate, as SO4	Bennington Landfill	19	19	0	0.00%	N/A	N/A	4.2	16.7	8.316	N/A	NR	8.316
Sulfate, as SO4	Other	14	14	0	0.00%	N/A	N/A	3.8	39.3	16.13	N/A	NR	16.13
Sulfate, as SO4	Water Street	11	11	0	0.00%	N/A	N/A	14.3	30.8	21.8	N/A	NR	21.8

[1] Median value not reported for parameter-location pairs with <51% NDs or 100% NDs

Appendix D.1b, Table 2b
Summary Statistics - Metals
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Metals (mg/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
Aluminum	Background	1	1	0	0.00%	N/A	N/A	5.53	5.53	5.53	N/A	NR	5.53
Aluminum	Bennington Landfill	19	5	14	73.68%	0.0868	0.0894	0.225	5.47	3.433	0.967	<0.0894	<0.0894
Aluminum	Other	14	13	1	7.14%	0.0894	0.0894	0.127	86	8.193	7.614	NR	7.614
Aluminum	Water Street	11	0	11	100.00%	0.0868	0.176	N/A	N/A	N/A	N/A	NR	N/A
Antimony	Background	1	0	1	100.00%	4.50E-04	4.50E-04	N/A	N/A	N/A	N/A	NR	N/A
Antimony	Bennington Landfill	19	4	15	78.95%	4.50E-04	4.80E-04	6.60E-04	0.0019	0.00123	6.15E-04	<0.00045	<0.00045
Antimony	Other	14	2	12	85.71%	4.50E-04	4.50E-04	4.60E-04	8.20E-04	6.40E-04	4.77E-04	<0.00045	<0.00045
Antimony	Water Street	11	0	11	100.00%	4.80E-04	4.80E-04	N/A	N/A	N/A	N/A	NR	N/A
Arsenic	Background	1	1	0	0.00%	N/A	N/A	0.0014	0.0014	0.0014	N/A	NR	0.0014
Arsenic	Bennington Landfill	19	9	10	52.63%	6.80E-04	7.20E-04	0.0012	0.0132	0.00639	0.00338	<0.00072	<0.00072
Arsenic	Other	14	9	5	35.71%	7.20E-04	7.20E-04	8.20E-04	0.0747	0.0112	0.00744	NR	0.00744
Arsenic	Water Street	11	1	10	90.91%	6.80E-04	6.80E-04	6.90E-03	0.0069	0.0069	0.00125	<0.00000668	<0.00000668
Barium	Background	1	1	0	0.00%	N/A	N/A	0.094	0.094	0.094	N/A	NR	0.094
Barium	Bennington Landfill	19	19	0	0.00%	N/A	N/A	0.0097	0.883	0.229	N/A	NR	0.229
Barium	Other	14	14	0	0.00%	N/A	N/A	0.0104	0.43	0.0956	N/A	NR	0.0956
Barium	Water Street	11	11	0	0.00%	N/A	N/A	0.011	0.267	0.065	0.065	NR	0.065
Beryllium	Background	1	1	0	0.00%	N/A	N/A	2.50E-04	2.50E-04	2.50E-04	N/A	NR	0.00025
Beryllium	Bennington Landfill	19	5	14	73.68%	7.10E-05	1.10E-04	1.90E-04	0.0011	5.46E-04	1.96E-04	<0.000071	<0.000071
Beryllium	Other	14	4	10	71.43%	7.10E-05	7.10E-05	1.50E-04	0.0029	0.00101	3.39E-04	<0.000071	<0.000071
Beryllium	Water Street	11	0	11	100.00%	1.10E-04	1.10E-04	N/A	N/A	N/A	N/A	NR	N/A
Boron	Background	1	1	0	0.00%	N/A	N/A	0.0162	0.0162	0.0162	N/A	NR	0.0162
Boron	Bennington Landfill	19	6	13	68.42%	0.0083	0.0101	0.018	0.156	0.0748	0.0293	<0.0101	<0.0101
Boron	Other	14	9	5	35.71%	0.0101	0.0101	0.0113	0.0324	0.018	0.0152	NR	0.0152
Cadmium	Background	1	0	1	100.00%	1.50E-04	1.50E-04	N/A	N/A	N/A	N/A	NR	N/A
Cadmium	Bennington Landfill	19	4	15	78.95%	1.50E-04	1.90E-04	2.00E-04	3.30E-04	2.55E-04	1.72E-04	<0.00015	<0.00015
Cadmium	Other	14	4	10	71.43%	1.50E-04	1.50E-04	2.20E-04	0.0013	5.43E-04	2.62E-04	<0.00015	<0.00015
Cadmium	Water Street	11	0	11	100.00%	1.90E-04	1.90E-04	N/A	N/A	N/A	N/A	NR	N/A
Calcium	Background	1	1	0	0.00%	N/A	N/A	12.7	12.7	12.7	N/A	NR	12.7
Calcium	Bennington Landfill	19	19	0	0.00%	N/A	N/A	2.36	269	89.37	N/A	NR	89.37
Calcium	Other	14	14	0	0.00%	N/A	N/A	36.2	1010	152.8	N/A	NR	152.8
Calcium	Water Street	11	11	0	0.00%	N/A	N/A	38.7	141	91.94	91.94	NR	91.94
Chromium	Background	1	1	0	0.00%	N/A	N/A	0.0075	0.0075	0.0075	N/A	NR	0.0075
Chromium	Bennington Landfill	19	9	10	52.63%	5.90E-04	8.70E-04	6.00E-04	0.0193	0.00378	0.0021	<0.00087	<0.00087
Chromium	Other	14	6	8	57.14%	8.70E-04	0.0019	9.50E-04	0.0795	0.0187	0.00852	<0.00091	<0.00091
Chromium	Water Street	11	4	7	63.64%	5.90E-04	5.90E-04	6.10E-04	0.00086	0.0007375	0.000644	<0.0000059	<0.0000059
Cobalt	Background	1	1	0	0.00%	N/A	N/A	0.0058	0.0058	0.0058	N/A	NR	0.0058
Cobalt	Bennington Landfill	19	15	4	21.05%	1.60E-04	2.00E-04	1.60E-04	0.0402	0.0132	0.0105	NR	0.0105
Cobalt	Other	14	13	1	7.14%	1.60E-04	1.60E-04	1.60E-04	0.0654	0.0007375	0.00805	NR	0.00805
Cobalt	Water Street	11	6	5	45.45%	2.00E-04	2.00E-04	2.10E-04	0.0033	0.00121	0.000753	NR	0.00075273
Copper	Background	1	1	0	0.00%	N/A	N/A	0.009	0.009	0.009	N/A	NR	0.009
Copper	Bennington Landfill	19	10	9	47.37%	5.20E-04	5.40E-04	9.40E-04	0.0741	0.017	0.0092	NR	0.0092
Copper	Other	14	11	3	21.43%	5.40E-04	5.40E-04	0.001	0.199	0.0235	0.0186	NR	0.0186
Copper	Water Street	11	1	10	90.91%	5.20E-04	6.70E-04	0.00084	0.00084	0.0005491	0.00084	<0.0000052	<0.0000052
Iron	Background	1	1	0	0.00%	N/A	N/A	6.86	6.86	6.86	N/A	NR	6.86
Iron	Bennington Landfill	19	13	6	31.58%	0.0747	0.0805	0.0861	46.4	8.315	5.713	NR	5.713
Iron	Other	14	13	1	7.14%	0.0805	0.0805	0.158	259	23.47	21.8	NR	21.8
Iron	Water Street	11	4	7	63.64%	0.0747	0.0747	0.0854	3.49	0.945	0.391	<0.000747	<0.000747
Lead	Background	1	1	0	0.00%	N/A	N/A	0.0022	0.0022	0.0022	N/A	NR	0.0022
Lead	Bennington Landfill	19	10	9	47.37%	9.00E-05	1.10E-04	2.20E-04	0.059	0.00898	0.00477	NR	0.00477
Lead	Other	14	13	1	7.14%	1.10E-04	1.10E-04	2.00E-04	0.15	0.0145	0.0134	NR	0.0134
Lead	Water Street	11	5	6	54.55%	9.00E-05	9.00E-05	1.30E-04	0.00042	0.000218	0.000148	<0.0000009	<0.0000009
Magnesium	Background	1	1	0	0.00%	N/A	N/A	6.1	6.1	6.1	N/A	NR	6.1
Magnesium	Bennington Landfill	19	19	0	0.00%	N/A	N/A	1.54	97.5	23.71	N/A	NR	23.71
Magnesium	Other	14	14	0	0.00%	N/A	N/A	8.8	483	58.76	N/A	NR	58.76
Magnesium	Water Street	11	11	0	0.00%	N/A	N/A	16.7	36.2	27.73	27.73	NR	27.73
Manganese	Background	1	1	0	0.00%	N/A	N/A	0.302	0.302	0.302	N/A	NR	0.302
Manganese	Bennington Landfill	19	19	0	0.00%	N/A	N/A	0.0016	2.37	0.736	N/A	NR	0.736
Manganese	Other	14	14	0	0.00%	N/A	N/A	0.009	5.37	0.852	N/A	NR	0.852
Manganese	Water Street	11	10	1	9.09%	0.00088	0.00088	0.0017	0.809	0.0885	0.0806	NR	0.0806
Mercury	Background	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NR	NR
Mercury	Bennington Landfill	19	2	17	89.47%	5.00E-05	5.00E-05	1.00E-04	1.30E-04	1.15E-04	5.68E-05	<0.00005	<0.00005
Mercury	Water Street	11	0	11	100.00%	5.00E-05	5.00E-05	N/A	N/A	N/A	N/A	NR	N/A
Nickel	Background	1	1	0	0.00%	N/A	N/A	0.007	0.007	0.007	N/A	NR	0.007
Nickel	Bennington Landfill	19	13	6	31.58%	8.50E-04	0.001	0.0013	0.0237	0.00703	0.00508	NR	0.00508
Nickel	Other	14	10	4	28.57%	0.001	0.001	0.0012	0.123	0.0187	0.0136	NR	0.0136
Nickel	Water Street	11	2	9	81.82%	0.00085	0.00085	0.00093	0.0034	0.00217	0.00109	<0.0000085	<0.0000085
Potassium	Background	1	1	0	0.00%	N/A	N/A	6.58	6.58	6.58	N/A	NR	6.58
Potassium	Bennington Landfill	19	19	0	0.00%	N/A	N/A	0.762	14.8	3.419	N/A	NR	3.419
Potassium	Other	14	14	0	0.00%	N/A	N/A	0.902	17.7	3.242	N/A	NR	3.242
Potassium	Water Street	11	11	0	0.00%	1.12	2.01	N/A	N/A	1.461	1.461	NR	1.461
Selenium	Background	1	0	1	100.00%	5.00E-04	5.00E-04	N/A	N/A	N/A	N/A	NR	N/A
Selenium	Bennington Landfill	19	1	18	94.74%	4.40E-04	5.00E-04	8.40E-04	8.40E-04	8.40E-04	4.61E-04	<0.0005	<0.0005
Selenium	Other	14	3	11	78.57%	5.00E-04	5.00E-04	5.70E-04	0.0026	0.00179	7.76E-04	<0.0005	<0.0005
Selenium	Water Street	11	7	4	36.36%	4.40E-04	4.40E-04	5.80E-04	0.002	0.0009843	7.86E-04	NR	0.00078636
Silver	Background	1	0	1	100.00%	1.50E-04	1.50E-04	N/A	N/A	N/A	N/A	NR	N/A
Silver	Bennington Landfill	19	2	17	89.47%	1.20E-04	1.50E-04	1.60E-04	3.20E-04	2.40E-04	1.33E-04	<0.00015	<0.00015
Silver	Other	14	2	12	85.71%	1.50E-04	1.50E-04	2.40E-04	0.0013	7.70E-04	2.39E-04	<0.00015	<0.00015
Silver	Water Street	11	0	11	100.00%	1.20E-04	1.20E-04	N/A	N/A	N/A	N/A	NR	N/A
Sodium	Background	1	1	0	0.00%	N/A	N/A	4.1	4.1	4.1	N/A	NR	4.1
Sodium	Bennington Landfill	19	18	1	5.26%	0.914	0.914	1.33	202	34.51	32.74	NR	32.74
Sodium	Other	14	14	0	0.00%	N/A	N/A	1.92	472	80.94	N/A	NR	80.94
Sodium	Water Street	11	11	0	0.00%	N/A	N/A	6.11	366	103.9	103.9	NR	103.9
Thallium	Background	1	1	0	0.00%	N/A	N/A	1.50E-04	1.50E-04	1.50E-04	N/A	NR	0.00015
Thallium	Bennington Landfill	19	8	11	57.89%	1.20E-04	1.60E-04	1.50E-04	0.0013	4.20E-04	2.47E-04	<0.00016	<0.00016
Thallium	Other	14	3	11	78.57%	1.20E-04	1.20E-04	2.20E-04	0.0012	5.70E-04	2.16E-04	<0.00012	<0.00012
Thallium	Water Street	11	0	11	100.00%	1.60E-04	1.60E-04	N/A	N/A	N/A	N/A	NR	N/A
Vanadium	Background	1	1	0	0.00%	N/A	N/A	0.0134	0.0134	0.0134	N/A	NR	0.0134
Vanadium	Bennington Landfill	19	8	11	57.89%	2.00E-04	2.80E-04	2.50E-04	0.0199	0.00353	0.0016	<0.00026	<0.00026
Vanadium	Other	14	13	1	7.14%	2.10E-04	2.10E-04	2.60E-04	0.0836	0.0089	0.00828	NR	0.00828
Vanadium	Water Street	11	6	5	45.45%	2.00E-04	2.00E-04	2.20E-04	0.00048	0.0003367	0.000275	NR	0.00027455
Zinc	Background	1	1	0	0.00%	N/A	N/A	0.0173	0.0173	0.0173	N/A	NR	0.0173
Zinc	Bennington Landfill	19	8	11	57.89%	0.0054	0.0065	0.0162	1.64	0.261	0.113	<0.0065	<0.0065
Zinc	Other	14	5	9	64.29%	0.0065	0.0065	0.0069	0.559	0.127	0.0496	<0.0065	<0.0065
Zinc	Water Street	11	0	11	100.00%	0.0054	0.0054	N/A	N/A	N/A	N/A	NR	N/A

[1] Median value not reported for parameter-location pairs with <51% NDs or 100% NDs

Appendix D.1b, Table 2c
Summary Statistics - PFAS
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

PFAS (ng/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
6:2 Fluorotelomer sulfonate (6:2 FTS)	Bennington Landfill	19	0	19	100.00%	3	7	N/A	N/A	N/A	N/A	NR	N/A
6:2 Fluorotelomer sulfonate (6:2 FTS)	Other	15	0	15	100.00%	3	7	N/A	N/A	N/A	N/A	NR	N/A
6:2 Fluorotelomer sulfonate (6:2 FTS)	Background	1	0	1	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
8:2 Fluorotelomer sulfonate (8:2 FTS)	Bennington Landfill	19	0	19	100.00%	2	5	N/A	N/A	N/A	N/A	NR	N/A
8:2 Fluorotelomer sulfonate (8:2 FTS)	Other	15	0	15	100.00%	2	5	N/A	N/A	N/A	N/A	NR	N/A
8:2 Fluorotelomer sulfonate (8:2 FTS)	Background	1	0	1	100.00%	4	4	N/A	N/A	N/A	N/A	NR	N/A
l perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	Bennington Landfill	19	1	18	94.74%	0.4	1	0.6	0.6	0.6	0.45	<1	<1
l perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	Other	15	0	15	100.00%	0.4	1	N/A	N/A	N/A	N/A	NR	N/A
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	Background	1	0	1	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
yl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	Bennington Landfill	19	0	19	100.00%	0.4	1	N/A	N/A	N/A	N/A	NR	N/A
yl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	Other	15	0	15	100.00%	0.4	1	N/A	N/A	N/A	N/A	NR	N/A
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	Background	1	0	1	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Perfluorobutane sulfonate (PFBS)	Bennington Landfill	19	11	8	42.11%	0.3	0.8	0.7	7	1.973	1.285	NR	1.285
Perfluorobutane sulfonate (PFBS)	Other	15	7	8	53.33%	0.3	0.8	0.8	4	2.086	1.133	<0.8	<0.8
Perfluorobutane sulfonate (PFBS)	Background	1	0	1	100.00%	0.8	0.8	N/A	N/A	N/A	N/A	NR	N/A
Perfluorobutane sulfonate (PFBS)	Water Street	11	10	1	9.09%	0.7	0.7	0.7	3	1.85	1.745	NR	1.745
Perfluorobutanoic acid (PFBA)	Bennington Landfill	19	12	7	36.84%	2	3	3	42	10.75	7.526	NR	7.526
Perfluorobutanoic acid (PFBA)	Other	15	10	5	33.33%	3	5	3	280	33.6	23.4	NR	23.4
Perfluorobutanoic acid (PFBA)	Background	1	0	1	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Perfluorodecanoic acid (PFDA)	Bennington Landfill	19	2	17	89.47%	0.4	1	2	3	2.5	0.621	<0.5	<0.5
Perfluorodecanoic acid (PFDA)	Other	15	3	12	80.00%	0.4	1	0.9	5	2.3	0.783	<0.5	<0.5
Perfluorodecanoic acid (PFDA)	Background	1	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorodecanoic acid (PFDA)	Water Street	11	6	5	45.45%	0.5	0.5	0.7	63	14.28	8.018	NR	8.018
Perfluorododecanoic acid (PFDoA / PFDoDA)	Bennington Landfill	19	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A	NR	N/A
Perfluorododecanoic acid (PFDoA / PFDoDA)	Other	15	1	14	93.33%	0.3	0.7	6	6	6	0.68	<0.5	<0.5
Perfluorododecanoic acid (PFDoA / PFDoDA)	Background	1	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorododecanoic acid (PFDoA / PFDoDA)	Water Street	11	1	10	90.91%	0.5	0.5	4	4	4	0.818	<0.005	<0.005
Perfluoroheptanoic acid (PFHpA)	Bennington Landfill	19	16	3	15.79%	0.3	0.5	0.8	39	8.675	7.353	NR	7.353
Perfluoroheptanoic acid (PFHpA)	Other	15	14	1	6.67%	0.5	0.5	1	57	11.21	10.5	NR	10.5
Perfluoroheptanoic acid (PFHpA)	Background	1	1	0	0.00%	N/A	N/A	0.9	0.9	0.9	N/A	NR	0.9
Perfluoroheptanoic acid (PFHpA)	Water Street	11	11	0	0.00%	N/A	N/A	2	110	57	57	NR	57
Perfluorohexane sulfonate (PFHxS)	Bennington Landfill	19	9	10	52.63%	0.4	1	0.8	10	2.644	1.481	<1	<1
Perfluorohexane sulfonate (PFHxS)	Other	15	4	11	73.33%	0.4	1	1	2	1.5	0.693	<1	<1
Perfluorohexane sulfonate (PFHxS)	Background	1	0	1	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Perfluorohexane sulfonate (PFHxS)	Water Street	11	4	7	63.64%	1	1	1	2	1.75	1.273	<0.01	<0.01
Perfluorohexanoic acid (PFHxA)	Bennington Landfill	19	14	5	26.32%	0.3	0.6	0.4	38	9.514	7.092	NR	7.092
Perfluorohexanoic acid (PFHxA)	Other	15	14	1	6.67%	0.6	0.6	0.9	71	11.34	10.63	NR	10.63
Perfluorohexanoic acid (PFHxA)	Background	1	0	1	100.00%	0.6	0.6	N/A	N/A	N/A	N/A	NR	N/A
Perfluorohexanoic acid (PFHxA)	Water Street	11	11	0	0.00%	N/A	N/A	1	77	28.91	28.91	NR	28.91
Perfluorononanoic acid (PFNA)	Bennington Landfill	19	13	6	31.58%	0.3	0.6	0.5	8	2.192	1.599	NR	1.599
Perfluorononanoic acid (PFNA)	Other	15	10	5	33.33%	0.3	0.7	0.7	12	3.59	2.493	NR	2.493
Perfluorononanoic acid (PFNA)	Background	1	0	1	100.00%	0.6	0.6	N/A	N/A	N/A	N/A	NR	N/A
Perfluorononanoic acid (PFNA)	Water Street	11	9	2	18.18%	0.6	0.6	0.9	21	4.989	4.191	NR	4.191
Perfluorooctane sulfonate (PFOS)	Bennington Landfill	19	12	7	36.84%	0.4	2	2	12	5.75	3.779	NR	3.779
Perfluorooctane sulfonate (PFOS)	Other	15	8	7	46.67%	0.8	2	2	23	8.125	4.707	NR	4.707
Perfluorooctane sulfonate (PFOS)	Background	1	0	1	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Perfluorooctane sulfonate (PFOS)	Water Street	11	6	5	45.45%	2	2	2	17	6.833	4.636	NR	4.636
Perfluorooctanesulfonamide (PFOSA / FOSA)	Bennington Landfill	19	0	19	100.00%	0.3	3	N/A	N/A	N/A	N/A	NR	N/A
Perfluorooctanesulfonamide (PFOSA / FOSA)	Other	15	0	15	100.00%	0.3	3	N/A	N/A	N/A	N/A	NR	N/A
Perfluorooctanesulfonamide (PFOSA / FOSA)	Background	1	0	1	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Perfluorooctanoic acid (PFOA)	Bennington Landfill	19	18	1	5.26%	0.6	0.6	3	160	65.67	62.24	NR	62.24
Perfluorooctanoic acid (PFOA)	Other	15	15	0	0.00%	N/A	N/A	5	850	129.9	N/A	NR	129.9
Perfluorooctanoic acid (PFOA)	Background	1	1	0	0.00%	N/A	N/A	6	6	6	N/A	NR	6
Perfluorooctanoic acid (PFOA)	Water Street	11	11	0	0.00%	N/A	N/A	59	4800	1717	1717	NR	1717
Perfluoropentanoic acid (PFPeA)	Bennington Landfill	19	12	7	36.84%	0.3	2	1	30	8.167	5.291	NR	5.291
Perfluoropentanoic acid (PFPeA)	Other	15	13	2	13.33%	0.5	0.5	0.6	250	25.28	21.97	NR	21.97
Perfluoropentanoic acid (PFPeA)	Background	1	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	Bennington Landfill	19	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	Other	15	1	14	93.33%	0.3	0.7	10	10	10	0.947	<0.5	<0.5
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	Background	1	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotridecanoic acid (PFTrDA / PFTriA)	Bennington Landfill	19	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotridecanoic acid (PFTrDA / PFTriA)	Other	15	1	14	93.33%	0.3	0.7	26	26	26	2.013	<0.5	<0.5
Perfluorotridecanoic acid (PFTrDA / PFTriA)	Background	1	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluorotridecanoic acid (PFTrDA / PFTriA)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Perfluoroundecanoic acid (PFUnA / PFUnDA)	Bennington Landfill	19	0	19	100.00%	0.4	1	N/A	N/A	N/A	N/A	NR	N/A
Perfluoroundecanoic acid (PFUnA / PFUnDA)	Other	15	1	14	93.33%	0.4	1	5	5	5	0.707	<1	<1
Perfluoroundecanoic acid (PFUnA / PFUnDA)	Background	1	0	1	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Perfluoroundecanoic acid (PFUnA / PFUnDA)	Water Street	11	1	10	90.91%	1	1	18	18	18	2.545	<0.01	<0.01

[1] Median value not reported for parameter-location pairs with <51% NDs or 100% NDs

Appendix D.1b, Table 2d
Summary Statistics - SVOC
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

SVOC (µg/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
1,4-Dioxane	Bennington Landfill	19	6	13	68.42%	0.051	0.1	0.072	1.2	0.464	0.182	<0.058	<0.058
1,4-Dioxane	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	NR
Phenanthrene	Water Street	11	1	10	90.91%	0.1	0.1	0.12	0.12	0.12	0.102	<0.001	<0.001

[1] Median value not reported for parameter-location pairs with <51% NDs or 100% NDs

Appendix D.1b, Table 2e
Summary Statistics - VOCs
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

VOC (µg/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
1,1,1-Trichloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1,1-Trichloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1,2,2-Tetrachloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1,2,2-Tetrachloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1,2-Trichloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1,2-Trichloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1-Dichloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1-Dichloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1-Dichloroethylene	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,1-Dichloroethylene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2,3-Trichlorobenzene	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2,3-Trichlorobenzene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2,4-Trichlorobenzene	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2,4-Trichlorobenzene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dibromo-3-chloropropane (DBCP)	Bennington Landfill	19	0	19	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dibromo-3-chloropropane (DBCP)	Water Street	11	0	11	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dibromoethane (EDB)	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dibromoethane (EDB)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichlorobenzene	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichlorobenzene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethylene, cis	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethylene, cis	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethylene, trans	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloroethylene, trans	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloropropane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,2-Dichloropropane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichlorobenzene	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichlorobenzene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichloropropene, cis	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichloropropene, cis	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichloropropene, trans	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,3-Dichloropropene, trans	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
1,4-Dichlorobenzene	Bennington Landfill	19	1	18	94.74%	1	1	1	1	1	1	<1	<1
1,4-Dichlorobenzene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
2-Hexanone	Bennington Landfill	19	0	19	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
2-Hexanone	Water Street	11	0	11	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Acetone	Bennington Landfill	19	0	19	100.00%	6	6	N/A	N/A	N/A	N/A	NR	N/A
Acetone	Water Street	11	0	11	100.00%	6	6	N/A	N/A	N/A	N/A	NR	N/A
Benzene	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Benzene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromochloromethane	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Bromochloromethane	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Bromodichloromethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromodichloromethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromoform	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromoform	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromomethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Bromomethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Carbon disulfide	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Carbon disulfide	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Carbon tetrachloride	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Carbon tetrachloride	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chlorobenzene	Bennington Landfill	19	1	18	94.74%	0.5	0.5	2	2	2	0.579	<2	<2
Chlorobenzene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chlorodibromomethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chlorodibromomethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chloroethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chloroethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chloroform	Bennington Landfill	19	1	18	94.74%	0.5	0.5	0.7	0.7	0.7	0.511	<0.7	<0.7
Chloroform	Water Street	11	3	8	72.73%	0.5	0.5	1	10	1.667	1.636	<0.005	<0.005
Chloromethane	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Chloromethane	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Cumene (isopropyl benzene)	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Cumene (isopropyl benzene)	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Cyclohexane	Bennington Landfill	19	0	19	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Cyclohexane	Water Street	11	0	11	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Dichlorodifluoromethane (Freon-12)	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Dichlorodifluoromethane (Freon-12)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Ethyl benzene	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Ethyl benzene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Methyl acetate	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Methyl acetate	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Methyl ethyl ketone (2-butanone)	Bennington Landfill	19	0	19	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Methyl ethyl ketone (2-butanone)	Water Street	11	0	11	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Methyl isobutyl ketone (MIBK)	Bennington Landfill	19	0	19	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Methyl isobutyl ketone (MIBK)	Water Street	11	0	11	100.00%	3	3	N/A	N/A	N/A	N/A	NR	N/A
Methyl tertiary butyl ether (MTBE)	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Methyl tertiary butyl ether (MTBE)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Methylcyclohexane	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Methylcyclohexane	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Methylene chloride	Bennington Landfill	19	0	19	100.00%	0.5	2	N/A	N/A	N/A	N/A	NR	N/A
Methylene chloride	Water Street	11	0	11	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Styrene	Bennington Landfill	19	0	19	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Styrene	Water Street	11	0	11	100.00%	1	1	N/A	N/A	N/A	N/A	NR	N/A
Tetrachloroethylene	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Tetrachloroethylene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Toluene	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Toluene	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Trichloroethylene (TCE)	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Trichloroethylene (TCE)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Trichlorofluoromethane (Freon-11)	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Trichlorofluoromethane (Freon-11)	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Trichlorotrifluoroethane (Freon 113)	Bennington Landfill	19	0	19	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Trichlorotrifluoroethane (Freon 113)	Water Street	11	0	11	100.00%	2	2	N/A	N/A	N/A	N/A	NR	N/A
Vinyl chloride	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Vinyl chloride	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Xylene, m & p	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Xylene, m & p	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Xylene, o	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A

Appendix D.1b, Table 2e
Summary Statistics - VOCs
Appendix D - Statistical Evaluation: Groundwater
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

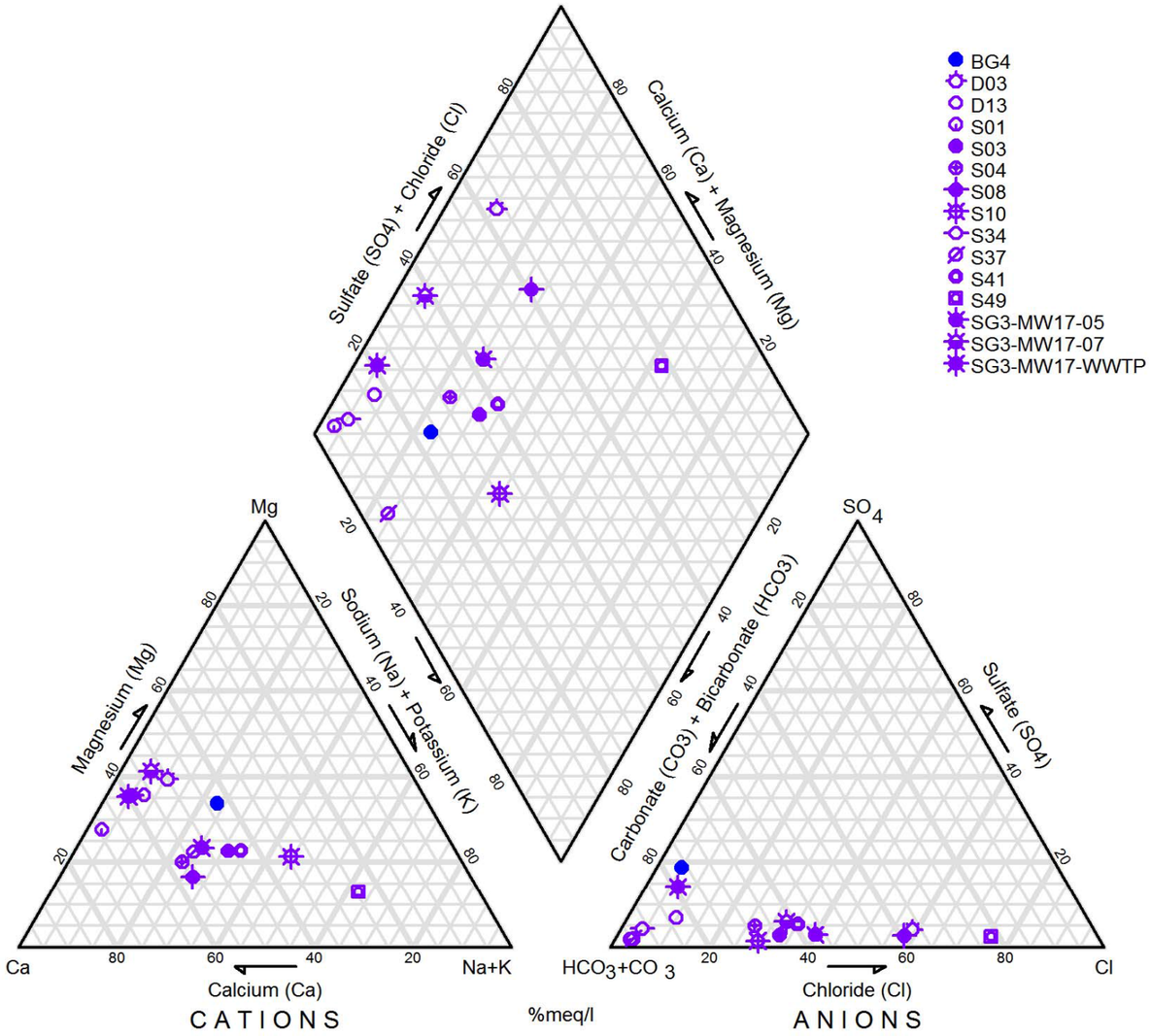
VOC (µg/L)	Location	Sample Count	Detect Count	Non-Detect Count	% Non-Detect	Minimum Non-Detect	Maximum Non-Detect	Minimum Detect	Maximum Detect	Arithmetic Mean	KM Mean	Median[1]	Measure of Central Tendency
Xylene, o	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Xylene, total	Bennington Landfill	19	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A
Xylene, total	Water Street	11	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A	NR	N/A

[1] Median value not reported for parameter-location pairs with <51% NDs or 100% NDs

Figures

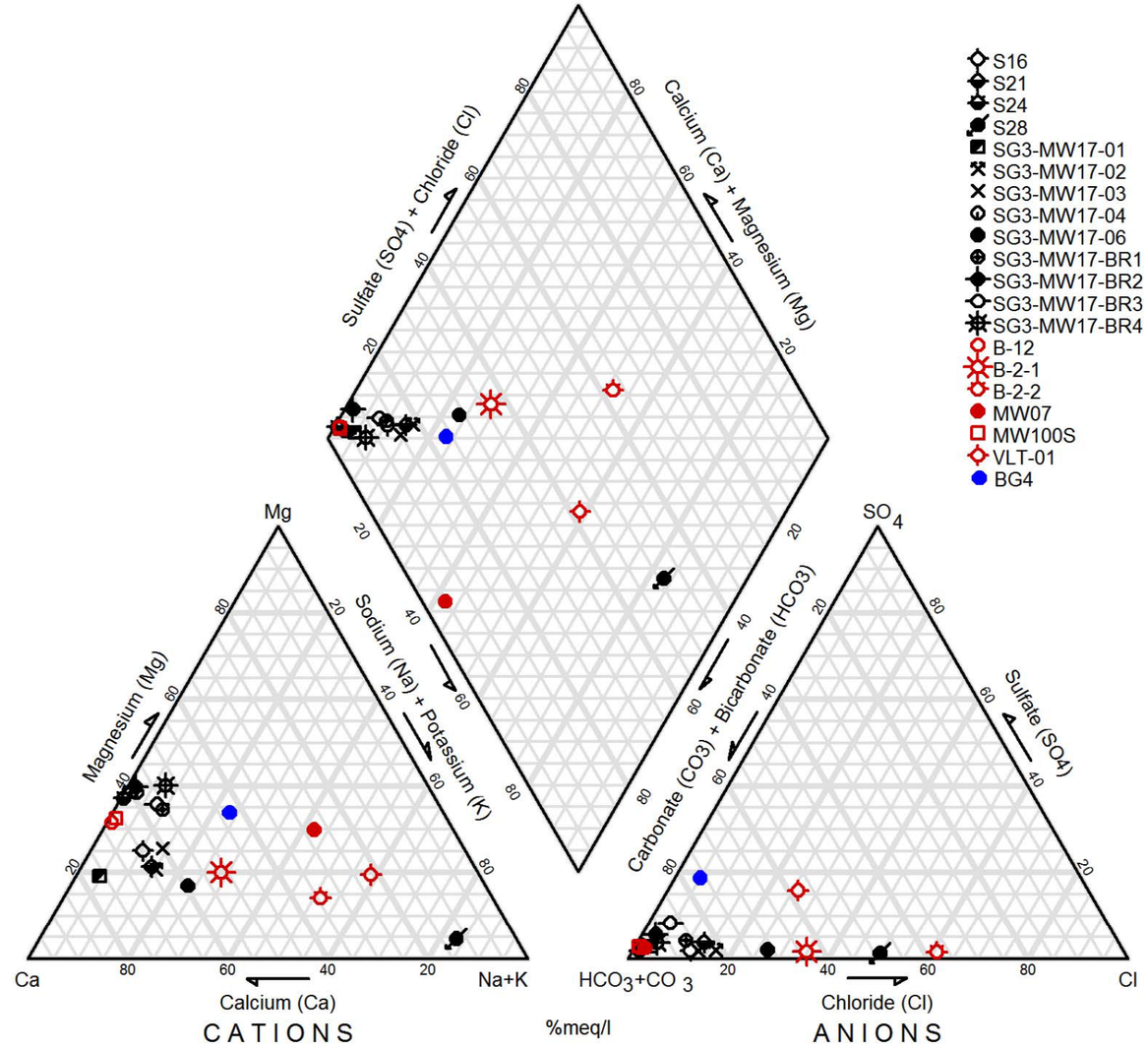
Barr Footer: P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix D1b - Statistical Eval Groundwater\Figures\AI\Figure 1 Piper Plots.ai

Other



- BG4
- D03
- D13
- S01
- S03
- S04
- S08
- S10
- S34
- S37
- S41
- S49
- SG3-MW17-05
- SG3-MW17-07
- SG3-MW17-WWTP

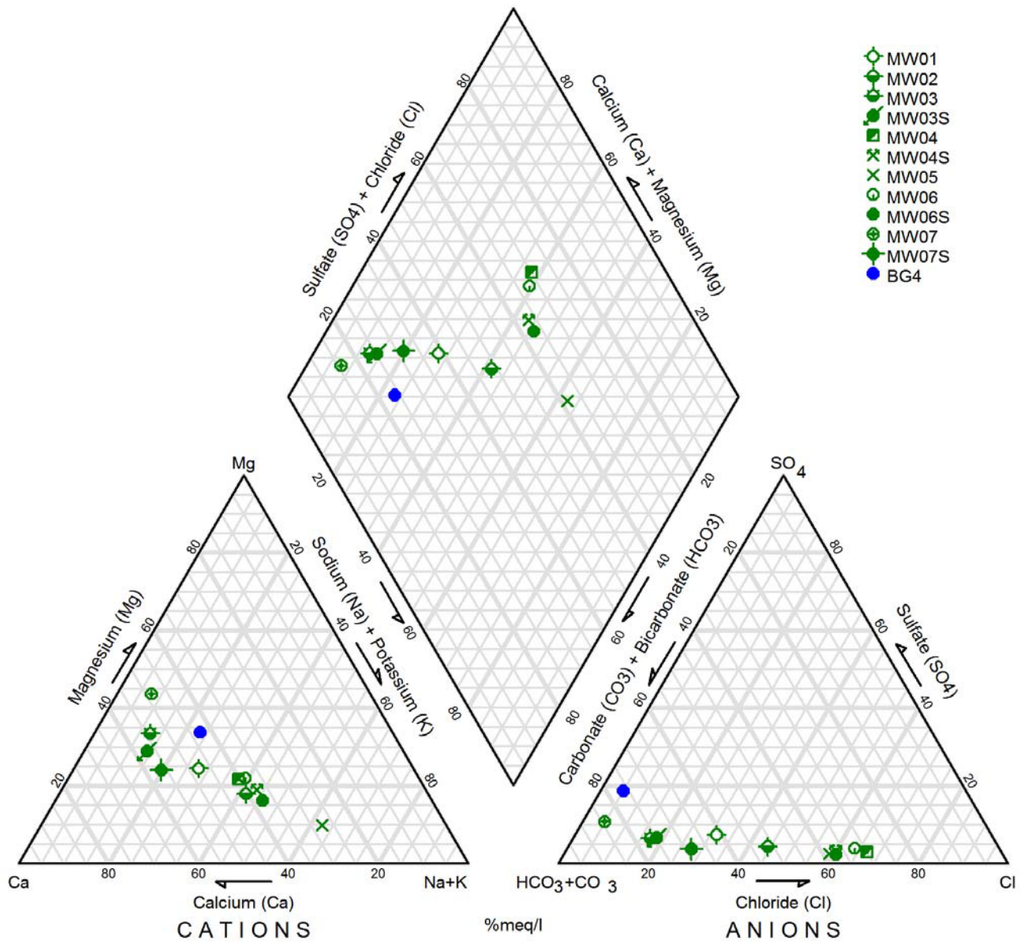
Landfill



- S16
- S21
- S24
- S28
- SG3-MW17-01
- SG3-MW17-02
- SG3-MW17-03
- SG3-MW17-04
- SG3-MW17-06
- SG3-MW17-BR1
- SG3-MW17-BR2
- SG3-MW17-BR3
- SG3-MW17-BR4
- B-12
- B-2-1
- B-2-2
- MW07
- MW100S
- VLT-01
- BG4

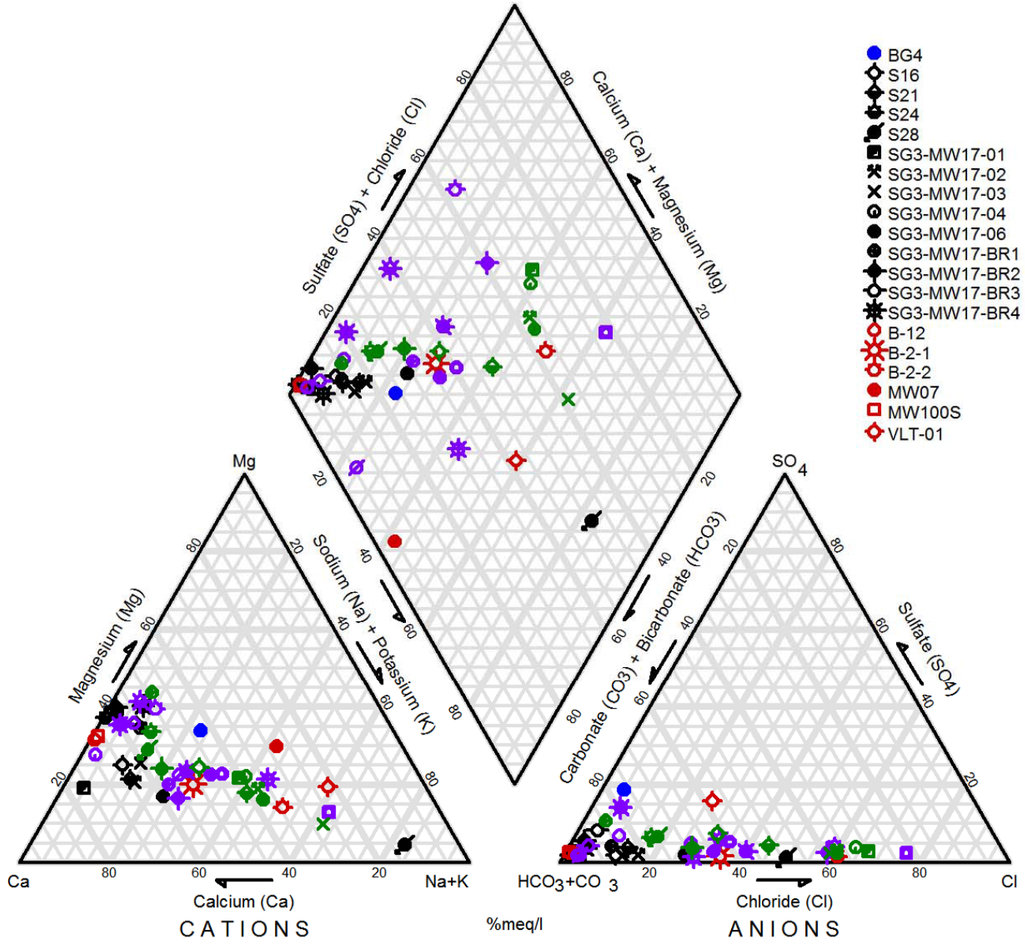
PIPER DIAGRAMS
GROUNDWATER DATA
Bennington, VT
Saint-Gobain

Water Street



MW01
MW02
MW03
MW03S
MW04
MW04S
MW05
MW06
MW06S
MW07
MW07S
BG4

All Locations



BG4
S16
S21
S24
S28
SG3-MW17-01
SG3-MW17-02
SG3-MW17-03
SG3-MW17-04
SG3-MW17-06
SG3-MW17-BR1
SG3-MW17-BR2
SG3-MW17-BR3
SG3-MW17-BR4
B-12
B-2-1
B-2-2
MW07
MW100S
VLT-01

D03
D13
S01
S03
S04
S08
S10
S34
S37
S41
S49
SG3-MW17-05
SG3-MW17-07
SG3-MW17-WWTP
MW01
MW02
MW03
MW03S
MW04
MW04S
MW05
MW06
MW06S
MW07
MW07S

PIPER DIAGRAMS
GROUNDWATER DATA
Bennington, VT
Saint-Gobain

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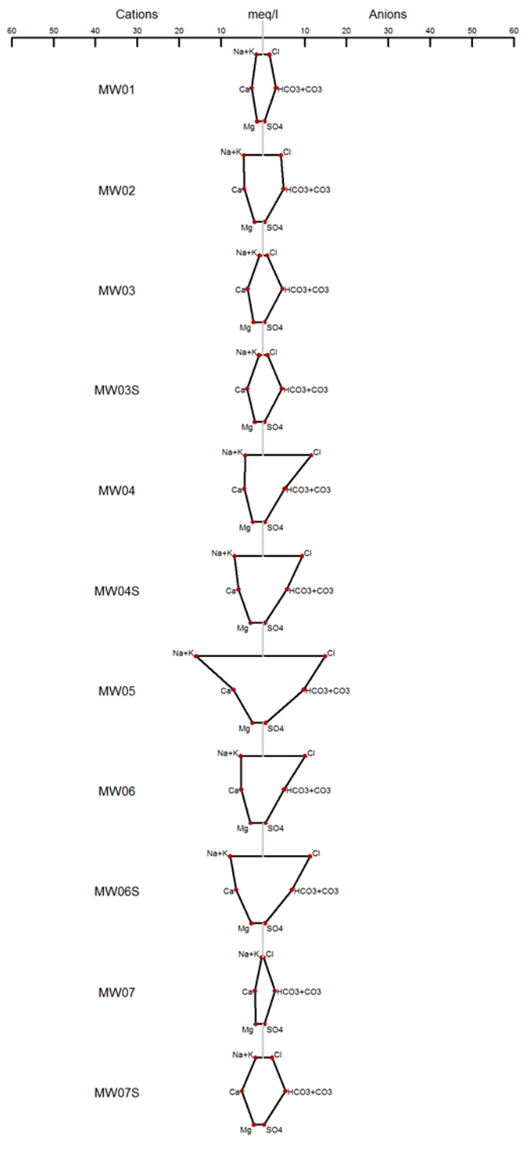
Water Street



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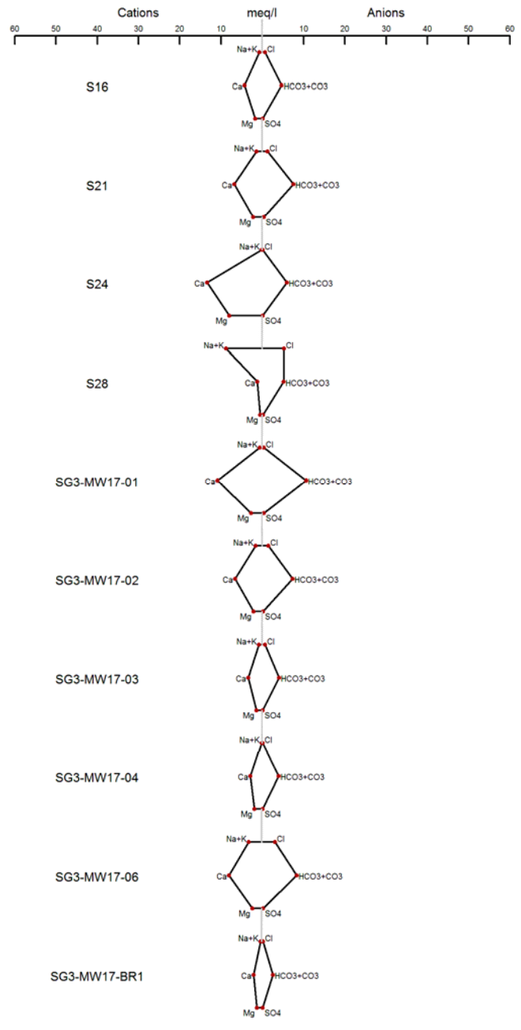

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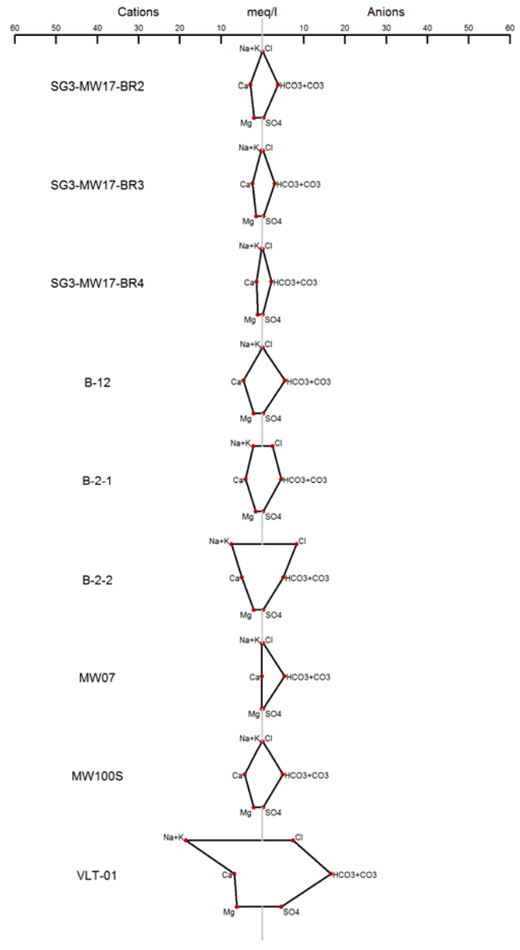
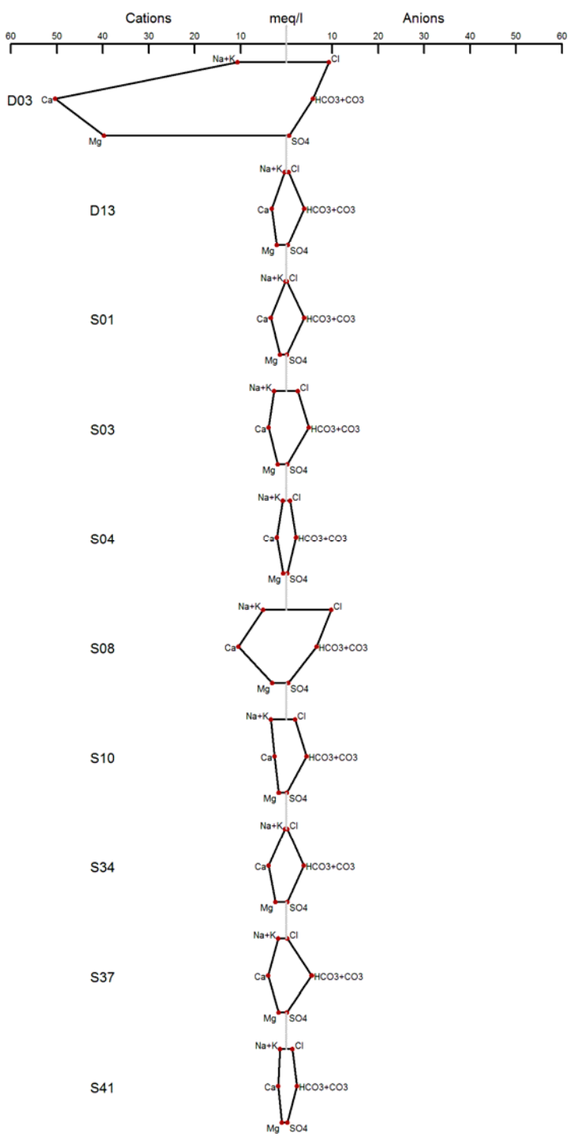


BARR

STIFF DIAGRAMS
GROUNDWATER DATA
Bennington, VT
Saint-Gobain

Other



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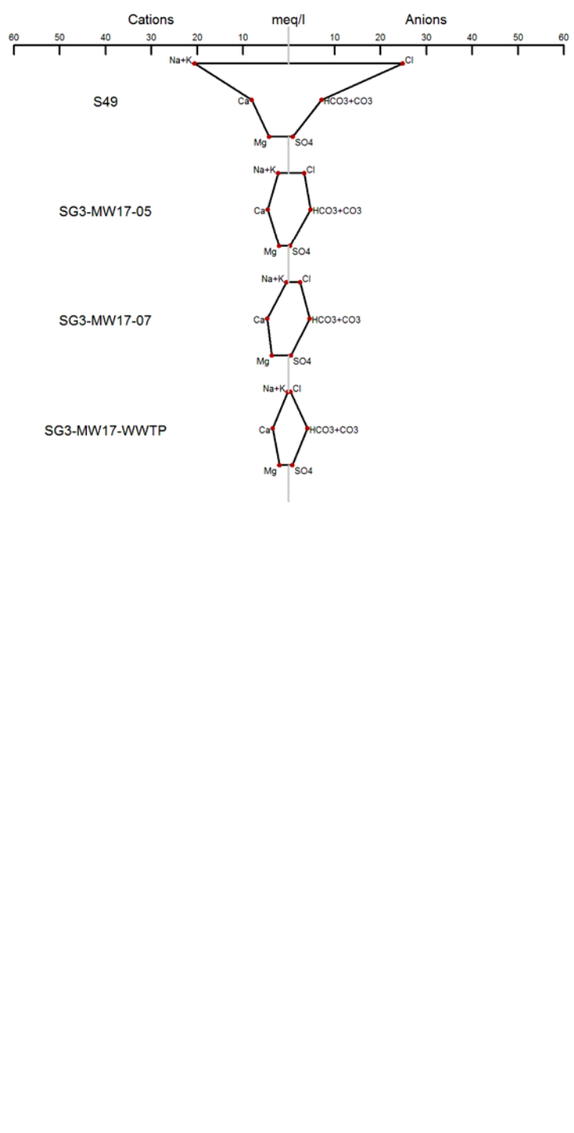
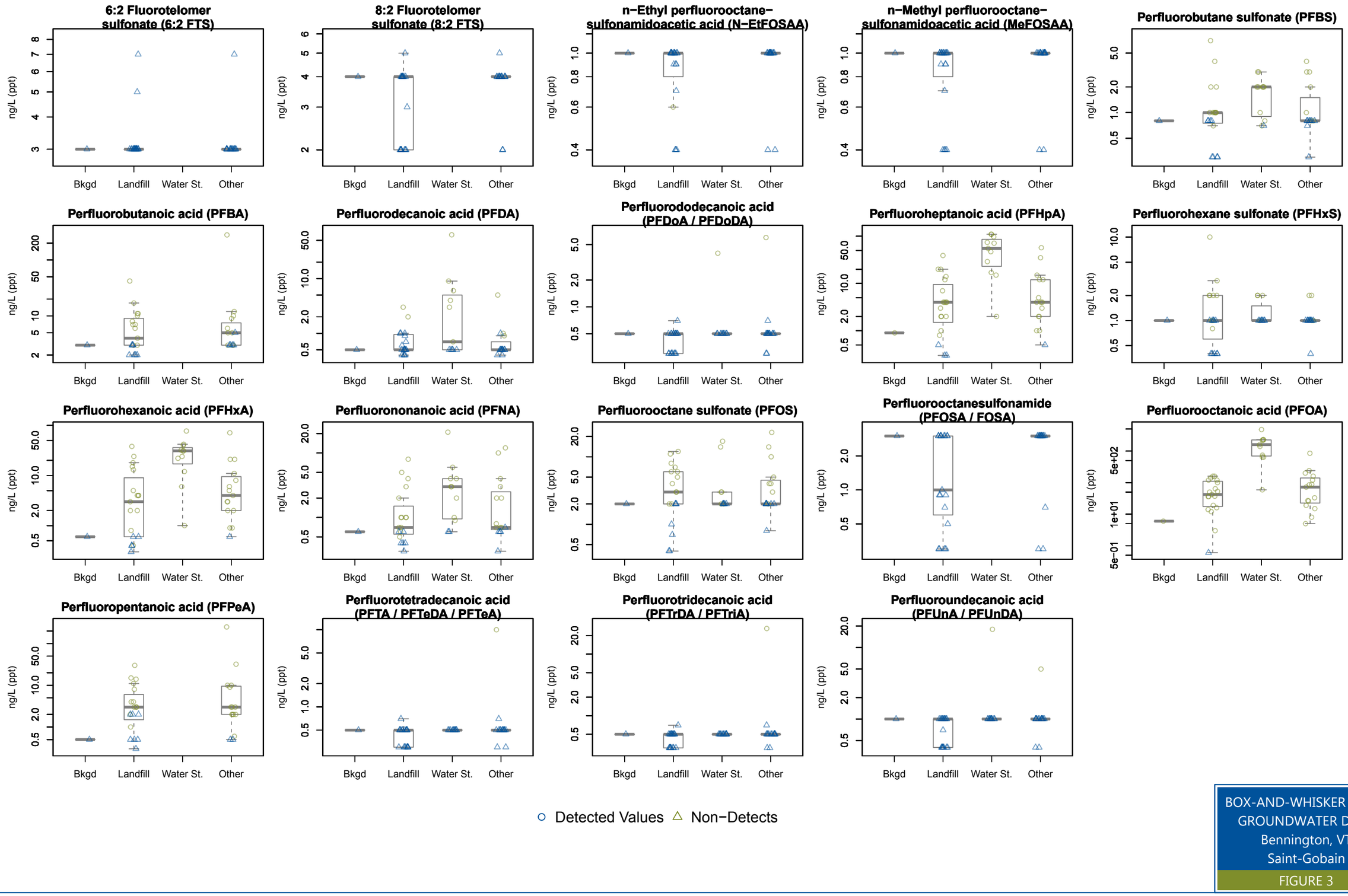


Background

STIFF DIAGRAMS
GROUNDWATER DATA
Bennington, VT
Saint-Gobain



BOX-AND-WHISKER PLOTS
GROUNDWATER DATA
Bennington, VT
Saint-Gobain

FIGURE 3

Attachments

Attachment A

ProUCL Output: Summary Statistics

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2			Date/Time of Computation	ProUCL 5.12/14/2018 12:41:59 PM									
3			**User Selected Options**										
4			From File	Water_02142018_BLnLBR_a.xls									
5			Full Precision	OFF									
6													
7	**From File: Water_02142018_BLnLBR_a.xls**												
8													
9						**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**							
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Alkalinity, bicarbonate, as CaCO3 (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	302.6	20102	141.8	0.468
13	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	273.4	7430	86.2	0.315
14	Alkalinity, carbonate, as CaCO3 (bennington landfill)		19	0	0	19	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
15	Alkalinity, carbonate, as CaCO3 (non-bennington landfill)		14	0	0	14	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
16	Alkalinity, total, as CaCO3 (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	302.6	20102	141.8	0.468
17	Alkalinity, total, as CaCO3 (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	273.4	7430	86.2	0.315
18	Bromide (bennington landfill)		19	0	0	19	100.00%	1.3	1.3	N/A	N/A	N/A	N/A
19	Bromide (non-bennington landfill)		14	0	1	13	92.86%	1.3	1.3	1.443	0.265	0.515	0.357
20	Chloride (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	45.84	5969	77.26	1.686
21	Chloride (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	145.5	57279	239.3	1.644
22	Nitrogen, ammonia, as N (bennington landfill)		19	0	9	10	52.63%	0.05	0.05	0.205	0.0904	0.301	1.467
23	Nitrogen, ammonia, as N (non-bennington landfill)		14	0	7	7	50.00%	0.05	0.05	0.0817	0.00305	0.0552	0.676
24	Nitrogen, nitrate, as N (bennington landfill)		19	0	6	13	68.42%	0.25	0.25	0.355	0.0335	0.183	0.515
25	Nitrogen, nitrate, as N (non-bennington landfill)		14	0	7	7	50.00%	0.25	0.25	0.959	2.274	1.508	1.573
26	Nitrogen, nitrite, as N (bennington landfill)		19	0	0	19	100.00%	0.25	0.25	N/A	N/A	N/A	N/A
27	Nitrogen, nitrite, as N (non-bennington landfill)		14	0	0	14	100.00%	0.25	25	N/A	N/A	N/A	N/A
28	Nitrogen, total kjeldahl (TKN) (bennington landfill)		19	0	6	13	68.42%	0.5	1.3	1.313	3.019	1.737	1.324
29	Nitrogen, total kjeldahl (TKN) (non-bennington landfill)		14	0	3	11	78.57%	0.5	0.5	0.641	0.169	0.411	0.64
30	Orthophosphate, as P (bennington landfill)		19	0	5	14	73.68%	0.03	0.03	0.0529	0.00288	0.0537	1.014
31	Orthophosphate, as P (non-bennington landfill)		14	0	1	13	92.86%	0.03	0.03	0.0316	3.2102E-5	0.00567	0.179
32	Sulfate, as SO4 (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	8.316	14.93	3.864	0.465
33	Sulfate, as SO4 (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	16.13	136.5	11.68	0.724
34													
35						**General Statistics for Raw Data Sets using Detected Data Only**								
36													
37	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
38	Alkalinity, bicarbonate, as CaCO3 (bennington landfill)		19	0	28.1	642	302.6	300	20102	141.8	87.47	0.505	0.468
39	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill)		14	0	126	429	273.4	270	7430	86.2	59.3	0.0248	0.315
40	Alkalinity, carbonate, as CaCO3 (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	Alkalinity, carbonate, as CaCO3 (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
42	Alkalinity, total, as CaCO3 (bennington landfill)		19	0	28.1	642	302.6	300	20102	141.8	87.47	0.505	0.468
43	Alkalinity, total, as CaCO3 (non-bennington landfill)		14	0	126	429	273.4	270	7430	86.2	59.3	0.0248	0.315
44	Bromide (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45	Bromide (non-bennington landfill)		1	0	3.3	3.3	3.3	3.3	N/A	N/A	0	N/A	N/A
46	Chloride (bennington landfill)		19	0	1	293	45.84	10.5	5969	77.26	13.34	2.352	1.686
47	Chloride (non-bennington landfill)		14	0	4.4	881	145.5	56.85	57279	239.3	69.98	2.592	1.644
48	Nitrogen, ammonia, as N (bennington landfill)		9	0	0.069	1.2	0.377	0.19	0.151	0.389	0.179	1.364	1.032
49	Nitrogen, ammonia, as N (non-bennington landfill)		7	0	0.052	0.26	0.113	0.085	0.00477	0.069	0.0489	1.993	0.609
50	Nitrogen, nitrate, as N (bennington landfill)		6	0	0.4	0.88	0.583	0.505	0.0362	0.19	0.111	0.906	0.326
51	Nitrogen, nitrate, as N (non-bennington landfill)		7	0	0.28	6	1.667	0.87	4.134	2.033	0.875	2.063	1.22
52	Nitrogen, nitrite, as N (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
53	Nitrogen, nitrite, as N (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
54	Nitrogen, total kjeldahl (TKN) (bennington landfill)		6	0	1	7.4	3.067	2.05	6.071	2.464	1.26	1.354	0.803
55	Nitrogen, total kjeldahl (TKN) (non-bennington landfill)		3	0	0.63	2.1	1.16	0.75	0.666	0.816	0.178	1.69	0.704
56	Orthophosphate, as P (bennington landfill)		5	0	0.044	0.22	0.117	0.077	0.00668	0.0817	0.0489	0.591	0.697
57	Orthophosphate, as P (non-bennington landfill)		1	0	0.052	0.052	0.052	0.052	N/A	N/A	0	N/A	N/A
58	Sulfate, as SO4 (bennington landfill)		19	0	4.2	16.7	8.316	6.8	14.93	3.864	3.262	0.993	0.465
59	Sulfate, as SO4 (non-bennington landfill)		14	0	3.8	39.3	16.13	11.1	136.5	11.68	8.747	0.922	0.724
60													

	A	B	C	D	E	F	G	H	I	J	K	L	M
61	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
62													
63	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
64	Alkalinity, bicarbonate, as CaCO3 (bennington landfill)		19	0	154.4	208	236	300	344	394.2	466.8	523.2	618.2
65	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill)		14	0	162.3	230.8	234.3	270	324.3	340.4	382.2	407.6	424.7
66	Alkalinity, carbonate, as CaCO3 (bennington landfill)		19	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
67	Alkalinity, carbonate, as CaCO3 (non-bennington landfill)		14	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
68	Alkalinity, total, as CaCO3 (bennington landfill)		19	0	154.4	208	236	300	344	394.2	466.8	523.2	618.2
69	Alkalinity, total, as CaCO3 (non-bennington landfill)		14	0	162.3	230.8	234.3	270	324.3	340.4	382.2	407.6	424.7
70	Bromide (bennington landfill)		19	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
71	Bromide (non-bennington landfill)		14	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2	3.04
72	Chloride (bennington landfill)		19	0	1.58	2.66	3.1	10.5	48.1	67.12	127.8	197.6	273.9
73	Chloride (non-bennington landfill)		14	0	6.59	10.08	12.95	56.85	110.7	202.8	340.5	532.6	811.3
74	Nitrogen, ammonia, as N (bennington landfill)		19	0	0.05	0.05	0.05	0.05	0.15	0.246	0.648	0.732	1.106
75	Nitrogen, ammonia, as N (non-bennington landfill)		14	0	0.05	0.05	0.05	0.051	0.0835	0.099	0.12	0.169	0.242
76	Nitrogen, nitrate, as N (bennington landfill)		19	0	0.25	0.25	0.25	0.25	0.43	0.46	0.59	0.763	0.857
77	Nitrogen, nitrate, as N (non-bennington landfill)		14	0	0.25	0.25	0.25	0.265	0.755	1.122	1.99	3.53	5.506
78	Nitrogen, nitrite, as N (bennington landfill)		19	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
79	Nitrogen, nitrite, as N (non-bennington landfill)		14	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	8.912	21.78
80	Nitrogen, total kjeldahl (TKN) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	1.35	1.48	2.9	4.79	6.878
81	Nitrogen, total kjeldahl (TKN) (non-bennington landfill)		14	0	0.5	0.5	0.5	0.5	0.5	0.552	0.714	1.223	1.925
82	Orthophosphate, as P (bennington landfill)		19	0	0.03	0.03	0.03	0.03	0.037	0.0484	0.0996	0.193	0.215
83	Orthophosphate, as P (non-bennington landfill)		14	0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0377	0.0491
84	Sulfate, as SO4 (bennington landfill)		19	0	4.3	5.3	5.65	6.8	10.75	11.52	14.02	15.8	16.52
85	Sulfate, as SO4 (non-bennington landfill)		14	0	4.96	6.82	7.775	11.1	21.55	25.5	33.58	36.25	38.69

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2		Date/Time of Computation		ProUCL 5.12/14/2018 12:43:38 PM									
3		**User Selected Options**											
4		From File		Water_02142018_BLnLBR_b.xls									
5		Full Precision		OFF									
6													
7	**From File: Water_02142018_BLnLBR_b.xls**												
8													
9	**General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Cyanide (bennington landfill)		19	0	1	18	94.74%	0.005	0.005	0.00506	6.0332E-8	2.4563E-4	0.0486
13													
14	**General Statistics for Raw Dataset using Detected Data Only**												
15													
16	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
17	Cyanide (bennington landfill)		1	0	0.0061	0.0061	0.0061	0.0061	N/A	N/A	0	N/A	N/A
18													
19	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
20													
21	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
22	Cyanide (bennington landfill)		19	0	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.00511	0.0059

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2		Date/Time of Computation		ProUCL 5.12/14/2018 12:44:21 PM									
3		**User Selected Options**											
4		From File		Water_02142018_BLnLBR_c.xls									
5		Full Precision		OFF									
6													
7	**From File: Water_02142018_BLnLBR_c.xls**												
8													
9				**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**									
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Aluminum (bennington landfill)		19	0	5	14	73.68%	0.0868	0.0894	0.967	3.673	1.916	1.981
13	Aluminum (non-bennington landfill)		14	0	13	1	7.14%	0.0894	0.0894	7.614	477.7	21.86	2.87
14	Antimony (bennington landfill)		19	0	4	15	78.95%	4.5000E-4	4.8000E-4	6.1474E-4	1.7062E-7	4.1307E-4	0.672
15	Antimony (non-bennington landfill)		14	0	2	12	85.71%	4.5000E-4	4.5000E-4	4.7714E-4	9.0490E-9	9.5126E-5	0.199
16	Arsenic (bennington landfill)		19	0	9	10	52.63%	6.8000E-4	7.2000E-4	0.00338	1.5428E-5	0.00393	1.161
17	Arsenic (non-bennington landfill)		14	0	9	5	35.71%	7.2000E-4	7.2000E-4	0.00744	3.5660E-4	0.0189	2.539
18	Barium (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	0.229	0.0975	0.312	1.361
19	Barium (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	0.0956	0.0128	0.113	1.185
20	Beryllium (bennington landfill)		19	0	5	14	73.68%	7.1000E-5	1.1000E-4	1.9600E-4	7.0198E-8	2.6495E-4	1.352
21	Beryllium (non-bennington landfill)		14	0	4	10	71.43%	7.1000E-5	7.1000E-5	3.3929E-4	5.4090E-7	7.3546E-4	2.168
22	Boron (bennington landfill)		19	0	6	13	68.42%	0.0083	0.0101	0.0293	0.00173	0.0416	1.421
23	Boron (non-bennington landfill)		14	0	9	5	35.71%	0.0101	0.0101	0.0152	4.0327E-5	0.00635	0.418
24	Cadmium (bennington landfill)		19	0	4	15	78.95%	1.5000E-4	1.9000E-4	1.7211E-4	2.5114E-9	5.0113E-5	0.291
25	Cadmium (non-bennington landfill)		14	0	4	10	71.43%	1.5000E-4	1.5000E-4	2.6214E-4	8.7903E-8	2.9648E-4	1.131
26	Calcium (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	89.37	4843	69.59	0.779
27	Calcium (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	152.8	63048	251.1	1.644
28	Chromium (bennington landfill)		19	0	9	10	52.63%	5.9000E-4	8.7000E-4	0.0021	1.7283E-5	0.00416	1.978
29	Chromium (non-bennington landfill)		14	0	6	8	57.14%	8.7000E-4	0.0019	0.00852	4.1052E-4	0.0203	2.377
30	Cobalt (bennington landfill)		19	0	15	4	21.05%	1.6000E-4	2.0000E-4	0.0105	1.5816E-4	0.0126	1.203
31	Cobalt (non-bennington landfill)		14	0	13	1	7.14%	1.6000E-4	1.6000E-4	0.00805	2.7779E-4	0.0167	2.071
32	Copper (bennington landfill)		19	0	10	9	47.37%	5.2000E-4	5.4000E-4	0.0092	3.0941E-4	0.0176	1.913
33	Copper (non-bennington landfill)		14	0	11	3	21.43%	5.4000E-4	5.4000E-4	0.0186	0.00258	0.0508	2.737
34	Iron (bennington landfill)		19	0	13	6	31.58%	0.0747	0.0805	5.713	119.4	10.93	1.913
35	Iron (non-bennington landfill)		14	0	13	1	7.14%	0.0805	0.0805	21.8	4349	65.95	3.025
36	Lead (bennington landfill)		19	0	10	9	47.37%	9.0000E-5	1.1000E-4	0.00477	1.7533E-4	0.0132	2.776
37	Lead (non-bennington landfill)		14	0	13	1	7.14%	1.1000E-4	1.1000E-4	0.0134	0.00147	0.0383	2.854
38	Magnesium (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	23.71	396	19.9	0.839
39	Magnesium (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	58.76	15053	122.7	2.088
40	Manganese (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	0.736	0.715	0.846	1.15
41	Manganese (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	0.852	1.925	1.388	1.628
42	Nickel (bennington landfill)		19	0	13	6	31.58%	8.5000E-4	0.001	0.00508	3.0367E-5	0.00551	1.085
43	Nickel (non-bennington landfill)		14	0	10	4	28.57%	0.001	0.001	0.0136	9.6513E-4	0.0311	2.283
44	Potassium (bennington landfill)		19	0	19	0	0.00%	N/A	N/A	3.419	14.62	3.824	1.118
45	Potassium (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	3.242	18.05	4.249	1.311
46	Selenium (bennington landfill)		19	0	1	18	94.74%	4.4000E-4	5.0000E-4	4.6105E-4	7.9778E-9	8.9319E-5	0.194
47	Selenium (non-bennington landfill)		14	0	3	11	78.57%	5.0000E-4	5.0000E-4	7.7643E-4	4.4537E-7	6.6736E-4	0.86
48	Silver (bennington landfill)		19	0	2	17	89.47%	1.2000E-4	1.5000E-4	1.3263E-4	2.0299E-9	4.5055E-5	0.34
49	Silver (non-bennington landfill)		14	0	2	12	85.71%	1.5000E-4	1.5000E-4	2.3857E-4	8.7198E-8	2.9529E-4	1.238
50	Sodium (bennington landfill)		19	0	18	1	5.26%	0.914	0.914	32.74	3153	56.15	1.715
51	Sodium (non-bennington landfill)		14	0	14	0	0.00%	N/A	N/A	80.94	16528	128.6	1.588
52	Thallium (bennington landfill)		19	0	8	11	57.89%	1.2000E-4	1.6000E-4	2.4744E-4	8.0845E-8	2.8433E-4	1.149
53	Thallium (non-bennington landfill)		14	0	3	11	78.57%	1.2000E-4	1.2000E-4	2.1643E-4	7.6794E-8	2.7712E-4	1.28
54	Vanadium (bennington landfill)		19	0	8	11	57.89%	2.0000E-4	2.8000E-4	0.0016	1.9476E-5	0.00441	2.751
55	Vanadium (non-bennington landfill)		14	0	13	1	7.14%	2.1000E-4	2.1000E-4	0.00828	4.5285E-4	0.0213	2.572
56	Zinc (bennington landfill)		19	0	8	11	57.89%	0.0054	0.0065	0.113	0.131	0.362	3.202
57	Zinc (non-bennington landfill)		14	0	5	9	64.29%	0.0065	0.0065	0.0496	0.0201	0.142	2.855
58													

	A	B	C	D	E	F	G	H	I	J	K	L	M
59	**General Statistics for Raw Data Sets using Detected Data Only**												
60													
61	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
62	Aluminum (bennington landfill)		5	0	0.225	5.47	3.433	5.25	7.133	2.671	0.326	-0.632	0.778
63	Aluminum (non-bennington landfill)		13	0	0.127	86	8.193	0.757	552.2	23.5	0.731	3.543	2.868
64	Antimony (bennington landfill)		4	0	6.6000E-4	0.0019	0.00123	0.00119	4.3609E-7	6.6037E-4	7.7094E-4	0.0786	0.536
65	Antimony (non-bennington landfill)		2	0	4.6000E-4	8.2000E-4	6.4000E-4	6.4000E-4	6.4800E-8	2.5456E-4	2.6686E-4	N/A	0.398
66	Arsenic (bennington landfill)		9	0	0.0012	0.0132	0.00639	0.0059	1.7344E-5	0.00416	0.00519	0.31	0.652
67	Arsenic (non-bennington landfill)		9	0	8.2000E-4	0.0747	0.0112	0.002	5.8019E-4	0.0241	0.00133	2.883	2.157
68	Barium (bennington landfill)		19	0	0.0097	0.883	0.229	0.0624	0.0975	0.312	0.0482	1.447	1.361
69	Barium (non-bennington landfill)		14	0	0.0104	0.43	0.0956	0.0639	0.0128	0.113	0.0707	2.259	1.185
70	Beryllium (bennington landfill)		5	0	1.9000E-4	0.0011	5.4600E-4	4.5000E-4	1.2563E-7	3.5444E-4	3.1134E-4	1.08	0.649
71	Beryllium (non-bennington landfill)		4	0	1.5000E-4	0.0029	0.00101	4.9500E-4	1.6845E-6	0.0013	4.9666E-4	1.682	1.285
72	Boron (bennington landfill)		6	0	0.018	0.156	0.0748	0.0522	0.00295	0.0544	0.0328	0.829	0.727
73	Boron (non-bennington landfill)		9	0	0.0113	0.0324	0.018	0.0171	4.5285E-5	0.00673	0.00697	1.195	0.373
74	Cadmium (bennington landfill)		4	0	2.0000E-4	3.3000E-4	2.5500E-4	2.4500E-4	4.3000E-9	6.5574E-5	6.6716E-5	0.312	0.257
75	Cadmium (non-bennington landfill)		4	0	2.2000E-4	0.0013	5.4250E-4	3.2500E-4	2.6349E-7	5.1331E-4	1.4826E-4	1.818	0.946
76	Calcium (bennington landfill)		19	0	2.36	269	89.37	81.6	4843	69.59	61.53	1.195	0.779
77	Calcium (non-bennington landfill)		14	0	36.2	1010	152.8	77.95	63048	251.1	22.98	3.53	1.644
78	Chromium (bennington landfill)		9	0	6.0000E-4	0.0193	0.00378	0.002	3.5044E-5	0.00592	0.00148	2.814	1.567
79	Chromium (non-bennington landfill)		6	0	9.5000E-4	0.0795	0.0187	0.00535	9.3088E-4	0.0305	0.00582	2.209	1.629
80	Cobalt (bennington landfill)		15	0	1.6000E-4	0.0402	0.0132	0.0114	1.7632E-4	0.0133	0.0142	0.907	1.006
81	Cobalt (non-bennington landfill)		13	0	1.6000E-4	0.0654	0.00865	0.0031	3.1851E-4	0.0178	0.0034	3.136	2.062
82	Copper (bennington landfill)		10	0	9.4000E-4	0.0741	0.017	0.00825	5.1019E-4	0.0226	0.00897	2.117	1.328
83	Copper (non-bennington landfill)		11	0	0.001	0.199	0.0235	0.0017	0.00349	0.0591	0.00104	3.151	2.516
84	Iron (bennington landfill)		13	0	0.0861	46.4	8.315	3.48	165.8	12.88	4.818	2.515	1.549
85	Iron (non-bennington landfill)		13	0	0.158	259	23.47	2.26	5032	70.93	2.479	3.576	3.022
86	Lead (bennington landfill)		10	0	2.2000E-4	0.059	0.00898	0.00185	3.2852E-4	0.0181	0.00185	2.844	2.018
87	Lead (non-bennington landfill)		13	0	2.0000E-4	0.15	0.0145	9.3000E-4	0.0017	0.0412	7.4129E-4	3.472	2.851
88	Magnesium (bennington landfill)		19	0	1.54	97.5	23.71	22.3	396	19.9	7.116	2.952	0.839
89	Magnesium (non-bennington landfill)		14	0	8.8	483	58.76	25.05	15053	122.7	10.01	3.68	2.088
90	Manganese (bennington landfill)		19	0	0.0016	2.37	0.736	0.412	0.715	0.846	0.604	0.836	1.15
91	Manganese (non-bennington landfill)		14	0	0.009	5.37	0.852	0.31	1.925	1.388	0.374	3.016	1.628
92	Nickel (bennington landfill)		13	0	0.0013	0.0237	0.00703	0.0053	3.5012E-5	0.00592	0.00356	2.074	0.842
93	Nickel (non-bennington landfill)		10	0	0.0012	0.123	0.0187	0.00495	0.0014	0.0374	0.00556	2.936	2.008
94	Potassium (bennington landfill)		19	0	0.762	14.8	3.419	1.98	14.62	3.824	1.379	2.138	1.118
95	Potassium (non-bennington landfill)		14	0	0.902	17.7	3.242	2.54	18.05	4.249	1.438	3.478	1.311
96	Selenium (bennington landfill)		1	0	8.4000E-4	8.4000E-4	8.4000E-4	8.4000E-4	N/A	N/A	0	N/A	N/A
97	Selenium (non-bennington landfill)		3	0	5.7000E-4	0.0026	0.00179	0.0022	1.1563E-6	0.00108	5.9303E-4	-1.466	0.601
98	Silver (bennington landfill)		2	0	1.6000E-4	3.2000E-4	2.4000E-4	2.4000E-4	1.2800E-8	1.1314E-4	1.1861E-4	N/A	0.471
99	Silver (non-bennington landfill)		2	0	2.4000E-4	0.0013	7.7000E-4	7.7000E-4	5.6180E-7	7.4953E-4	7.8577E-4	N/A	0.973
100	Sodium (bennington landfill)		18	0	1.33	202	34.51	7.27	3461	58.83	8.658	2.283	1.705
101	Sodium (non-bennington landfill)		14	0	1.92	472	80.94	35.75	16528	128.6	42.2	2.575	1.588
102	Thallium (bennington landfill)		8	0	1.5000E-4	0.0013	4.2000E-4	2.5000E-4	1.6057E-7	4.0071E-4	1.3343E-4	1.899	0.954
103	Thallium (non-bennington landfill)		3	0	2.2000E-4	0.0012	5.7000E-4	2.9000E-4	2.9890E-7	5.4672E-4	1.0378E-4	1.7	0.959
104	Vanadium (bennington landfill)		8	0	2.5000E-4	0.0199	0.00353	8.9000E-4	4.5534E-5	0.00675	8.5990E-4	2.626	1.911
105	Vanadium (non-bennington landfill)		13	0	2.6000E-4	0.0836	0.0089	0.0011	5.2248E-4	0.0229	0.00116	3.4	2.57
106	Zinc (bennington landfill)		8	0	0.0162	1.64	0.261	0.0448	0.313	0.56	0.0349	2.777	2.141
107	Zinc (non-bennington landfill)		5	0	0.0069	0.559	0.127	0.0152	0.0585	0.242	0.0123	2.213	1.901
108													

	A	B	C	D	E	F	G	H	I	J	K	L	M
109	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
110													
111	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
112	Aluminum (bennington landfill)		19	0	0.0868	0.0884	0.0894	0.0894	0.157	0.459	5.282	5.416	5.459
113	Aluminum (non-bennington landfill)		14	0	0.128	0.248	0.389	0.753	2.57	3.046	7.195	35.92	75.98
114	Antimony (bennington landfill)		19	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.8000E-4	5.5200E-4	8.7600E-4	0.00172	0.00186
115	Antimony (non-bennington landfill)		14	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5700E-4	5.8600E-4	7.7320E-4
116	Arsenic (bennington landfill)		19	0	6.8000E-4	7.2000E-4	7.2000E-4	7.2000E-4	0.00585	0.00618	0.0097	0.0111	0.0128
117	Arsenic (non-bennington landfill)		14	0	7.2000E-4	7.2000E-4	7.2000E-4	0.0014	0.002	0.00284	0.00984	0.0341	0.0666
118	Barium (bennington landfill)		19	0	0.027	0.0376	0.0415	0.0624	0.289	0.472	0.848	0.853	0.877
119	Barium (non-bennington landfill)		14	0	0.0129	0.0155	0.0189	0.0639	0.111	0.121	0.195	0.294	0.403
120	Beryllium (bennington landfill)		19	0	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	1.5000E-4	2.4600E-4	4.9200E-4	7.0400E-4	0.00102
121	Beryllium (non-bennington landfill)		14	0	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	1.3025E-4	1.5800E-4	6.2500E-4	0.00155	0.00263
122	Boron (bennington landfill)		19	0	0.0083	0.00938	0.0101	0.0101	0.0301	0.0445	0.0708	0.131	0.151
123	Boron (non-bennington landfill)		14	0	0.0101	0.0101	0.0101	0.0119	0.0183	0.0199	0.0217	0.0255	0.031
124	Cadmium (bennington landfill)		19	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.9000E-4	1.9400E-4	2.1800E-4	2.9400E-4	3.2280E-4
125	Cadmium (non-bennington landfill)		14	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	2.0250E-4	2.2400E-4	3.6300E-4	7.2800E-4	0.00119
126	Calcium (bennington landfill)		19	0	21.57	35.5	44.15	81.6	117	134.2	172.4	223.1	259.8
127	Calcium (non-bennington landfill)		14	0	44.36	59.7	65.7	77.95	94.28	122.3	195.9	490	906
128	Chromium (bennington landfill)		19	0	5.9800E-4	7.6200E-4	8.7000E-4	8.7000E-4	0.00175	0.00212	0.00302	0.00544	0.0165
129	Chromium (non-bennington landfill)		14	0	8.7000E-4	8.7000E-4	8.7000E-4	9.1000E-4	0.00348	0.00508	0.0155	0.0404	0.0717
130	Cobalt (bennington landfill)		19	0	1.9200E-4	2.0000E-4	2.5500E-4	0.0028	0.015	0.0183	0.0328	0.0344	0.039
131	Cobalt (non-bennington landfill)		14	0	1.8100E-4	3.9200E-4	5.7750E-4	0.00275	0.00465	0.00526	0.016	0.0362	0.0596
132	Copper (bennington landfill)		19	0	5.2000E-4	5.3200E-4	5.4000E-4	9.4000E-4	0.00825	0.00984	0.0289	0.034	0.0661
133	Copper (non-bennington landfill)		14	0	5.4000E-4	8.1600E-4	0.001	0.0015	0.0047	0.00592	0.0274	0.0932	0.178
134	Iron (bennington landfill)		19	0	0.0747	0.0805	0.0805	0.648	5.785	7.65	13.14	23.45	41.81
135	Iron (non-bennington landfill)		14	0	0.161	0.42	0.769	1.895	4.975	6.79	15.22	102.3	227.7
136	Lead (bennington landfill)		19	0	9.0000E-5	1.0200E-4	1.1000E-4	2.2000E-4	0.00185	0.00202	0.00926	0.0188	0.051
137	Lead (non-bennington landfill)		14	0	2.6900E-4	6.0400E-4	7.4000E-4	9.2500E-4	0.00278	0.00318	0.0175	0.0678	0.134
138	Magnesium (bennington landfill)		19	0	5.256	14.38	16.3	22.3	26.15	26.68	29.02	39.9	85.98
139	Magnesium (non-bennington landfill)		14	0	13.06	18.62	20.03	25.05	35.23	40.7	50.12	202.9	427
140	Manganese (bennington landfill)		19	0	0.00524	0.0114	0.0257	0.412	1.295	1.64	1.92	2.325	2.361
141	Manganese (non-bennington landfill)		14	0	0.0557	0.152	0.163	0.31	0.995	1.056	1.448	2.907	4.877
142	Nickel (bennington landfill)		19	0	8.5000E-4	0.001	0.001	0.004	0.0065	0.00764	0.00978	0.014	0.0218
143	Nickel (non-bennington landfill)		14	0	0.001	0.001	0.00105	0.00185	0.009	0.0106	0.0217	0.06	0.11
144	Potassium (bennington landfill)		19	0	0.92	1.05	1.11	1.98	3.735	3.956	8.608	11.56	14.15
145	Potassium (non-bennington landfill)		14	0	1.098	1.294	1.36	2.54	2.845	2.906	3.443	8.567	15.87
146	Selenium (bennington landfill)		19	0	4.4000E-4	4.4000E-4	4.7000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.3400E-4	7.7880E-4
147	Selenium (non-bennington landfill)		14	0	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.2800E-4	0.00171	0.00234	0.00255
148	Silver (bennington landfill)		19	0	1.2000E-4	1.2000E-4	1.3500E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5200E-4	1.7600E-4	2.9120E-4
149	Silver (non-bennington landfill)		14	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	2.1300E-4	6.1100E-4	0.00116
150	Sodium (bennington landfill)		19	0	1.49	1.582	2.085	5.69	29.8	41.34	89.12	175	196.6
151	Sodium (non-bennington landfill)		14	0	5.861	7.532	9.215	35.75	73.18	92.62	199	318	441.2
152	Thallium (bennington landfill)		19	0	1.2000E-4	1.2000E-4	1.2000E-4	1.6000E-4	1.8000E-4	2.3600E-4	4.2200E-4	7.6900E-4	0.00119
153	Thallium (non-bennington landfill)		14	0	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.6000E-4	2.6900E-4	6.0850E-4	0.00108
154	Vanadium (bennington landfill)		19	0	2.1000E-4	2.1000E-4	2.1000E-4	2.6000E-4	4.7000E-4	8.2800E-4	0.00198	0.00586	0.0171
155	Vanadium (non-bennington landfill)		14	0	2.7500E-4	3.1600E-4	3.9500E-4	0.00105	0.0031	0.00408	0.0129	0.0399	0.0749
156	Zinc (bennington landfill)		19	0	0.0054	0.00606	0.0065	0.0065	0.0383	0.0441	0.118	0.328	1.378
157	Zinc (non-bennington landfill)		14	0	0.0065	0.0065	0.0065	0.0065	0.00833	0.0114	0.0369	0.226	0.492

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2			Date/Time of Computation	ProUCL 5.12/14/2018 12:45:12 PM									
3			**User Selected Options**										
4			From File	Water_02142018_BLnLBR_d.xls									
5			Full Precision	OFF									
6													
7	**From File: Water_02142018_BLnLBR_d.xls**												
8													
9	**General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Mercury (bennington landfill)		19	0	2	17	89.47%	5.0000E-5	5.0000E-5	5.6842E-5	4.216E-10	2.0533E-5	0.361
13													
14	**General Statistics for Raw Dataset using Detected Data Only**												
15													
16	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
17	Mercury (bennington landfill)		2	0	1.0000E-4	1.3000E-4	1.1500E-4	1.1500E-4	4.500E-10	2.1213E-5	2.2239E-5	N/A	0.184
18													
19	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
20													
21	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
22	Mercury (bennington landfill)		19	0	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	6.0000E-5	1.0300E-4	1.2460E-4

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 12:49:46 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_e.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_e.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill)		19	0	0	19	100.00%	3	7	N/A	N/A	N/A	N/A
13	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill)		15	0	0	15	100.00%	3	7	N/A	N/A	N/A	N/A
14	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill)		19	0	0	19	100.00%	2	5	N/A	N/A	N/A	N/A
15	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill)		15	0	0	15	100.00%	2	5	N/A	N/A	N/A	N/A
16	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill)		19	0	1	18	94.74%	0.4	1	0.45	0.0075	0.0866	0.192
17	-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill)		15	0	0	15	100.00%	0.4	1	N/A	N/A	N/A	N/A
18	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill)		19	0	0	19	100.00%	0.4	1	N/A	N/A	N/A	N/A
19	-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill)		15	0	0	15	100.00%	0.4	1	N/A	N/A	N/A	N/A
20	Perfluorobutane sulfonate (PFBS) (bennington landfill)		19	0	11	8	42.11%	0.3	0.8	1.285	2.587	1.608	1.251
21	Perfluorobutane sulfonate (PFBS) (non-bennington landfill)		15	0	7	8	53.33%	0.3	0.8	1.133	1.449	1.204	1.062
22	Perfluorobutanoic acid (PFBA) (bennington landfill)		19	0	12	7	36.84%	2	3	7.526	83.09	9.115	1.211
23	Perfluorobutanoic acid (PFBA) (non-bennington landfill)		15	0	10	5	33.33%	3	5	23.4	4711	68.64	2.933
24	Perfluorodecanoic acid (PFDA) (bennington landfill)		19	0	2	17	89.47%	0.4	1	0.621	0.442	0.665	1.07
25	Perfluorodecanoic acid (PFDA) (non-bennington landfill)		15	0	3	12	80.00%	0.4	1	0.783	1.306	1.143	1.46
26	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)		19	0	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
27	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill)		15	0	1	14	93.33%	0.3	0.7	0.68	2.022	1.422	2.091
28	Perfluoroheptanoic acid (PFHpA) (bennington landfill)		19	0	16	3	15.79%	0.3	0.5	7.353	93.14	9.651	1.313
29	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill)		15	0	14	1	6.67%	0.5	0.5	10.5	228.4	15.11	1.439
30	Perfluorohexane sulfonate (PFHxS) (bennington landfill)		19	0	9	10	52.63%	0.4	1	1.481	4.631	2.152	1.453
31	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill)		15	0	4	11	73.33%	0.4	1	0.693	0.303	0.551	0.794
32	Perfluorohexanoic acid (PFHxA) (bennington landfill)		19	0	14	5	26.32%	0.3	0.6	7.092	98.61	9.93	1.4
33	Perfluorohexanoic acid (PFHxA) (non-bennington landfill)		15	0	14	1	6.67%	0.6	0.6	10.63	301.3	17.36	1.633
34	Perfluorononanoic acid (PFNA) (bennington landfill)		19	0	13	6	31.58%	0.3	0.6	1.599	3.98	1.995	1.248
35	Perfluorononanoic acid (PFNA) (non-bennington landfill)		15	0	10	5	33.33%	0.3	0.7	2.493	12.42	3.524	1.413
36	Perfluorooctane sulfonate (PFOS) (bennington landfill)		19	0	12	7	36.84%	0.4	2	3.779	12.99	3.604	0.954
37	Perfluorooctane sulfonate (PFOS) (non-bennington landfill)		15	0	8	7	46.67%	0.8	2	4.707	37.81	6.149	1.306
38	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill)		19	0	0	19	100.00%	0.3	3	N/A	N/A	N/A	N/A
39	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill)		15	0	0	15	100.00%	0.3	3	N/A	N/A	N/A	N/A
40	Perfluorooctanoic acid (PFOA) (bennington landfill)		19	0	18	1	5.26%	0.6	0.6	62.24	2742	52.36	0.841

	A	B	C	D	E	F	G	H	I	J	K	L	M
41	Perfluorooctanoic acid (PFOA) (non-bennington landfill)		15	0	15	0	0.00%	N/A	N/A	129.9	45032	212.2	1.634
42	Perfluoropentanoic acid (PFPeA) (bennington landfill)		19	0	12	7	36.84%	0.3	2	5.291	54.7	7.396	1.398
43	Perfluoropentanoic acid (PFPeA) (non-bennington landfill)		15	0	13	2	13.33%	0.5	0.5	21.97	3774	61.43	2.796
44	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)		19	0	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
45	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill)		15	0	1	14	93.33%	0.3	0.7	0.947	5.854	2.42	2.556
46	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)		19	0	0	19	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
47	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill)		15	0	1	14	93.33%	0.3	0.7	2.013	41.1	6.411	3.184
48	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)		19	0	0	19	100.00%	0.4	1	N/A	N/A	N/A	N/A
49	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill)		15	0	1	14	93.33%	0.4	1	0.707	1.317	1.147	1.624
50													
51	**General Statistics for Raw Data Sets using Detected Data Only**												
52													
53	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
54	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
56	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
58	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill)		1	0	0.6	0.6	0.6	0.6	N/A	N/A	0	N/A	N/A
59	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
61	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
62	Perfluorobutane sulfonate (PFBS) (bennington landfill)		11	0	0.7	7	1.973	1	3.668	1.915	0	2.223	0.971
63	Perfluorobutane sulfonate (PFBS) (non-bennington landfill)		7	0	0.8	4	2.086	2	1.638	1.28	1.483	0.335	0.614
64	Perfluorobutanoic acid (PFBA) (bennington landfill)		12	0	3	42	10.75	7.5	112.8	10.62	5.189	2.669	0.988
65	Perfluorobutanoic acid (PFBA) (non-bennington landfill)		10	0	3	280	33.6	5.5	7505	86.63	3.706	3.154	2.578
66	Perfluorodecanoic acid (PFDA) (bennington landfill)		2	0	2	3	2.5	2.5	0.5	0.707	0.741	N/A	0.283
67	Perfluorodecanoic acid (PFDA) (non-bennington landfill)		3	0	0.9	5	2.3	1	5.47	2.339	0.148	1.728	1.017
68	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill)		1	0	6	6	6	6	N/A	N/A	0	N/A	N/A
70	Perfluoroheptanoic acid (PFHpA) (bennington landfill)		16	0	0.8	39	8.675	4	106.2	10.3	3.706	1.988	1.188
71	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill)		14	0	1	57	11.21	4	255.3	15.98	3.706	2.286	1.425
72	Perfluorohexane sulfonate (PFHxS) (bennington landfill)		9	0	0.8	10	2.644	2	8.088	2.844	1.483	2.668	1.075
73	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill)		4	0	1	2	1.5	1.5	0.333	0.577	0.741	0	0.385
74	Perfluorohexanoic acid (PFHxA) (bennington landfill)		14	0	0.4	38	9.514	4	120.1	10.96	3.855	1.625	1.152
75	Perfluorohexanoic acid (PFHxA) (non-bennington landfill)		14	0	0.9	71	11.34	4.5	339.3	18.42	4.448	2.989	1.624
76	Perfluorononanoic acid (PFNA) (bennington landfill)		13	0	0.5	8	2.192	1	5.092	2.257	0.593	1.732	1.029
77	Perfluorononanoic acid (PFNA) (non-bennington landfill)		10	0	0.7	12	3.59	2	16.69	4.086	1.927	1.539	1.138
78	Perfluorooctane sulfonate (PFOS) (bennington landfill)		12	0	2	12	5.75	5.5	10.93	3.306	3.706	0.753	0.575
79	Perfluorooctane sulfonate (PFOS) (non-bennington landfill)		8	0	2	23	8.125	4.5	52.41	7.24	2.965	1.489	0.891
80	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
81	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
82	Perfluorooctanoic acid (PFOA) (bennington landfill)		18	0	3	160	65.67	46	2828	53.18	45.96	0.701	0.81
83	Perfluorooctanoic acid (PFOA) (non-bennington landfill)		15	0	5	850	129.9	72	45032	212.2	78.58	3.148	1.634
84	Perfluoropentanoic acid (PFPeA) (bennington landfill)		12	0	1	30	8.167	4	69.97	8.365	3.706	1.824	1.024
85	Perfluoropentanoic acid (PFPeA) (non-bennington landfill)		13	0	0.6	250	25.28	3	4629	68.03	1.483	3.515	2.692
86	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
87	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill)		1	0	10	10	10	10	N/A	N/A	0	N/A	N/A
88	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
89	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill)		1	0	26	26	26	26	N/A	N/A	0	N/A	N/A
90	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
91	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill)		1	0	5	5	5	5	N/A	N/A	0	N/A	N/A
92													
93	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
94													
95	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
96	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill)		19	0	3	3	3	3	3	3	3.4	5.2	6.64
97	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill)		15	0	3	3	3	3	3	3	3	4.2	6.44
98	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill)		19	0	2	2	2	4	4	4	4	4.1	4.82
99	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill)		15	0	2.8	4	4	4	4	4	4	4.3	4.86
100	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill)		19	0	0.4	0.66	0.8	1	1	1	1	1	1
101	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill)		15	0	0.64	1	1	1	1	1	1	1	1
102	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill)		19	0	0.4	0.58	0.8	1	1	1	1	1	1
103	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill)		15	0	0.64	1	1	1	1	1	1	1	1
104	Perfluorobutane sulfonate (PFBS) (bennington landfill)		19	0	0.3	0.54	0.75	1	1	1.4	2.4	4.3	6.46
105	Perfluorobutane sulfonate (PFBS) (non-bennington landfill)		15	0	0.74	0.8	0.8	0.8	1.5	2.2	3	3.3	3.86
106	Perfluorobutanoic acid (PFBA) (bennington landfill)		19	0	2	2.6	3	4	9	10.4	12.2	19.5	37.5
107	Perfluorobutanoic acid (PFBA) (non-bennington landfill)		15	0	3	3	3	5	7.5	9.2	11.2	92.4	242.5
108	Perfluorodecanoic acid (PFDA) (bennington landfill)		19	0	0.4	0.46	0.5	0.5	0.95	1	1.2	2.1	2.82
109	Perfluorodecanoic acid (PFDA) (non-bennington landfill)		15	0	0.44	0.5	0.5	0.5	0.7	0.92	1	2.2	4.44
110	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill)		19	0	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.52	0.664
111	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill)		15	0	0.38	0.5	0.5	0.5	0.5	0.5	0.62	2.29	5.258
112	Perfluoroheptanoic acid (PFHpA) (bennington landfill)		19	0	0.46	0.92	1.5	4	9.5	12.8	20	21.9	35.58
113	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill)		15	0	1	1.8	2	4	12	12.6	27	41.6	53.92
114	Perfluorohexane sulfonate (PFHxS) (bennington landfill)		19	0	0.4	0.4	0.6	1	2	2	2.2	3.7	8.74
115	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill)		15	0	1	1	1	1	1	1	1.6	2	2
116	Perfluorohexanoic acid (PFHxA) (bennington landfill)		19	0	0.4	0.52	0.6	3	9	13.8	19.2	25.4	35.48
117	Perfluorohexanoic acid (PFHxA) (non-bennington landfill)		15	0	0.9	1.78	2	4	9.5	13	21	36	64
118	Perfluorononanoic acid (PFNA) (bennington landfill)		19	0	0.4	0.46	0.55	0.7	1.5	2.4	4.2	5.3	7.46
119	Perfluorononanoic acid (PFNA) (non-bennington landfill)		15	0	0.6	0.6	0.65	0.7	2.5	3.2	7.6	10.6	11.72
120	Perfluorooctane sulfonate (PFOS) (bennington landfill)		19	0	0.64	1.6	2	3	6	6.4	8.6	11.1	11.82

	A	B	C	D	E	F	G	H	I	J	K	L	M
121	Perfluorooctane sulfonate (PFOS) (non-bennington landfill)		15	0	2	2	2	2	4.5	6	12.4	16.7	21.74
122	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill)		19	0	0.3	0.42	0.6	1	3	3	3	3	3
123	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill)		15	0	0.46	2.54	3	3	3	3	3	3	3
124	Perfluorooctanoic acid (PFOA) (bennington landfill)		19	0	10.2	15.2	17.5	42	110	120	144	160	160
125	Perfluorooctanoic acid (PFOA) (non-bennington landfill)		15	0	10.8	18.2	22.5	72	140	168	224	423	764.6
126	Perfluoropentanoic acid (PFPeA) (bennington landfill)		19	0	0.5	0.8	1.5	3	6	9.2	14.2	16.5	27.3
127	Perfluoropentanoic acid (PFPeA) (non-bennington landfill)		15	0	0.54	1.72	2	3	9.5	10	23.2	97.4	219.5
128	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill)		19	0	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.52	0.664
129	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill)		15	0	0.38	0.5	0.5	0.5	0.5	0.5	0.62	3.49	8.698
130	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill)		19	0	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.52	0.664
131	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill)		15	0	0.38	0.5	0.5	0.5	0.5	0.5	0.62	8.29	22.46
132	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill)		19	0	0.4	0.4	0.4	1	1	1	1	1	1
133	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill)		15	0	0.64	1	1	1	1	1	1	2.2	4.44

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2			Date/Time of Computation	ProUCL 5.12/14/2018 12:52:11 PM									
3			**User Selected Options**										
4			From File	Water_02142018_BLnLBR_f.xls									
5			Full Precision	OFF									
6													
7	**From File: Water_02142018_BLnLBR_f.xls**												
8													
9	**General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	1,4-Dioxane (bennington landfill)		19	0	6	13	68.42%	0.051	0.1	0.182	0.1	0.317	1.746
13													
14	**General Statistics for Raw Dataset using Detected Data Only**												
15													
16	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
17	1,4-Dioxane (bennington landfill)		6	0	0.072	1.2	0.464	0.185	0.242	0.492	0.102	1.022	1.061
18													
19	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
20													
21	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
22	1,4-Dioxane (bennington landfill)		19	0	0.0518	0.0526	0.053	0.058	0.13	0.168	0.348	1.002	1.16

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 12:53:12 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_g.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_g.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	1,1,1-Trichloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
13	1,1,2,2-Tetrachloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
14	1,1,2-Trichloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
15	1,1-Dichloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
16	1,1-Dichloroethylene (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
17	1,2,3-Trichlorobenzene (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
18	1,2,4-Trichlorobenzene (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
19	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill)		19	0	0	19	100.00%	2	2	N/A	N/A	N/A	N/A
20	1,2-Dibromoethane (EDB) (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
21	1,2-Dichlorobenzene (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
22	1,2-Dichloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
23	1,2-Dichloroethylene, cis (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
24	1,2-Dichloroethylene, trans (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
25	1,2-Dichloropropane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
26	1,3-Dichlorobenzene (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
27	1,3-Dichloropropene, cis (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
28	1,3-Dichloropropene, trans (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
29	1,4-Dichlorobenzene (bennington landfill)		19	0	1	18	94.74%	1	1	1	0	0	N/A
30	2-Hexanone (bennington landfill)		19	0	0	19	100.00%	3	3	N/A	N/A	N/A	N/A
31	Acetone (bennington landfill)		19	0	0	19	100.00%	6	6	N/A	N/A	N/A	N/A
32	Benzene (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
33	Bromochloromethane (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
34	Bromodichloromethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
35	Bromoform (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
36	Bromomethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
37	Carbon disulfide (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
38	Carbon tetrachloride (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
39	Chlorobenzene (bennington landfill)		19	0	1	18	94.74%	0.5	0.5	0.579	0.112	0.335	0.579
40	Chlorodibromomethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
41	Chloroethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
42	Chloroform (bennington landfill)		19	0	1	18	94.74%	0.5	0.5	0.511	0.00199	0.0447	0.0875
43	Chloromethane (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
44	Cumene (isopropyl benzene) (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
45	Cyclohexane (bennington landfill)		19	0	0	19	100.00%	2	2	N/A	N/A	N/A	N/A
46	Dichlorodifluoromethane (Freon-12) (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
47	Ethyl benzene (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
48	Methyl acetate (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
49	Methyl ethyl ketone (2-butanone) (bennington landfill)		19	0	0	19	100.00%	3	3	N/A	N/A	N/A	N/A
50	Methyl isobutyl ketone (MIBK) (bennington landfill)		19	0	0	19	100.00%	3	3	N/A	N/A	N/A	N/A
51	Methyl tertiary butyl ether (MTBE) (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
52	Methylcyclohexane (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
53	Methylene chloride (bennington landfill)		19	0	0	19	100.00%	0.5	2	N/A	N/A	N/A	N/A
54	Styrene (bennington landfill)		19	0	0	19	100.00%	1	1	N/A	N/A	N/A	N/A
55	Tetrachloroethylene (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
56	Toluene (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
57	Trichloroethylene (TCE) (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
58	Trichlorofluoromethane (Freon-11) (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
59	Trichlorotrifluoroethane (Freon 113) (bennington landfill)		19	0	0	19	100.00%	2	2	N/A	N/A	N/A	N/A
60	Vinyl chloride (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
61	Xylene, m & p (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
62	Xylene, o (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
63	Xylene, total (bennington landfill)		19	0	0	19	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
64													
65	**General Statistics for Raw Data Sets using Detected Data Only**												
66													
67	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
68	1,1,1-Trichloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	1,1,2,2-Tetrachloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
70	1,1,2-Trichloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
71	1,1-Dichloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
72	1,1-Dichloroethylene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
73	1,2,3-Trichlorobenzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
74	1,2,4-Trichlorobenzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
76	1,2-Dibromoethane (EDB) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
77	1,2-Dichlorobenzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
78	1,2-Dichloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
79	1,2-Dichloroethylene, cis (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
80	1,2-Dichloroethylene, trans (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
81	1,2-Dichloropropane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
82	1,3-Dichlorobenzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
83	1,3-Dichloropropene, cis (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
84	1,3-Dichloropropene, trans (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
85	1,4-Dichlorobenzene (bennington landfill)		1	0	1	1	1	1	N/A	N/A	0	N/A	N/A
86	2-Hexanone (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
87	Acetone (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
88	Benzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
89	Bromochloromethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
90	Bromodichloromethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
91	Bromoform (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92	Bromomethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
93	Carbon disulfide (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94	Carbon tetrachloride (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
95	Chlorobenzene (bennington landfill)		1	0	2	2	2	2	N/A	N/A	0	N/A	N/A
96	Chlorodibromomethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
97	Chloroethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
98	Chloroform (bennington landfill)		1	0	0.7	0.7	0.7	0.7	N/A	N/A	0	N/A	N/A
99	Chloromethane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	Cumene (isopropyl benzene) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
101	Cyclohexane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
102	Dichlorodifluoromethane (Freon-12) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
103	Ethyl benzene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
104	Methyl acetate (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
105	Methyl ethyl ketone (2-butanone) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
106	Methyl isobutyl ketone (MIBK) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107	Methyl tertiary butyl ether (MTBE) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
108	Methylcyclohexane (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
109	Methylene chloride (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
110	Styrene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
111	Tetrachloroethylene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
112	Toluene (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
113	Trichloroethylene (TCE) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
114	Trichlorofluoromethane (Freon-11) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
115	Trichlorotrifluoroethane (Freon 113) (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
116	Vinyl chloride (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
117	Xylene, m & p (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
118	Xylene, o (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
119	Xylene, total (bennington landfill)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
120													

	A	B	C	D	E	F	G	H	I	J	K	L	M
121	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
122													
123	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
124	1,1,1-Trichloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
125	1,1,2,2-Tetrachloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
126	1,1,2-Trichloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
127	1,1-Dichloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
128	1,1-Dichloroethylene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
129	1,2,3-Trichlorobenzene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
130	1,2,4-Trichlorobenzene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
131	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill)		19	0	2	2	2	2	2	2	2	2	2
132	1,2-Dibromoethane (EDB) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
133	1,2-Dichlorobenzene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
134	1,2-Dichloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
135	1,2-Dichloroethylene, cis (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
136	1,2-Dichloroethylene, trans (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
137	1,2-Dichloropropane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
138	1,3-Dichlorobenzene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
139	1,3-Dichloropropene, cis (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
140	1,3-Dichloropropene, trans (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
141	1,4-Dichlorobenzene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
142	2-Hexanone (bennington landfill)		19	0	3	3	3	3	3	3	3	3	3
143	Acetone (bennington landfill)		19	0	6	6	6	6	6	6	6	6	6
144	Benzene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
145	Bromochloromethane (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
146	Bromodichloromethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
147	Bromoform (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
148	Bromomethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
149	Carbon disulfide (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
150	Carbon tetrachloride (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
151	Chlorobenzene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.65	1.73
152	Chlorodibromomethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
153	Chloroethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
154	Chloroform (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.52	0.664
155	Chloromethane (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
156	Cumene (isopropyl benzene) (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
157	Cyclohexane (bennington landfill)		19	0	2	2	2	2	2	2	2	2	2
158	Dichlorodifluoromethane (Freon-12) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
159	Ethyl benzene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	Methyl acetate (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1

	A	B	C	D	E	F	G	H	I	J	K	L	M
161	Methyl ethyl ketone (2-butanone) (bennington landfill)		19	0	3	3	3	3	3	3	3	3	3
162	Methyl isobutyl ketone (MIBK) (bennington landfill)		19	0	3	3	3	3	3	3	3	3	3
163	Methyl tertiary butyl ether (MTBE) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
164	Methylcyclohexane (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
165	Methylene chloride (bennington landfill)		19	0	0.5	0.5	0.5	0.5	2	2	2	2	2
166	Styrene (bennington landfill)		19	0	1	1	1	1	1	1	1	1	1
167	Tetrachloroethylene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
168	Toluene (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
169	Trichloroethylene (TCE) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
170	Trichlorofluoromethane (Freon-11) (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
171	Trichlorotrifluoroethane (Freon 113) (bennington landfill)		19	0	2	2	2	2	2	2	2	2	2
172	Vinyl chloride (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
173	Xylene, m & p (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
174	Xylene, o (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
175	Xylene, total (bennington landfill)		19	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 12:55:43 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_a.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_a.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Alkalinity, bicarbonate, as CaCO3 (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	144.6	5547	74.48	0.515
13	Alkalinity, bicarbonate, as CaCO3 (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	359.1	13093	114.4	0.319
14	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
15	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	275.8	7960	89.22	0.323
16	Alkalinity, carbonate, as CaCO3 (bennington landfill bedrock)		5	0	0	5	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
17	Alkalinity, carbonate, as CaCO3 (bennington landfill unconsolidated)		14	0	0	14	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
18	Alkalinity, carbonate, as CaCO3 (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
19	Alkalinity, carbonate, as CaCO3 (non-bennington landfill unconsolidated)		13	0	0	13	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
20	Alkalinity, total, as CaCO3 (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	144.6	5547	74.48	0.515
21	Alkalinity, total, as CaCO3 (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	359.1	13093	114.4	0.319
22	Alkalinity, total, as CaCO3 (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
23	Alkalinity, total, as CaCO3 (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	275.8	7960	89.22	0.323
24	Bromide (bennington landfill bedrock)		5	0	0	5	100.00%	1.3	1.3	N/A	N/A	N/A	N/A
25	Bromide (bennington landfill unconsolidated)		14	0	0	14	100.00%	1.3	1.3	N/A	N/A	N/A	N/A
26	Bromide (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.3	1.3	N/A	N/A	N/A	N/A
27	Bromide (non-bennington landfill unconsolidated)		13	0	1	12	92.31%	1.3	1.3	1.454	0.284	0.533	0.367
28	Chloride (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	4.8	12.5	3.535	0.736
29	Chloride (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	60.49	7382	85.92	1.42
30	Chloride (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
31	Chloride (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	155.8	60447	245.9	1.578
32	Nitrogen, ammonia, as N (bennington landfill bedrock)		5	0	0	5	100.00%	0.05	0.05	N/A	N/A	N/A	N/A
33	Nitrogen, ammonia, as N (bennington landfill unconsolidated)		14	0	9	5	35.71%	0.05	0.05	0.26	0.111	0.333	1.28
34	Nitrogen, ammonia, as N (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.05	0.05	N/A	N/A	N/A	N/A
35	Nitrogen, ammonia, as N (non-bennington landfill unconsolidated)		13	0	7	6	46.15%	0.05	0.05	0.0842	0.0032	0.0566	0.672
36	Nitrogen, nitrate, as N (bennington landfill bedrock)		5	0	2	3	60.00%	0.25	0.25	0.322	0.00814	0.0902	0.28
37	Nitrogen, nitrate, as N (bennington landfill unconsolidated)		14	0	4	10	71.43%	0.25	0.25	0.367	0.0421	0.205	0.559
38	Nitrogen, nitrate, as N (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.25	0.25	N/A	N/A	N/A	N/A
39	Nitrogen, nitrate, as N (non-bennington landfill unconsolidated)		13	0	7	6	46.15%	0.25	0.25	1.013	2.407	1.552	1.532
40	Nitrogen, nitrite, as N (bennington landfill bedrock)		5	0	0	5	100.00%	0.25	0.25	N/A	N/A	N/A	N/A
41	Nitrogen, nitrite, as N (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.25	0.25	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
42	Nitrogen, nitrite, as N (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.25	0.25	N/A	N/A	N/A	N/A
43	Nitrogen, nitrite, as N (non-bennington landfill unconsolidated)		13	0	0	13	100.00%	0.25	25	N/A	N/A	N/A	N/A
44	Nitrogen, total kjeldahl (TKN) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
45	Nitrogen, total kjeldahl (TKN) (bennington landfill unconsolidated)		14	0	6	8	57.14%	0.5	1.3	1.604	3.774	1.943	1.211
46	Nitrogen, total kjeldahl (TKN) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
47	Nitrogen, total kjeldahl (TKN) (non-bennington landfill unconsolidated)		13	0	3	10	76.92%	0.5	0.5	0.652	0.18	0.424	0.65
48	Orthophosphate, as P (bennington landfill bedrock)		5	0	2	3	60.00%	0.03	0.03	0.0774	0.00542	0.0736	0.951
49	Orthophosphate, as P (bennington landfill unconsolidated)		14	0	3	11	78.57%	0.03	0.03	0.0442	0.00169	0.0411	0.928
50	Orthophosphate, as P (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.03	0.03	N/A	N/A	N/A	N/A
51	Orthophosphate, as P (non-bennington landfill unconsolidated)		13	0	1	12	92.31%	0.03	0.03	0.0317	3.4367E-5	0.00586	0.185
52	Sulfate, as SO4 (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	7.94	18.07	4.251	0.535
53	Sulfate, as SO4 (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	8.45	15.04	3.878	0.459
54	Sulfate, as SO4 (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
55	Sulfate, as SO4 (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	14.71	117.2	10.83	0.736
56													
57	**General Statistics for Raw Data Sets using Detected Data Only**												
58													
59	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
60	Alkalinity, bicarbonate, as CaCO3 (bennington landfill bedrock)		5	0	28.1	228	144.6	161	5547	74.48	48.93	-0.974	0.515
61	Alkalinity, bicarbonate, as CaCO3 (bennington landfill unconsolidated)		14	0	244	642	359.1	316.5	13093	114.4	64.49	1.382	0.319
62	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill bedrock)		1	0	242	242	242	242	N/A	N/A	0	N/A	N/A
63	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill unconsolidated)		13	0	126	429	275.8	273	7960	89.22	69.68	-0.0673	0.323
64	Alkalinity, carbonate, as CaCO3 (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65	Alkalinity, carbonate, as CaCO3 (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
66	Alkalinity, carbonate, as CaCO3 (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
67	Alkalinity, carbonate, as CaCO3 (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
68	Alkalinity, total, as CaCO3 (bennington landfill bedrock)		5	0	28.1	228	144.6	161	5547	74.48	48.93	-0.974	0.515
69	Alkalinity, total, as CaCO3 (bennington landfill unconsolidated)		14	0	244	642	359.1	316.5	13093	114.4	64.49	1.382	0.319
70	Alkalinity, total, as CaCO3 (non-bennington landfill bedrock)		1	0	242	242	242	242	N/A	N/A	0	N/A	N/A
71	Alkalinity, total, as CaCO3 (non-bennington landfill unconsolidated)		13	0	126	429	275.8	273	7960	89.22	69.68	-0.0673	0.323
72	Bromide (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
73	Bromide (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
74	Bromide (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75	Bromide (non-bennington landfill unconsolidated)		1	0	3.3	3.3	3.3	3.3	N/A	N/A	0	N/A	N/A
76	Chloride (bennington landfill bedrock)		5	0	1	10.5	4.8	4	12.5	3.535	1.779	1.193	0.736
77	Chloride (bennington landfill unconsolidated)		14	0	1.5	293	60.49	22.3	7382	85.92	30.69	1.918	1.42
78	Chloride (non-bennington landfill bedrock)		1	0	11.8	11.8	11.8	11.8	N/A	N/A	0	N/A	N/A
79	Chloride (non-bennington landfill unconsolidated)		13	0	4.4	881	155.8	65.9	60447	245.9	77.24	2.491	1.578
80	Nitrogen, ammonia, as N (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
81	Nitrogen, ammonia, as N (bennington landfill unconsolidated)		9	0	0.069	1.2	0.377	0.19	0.151	0.389	0.179	1.364	1.032
82	Nitrogen, ammonia, as N (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
83	Nitrogen, ammonia, as N (non-bennington landfill unconsolidated)		7	0	0.052	0.26	0.113	0.085	0.00477	0.069	0.0489	1.993	0.609
84	Nitrogen, nitrate, as N (bennington landfill bedrock)		2	0	0.4	0.46	0.43	0.43	0.0018	0.0424	0.0445	N/A	0.0987
85	Nitrogen, nitrate, as N (bennington landfill unconsolidated)		4	0	0.46	0.88	0.66	0.65	0.0362	0.19	0.215	0.198	0.288
86	Nitrogen, nitrate, as N (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
87	Nitrogen, nitrate, as N (non-bennington landfill unconsolidated)		7	0	0.28	6	1.667	0.87	4.134	2.033	0.875	2.063	1.22
88	Nitrogen, nitrite, as N (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
89	Nitrogen, nitrite, as N (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
90	Nitrogen, nitrite, as N (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
91	Nitrogen, nitrite, as N (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92	Nitrogen, total kjeldahl (TKN) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
93	Nitrogen, total kjeldahl (TKN) (bennington landfill unconsolidated)		6	0	1	7.4	3.067	2.05	6.071	2.464	1.26	1.354	0.803
94	Nitrogen, total kjeldahl (TKN) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
95	Nitrogen, total kjeldahl (TKN) (non-bennington landfill unconsolidated)		3	0	0.63	2.1	1.16	0.75	0.666	0.816	0.178	1.69	0.704
96	Orthophosphate, as P (bennington landfill bedrock)		2	0	0.077	0.22	0.149	0.149	0.0102	0.101	0.106	N/A	0.681
97	Orthophosphate, as P (bennington landfill unconsolidated)		3	0	0.044	0.19	0.0963	0.055	0.00661	0.0813	0.0163	1.696	0.844
98	Orthophosphate, as P (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
99	Orthophosphate, as P (non-bennington landfill unconsolidated)		1	0	0.052	0.052	0.052	0.052	N/A	N/A	0	N/A	N/A
100	Sulfate, as SO4 (bennington landfill bedrock)		5	0	4.2	13.6	7.94	6.4	18.07	4.251	3.262	0.606	0.535
101	Sulfate, as SO4 (bennington landfill unconsolidated)		14	0	4.3	16.7	8.45	6.85	15.04	3.878	2.372	1.253	0.459
102	Sulfate, as SO4 (non-bennington landfill bedrock)		1	0	34.6	34.6	34.6	34.6	N/A	N/A	0	N/A	N/A
103	Sulfate, as SO4 (non-bennington landfill unconsolidated)		13	0	3.8	39.3	14.71	10.5	117.2	10.83	7.413	1.25	0.736
104													
105	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
106													
107	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
108	Alkalinity, bicarbonate, as CaCO3 (bennington landfill bedrock)		5	0	68.06	108	128	161	178	188	208	218	226
109	Alkalinity, bicarbonate, as CaCO3 (bennington landfill unconsolidated)		14	0	253.8	278.6	287.3	316.5	425	450.6	493.8	556.2	624.8
110	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill bedrock)		1	0	242	242	242	242	242	242	242	242	242
111	Alkalinity, bicarbonate, as CaCO3 (non-bennington landfill unconsolidated)		13	0	153.2	229.2	234	273	334	343.6	386.8	409.2	425
112	Alkalinity, carbonate, as CaCO3 (bennington landfill bedrock)		5	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
113	Alkalinity, carbonate, as CaCO3 (bennington landfill unconsolidated)		14	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
114	Alkalinity, carbonate, as CaCO3 (non-bennington landfill bedrock)		1	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
115	Alkalinity, carbonate, as CaCO3 (non-bennington landfill unconsolidated)		13	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
116	Alkalinity, total, as CaCO3 (bennington landfill bedrock)		5	0	68.06	108	128	161	178	188	208	218	226
117	Alkalinity, total, as CaCO3 (bennington landfill unconsolidated)		14	0	253.8	278.6	287.3	316.5	425	450.6	493.8	556.2	624.8
118	Alkalinity, total, as CaCO3 (non-bennington landfill bedrock)		1	0	242	242	242	242	242	242	242	242	242
119	Alkalinity, total, as CaCO3 (non-bennington landfill unconsolidated)		13	0	153.2	229.2	234	273	334	343.6	386.8	409.2	425
120	Bromide (bennington landfill bedrock)		5	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
121	Bromide (bennington landfill unconsolidated)		14	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
122	Bromide (non-bennington landfill bedrock)		1	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
123	Bromide (non-bennington landfill unconsolidated)		13	0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.1	3.06

	A	B	C	D	E	F	G	H	I	J	K	L	M
124	Chloride (bennington landfill bedrock)		5	0	1.92	2.84	3.3	4	5.2	6.26	8.38	9.44	10.29
125	Chloride (bennington landfill unconsolidated)		14	0	1.81	2.66	3.25	22.3	79.3	98	164.8	224.1	279.2
126	Chloride (non-bennington landfill bedrock)		1	0	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
127	Chloride (non-bennington landfill unconsolidated)		13	0	6.46	11.06	16.4	65.9	118	245.2	342	559.4	816.7
128	Nitrogen, ammonia, as N (bennington landfill bedrock)		5	0	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
129	Nitrogen, ammonia, as N (bennington landfill unconsolidated)		14	0	0.05	0.05	0.05	0.087	0.295	0.454	0.668	0.862	1.132
130	Nitrogen, ammonia, as N (non-bennington landfill bedrock)		1	0	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
131	Nitrogen, ammonia, as N (non-bennington landfill unconsolidated)		13	0	0.05	0.05	0.05	0.052	0.085	0.106	0.12	0.176	0.243
132	Nitrogen, nitrate, as N (bennington landfill bedrock)		5	0	0.25	0.25	0.25	0.25	0.4	0.412	0.436	0.448	0.458
133	Nitrogen, nitrate, as N (bennington landfill unconsolidated)		14	0	0.25	0.25	0.25	0.25	0.408	0.496	0.69	0.796	0.863
134	Nitrogen, nitrate, as N (non-bennington landfill bedrock)		1	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
135	Nitrogen, nitrate, as N (non-bennington landfill unconsolidated)		13	0	0.25	0.25	0.25	0.28	0.87	1.248	2.06	3.72	5.544
136	Nitrogen, nitrite, as N (bennington landfill bedrock)		5	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
137	Nitrogen, nitrite, as N (bennington landfill unconsolidated)		14	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
138	Nitrogen, nitrite, as N (non-bennington landfill bedrock)		1	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
139	Nitrogen, nitrite, as N (non-bennington landfill unconsolidated)		13	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	10.15	22.03
140	Nitrogen, total kjeldahl (TKN) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
141	Nitrogen, total kjeldahl (TKN) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.75	1.55	1.96	3.9	5.515	7.023
142	Nitrogen, total kjeldahl (TKN) (non-bennington landfill bedrock)		1	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
143	Nitrogen, total kjeldahl (TKN) (non-bennington landfill unconsolidated)		13	0	0.5	0.5	0.5	0.5	0.5	0.578	0.726	1.29	1.938
144	Orthophosphate, as P (bennington landfill bedrock)		5	0	0.03	0.03	0.03	0.03	0.077	0.106	0.163	0.191	0.214
145	Orthophosphate, as P (bennington landfill unconsolidated)		14	0	0.03	0.03	0.03	0.03	0.03	0.0356	0.0517	0.102	0.172
146	Orthophosphate, as P (non-bennington landfill bedrock)		1	0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
147	Orthophosphate, as P (non-bennington landfill unconsolidated)		13	0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0388	0.0494
148	Sulfate, as SO4 (bennington landfill bedrock)		5	0	4.24	4.28	4.3	6.4	11.2	11.68	12.64	13.12	13.5
149	Sulfate, as SO4 (bennington landfill unconsolidated)		14	0	5.15	5.68	6	6.85	9.975	10.98	14.59	16.05	16.57
150	Sulfate, as SO4 (non-bennington landfill bedrock)		1	0	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6
151	Sulfate, as SO4 (non-bennington landfill unconsolidated)		13	0	4.84	6.48	7.5	10.5	21.1	21.46	29.3	34.44	38.33

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2		Date/Time of Computation		ProUCL 5.12/14/2018 12:56:34 PM									
3		**User Selected Options**											
4		From File		Water_02142018_BLnLBR_b.xls									
5		Full Precision		OFF									
6													
7	**From File: Water_02142018_BLnLBR_b.xls**												
8													
9				**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**									
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Cyanide (bennington landfill bedrock)		5	0	0	5	100.00%	0.005	0.005	N/A	N/A	N/A	N/A
13	Cyanide (bennington landfill unconsolidated)		14	0	1	13	92.86%	0.005	0.005	0.00508	8.0255E-8	2.8329E-4	0.0558
14													
15				**General Statistics for Raw Data Sets using Detected Data Only**									
16													
17	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
18	Cyanide (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Cyanide (bennington landfill unconsolidated)		1	0	0.0061	0.0061	0.0061	0.0061	N/A	N/A	0	N/A	N/A
20													
21				**Percentiles using all Detects (Ds) and Non-Detects (NDs)**									
22													
23	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
24	Cyanide (bennington landfill bedrock)		5	0	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
25	Cyanide (bennington landfill unconsolidated)		14	0	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.00539	0.00596

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 12:57:16 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_c.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_c.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Aluminum (bennington landfill bedrock)		5	0	0	5	100.00%	0.0894	0.0894	N/A	N/A	N/A	N/A
13	Aluminum (bennington landfill unconsolidated)		14	0	5	9	64.29%	0.0868	0.0894	1.282	4.609	2.147	1.675
14	Aluminum (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.0894	0.0894	N/A	N/A	N/A	N/A
15	Aluminum (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	8.193	552.2	23.5	2.868
16	Antimony (bennington landfill bedrock)		5	0	2	3	60.00%	4.5000E-4	4.5000E-4	9.9000E-4	4.4140E-7	6.6438E-4	0.671
17	Antimony (bennington landfill unconsolidated)		14	0	2	12	85.71%	4.5000E-4	4.8000E-4	4.8071E-4	5.6638E-9	7.5258E-5	0.157
18	Antimony (non-bennington landfill bedrock)		1	0	0	1	100.00%	4.5000E-4	4.5000E-4	N/A	N/A	N/A	N/A
19	Antimony (non-bennington landfill unconsolidated)		13	0	2	11	84.62%	4.5000E-4	4.5000E-4	4.7923E-4	9.6840E-9	9.8407E-5	0.205
20	Arsenic (bennington landfill bedrock)		5	0	0	5	100.00%	7.2000E-4	7.2000E-4	N/A	N/A	N/A	N/A
21	Arsenic (bennington landfill unconsolidated)		14	0	9	5	35.71%	6.8000E-4	7.2000E-4	0.00435	1.7393E-5	0.00417	0.959
22	Arsenic (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
23	Arsenic (non-bennington landfill unconsolidated)		13	0	8	5	38.46%	7.2000E-4	7.2000E-4	0.00786	3.8158E-4	0.0195	2.487
24	Barium (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	0.0486	0.00261	0.0511	1.052
25	Barium (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	0.294	0.117	0.342	1.164
26	Barium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
27	Barium (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	0.0992	0.0137	0.117	1.18
28	Beryllium (bennington landfill bedrock)		5	0	1	4	80.00%	7.1000E-5	7.1000E-5	1.8880E-4	5.5507E-8	2.3560E-4	1.248
29	Beryllium (bennington landfill unconsolidated)		14	0	4	10	71.43%	7.1000E-5	1.1000E-4	1.9857E-4	7.5420E-8	2.7463E-4	1.383
30	Beryllium (non-bennington landfill bedrock)		1	0	0	1	100.00%	7.1000E-5	7.1000E-5	N/A	N/A	N/A	N/A
31	Beryllium (non-bennington landfill unconsolidated)		13	0	4	9	69.23%	7.1000E-5	7.1000E-5	3.5992E-4	5.7655E-7	7.5931E-4	2.11
32	Boron (bennington landfill bedrock)		5	0	0	5	100.00%	0.0101	0.0101	N/A	N/A	N/A	N/A
33	Boron (bennington landfill unconsolidated)		14	0	6	8	57.14%	0.0083	0.0101	0.0368	0.00214	0.0462	1.257
34	Boron (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.0101	0.0101	N/A	N/A	N/A	N/A
35	Boron (non-bennington landfill unconsolidated)		13	0	9	4	30.77%	0.0101	0.0101	0.0156	4.1275E-5	0.00642	0.412
36	Cadmium (bennington landfill bedrock)		5	0	1	4	80.00%	1.5000E-4	1.5000E-4	1.6000E-4	4.000E-10	2.0000E-5	0.125
37	Cadmium (bennington landfill unconsolidated)		14	0	3	11	78.57%	1.5000E-4	1.9000E-4	1.7643E-4	3.1944E-9	5.6519E-5	0.32
38	Cadmium (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.5000E-4	1.5000E-4	N/A	N/A	N/A	N/A
39	Cadmium (non-bennington landfill unconsolidated)		13	0	4	9	69.23%	1.5000E-4	1.5000E-4	2.7077E-4	9.3622E-8	3.0598E-4	1.13
40	Calcium (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	36.33	413.5	20.33	0.56
41	Calcium (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	108.3	5110	71.49	0.66
42	Calcium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
43	Calcium (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	159.1	67694	260.2	1.635
44	Chromium (bennington landfill bedrock)		5	0	2	3	60.00%	8.7000E-4	8.7000E-4	0.00102	5.9656E-8	2.4425E-4	0.239
45	Chromium (bennington landfill unconsolidated)		14	0	7	7	50.00%	5.9000E-4	8.7000E-4	0.00255	2.2658E-5	0.00476	1.869
46	Chromium (non-bennington landfill bedrock)		1	0	0	1	100.00%	8.7000E-4	8.7000E-4	N/A	N/A	N/A	N/A
47	Chromium (non-bennington landfill unconsolidated)		13	0	6	7	53.85%	8.7000E-4	0.0019	0.00911	4.3724E-4	0.0209	2.295
48	Cobalt (bennington landfill bedrock)		5	0	4	1	20.00%	1.6000E-4	1.6000E-4	0.00399	4.3275E-5	0.00658	1.648
49	Cobalt (bennington landfill unconsolidated)		14	0	11	3	21.43%	2.0000E-4	2.0000E-4	0.0128	1.7875E-4	0.0134	1.047
50	Cobalt (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
51	Cobalt (non-bennington landfill unconsolidated)		13	0	12	1	7.69%	1.6000E-4	1.6000E-4	0.00865	2.9410E-4	0.0171	1.983
52	Copper (bennington landfill bedrock)		5	0	4	1	20.00%	5.4000E-4	5.4000E-4	0.0233	7.4718E-4	0.0273	1.172
53	Copper (bennington landfill unconsolidated)		14	0	6	8	57.14%	5.2000E-4	5.4000E-4	0.00415	5.6251E-5	0.0075	1.807
54	Copper (non-bennington landfill bedrock)		1	0	0	1	100.00%	5.4000E-4	5.4000E-4	N/A	N/A	N/A	N/A
55	Copper (non-bennington landfill unconsolidated)		13	0	11	2	15.38%	5.4000E-4	5.4000E-4	0.02	0.00276	0.0525	2.63
56	Iron (bennington landfill bedrock)		5	0	2	3	60.00%	0.0805	0.0805	0.121	0.00496	0.0704	0.581
57	Iron (bennington landfill unconsolidated)		14	0	11	3	21.43%	0.0747	0.0747	7.711	146.9	12.12	1.572
58	Iron (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.0805	0.0805	N/A	N/A	N/A	N/A
59	Iron (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	23.47	5032	70.93	3.022
60	Lead (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	0.00118	4.9822E-7	7.0585E-4	0.599
61	Lead (bennington landfill unconsolidated)		14	0	5	9	64.29%	9.0000E-5	1.1000E-4	0.00605	2.3155E-4	0.0152	2.514
62	Lead (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.1000E-4	1.1000E-4	N/A	N/A	N/A	N/A
63	Lead (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	0.0145	0.0017	0.0412	2.851
64	Magnesium (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	14.75	64.95	8.059	0.546
65	Magnesium (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	26.91	486.4	22.05	0.82
66	Magnesium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
67	Magnesium (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	61.34	16207	127.3	2.075
68	Manganese (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	0.508	1.086	1.042	2.051

	A	B	C	D	E	F	G	H	I	J	K	L	M
69	Manganese (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	0.817	0.63	0.793	0.971
70	Manganese (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
71	Manganese (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	0.906	2.042	1.429	1.577
72	Nickel (bennington landfill bedrock)		5	0	4	1	20.00%	0.001	0.001	0.00358	8.4736E-6	0.00291	0.813
73	Nickel (bennington landfill unconsolidated)		14	0	9	5	35.71%	8.5000E-4	0.001	0.00563	3.6997E-5	0.00608	1.081
74	Nickel (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.001	0.001	N/A	N/A	N/A	N/A
75	Nickel (non-bennington landfill unconsolidated)		13	0	10	3	23.08%	0.001	0.001	0.0146	0.00103	0.032	2.198
76	Potassium (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	2.466	2.222	1.491	0.604
77	Potassium (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	3.76	19.08	4.369	1.162
78	Potassium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
79	Potassium (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	3.422	19.07	4.367	1.276
80	Selenium (bennington landfill bedrock)		5	0	0	5	100.00%	5.0000E-4	5.0000E-4	N/A	N/A	N/A	N/A
81	Selenium (bennington landfill unconsolidated)		14	0	1	13	92.86%	4.4000E-4	5.0000E-4	4.6857E-4	1.0612E-8	1.0302E-4	0.22
82	Selenium (non-bennington landfill bedrock)		1	0	0	1	100.00%	5.0000E-4	5.0000E-4	N/A	N/A	N/A	N/A
83	Selenium (non-bennington landfill unconsolidated)		13	0	3	10	76.92%	5.0000E-4	5.0000E-4	7.9769E-4	4.7329E-7	6.8796E-4	0.862
84	Silver (bennington landfill bedrock)		5	0	0	5	100.00%	1.5000E-4	1.5000E-4	N/A	N/A	N/A	N/A
85	Silver (bennington landfill unconsolidated)		14	0	2	12	85.71%	1.2000E-4	1.5000E-4	1.3714E-4	2.6776E-9	5.1745E-5	0.377
86	Silver (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.5000E-4	1.5000E-4	N/A	N/A	N/A	N/A
87	Silver (non-bennington landfill unconsolidated)		13	0	2	11	84.62%	1.5000E-4	1.5000E-4	2.4538E-4	9.3256E-8	3.0538E-4	1.244
88	Sodium (bennington landfill bedrock)		5	0	5	0	0.00%	N/A	N/A	3.638	3.464	1.861	0.512
89	Sodium (bennington landfill unconsolidated)		14	0	13	1	7.14%	0.914	0.914	43.13	3867	62.19	1.442
90	Sodium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
91	Sodium (non-bennington landfill unconsolidated)		13	0	13	0	0.00%	N/A	N/A	86.72	17399	131.9	1.521
92	Thallium (bennington landfill bedrock)		5	0	2	3	60.00%	1.2000E-4	1.2000E-4	3.6800E-4	2.1770E-7	4.6658E-4	1.268
93	Thallium (bennington landfill unconsolidated)		14	0	6	8	57.14%	1.2000E-4	1.6000E-4	2.0554E-4	2.4764E-8	1.5737E-4	0.766
94	Thallium (non-bennington landfill bedrock)		1	0	0	1	100.00%	1.2000E-4	1.2000E-4	N/A	N/A	N/A	N/A
95	Thallium (non-bennington landfill unconsolidated)		13	0	3	10	76.92%	1.2000E-4	1.2000E-4	2.2385E-4	8.1931E-8	2.8624E-4	1.279
96	Vanadium (bennington landfill bedrock)		5	0	2	3	60.00%	2.1000E-4	2.1000E-4	2.9200E-4	2.0976E-8	1.4483E-4	0.496
97	Vanadium (bennington landfill unconsolidated)		14	0	6	8	57.14%	2.0000E-4	2.8000E-4	0.00208	2.5582E-5	0.00506	2.438
98	Vanadium (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
99	Vanadium (non-bennington landfill unconsolidated)		13	0	12	1	7.69%	2.1000E-4	2.1000E-4	0.00889	4.8244E-4	0.022	2.472
100	Zinc (bennington landfill bedrock)		5	0	4	1	20.00%	0.0065	0.0065	0.384	0.398	0.631	1.645
101	Zinc (bennington landfill unconsolidated)		14	0	4	10	71.43%	0.0054	0.0065	0.0167	6.4277E-4	0.0254	1.517
102	Zinc (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.0065	0.0065	N/A	N/A	N/A	N/A
103	Zinc (non-bennington landfill unconsolidated)		13	0	5	8	61.54%	0.0065	0.0065	0.0529	0.0215	0.146	2.767
104													
105	**General Statistics for Raw Data Sets using Detected Data Only**												
106													
107	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
108	Aluminum (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
109	Aluminum (bennington landfill unconsolidated)		5	0	0.225	5.47	3.433	5.25	7.133	2.671	0.326	-0.632	0.778
110	Aluminum (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
111	Aluminum (non-bennington landfill unconsolidated)		13	0	0.127	86	8.193	0.757	552.2	23.5	0.731	3.543	2.868
112	Antimony (bennington landfill bedrock)		2	0	0.0017	0.0019	0.0018	0.0018	2.0000E-8	1.4142E-4	1.4826E-4	N/A	0.0786
113	Antimony (bennington landfill unconsolidated)		2	0	6.6000E-4	6.7000E-4	6.6500E-4	6.6500E-4	5.000E-11	7.0711E-6	7.4129E-6	N/A	0.0106
114	Antimony (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
115	Antimony (non-bennington landfill unconsolidated)		2	0	4.6000E-4	8.2000E-4	6.4000E-4	6.4000E-4	6.4800E-8	2.5456E-4	2.6686E-4	N/A	0.398
116	Arsenic (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
117	Arsenic (bennington landfill unconsolidated)		9	0	0.0012	0.0132	0.00639	0.0059	1.7344E-5	0.00416	0.00519	0.31	0.652
118	Arsenic (non-bennington landfill bedrock)		1	0	0.002	0.002	0.002	0.002	N/A	N/A	0	N/A	N/A
119	Arsenic (non-bennington landfill unconsolidated)		8	0	8.2000E-4	0.0747	0.0123	0.0019	6.4956E-4	0.0255	0.00139	2.714	2.07
120	Barium (bennington landfill bedrock)		5	0	0.0097	0.136	0.0486	0.0347	0.00261	0.0511	0.0285	1.784	1.052
121	Barium (bennington landfill unconsolidated)		14	0	0.0299	0.883	0.294	0.077	0.117	0.342	0.0627	0.997	1.164
122	Barium (non-bennington landfill bedrock)		1	0	0.048	0.048	0.048	0.048	N/A	N/A	0	N/A	N/A
123	Barium (non-bennington landfill unconsolidated)		13	0	0.0104	0.43	0.0992	0.0797	0.0137	0.117	0.082	2.143	1.18
124	Beryllium (bennington landfill bedrock)		1	0	6.6000E-4	6.6000E-4	6.6000E-4	6.6000E-4	N/A	N/A	0	N/A	N/A
125	Beryllium (bennington landfill unconsolidated)		4	0	1.9000E-4	0.0011	5.1750E-4	3.9000E-4	1.6209E-7	4.0261E-4	1.9274E-4	1.59	0.778
126	Beryllium (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
127	Beryllium (non-bennington landfill unconsolidated)		4	0	1.5000E-4	0.0029	0.00101	4.9500E-4	1.6845E-6	0.0013	4.9666E-4	1.682	1.285
128	Boron (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
129	Boron (bennington landfill unconsolidated)		6	0	0.018	0.156	0.0748	0.0522	0.00295	0.0544	0.0328	0.829	0.727
130	Boron (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
131	Boron (non-bennington landfill unconsolidated)		9	0	0.0113	0.0324	0.018	0.0171	4.5285E-5	0.00673	0.00697	1.195	0.373
132	Cadmium (bennington landfill bedrock)		1	0	2.0000E-4	2.0000E-4	2.0000E-4	2.0000E-4	N/A	N/A	0	N/A	N/A
133	Cadmium (bennington landfill unconsolidated)		3	0	2.0000E-4	3.3000E-4	2.7333E-4	2.9000E-4	4.4333E-9	6.6583E-5	5.9303E-5	-1.056	0.244
134	Cadmium (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
135	Cadmium (non-bennington landfill unconsolidated)		4	0	2.2000E-4	0.0013	5.4250E-4	3.2500E-4	2.6349E-7	5.1331E-4	1.4826E-4	1.818	0.946
136	Calcium (bennington landfill bedrock)		5	0	5.84	58.9	36.33	40.1	413.5	20.33	17.05	-0.772	0.56

	A	B	C	D	E	F	G	H	I	J	K	L	M
137	Calcium (bennington landfill unconsolidated)		14	0	2.36	269	108.3	89.6	5110	71.49	56.93	0.894	0.66
138	Calcium (non-bennington landfill bedrock)		1	0	70.5	70.5	70.5	70.5	N/A	N/A	0	N/A	N/A
139	Calcium (non-bennington landfill unconsolidated)		13	0	36.2	1010	159.1	78.1	67694	260.2	25.2	3.399	1.635
140	Chromium (bennington landfill bedrock)		2	0	0.001	0.0015	0.00125	0.00125	1.2500E-7	3.5355E-4	3.7064E-4	N/A	0.283
141	Chromium (bennington landfill unconsolidated)		7	0	6.0000E-4	0.0193	0.0045	0.0023	4.3967E-5	0.00663	0.00237	2.475	1.473
142	Chromium (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
143	Chromium (non-bennington landfill unconsolidated)		6	0	9.5000E-4	0.0795	0.0187	0.00535	9.3088E-4	0.0305	0.00582	2.209	1.629
144	Cobalt (bennington landfill bedrock)		4	0	1.6000E-4	0.0171	0.00495	0.00127	6.6007E-5	0.00812	0.00114	1.964	1.641
145	Cobalt (bennington landfill unconsolidated)		11	0	3.1000E-4	0.0402	0.0162	0.0122	1.8998E-4	0.0138	0.0139	0.65	0.851
146	Cobalt (non-bennington landfill bedrock)		1	0	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	N/A	N/A	0	N/A	N/A
147	Cobalt (non-bennington landfill unconsolidated)		12	0	1.6000E-4	0.0654	0.00936	0.00315	3.4048E-4	0.0185	0.00303	3.017	1.972
148	Copper (bennington landfill bedrock)		4	0	0.0033	0.0741	0.029	0.0194	0.00103	0.0321	0.0194	1.349	1.105
149	Copper (bennington landfill unconsolidated)		6	0	9.4000E-4	0.0288	0.00899	0.00615	1.0831E-4	0.0104	0.00719	1.783	1.158
150	Copper (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
151	Copper (non-bennington landfill unconsolidated)		11	0	0.001	0.199	0.0235	0.0017	0.00349	0.0591	0.00104	3.151	2.516
152	Iron (bennington landfill bedrock)		2	0	0.104	0.261	0.183	0.183	0.0123	0.111	0.116	N/A	0.608
153	Iron (bennington landfill unconsolidated)		11	0	0.0861	46.4	9.794	4.84	183.4	13.54	6.212	2.335	1.383
154	Iron (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
155	Iron (non-bennington landfill unconsolidated)		13	0	0.158	259	23.47	2.26	5032	70.93	2.479	3.576	3.022
156	Lead (bennington landfill bedrock)		5	0	2.2000E-4	0.0019	0.00118	0.0012	4.9822E-7	7.0585E-4	8.8955E-4	-0.391	0.599
157	Lead (bennington landfill unconsolidated)		5	0	4.3000E-4	0.059	0.0168	0.008	5.8642E-4	0.0242	0.00934	1.967	1.443
158	Lead (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
159	Lead (non-bennington landfill unconsolidated)		13	0	2.0000E-4	0.15	0.0145	9.3000E-4	0.0017	0.0412	7.4129E-4	3.472	2.851
160	Magnesium (bennington landfill bedrock)		5	0	2.44	24.3	14.75	15.1	64.95	8.059	5.189	-0.747	0.546
161	Magnesium (bennington landfill unconsolidated)		14	0	1.54	97.5	26.91	25.45	486.4	22.05	6.004	2.719	0.82
162	Magnesium (non-bennington landfill bedrock)		1	0	25.3	25.3	25.3	25.3	N/A	N/A	0	N/A	N/A
163	Magnesium (non-bennington landfill unconsolidated)		13	0	8.8	483	61.34	24.8	16207	127.3	12.01	3.545	2.075
164	Manganese (bennington landfill bedrock)		5	0	0.0054	2.37	0.508	0.0376	1.086	1.042	0.0477	2.225	2.051
165	Manganese (bennington landfill unconsolidated)		14	0	0.0016	2.32	0.817	0.676	0.63	0.793	0.96	0.563	0.971
166	Manganese (non-bennington landfill bedrock)		1	0	0.155	0.155	0.155	0.155	N/A	N/A	0	N/A	N/A
167	Manganese (non-bennington landfill unconsolidated)		13	0	0.009	5.37	0.906	0.407	2.042	1.429	0.579	2.909	1.577
168	Nickel (bennington landfill bedrock)		4	0	0.0013	0.009	0.00423	0.0033	1.1349E-5	0.00337	0.002	1.387	0.797
169	Nickel (bennington landfill unconsolidated)		9	0	0.0017	0.0237	0.00828	0.0054	4.2577E-5	0.00653	0.00326	1.948	0.788
170	Nickel (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
171	Nickel (non-bennington landfill unconsolidated)		10	0	0.0012	0.123	0.0187	0.00495	0.0014	0.0374	0.00556	2.936	2.008
172	Potassium (bennington landfill bedrock)		5	0	0.911	3.98	2.466	2.45	2.222	1.491	2.209	0.0086	0.604
173	Potassium (bennington landfill unconsolidated)		14	0	0.762	14.8	3.76	1.95	19.08	4.369	1.245	1.83	1.162
174	Potassium (non-bennington landfill bedrock)		1	0	0.902	0.902	0.902	0.902	N/A	N/A	0	N/A	N/A
175	Potassium (non-bennington landfill unconsolidated)		13	0	1.05	17.7	3.422	2.72	19.07	4.367	1.379	3.385	1.276
176	Selenium (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
177	Selenium (bennington landfill unconsolidated)		1	0	8.4000E-4	8.4000E-4	8.4000E-4	8.4000E-4	N/A	N/A	0	N/A	N/A
178	Selenium (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
179	Selenium (non-bennington landfill unconsolidated)		3	0	5.7000E-4	0.0026	0.00179	0.0022	1.1563E-6	0.00108	5.9303E-4	-1.466	0.601
180	Silver (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
181	Silver (bennington landfill unconsolidated)		2	0	1.6000E-4	3.2000E-4	2.4000E-4	2.4000E-4	1.2800E-8	1.1314E-4	1.1861E-4	N/A	0.471
182	Silver (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
183	Silver (non-bennington landfill unconsolidated)		2	0	2.4000E-4	0.0013	7.7000E-4	7.7000E-4	5.6180E-7	7.4953E-4	7.8577E-4	N/A	0.973
184	Sodium (bennington landfill bedrock)		5	0	1.33	5.69	3.638	3.24	3.464	1.861	2.832	0.0146	0.512
185	Sodium (bennington landfill unconsolidated)		13	0	1.53	202	46.38	17.6	4352	65.97	23.81	1.815	1.422
186	Sodium (non-bennington landfill bedrock)		1	0	5.78	5.78	5.78	5.78	N/A	N/A	0	N/A	N/A
187	Sodium (non-bennington landfill unconsolidated)		13	0	1.92	472	86.72	41	17399	131.9	48.15	2.479	1.521
188	Thallium (bennington landfill bedrock)		2	0	1.8000E-4	0.0013	7.4000E-4	7.4000E-4	6.2720E-7	7.9196E-4	8.3024E-4	N/A	1.07
189	Thallium (bennington landfill unconsolidated)		6	0	1.5000E-4	7.1000E-4	3.1333E-4	2.5000E-4	4.4747E-8	2.1153E-4	1.3343E-4	1.673	0.675
190	Thallium (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
191	Thallium (non-bennington landfill unconsolidated)		3	0	2.2000E-4	0.0012	5.7000E-4	2.9000E-4	2.9890E-7	5.4672E-4	1.0378E-4	1.7	0.959
192	Vanadium (bennington landfill bedrock)		2	0	2.5000E-4	5.8000E-4	4.1500E-4	4.1500E-4	5.4450E-8	2.3335E-4	2.4463E-4	N/A	0.562
193	Vanadium (bennington landfill unconsolidated)		6	0	2.6000E-4	0.0199	0.00457	0.0013	5.8558E-5	0.00765	0.00147	2.261	1.674
194	Vanadium (non-bennington landfill bedrock)		1	0	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	N/A	N/A	0	N/A	N/A
195	Vanadium (non-bennington landfill unconsolidated)		12	0	2.6000E-4	0.0836	0.00961	0.0012	5.6274E-4	0.0237	0.00109	3.266	2.468
196	Zinc (bennington landfill bedrock)		4	0	0.0411	1.64	0.478	0.115	0.604	0.777	0.104	1.959	1.627
197	Zinc (bennington landfill unconsolidated)		4	0	0.0162	0.102	0.045	0.0309	0.00151	0.0388	0.0143	1.755	0.862
198	Zinc (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
199	Zinc (non-bennington landfill unconsolidated)		5	0	0.0069	0.559	0.127	0.0152	0.0585	0.242	0.0123	2.213	1.901
200													

	A	B	C	D	E	F	G	H	I	J	K	L	M
201	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
202													
203	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
204	Aluminum (bennington landfill bedrock)		5	0	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894
205	Aluminum (bennington landfill unconsolidated)		14	0	0.0868	0.0868	0.0875	0.0894	0.664	2.586	5.362	5.431	5.462
206	Aluminum (non-bennington landfill bedrock)		1	0	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894	0.0894
207	Aluminum (non-bennington landfill unconsolidated)		13	0	0.17	0.426	0.576	0.757	3.01	3.064	7.78	39.77	76.75
208	Antimony (bennington landfill bedrock)		5	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	0.0017	0.00174	0.00182	0.00186	0.00189
209	Antimony (bennington landfill unconsolidated)		14	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.8000E-4	4.8000E-4	6.0600E-4	6.6350E-4	6.6870E-4
210	Antimony (non-bennington landfill bedrock)		1	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4
211	Antimony (non-bennington landfill unconsolidated)		13	0	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5000E-4	4.5800E-4	6.0400E-4	7.7680E-4
212	Arsenic (bennington landfill bedrock)		5	0	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4	7.2000E-4
213	Arsenic (bennington landfill unconsolidated)		14	0	6.8000E-4	7.0400E-4	7.2000E-4	0.00225	0.00643	0.00772	0.0105	0.0117	0.0129
214	Arsenic (non-bennington landfill bedrock)		1	0	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
215	Arsenic (non-bennington landfill unconsolidated)		13	0	7.2000E-4	7.2000E-4	7.2000E-4	0.0011	0.002	0.00326	0.0107	0.0373	0.0672
216	Barium (bennington landfill bedrock)		5	0	0.012	0.0143	0.0155	0.0347	0.0469	0.0647	0.1	0.118	0.132
217	Barium (bennington landfill unconsolidated)		14	0	0.0407	0.0465	0.05	0.077	0.504	0.654	0.849	0.862	0.879
218	Barium (non-bennington landfill bedrock)		1	0	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
219	Barium (non-bennington landfill unconsolidated)		13	0	0.0126	0.0154	0.0156	0.0797	0.111	0.125	0.203	0.304	0.405
220	Beryllium (bennington landfill bedrock)		5	0	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	1.8880E-4	4.2440E-4	5.4220E-4	6.3644E-4
221	Beryllium (bennington landfill unconsolidated)		14	0	7.1000E-5	7.1000E-5	7.1000E-5	1.1000E-4	1.7000E-4	2.4600E-4	4.1400E-4	6.7750E-4	0.00102
222	Beryllium (non-bennington landfill bedrock)		1	0	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5
223	Beryllium (non-bennington landfill unconsolidated)		13	0	7.1000E-5	7.1000E-5	7.1000E-5	7.1000E-5	1.5000E-4	1.6200E-4	6.9000E-4	0.00165	0.00265
224	Boron (bennington landfill bedrock)		5	0	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101
225	Boron (bennington landfill unconsolidated)		14	0	0.0083	0.0083	0.00875	0.0101	0.0465	0.0513	0.107	0.138	0.152
226	Boron (non-bennington landfill bedrock)		1	0	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101
227	Boron (non-bennington landfill unconsolidated)		13	0	0.0101	0.0101	0.0101	0.0123	0.0187	0.0204	0.0218	0.026	0.0311
228	Cadmium (bennington landfill bedrock)		5	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.6000E-4	1.8000E-4	1.9000E-4	1.9800E-4
229	Cadmium (bennington landfill unconsolidated)		14	0	1.5000E-4	1.5000E-4	1.5000E-4	1.9000E-4	1.9000E-4	1.9400E-4	2.6300E-4	3.0400E-4	3.2480E-4
230	Cadmium (non-bennington landfill bedrock)		1	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4
231	Cadmium (non-bennington landfill unconsolidated)		13	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	2.2000E-4	2.2600E-4	3.8200E-4	7.7200E-4	0.00119
232	Calcium (bennington landfill bedrock)		5	0	14.94	24.05	28.6	40.1	48.2	50.34	54.62	56.76	58.47
233	Calcium (bennington landfill unconsolidated)		14	0	34.71	63.16	71.25	89.6	135.3	146	200.9	235.9	262.4
234	Calcium (non-bennington landfill bedrock)		1	0	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5
235	Calcium (non-bennington landfill unconsolidated)		13	0	43.24	57.2	64.7	78.1	95.1	135.8	200.6	530	914
236	Chromium (bennington landfill bedrock)		5	0	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	0.001	0.0011	0.0013	0.0014	0.00148
237	Chromium (bennington landfill unconsolidated)		14	0	5.9300E-4	6.0000E-4	6.6750E-4	8.7000E-4	0.00223	0.0025	0.00357	0.00929	0.0173
238	Chromium (non-bennington landfill bedrock)		1	0	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4	8.7000E-4
239	Chromium (non-bennington landfill unconsolidated)		13	0	8.7000E-4	8.7000E-4	8.7000E-4	9.5000E-4	0.004	0.00562	0.0168	0.0434	0.0723
240	Cobalt (bennington landfill bedrock)		5	0	1.6000E-4	1.6000E-4	1.6000E-4	8.4000E-4	0.0017	0.00478	0.0109	0.014	0.0165
241	Cobalt (bennington landfill unconsolidated)		14	0	2.0000E-4	2.6600E-4	6.8250E-4	0.0107	0.0184	0.0252	0.0334	0.036	0.0394
242	Cobalt (non-bennington landfill bedrock)		1	0	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4	2.3000E-4
243	Cobalt (non-bennington landfill unconsolidated)		13	0	2.2800E-4	6.2400E-4	8.1000E-4	0.0031	0.0049	0.00544	0.0175	0.0384	0.06
244	Copper (bennington landfill bedrock)		5	0	0.00164	0.00275	0.0033	0.0092	0.0295	0.0384	0.0563	0.0652	0.0723
245	Copper (bennington landfill unconsolidated)		14	0	5.2000E-4	5.2000E-4	5.2500E-4	5.4000E-4	0.00403	0.00592	0.00975	0.0171	0.0265
246	Copper (non-bennington landfill bedrock)		1	0	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4	5.4000E-4
247	Copper (non-bennington landfill unconsolidated)		13	0	6.3200E-4	0.001	0.001	0.0017	0.0052	0.00628	0.0304	0.101	0.179
248	Iron (bennington landfill bedrock)		5	0	0.0805	0.0805	0.0805	0.0805	0.104	0.135	0.198	0.23	0.255
249	Iron (bennington landfill unconsolidated)		14	0	0.0747	0.0815	0.227	3.235	8.455	9.898	17.99	29.83	43.09
250	Iron (non-bennington landfill bedrock)		1	0	0.0805	0.0805	0.0805	0.0805	0.0805	0.0805	0.0805	0.0805	0.0805
251	Iron (non-bennington landfill unconsolidated)		13	0	0.252	0.877	1.31	2.26	5.35	7.51	16.11	114.3	230.1
252	Lead (bennington landfill bedrock)		5	0	4.4000E-4	6.6000E-4	7.7000E-4	0.0012	0.0018	0.00182	0.00186	0.00188	0.0019
253	Lead (bennington landfill unconsolidated)		14	0	9.0000E-5	9.0000E-5	9.5000E-5	1.1000E-4	0.00176	0.00452	0.0124	0.0299	0.0532
254	Lead (non-bennington landfill bedrock)		1	0	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4
255	Lead (non-bennington landfill unconsolidated)		13	0	4.8800E-4	7.5200E-4	8.0000E-4	9.3000E-4	0.0031	0.00322	0.0195	0.0742	0.135
256	Magnesium (bennington landfill bedrock)		5	0	6.784	11.13	13.3	15.1	18.6	19.74	22.02	23.16	24.07
257	Magnesium (bennington landfill unconsolidated)		14	0	9.422	18.64	19.68	25.45	27.1	27.6	31.82	55.9	89.18
258	Magnesium (non-bennington landfill bedrock)		1	0	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
259	Magnesium (non-bennington landfill unconsolidated)		13	0	12.54	17.98	19.9	24.8	37.5	42.3	50.78	224.5	431.3
260	Manganese (bennington landfill bedrock)		5	0	0.00632	0.00724	0.0077	0.0376	0.119	0.569	1.47	1.92	2.28
261	Manganese (bennington landfill unconsolidated)		14	0	0.00736	0.0316	0.0606	0.676	1.428	1.64	1.802	1.995	2.255
262	Manganese (non-bennington landfill bedrock)		1	0	0.155	0.155	0.155	0.155	0.155	0.155	0.155	0.155	0.155
263	Manganese (non-bennington landfill unconsolidated)		13	0	0.0427	0.162	0.185	0.407	1	1.084	1.492	3.096	4.915
264	Nickel (bennington landfill bedrock)		5	0	0.00112	0.00124	0.0013	0.0026	0.004	0.005	0.007	0.008	0.0088
265	Nickel (bennington landfill unconsolidated)		14	0	8.5000E-4	9.4000E-4	0.001	0.0051	0.00705	0.00764	0.0113	0.0167	0.0223
266	Nickel (non-bennington landfill bedrock)		1	0	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
267	Nickel (non-bennington landfill unconsolidated)		13	0	0.001	0.00108	0.0012	0.0022	0.0101	0.0108	0.0231	0.0649	0.111
268	Potassium (bennington landfill bedrock)		5	0	0.967	1.022	1.05	2.45	3.94	3.948	3.964	3.972	3.978

	A	B	C	D	E	F	G	H	I	J	K	L	M
269	Potassium (bennington landfill unconsolidated)		14	0	0.96	1.122	1.185	1.95	3.208	5.302	10.23	12.46	14.33
270	Potassium (non-bennington landfill bedrock)		1	0	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902	0.902
271	Potassium (non-bennington landfill unconsolidated)		13	0	1.238	1.366	1.39	2.72	2.87	2.924	3.512	9.27	16.01
272	Selenium (bennington landfill bedrock)		5	0	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4
273	Selenium (bennington landfill unconsolidated)		14	0	4.4000E-4	4.4000E-4	4.4000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	6.1900E-4	7.9580E-4
274	Selenium (non-bennington landfill bedrock)		1	0	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4
275	Selenium (non-bennington landfill unconsolidated)		13	0	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.0000E-4	5.4200E-4	0.00187	0.00236	0.00255
276	Silver (bennington landfill bedrock)		5	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4
277	Silver (bennington landfill unconsolidated)		14	0	1.2000E-4	1.2000E-4	1.2000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5700E-4	2.1600E-4	2.9920E-4
278	Silver (non-bennington landfill bedrock)		1	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4
279	Silver (non-bennington landfill unconsolidated)		13	0	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	1.5000E-4	2.2200E-4	6.6400E-4	0.00117
280	Sodium (bennington landfill bedrock)		5	0	1.822	2.314	2.56	3.24	5.37	5.434	5.562	5.626	5.677
281	Sodium (bennington landfill unconsolidated)		14	0	1.533	1.582	1.913	16.5	47.33	58.32	140.9	182.5	198.1
282	Sodium (non-bennington landfill bedrock)		1	0	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78
283	Sodium (non-bennington landfill unconsolidated)		13	0	6.544	9.632	11.3	41	77.7	100.1	211	329.8	443.6
284	Thallium (bennington landfill bedrock)		5	0	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.8000E-4	4.0400E-4	8.5200E-4	0.00108	0.00126
285	Thallium (bennington landfill unconsolidated)		14	0	1.2000E-4	1.3800E-4	1.5250E-4	1.6000E-4	1.7750E-4	2.3600E-4	3.4100E-4	4.7600E-4	6.6320E-4
286	Thallium (non-bennington landfill bedrock)		1	0	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4
287	Thallium (non-bennington landfill unconsolidated)		13	0	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.8000E-4	2.7600E-4	6.5400E-4	0.00109
288	Vanadium (bennington landfill bedrock)		5	0	2.1000E-4	2.1000E-4	2.1000E-4	2.1000E-4	2.5000E-4	3.1600E-4	4.4800E-4	5.1400E-4	5.6680E-4
289	Vanadium (bennington landfill unconsolidated)		14	0	2.1000E-4	2.1000E-4	2.1000E-4	2.7500E-4	9.9000E-4	0.00128	0.00343	0.00976	0.0179
290	Vanadium (non-bennington landfill bedrock)		1	0	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4	3.2000E-4
291	Vanadium (non-bennington landfill unconsolidated)		13	0	2.7000E-4	4.3400E-4	6.2000E-4	0.0011	0.0036	0.00432	0.014	0.0432	0.0755
292	Zinc (bennington landfill bedrock)		5	0	0.0203	0.0342	0.0411	0.0485	0.182	0.474	1.057	1.348	1.582
293	Zinc (bennington landfill unconsolidated)		14	0	0.0054	0.0054	0.00568	0.0065	0.0138	0.0202	0.0327	0.0588	0.0934
294	Zinc (non-bennington landfill bedrock)		1	0	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065
295	Zinc (non-bennington landfill unconsolidated)		13	0	0.0065	0.0065	0.0065	0.0065	0.0088	0.0126	0.04	0.251	0.497

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2			Date/Time of Computation	ProUCL 5.12/14/2018 12:58:18 PM									
3			**User Selected Options**										
4			From File	Water_02142018_BLnLBR_d.xls									
5			Full Precision	OFF									
6													
7	**From File: Water_02142018_BLnLBR_d.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	Mercury (bennington landfill bedrock)		5	0	0	5	100.00%	5.0000E-5	5.0000E-5	N/A	N/A	N/A	N/A
13	Mercury (bennington landfill unconsolidated)		14	0	2	12	85.71%	5.0000E-5	5.0000E-5	5.9286E-5	5.495E-10	2.3441E-5	0.395
14													
15	**General Statistics for Raw Data Sets using Detected Data Only**												
16													
17	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
18	Mercury (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Mercury (bennington landfill unconsolidated)		2	0	1.0000E-4	1.3000E-4	1.1500E-4	1.1500E-4	4.500E-10	2.1213E-5	2.2239E-5	N/A	0.184
20													
21	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
22													
23	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
24	Mercury (bennington landfill bedrock)		5	0	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5
25	Mercury (bennington landfill unconsolidated)		14	0	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	8.5000E-5	1.1050E-4	1.2610E-4

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 12:59:19 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_e.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_e.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill bedrock)		5	0	0	5	100.00%	3	3	N/A	N/A	N/A	N/A
13	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill unconsolidated)		14	0	0	14	100.00%	3	7	N/A	N/A	N/A	N/A
14	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill bedrock)		1	0	0	1	100.00%	3	3	N/A	N/A	N/A	N/A
15	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill unconsolidated)		14	0	0	14	100.00%	3	7	N/A	N/A	N/A	N/A
16	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill bedrock)		5	0	0	5	100.00%	2	2	N/A	N/A	N/A	N/A
17	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill unconsolidated)		14	0	0	14	100.00%	2	5	N/A	N/A	N/A	N/A
18	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill bedrock)		1	0	0	1	100.00%	2	2	N/A	N/A	N/A	N/A
19	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill unconsolidated)		14	0	0	14	100.00%	2	5	N/A	N/A	N/A	N/A
20	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill bedrock)		5	0	1	4	80.00%	0.9	1	0.6	0	0	N/A
21	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.4	1	N/A	N/A	N/A	N/A
22	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
23	Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill unconsolidated)		14	0	0	14	100.00%	0.4	1	N/A	N/A	N/A	N/A
24	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.4	1	N/A	N/A	N/A	N/A
25	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.4	1	N/A	N/A	N/A	N/A
26	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
27	Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill unconsolidated)		14	0	0	14	100.00%	0.4	1	N/A	N/A	N/A	N/A
28	Perfluorobutane sulfonate (PFBS) (bennington landfill bedrock)		5	0	1	4	80.00%	0.3	0.3	1.64	7.182	2.68	1.634
29	Perfluorobutane sulfonate (PFBS) (bennington landfill unconsolidated)		14	0	10	4	28.57%	0.8	0.8	1.25	0.755	0.869	0.695
30	Perfluorobutane sulfonate (PFBS) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
31	Perfluorobutane sulfonate (PFBS) (non-bennington landfill unconsolidated)		14	0	7	7	50.00%	0.7	0.8	1.393	1.182	1.087	0.781
32	Perfluorobutanoic acid (PFBA) (bennington landfill bedrock)		5	0	1	4	80.00%	2	2	5	36	6	1.2
33	Perfluorobutanoic acid (PFBA) (bennington landfill unconsolidated)		14	0	11	3	21.43%	3	3	8.643	94.23	9.707	1.123
34	Perfluorobutanoic acid (PFBA) (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
35	Perfluorobutanoic acid (PFBA) (non-bennington landfill unconsolidated)		14	0	9	5	35.71%	3	5	24.86	5016	70.82	2.849
36	Perfluorodecanoic acid (PFDA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.4	1	N/A	N/A	N/A	N/A
37	Perfluorodecanoic acid (PFDA) (bennington landfill unconsolidated)		14	0	2	12	85.71%	0.4	1	0.7	0.576	0.759	1.084
38	Perfluorodecanoic acid (PFDA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
39	Perfluorodecanoic acid (PFDA) (non-bennington landfill unconsolidated)		14	0	3	11	78.57%	0.4	1	0.81	1.388	1.178	1.454
40	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
41	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
42	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
43	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill unconsolidated)		14	0	1	13	92.86%	0.3	0.7	0.707	2.155	1.468	2.076
44	Perfluoroheptanoic acid (PFHpA) (bennington landfill bedrock)		5	0	3	2	40.00%	0.3	0.3	8.48	233.3	15.27	1.801
45	Perfluoroheptanoic acid (PFHpA) (bennington landfill unconsolidated)		14	0	13	1	7.14%	0.5	0.5	6.964	42.3	6.504	0.934

	A	B	C	D	E	F	G	H	I	J	K	L	M
46	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
47	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill unconsolidated)		14	0	13	1	7.14%	0.5	0.5	10.96	241.4	15.54	1.417
48	Perfluorohexane sulfonate (PFHxS) (bennington landfill bedrock)		5	0	1	4	80.00%	0.4	0.4	0.72	0.41	0.64	0.889
49	Perfluorohexane sulfonate (PFHxS) (bennington landfill unconsolidated)		14	0	8	6	42.86%	0.4	1	1.8	5.746	2.397	1.332
50	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
51	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill unconsolidated)		14	0	4	10	71.43%	1	1	1.143	0.122	0.35	0.306
52	Perfluorohexanoic acid (PFHxA) (bennington landfill bedrock)		5	0	2	3	60.00%	0.3	0.4	7.86	227.1	15.07	1.917
53	Perfluorohexanoic acid (PFHxA) (bennington landfill unconsolidated)		14	0	12	2	14.29%	0.6	0.6	6.857	51.93	7.207	1.051
54	Perfluorohexanoic acid (PFHxA) (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
55	Perfluorohexanoic acid (PFHxA) (non-bennington landfill unconsolidated)		14	0	13	1	7.14%	0.6	0.6	11.03	320.4	17.9	1.623
56	Perfluorononanoic acid (PFNA) (bennington landfill bedrock)		5	0	1	4	80.00%	0.3	0.4	1.04	2.19	1.48	1.423
57	Perfluorononanoic acid (PFNA) (bennington landfill unconsolidated)		14	0	12	2	14.29%	0.6	0.6	1.821	4.403	2.098	1.152
58	Perfluorononanoic acid (PFNA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
59	Perfluorononanoic acid (PFNA) (non-bennington landfill unconsolidated)		14	0	10	4	28.57%	0.6	0.7	2.736	12.56	3.543	1.295
60	Perfluorooctane sulfonate (PFOS) (bennington landfill bedrock)		5	0	1	4	80.00%	0.4	1	0.72	0.41	0.64	0.889
61	Perfluorooctane sulfonate (PFOS) (bennington landfill unconsolidated)		14	0	11	3	21.43%	2	2	5.214	10.31	3.211	0.616
62	Perfluorooctane sulfonate (PFOS) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.8	0.8	N/A	N/A	N/A	N/A
63	Perfluorooctane sulfonate (PFOS) (non-bennington landfill unconsolidated)		14	0	8	6	42.86%	2	2	5.5	35.39	5.949	1.082
64	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.3	1	N/A	N/A	N/A	N/A
65	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.3	3	N/A	N/A	N/A	N/A
66	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
67	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill unconsolidated)		14	0	0	14	100.00%	0.3	3	N/A	N/A	N/A	N/A
68	Perfluorooctanoic acid (PFOA) (bennington landfill bedrock)		5	0	4	1	20.00%	0.6	0.6	48.32	3645	60.38	1.25
69	Perfluorooctanoic acid (PFOA) (bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	67.21	2504	50.04	0.744
70	Perfluorooctanoic acid (PFOA) (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
71	Perfluorooctanoic acid (PFOA) (non-bennington landfill unconsolidated)		14	0	14	0	0.00%	N/A	N/A	130.6	48487	220.2	1.686
72	Perfluoropentanoic acid (PFPeA) (bennington landfill bedrock)		5	0	1	4	80.00%	0.3	2	6.24	141.1	11.88	1.904
73	Perfluoropentanoic acid (PFPeA) (bennington landfill unconsolidated)		14	0	11	3	21.43%	0.5	0.5	4.964	23.27	4.824	0.972
74	Perfluoropentanoic acid (PFPeA) (non-bennington landfill bedrock)		1	0	1	0	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
75	Perfluoropentanoic acid (PFPeA) (non-bennington landfill unconsolidated)		14	0	12	2	14.29%	0.5	0.5	23.33	4016	63.37	2.716
76	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
77	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
78	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
79	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill unconsolidated)		14	0	1	13	92.86%	0.3	0.7	0.993	6.241	2.498	2.516
80	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
81	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.3	0.7	N/A	N/A	N/A	N/A
82	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.3	0.3	N/A	N/A	N/A	N/A
83	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill unconsolidated)		14	0	1	13	92.86%	0.3	0.7	2.136	43.81	6.619	3.099
84	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill bedrock)		5	0	0	5	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
85	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.4	1	N/A	N/A	N/A	N/A
86	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill bedrock)		1	0	0	1	100.00%	0.4	0.4	N/A	N/A	N/A	N/A
87	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill unconsolidated)		14	0	1	13	92.86%	0.4	1	0.729	1.403	1.185	1.626
88													

	A	B	C	D	E	F	G	H	I	J	K	L	M
89	**General Statistics for Raw Data Sets using Detected Data Only**												
90													
91	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
92	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
93	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
95	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
96	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
97	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
98	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
99	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill bedrock)		1	0	0.6	0.6	0.6	0.6	N/A	N/A	0	N/A	N/A
101	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
102	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
103	Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
104	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
105	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
106	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107	Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
108	Perfluorobutane sulfonate (PFBS) (bennington landfill bedrock)		1	0	7	7	7	7	N/A	N/A	0	N/A	N/A
109	Perfluorobutane sulfonate (PFBS) (bennington landfill unconsolidated)		10	0	0.7	4	1.47	1	0.987	0.993	0	2.184	0.676
110	Perfluorobutane sulfonate (PFBS) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
111	Perfluorobutane sulfonate (PFBS) (non-bennington landfill unconsolidated)		7	0	0.8	4	2.086	2	1.638	1.28	1.483	0.335	0.614
112	Perfluorobutanoic acid (PFBA) (bennington landfill bedrock)		1	0	17	17	17	17	N/A	N/A	0	N/A	N/A
113	Perfluorobutanoic acid (PFBA) (bennington landfill unconsolidated)		11	0	3	42	10.18	7	119.8	10.94	4.448	2.899	1.075
114	Perfluorobutanoic acid (PFBA) (non-bennington landfill bedrock)		1	0	3	3	3	3	N/A	N/A	0	N/A	N/A
115	Perfluorobutanoic acid (PFBA) (non-bennington landfill unconsolidated)		9	0	3	280	37	6	8314	91.18	4.448	2.993	2.464
116	Perfluorodecanoic acid (PFDA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
117	Perfluorodecanoic acid (PFDA) (bennington landfill unconsolidated)		2	0	2	3	2.5	2.5	0.5	0.707	0.741	N/A	0.283
118	Perfluorodecanoic acid (PFDA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
119	Perfluorodecanoic acid (PFDA) (non-bennington landfill unconsolidated)		3	0	0.9	5	2.3	1	5.47	2.339	0.148	1.728	1.017
120	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
121	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
122	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
123	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill unconsolidated)		1	0	6	6	6	6	N/A	N/A	0	N/A	N/A
124	Perfluoroheptanoic acid (PFHpA) (bennington landfill bedrock)		3	0	0.8	39	13.93	2	471.6	21.72	1.779	1.726	1.559
125	Perfluoroheptanoic acid (PFHpA) (bennington landfill unconsolidated)		13	0	1	20	7.462	4	45.6	6.753	2.965	1.108	0.905
126	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill bedrock)		1	0	4	4	4	4	N/A	N/A	0	N/A	N/A
127	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill unconsolidated)		13	0	1	57	11.77	4	271.9	16.49	4.448	2.171	1.401
128	Perfluorohexane sulfonate (PFHxS) (bennington landfill bedrock)		1	0	2	2	2	2	N/A	N/A	0	N/A	N/A
129	Perfluorohexane sulfonate (PFHxS) (bennington landfill unconsolidated)		8	0	0.8	10	2.725	2	9.176	3.029	1.483	2.511	1.112
130	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
131	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill unconsolidated)		4	0	1	2	1.5	1.5	0.333	0.577	0.741	0	0.385
132	Perfluorohexanoic acid (PFHxA) (bennington landfill bedrock)		2	0	0.4	38	19.2	19.2	706.9	26.59	27.87	N/A	1.385
133	Perfluorohexanoic acid (PFHxA) (bennington landfill unconsolidated)		12	0	0.8	24	7.9	4	57.79	7.602	2.965	1.144	0.962

	A	B	C	D	E	F	G	H	I	J	K	L	M
134	Perfluorohexanoic acid (PFHxA) (non-bennington landfill bedrock)		1	0	5	5	5	5	N/A	N/A	0	N/A	N/A
135	Perfluorohexanoic acid (PFHxA) (non-bennington landfill unconsolidated)		13	0	0.9	71	11.83	4	364	19.08	4.596	2.866	1.613
136	Perfluorononanoic acid (PFNA) (bennington landfill bedrock)		1	0	4	4	4	4	N/A	N/A	0	N/A	N/A
137	Perfluorononanoic acid (PFNA) (bennington landfill unconsolidated)		12	0	0.5	8	2.042	1	5.234	2.288	0.519	2.025	1.121
138	Perfluorononanoic acid (PFNA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
139	Perfluorononanoic acid (PFNA) (non-bennington landfill unconsolidated)		10	0	0.7	12	3.59	2	16.69	4.086	1.927	1.539	1.138
140	Perfluorooctane sulfonate (PFOS) (bennington landfill bedrock)		1	0	2	2	2	2	N/A	N/A	0	N/A	N/A
141	Perfluorooctane sulfonate (PFOS) (bennington landfill unconsolidated)		11	0	2	12	6.091	6	10.49	3.239	2.965	0.699	0.532
142	Perfluorooctane sulfonate (PFOS) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
143	Perfluorooctane sulfonate (PFOS) (non-bennington landfill unconsolidated)		8	0	2	23	8.125	4.5	52.41	7.24	2.965	1.489	0.891
144	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
145	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
146	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
147	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
148	Perfluorooctanoic acid (PFOA) (bennington landfill bedrock)		4	0	3	160	60.25	39	5127	71.6	45.22	1.282	1.188
149	Perfluorooctanoic acid (PFOA) (bennington landfill unconsolidated)		14	0	12	160	67.21	46	2504	50.04	42.25	0.707	0.744
150	Perfluorooctanoic acid (PFOA) (non-bennington landfill bedrock)		1	0	120	120	120	120	N/A	N/A	0	N/A	N/A
151	Perfluorooctanoic acid (PFOA) (non-bennington landfill unconsolidated)		14	0	5	850	130.6	52.5	48487	220.2	54.11	3.057	1.686
152	Perfluoropentanoic acid (PFPeA) (bennington landfill bedrock)		1	0	30	30	30	30	N/A	N/A	0	N/A	N/A
153	Perfluoropentanoic acid (PFPeA) (bennington landfill unconsolidated)		11	0	1	15	6.182	4	24.96	4.996	2.965	0.933	0.808
154	Perfluoropentanoic acid (PFPeA) (non-bennington landfill bedrock)		1	0	3	3	3	3	N/A	N/A	0	N/A	N/A
155	Perfluoropentanoic acid (PFPeA) (non-bennington landfill unconsolidated)		12	0	0.6	250	27.13	3	5000	70.71	2.52	3.376	2.606
156	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
157	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
158	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
159	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill unconsolidated)		1	0	10	10	10	10	N/A	N/A	0	N/A	N/A
160	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
161	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
162	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
163	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill unconsolidated)		1	0	26	26	26	26	N/A	N/A	0	N/A	N/A
164	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
165	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
166	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
167	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill unconsolidated)		1	0	5	5	5	5	N/A	N/A	0	N/A	N/A
168													

	A	B	C	D	E	F	G	H	I	J	K	L	M
169	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
170													
171	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
172	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill bedrock)		5	0	3	3	3	3	3	3	3	3	3
173	6:2 Fluorotelomer sulfonate (6:2 FTS) (bennington landfill unconsolidated)		14	0	3	3	3	3	3	3	4.4	5.7	6.74
174	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill bedrock)		1	0	3	3	3	3	3	3	3	3	3
175	6:2 Fluorotelomer sulfonate (6:2 FTS) (non-bennington landfill unconsolidated)		14	0	3	3	3	3	3	3	3	4.4	6.48
176	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill bedrock)		5	0	2	2	2	2	2	2	2	2	2
177	8:2 Fluorotelomer sulfonate (8:2 FTS) (bennington landfill unconsolidated)		14	0	2	2.6	3.25	4	4	4	4	4.35	4.87
178	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill bedrock)		1	0	2	2	2	2	2	2	2	2	2
179	8:2 Fluorotelomer sulfonate (8:2 FTS) (non-bennington landfill unconsolidated)		14	0	4	4	4	4	4	4	4	4.35	4.87
180	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill bedrock)		5	0	0.72	0.84	0.9	0.9	0.9	0.92	0.96	0.98	0.996
181	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (bennington landfill unconsolidated)		14	0	0.4	0.58	0.775	1	1	1	1	1	1
182	n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill bedrock)		1	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
183	Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) (non-bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
184	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill bedrock)		5	0	0.6	0.8	0.9	0.9	0.9	0.92	0.96	0.98	0.996
185	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (bennington landfill unconsolidated)		14	0	0.4	0.58	0.775	1	1	1	1	1	1
186	n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill bedrock)		1	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
187	Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA) (non-bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
188	Perfluorobutane sulfonate (PFBS) (bennington landfill bedrock)		5	0	0.3	0.3	0.3	0.3	0.3	1.64	4.32	5.66	6.732
189	Perfluorobutane sulfonate (PFBS) (bennington landfill unconsolidated)		14	0	0.8	0.8	0.8	1	1	1.4	2	2.7	3.74
190	Perfluorobutane sulfonate (PFBS) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
191	Perfluorobutane sulfonate (PFBS) (non-bennington landfill unconsolidated)		14	0	0.8	0.8	0.8	0.8	1.75	2.4	3	3.35	3.87
192	Perfluorobutanoic acid (PFBA) (bennington landfill bedrock)		5	0	2	2	2	2	2	5	11	14	16.4
193	Perfluorobutanoic acid (PFBA) (bennington landfill unconsolidated)		14	0	3	3	3	6.5	9.5	10.4	11	21.85	37.97
194	Perfluorobutanoic acid (PFBA) (non-bennington landfill bedrock)		1	0	3	3	3	3	3	3	3	3	3
195	Perfluorobutanoic acid (PFBA) (non-bennington landfill unconsolidated)		14	0	3	3	3	5	8.25	9.4	11.4	105.8	245.2
196	Perfluorodecanoic acid (PFDA) (bennington landfill bedrock)		5	0	0.48	0.56	0.6	0.9	1	1	1	1	1
197	Perfluorodecanoic acid (PFDA) (bennington landfill unconsolidated)		14	0	0.4	0.46	0.5	0.5	0.65	0.82	1.7	2.35	2.87
198	Perfluorodecanoic acid (PFDA) (non-bennington landfill bedrock)		1	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
199	Perfluorodecanoic acid (PFDA) (non-bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.8	0.94	1	2.4	4.48
200	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill bedrock)		5	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
201	Perfluorododecanoic acid (PFDoA / PFDoDA) (bennington landfill unconsolidated)		14	0	0.3	0.42	0.5	0.5	0.5	0.5	0.5	0.57	0.674
202	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
203	Perfluorododecanoic acid (PFDoA / PFDoDA) (non-bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.64	2.555	5.311
204	Perfluoroheptanoic acid (PFHpA) (bennington landfill bedrock)		5	0	0.3	0.3	0.3	0.8	2	9.4	24.2	31.6	37.52
205	Perfluoroheptanoic acid (PFHpA) (bennington landfill unconsolidated)		14	0	1.3	2	2.25	4	10.75	12.8	18.2	20	20
206	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill bedrock)		1	0	4	4	4	4	4	4	4	4	4
207	Perfluoroheptanoic acid (PFHpA) (non-bennington landfill unconsolidated)		14	0	1	1.6	2	4	12	13.2	29	42.7	54.14
208	Perfluorohexane sulfonate (PFHxS) (bennington landfill bedrock)		5	0	0.4	0.4	0.4	0.4	0.4	0.72	1.36	1.68	1.936
209	Perfluorohexane sulfonate (PFHxS) (bennington landfill unconsolidated)		14	0	0.86	1	1	1	2	2	2.7	5.45	9.09
210	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill bedrock)		1	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
211	Perfluorohexane sulfonate (PFHxS) (non-bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1.7	2	2
212	Perfluorohexanoic acid (PFHxA) (bennington landfill bedrock)		5	0	0.34	0.38	0.4	0.4	0.4	7.92	22.96	30.48	36.5
213	Perfluorohexanoic acid (PFHxA) (bennington landfill unconsolidated)		14	0	0.66	1.52	2	4	11	13.8	17.1	20.1	23.22

	A	B	C	D	E	F	G	H	I	J	K	L	M
214	Perfluorohexanoic acid (PFHxA) (non-bennington landfill bedrock)		1	0	5	5	5	5	5	5	5	5	5
215	Perfluorohexanoic acid (PFHxA) (non-bennington landfill unconsolidated)		14	0	0.9	1.56	2	3.5	10.25	15	21	38.5	64.5
216	Perfluorononanoic acid (PFNA) (bennington landfill bedrock)		5	0	0.34	0.38	0.4	0.4	0.4	1.12	2.56	3.28	3.856
217	Perfluorononanoic acid (PFNA) (bennington landfill unconsolidated)		14	0	0.6	0.6	0.625	1	1.75	2.4	4.4	6.05	7.61
218	Perfluorononanoic acid (PFNA) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
219	Perfluorononanoic acid (PFNA) (non-bennington landfill unconsolidated)		14	0	0.6	0.66	0.7	0.75	2.75	3.4	8.2	10.7	11.74
220	Perfluorooctane sulfonate (PFOS) (bennington landfill bedrock)		5	0	0.4	0.4	0.4	0.7	1	1.2	1.6	1.8	1.96
221	Perfluorooctane sulfonate (PFOS) (bennington landfill unconsolidated)		14	0	2	2	2.25	4.5	6.75	7.4	10.1	11.35	11.87
222	Perfluorooctane sulfonate (PFOS) (non-bennington landfill bedrock)		1	0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
223	Perfluorooctane sulfonate (PFOS) (non-bennington landfill unconsolidated)		14	0	2	2	2	2.5	4.75	7	12.8	17.15	21.83
224	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill bedrock)		5	0	0.54	0.78	0.9	0.9	0.9	0.92	0.96	0.98	0.996
225	Perfluorooctanesulfonamide (PFOSA / FOSA) (bennington landfill unconsolidated)		14	0	0.3	0.42	0.55	3	3	3	3	3	3
226	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
227	Perfluorooctanesulfonamide (PFOSA / FOSA) (non-bennington landfill unconsolidated)		14	0	1.39	3	3	3	3	3	3	3	3
228	Perfluorooctanoic acid (PFOA) (bennington landfill bedrock)		5	0	1.56	2.52	3	14	64	83.2	121.6	140.8	156.2
229	Perfluorooctanoic acid (PFOA) (bennington landfill unconsolidated)		14	0	16.9	29.2	36	46	115	120	134	147	157.4
230	Perfluorooctanoic acid (PFOA) (non-bennington landfill bedrock)		1	0	120	120	120	120	120	120	120	120	120
231	Perfluorooctanoic acid (PFOA) (non-bennington landfill unconsolidated)		14	0	10.1	17.4	20.75	52.5	142	176	228	453.5	770.7
232	Perfluoropentanoic acid (PFPeA) (bennington landfill bedrock)		5	0	0.98	1.66	2	2	2	7.6	18.8	24.4	28.88
233	Perfluoropentanoic acid (PFPeA) (bennington landfill unconsolidated)		14	0	0.5	0.8	1.25	3	7	9.2	13.1	14.35	14.87
234	Perfluoropentanoic acid (PFPeA) (non-bennington landfill bedrock)		1	0	3	3	3	3	3	3	3	3	3
235	Perfluoropentanoic acid (PFPeA) (non-bennington landfill unconsolidated)		14	0	0.53	1.44	2	2.5	9.75	10	25.4	108.3	221.7
236	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill bedrock)		5	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
237	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (bennington landfill unconsolidated)		14	0	0.3	0.42	0.5	0.5	0.5	0.5	0.5	0.57	0.674
238	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
239	Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA) (non-bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.64	3.955	8.791
240	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill bedrock)		5	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
241	Perfluorotridecanoic acid (PFTrDA / PFTriA) (bennington landfill unconsolidated)		14	0	0.3	0.42	0.5	0.5	0.5	0.5	0.5	0.57	0.674
242	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill bedrock)		1	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
243	Perfluorotridecanoic acid (PFTrDA / PFTriA) (non-bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.64	9.555	22.71
244	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill bedrock)		5	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
245	Perfluoroundecanoic acid (PFUnA / PFUnDA) (bennington landfill unconsolidated)		14	0	0.4	0.58	0.775	1	1	1	1	1	1
246	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill bedrock)		1	0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
247	Perfluoroundecanoic acid (PFUnA / PFUnDA) (non-bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	2.4	4.48

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 1:01:04 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_f.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_f.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**	**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**	
12	1,4-Dioxane (bennington landfill bedrock)	5	0	1	4	80.00%	0.055	0.1	0.0607	6.4222E-5	0.00801	0.132	
13	1,4-Dioxane (bennington landfill unconsolidated)	14	0	5	9	64.29%	0.051	0.058	0.226	0.129	0.359	1.584	
14													
15	**General Statistics for Raw Data Sets using Detected Data Only**												
16													
17	**Variable**	**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**	
18	1,4-Dioxane (bennington landfill bedrock)	1	0	0.072	0.072	0.072	0.072	N/A	N/A	0	N/A	N/A	
19	1,4-Dioxane (bennington landfill unconsolidated)	5	0	0.16	1.2	0.542	0.19	0.256	0.506	0.0445	0.713	0.934	
20													
21	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
22													
23	**Variable**	**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1)**	**50%ile(Q2)**	**75%ile(Q3)**	**80%ile**	**90%ile**	**95%ile**	**99%ile**	
24	1,4-Dioxane (bennington landfill bedrock)	5	0	0.059	0.063	0.065	0.072	0.096	0.0968	0.0984	0.0992	0.0998	
25	1,4-Dioxane (bennington landfill unconsolidated)	14	0	0.0513	0.052	0.0523	0.055	0.175	0.184	0.743	1.057	1.171	

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.12/14/2018 1:02:09 PM									
3	**User Selected Options**												
4	From File			Water_02142018_BLnLBR_g.xls									
5	Full Precision			OFF									
6													
7	**From File: Water_02142018_BLnLBR_g.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	1,1,1-Trichloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
13	1,1,1-Trichloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
14	1,1,2,2-Tetrachloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
15	1,1,2,2-Tetrachloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
16	1,1,2-Trichloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
17	1,1,2-Trichloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
18	1,1-Dichloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
19	1,1-Dichloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
20	1,1-Dichloroethylene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
21	1,1-Dichloroethylene (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
22	1,2,3-Trichlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
23	1,2,3-Trichlorobenzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
24	1,2,4-Trichlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
25	1,2,4-Trichlorobenzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
26	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill bedrock)		5	0	0	5	100.00%	2	2	N/A	N/A	N/A	N/A
27	2-Dibromo-3-chloropropane (DBCP) (bennington landfill unconsolidated)		14	0	0	14	100.00%	2	2	N/A	N/A	N/A	N/A
28	1,2-Dibromoethane (EDB) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
29	1,2-Dibromoethane (EDB) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
30	1,2-Dichlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
31	1,2-Dichlorobenzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
32	1,2-Dichloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
33	1,2-Dichloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
34	1,2-Dichloroethylene, cis (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
35	1,2-Dichloroethylene, cis (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
36	1,2-Dichloroethylene, trans (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
37	1,2-Dichloroethylene, trans (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
38	1,2-Dichloropropane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
39	1,2-Dichloropropane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
40	1,3-Dichlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
41	1,3-Dichlorobenzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
42	1,3-Dichloropropene, cis (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
43	1,3-Dichloropropene, cis (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
44	1,3-Dichloropropene, trans (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
45	1,3-Dichloropropene, trans (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
46	1,4-Dichlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
47	1,4-Dichlorobenzene (bennington landfill unconsolidated)		14	0	1	13	92.86%	1	1	1	0	0	N/A
48	2-Hexanone (bennington landfill bedrock)		5	0	0	5	100.00%	3	3	N/A	N/A	N/A	N/A
49	2-Hexanone (bennington landfill unconsolidated)		14	0	0	14	100.00%	3	3	N/A	N/A	N/A	N/A
50	Acetone (bennington landfill bedrock)		5	0	0	5	100.00%	6	6	N/A	N/A	N/A	N/A
51	Acetone (bennington landfill unconsolidated)		14	0	0	14	100.00%	6	6	N/A	N/A	N/A	N/A
52	Benzene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
53	Benzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
54	Bromochloromethane (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
55	Bromochloromethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
56	Bromodichloromethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
57	Bromodichloromethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
58	Bromoform (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
59	Bromoform (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
60	Bromomethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
61	Bromomethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
62	Carbon disulfide (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
63	Carbon disulfide (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
64	Carbon tetrachloride (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
65	Carbon tetrachloride (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
66	Chlorobenzene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
67	Chlorobenzene (bennington landfill unconsolidated)		14	0	1	13	92.86%	0.5	0.5	0.607	0.149	0.386	0.636
68	Chlorodibromomethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
69	Chlorodibromomethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
70	Chloroethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
71	Chloroethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
72	Chloroform (bennington landfill bedrock)		5	0	1	4	80.00%	0.5	0.5	0.54	0.0064	0.08	0.148
73	Chloroform (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
74	Chloromethane (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
75	Chloromethane (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
76	Cumene (isopropyl benzene) (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
77	Cumene (isopropyl benzene) (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
78	Cyclohexane (bennington landfill bedrock)		5	0	0	5	100.00%	2	2	N/A	N/A	N/A	N/A
79	Cyclohexane (bennington landfill unconsolidated)		14	0	0	14	100.00%	2	2	N/A	N/A	N/A	N/A
80	Dichlorodifluoromethane (Freon-12) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
81	Dichlorodifluoromethane (Freon-12) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
82	Ethyl benzene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
83	Ethyl benzene (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
84	Methyl acetate (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
85	Methyl acetate (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
86	Methyl ethyl ketone (2-butanone) (bennington landfill bedrock)		5	0	0	5	100.00%	3	3	N/A	N/A	N/A	N/A
87	Methyl ethyl ketone (2-butanone) (bennington landfill unconsolidated)		14	0	0	14	100.00%	3	3	N/A	N/A	N/A	N/A
88	Methyl isobutyl ketone (MIBK) (bennington landfill bedrock)		5	0	0	5	100.00%	3	3	N/A	N/A	N/A	N/A
89	Methyl isobutyl ketone (MIBK) (bennington landfill unconsolidated)		14	0	0	14	100.00%	3	3	N/A	N/A	N/A	N/A
90	Methyl tertiary butyl ether (MTBE) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
91	Methyl tertiary butyl ether (MTBE) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
92	Methylcyclohexane (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
93	Methylcyclohexane (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
94	Methylene chloride (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
95	Methylene chloride (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	2	N/A	N/A	N/A	N/A
96	Styrene (bennington landfill bedrock)		5	0	0	5	100.00%	1	1	N/A	N/A	N/A	N/A
97	Styrene (bennington landfill unconsolidated)		14	0	0	14	100.00%	1	1	N/A	N/A	N/A	N/A
98	Tetrachloroethylene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
99	Tetrachloroethylene (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
100	Toluene (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
101	Toluene (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
102	Trichloroethylene (TCE) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
103	Trichloroethylene (TCE) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
104	Trichlorofluoromethane (Freon-11) (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
105	Trichlorofluoromethane (Freon-11) (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
106	Trichlorotrifluoroethane (Freon 113) (bennington landfill bedrock)		5	0	0	5	100.00%	2	2	N/A	N/A	N/A	N/A
107	Trichlorotrifluoroethane (Freon 113) (bennington landfill unconsolidated)		14	0	0	14	100.00%	2	2	N/A	N/A	N/A	N/A
108	Vinyl chloride (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
109	Vinyl chloride (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
110	Xylene, m & p (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
111	Xylene, m & p (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
112	Xylene, o (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
113	Xylene, o (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
114	Xylene, total (bennington landfill bedrock)		5	0	0	5	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
115	Xylene, total (bennington landfill unconsolidated)		14	0	0	14	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
116													
117	**General Statistics for Raw Data Sets using Detected Data Only**												
118													
119	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
120	1,1,1-Trichloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
121	1,1,1-Trichloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
122	1,1,2,2-Tetrachloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
123	1,1,2,2-Tetrachloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
124	1,1,2-Trichloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
125	1,1,2-Trichloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
126	1,1-Dichloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
127	1,1-Dichloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
128	1,1-Dichloroethylene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
129	1,1-Dichloroethylene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
130	1,2,3-Trichlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
131	1,2,3-Trichlorobenzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
132	1,2,4-Trichlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
133	1,2,4-Trichlorobenzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
134	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
135	2-Dibromo-3-chloropropane (DBCP) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
136	1,2-Dibromoethane (EDB) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
137	1,2-Dibromoethane (EDB) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
138	1,2-Dichlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
139	1,2-Dichlorobenzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
140	1,2-Dichloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
141	1,2-Dichloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
142	1,2-Dichloroethylene, cis (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
143	1,2-Dichloroethylene, cis (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
144	1,2-Dichloroethylene, trans (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
145	1,2-Dichloroethylene, trans (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
146	1,2-Dichloropropane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
147	1,2-Dichloropropane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
148	1,3-Dichlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
149	1,3-Dichlorobenzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
150	1,3-Dichloropropene, cis (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
151	1,3-Dichloropropene, cis (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
152	1,3-Dichloropropene, trans (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
153	1,3-Dichloropropene, trans (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
154	1,4-Dichlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
155	1,4-Dichlorobenzene (bennington landfill unconsolidated)		1	0	1	1	1	1	N/A	N/A	0	N/A	N/A
156	2-Hexanone (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
157	2-Hexanone (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
158	Acetone (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
159	Acetone (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
160	Benzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
161	Benzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
162	Bromochloromethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
163	Bromochloromethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
164	Bromodichloromethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
165	Bromodichloromethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
166	Bromoform (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
167	Bromoform (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
168	Bromomethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
169	Bromomethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
170	Carbon disulfide (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
171	Carbon disulfide (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
172	Carbon tetrachloride (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
173	Carbon tetrachloride (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
174	Chlorobenzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
175	Chlorobenzene (bennington landfill unconsolidated)		1	0	2	2	2	2	N/A	N/A	0	N/A	N/A
176	Chlorodibromomethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
177	Chlorodibromomethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
178	Chloroethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
179	Chloroethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
180	Chloroform (bennington landfill bedrock)		1	0	0.7	0.7	0.7	0.7	N/A	N/A	0	N/A	N/A
181	Chloroform (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
182	Chloromethane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
183	Chloromethane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
184	Cumene (isopropyl benzene) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
185	Cumene (isopropyl benzene) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
186	Cyclohexane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
187	Cyclohexane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
188	Dichlorodifluoromethane (Freon-12) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
189	Dichlorodifluoromethane (Freon-12) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
190	Ethyl benzene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
191	Ethyl benzene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
192	Methyl acetate (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
193	Methyl acetate (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
194	Methyl ethyl ketone (2-butanone) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
195	Methyl ethyl ketone (2-butanone) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
196	Methyl isobutyl ketone (MIBK) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
197	Methyl isobutyl ketone (MIBK) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
198	Methyl tertiary butyl ether (MTBE) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
199	Methyl tertiary butyl ether (MTBE) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
200	Methylcyclohexane (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
201	Methylcyclohexane (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
202	Methylene chloride (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
203	Methylene chloride (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
204	Styrene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
205	Styrene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
206	Tetrachloroethylene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
207	Tetrachloroethylene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
208	Toluene (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
209	Toluene (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
210	Trichloroethylene (TCE) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
211	Trichloroethylene (TCE) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
212	Trichlorofluoromethane (Freon-11) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
213	Trichlorofluoromethane (Freon-11) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
214	Trichlorotrifluoroethane (Freon 113) (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
215	Trichlorotrifluoroethane (Freon 113) (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
216	Vinyl chloride (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
217	Vinyl chloride (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
218	Xylene, m & p (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
219	Xylene, m & p (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
220	Xylene, o (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
221	Xylene, o (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
222	Xylene, total (bennington landfill bedrock)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
223	Xylene, total (bennington landfill unconsolidated)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
224													
225	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
226													
227	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
228	1,1,1-Trichloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
229	1,1,1-Trichloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
230	1,1,2,2-Tetrachloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
231	1,1,2,2-Tetrachloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
232	1,1,2-Trichloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
233	1,1,2-Trichloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
234	1,1-Dichloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
235	1,1-Dichloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
236	1,1-Dichloroethylene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
237	1,1-Dichloroethylene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
238	1,2,3-Trichlorobenzene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
239	1,2,3-Trichlorobenzene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
240	1,2,4-Trichlorobenzene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
241	1,2,4-Trichlorobenzene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
242	1,2-Dibromo-3-chloropropane (DBCP) (bennington landfill bedrock)		5	0	2	2	2	2	2	2	2	2	2
243	2-Dibromo-3-chloropropane (DBCP) (bennington landfill unconsolidated)		14	0	2	2	2	2	2	2	2	2	2
244	1,2-Dibromoethane (EDB) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
245	1,2-Dibromoethane (EDB) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
246	1,2-Dichlorobenzene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
247	1,2-Dichlorobenzene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
248	1,2-Dichloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
249	1,2-Dichloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
250	1,2-Dichloroethylene, cis (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
251	1,2-Dichloroethylene, cis (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
252	1,2-Dichloroethylene, trans (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
253	1,2-Dichloroethylene, trans (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
254	1,2-Dichloropropane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
255	1,2-Dichloropropane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
256	1,3-Dichlorobenzene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
257	1,3-Dichlorobenzene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
258	1,3-Dichloropropene, cis (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
259	1,3-Dichloropropene, cis (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
260	1,3-Dichloropropene, trans (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
261	1,3-Dichloropropene, trans (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
262	1,4-Dichlorobenzene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
263	1,4-Dichlorobenzene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
264	2-Hexanone (bennington landfill bedrock)		5	0	3	3	3	3	3	3	3	3	3

	A	B	C	D	E	F	G	H	I	J	K	L	M
265	2-Hexanone (bennington landfill unconsolidated)		14	0	3	3	3	3	3	3	3	3	3
266	Acetone (bennington landfill bedrock)		5	0	6	6	6	6	6	6	6	6	6
267	Acetone (bennington landfill unconsolidated)		14	0	6	6	6	6	6	6	6	6	6
268	Benzene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
269	Benzene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
270	Bromochloromethane (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
271	Bromochloromethane (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
272	Bromodichloromethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
273	Bromodichloromethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
274	Bromoform (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
275	Bromoform (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
276	Bromomethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
277	Bromomethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
278	Carbon disulfide (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
279	Carbon disulfide (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
280	Carbon tetrachloride (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
281	Carbon tetrachloride (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
282	Chlorobenzene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
283	Chlorobenzene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.025	1.805
284	Chlorodibromomethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
285	Chlorodibromomethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
286	Chloroethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
287	Chloroethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
288	Chloroform (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.54	0.62	0.66	0.692
289	Chloroform (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
290	Chloromethane (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
291	Chloromethane (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
292	Cumene (isopropyl benzene) (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
293	Cumene (isopropyl benzene) (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
294	Cyclohexane (bennington landfill bedrock)		5	0	2	2	2	2	2	2	2	2	2
295	Cyclohexane (bennington landfill unconsolidated)		14	0	2	2	2	2	2	2	2	2	2
296	Dichlorodifluoromethane (Freon-12) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
297	Dichlorodifluoromethane (Freon-12) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
298	Ethyl benzene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
299	Ethyl benzene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
300	Methyl acetate (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
301	Methyl acetate (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
302	Methyl ethyl ketone (2-butanone) (bennington landfill bedrock)		5	0	3	3	3	3	3	3	3	3	3
303	Methyl ethyl ketone (2-butanone) (bennington landfill unconsolidated)		14	0	3	3	3	3	3	3	3	3	3
304	Methyl isobutyl ketone (MIBK) (bennington landfill bedrock)		5	0	3	3	3	3	3	3	3	3	3
305	Methyl isobutyl ketone (MIBK) (bennington landfill unconsolidated)		14	0	3	3	3	3	3	3	3	3	3
306	Methyl tertiary butyl ether (MTBE) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
307	Methyl tertiary butyl ether (MTBE) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
308	Methylcyclohexane (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
309	Methylcyclohexane (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
310	Methylene chloride (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
311	Methylene chloride (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	2	2	2	2	2
312	Styrene (bennington landfill bedrock)		5	0	1	1	1	1	1	1	1	1	1
313	Styrene (bennington landfill unconsolidated)		14	0	1	1	1	1	1	1	1	1	1
314	Tetrachloroethylene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
315	Tetrachloroethylene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
316	Toluene (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
317	Toluene (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
318	Trichloroethylene (TCE) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
319	Trichloroethylene (TCE) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	Trichlorofluoromethane (Freon-11) (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
321	Trichlorofluoromethane (Freon-11) (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
322	Trichlorotrifluoroethane (Freon 113) (bennington landfill bedrock)		5	0	2	2	2	2	2	2	2	2	2
323	Trichlorotrifluoroethane (Freon 113) (bennington landfill unconsolidated)		14	0	2	2	2	2	2	2	2	2	2
324	Vinyl chloride (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
325	Vinyl chloride (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
326	Xylene, m & p (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
327	Xylene, m & p (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
328	Xylene, o (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
329	Xylene, o (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
330	Xylene, total (bennington landfill bedrock)		5	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
331	Xylene, total (bennington landfill unconsolidated)		14	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2		Date/Time of Computation		ProUCL 5.13/1/2018 3:18:41 PM									
3		**User Selected Options**											
4		From File		WaterStreet_GW_03012018.xls									
5		Full Precision		OFF									
6													
7	**From File: WaterStreet_GW_03012018.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	arbonate, as CaCO3		11	0	11	0	0.00%	N/A	N/A	317.4	12912	113.6	0.358
13	arbonate, as CaCO3		11	0	0	11	100.00%	1.7	1.7	N/A	N/A	N/A	N/A
14	nity, total, as CaCO3		11	0	11	0	0.00%	N/A	N/A	317.4	12912	113.6	0.358
15	Chloride		11	0	11	0	0.00%	N/A	N/A	217.2	35646	188.8	0.869
16	Cyanide		11	0	0	11	100.00%	0.005	0.005	N/A	N/A	N/A	N/A
17	Sulfate, as SO4		11	0	11	0	0.00%	N/A	N/A	21.8	27	5.197	0.238
18													
19	**General Statistics for Raw Data Sets using Detected Data Only**												
20													
21	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
22	arbonate, as CaCO3		11	0	168	589	317.4	305	12912	113.6	51.89	1.26	0.358
23	arbonate, as CaCO3		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	nity, total, as CaCO3		11	0	168	589	317.4	305	12912	113.6	51.89	1.26	0.358
25	Chloride		11	0	5.8	526	217.2	152	35646	188.8	216.8	0.337	0.869
26	Cyanide		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
27	Sulfate, as SO4		11	0	14.3	30.8	21.8	20.6	27	5.197	4.893	0.613	0.238
28													
29	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
30													
31	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
32	arbonate, as CaCO3		11	0	183	270	275	305	335	346	417	503	571.8
33	arbonate, as CaCO3		11	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
34	nity, total, as CaCO3		11	0	183	270	275	305	335	346	417	503	571.8
35	Chloride		11	0	37	39.3	47.55	152	377.5	399	409	467.5	514.3
36	Cyanide		11	0	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
37	Sulfate, as SO4		11	0	17.3	17.9	18.45	20.6	24.45	24.5	30	30.4	30.72

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				General Statistics on Uncensored Data									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:19:44 PM									
3	User Selected Options												
4	From File			WaterStreet_GW_03012018_a.xls									
5	Full Precision			OFF									
6													
7	From File: WaterStreet_GW_03012018_a.xls												
8													
9	General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method												
10													
11	Variable		NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
12	Aluminum		11	0	0	11	100.00%	0.0868	0.176	N/A	N/A	N/A	N/A
13	Antimony		11	0	0	11	100.00%	4.8000E-4	4.8000E-4	N/A	N/A	N/A	N/A
14	Arsenic		11	0	1	10	90.91%	6.8000E-4	6.8000E-4	0.00125	3.1974E-6	0.00179	1.436
15	Barium		11	0	11	0	0.00%	N/A	N/A	0.065	0.00502	0.0708	1.09
16	Beryllium		11	0	0	11	100.00%	1.1000E-4	1.1000E-4	N/A	N/A	N/A	N/A
17	Cadmium		11	0	0	11	100.00%	1.9000E-4	1.9000E-4	N/A	N/A	N/A	N/A
18	Calcium		11	0	11	0	0.00%	N/A	N/A	91.94	950.6	30.83	0.335
19	Chromium		11	0	4	7	63.64%	5.9000E-4	5.9000E-4	6.4364E-4	8.1686E-9	9.0380E-5	0.14
20	Cobalt		11	0	6	5	45.45%	2.0000E-4	2.0000E-4	7.5273E-4	8.7997E-7	9.3806E-4	1.246
21	Copper		11	0	1	10	90.91%	5.2000E-4	6.7000E-4	5.4909E-4	8.4628E-9	9.1994E-5	0.168
22	Iron		11	0	4	7	63.64%	0.0747	0.0747	0.391	0.96	0.98	2.505
23	Lead		11	0	5	6	54.55%	9.0000E-5	9.0000E-5	1.4818E-4	9.5421E-9	9.7684E-5	0.659
24	Magnesium		11	0	11	0	0.00%	N/A	N/A	27.73	38.6	6.213	0.224
25	Manganese		11	0	10	1	9.09%	8.8000E-4	8.8000E-4	0.0806	0.0531	0.23	2.86
26	Mercury		11	0	0	11	100.00%	5.0000E-5	5.0000E-5	N/A	N/A	N/A	N/A
27	Nickel		11	0	2	9	81.82%	8.5000E-4	8.5000E-4	0.00109	5.3455E-7	7.3113E-4	0.671
28	Potassium		11	0	11	0	0.00%	N/A	N/A	1.461	0.0762	0.276	0.189
29	Selenium		11	0	7	4	36.36%	4.4000E-4	4.4000E-4	7.8636E-4	1.9004E-7	4.3594E-4	0.554
30	Silver		11	0	0	11	100.00%	1.2000E-4	1.2000E-4	N/A	N/A	N/A	N/A
31	Sodium		11	0	11	0	0.00%	N/A	N/A	103.9	10991	104.8	1.009
32	Thallium		11	0	0	11	100.00%	1.6000E-4	1.6000E-4	N/A	N/A	N/A	N/A
33	Vanadium		11	0	6	5	45.45%	2.0000E-4	2.0000E-4	2.7455E-4	7.9339E-9	8.9072E-5	0.324
34	Zinc		11	0	0	11	100.00%	0.0054	0.0054	N/A	N/A	N/A	N/A
35													
36	General Statistics for Raw Data Sets using Detected Data Only												
37													
38	Variable		NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
39	Aluminum		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	Antimony		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	Arsenic		1	0	0.0069	0.0069	0.0069	0.0069	N/A	N/A	0	N/A	N/A
42	Barium		11	0	0.011	0.267	0.065	0.0461	0.00502	0.0708	0.0305	2.714	1.09
43	Beryllium		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
44	Cadmium		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45	Calcium		11	0	38.7	141	91.94	89.8	950.6	30.83	24.91	-0.147	0.335
46	Chromium		4	0	6.1000E-4	8.6000E-4	7.3750E-4	7.4000E-4	1.1492E-8	1.0720E-4	1.1861E-4	-0.114	0.145
47	Cobalt		6	0	2.1000E-4	0.0033	0.00121	8.5500E-4	1.3758E-6	0.00117	9.1920E-4	1.359	0.967
48	Copper		1	0	8.4000E-4	8.4000E-4	8.4000E-4	8.4000E-4	N/A	N/A	0	N/A	N/A
49	Iron		4	0	0.0854	3.49	0.945	0.103	2.878	1.697	0.0175	2	1.795
50	Lead		5	0	1.3000E-4	4.2000E-4	2.1800E-4	1.5000E-4	1.5070E-8	1.2276E-4	2.9652E-5	1.533	0.563
51	Magnesium		11	0	16.7	36.2	27.73	27.5	38.6	6.213	6.227	-0.182	0.224
52	Manganese		10	0	0.0017	0.809	0.0885	0.009	0.0641	0.253	0.00852	3.159	2.86
53	Mercury		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
54	Nickel		2	0	9.3000E-4	0.0034	0.00217	0.00217	3.0505E-6	0.00175	0.00183	N/A	0.807
55	Potassium		11	0	1.12	2.01	1.461	1.42	0.0762	0.276	0.267	0.81	0.189
56	Selenium		7	0	5.8000E-4	0.002	9.8429E-4	8.4000E-4	2.2273E-7	4.7194E-4	2.2239E-4	2.107	0.479
57	Silver		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
58	Sodium		11	0	6.11	366	103.9	96.3	10991	104.8	90.73	1.682	1.009
59	Thallium		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	Vanadium		6	0	2.2000E-4	4.8000E-4	3.3667E-4	3.3000E-4	7.2667E-9	8.5245E-5	4.4477E-5	0.637	0.253
61	Zinc		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
62													

	A	B	C	D	E	F	G	H	I	J	K	L	M
63	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
64													
65	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
66	Aluminum		11	0	0.0868	0.0868	0.0868	0.0868	0.0929	0.0941	0.115	0.146	0.17
67	Antimony		11	0	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4	4.8000E-4
68	Arsenic		11	0	6.8000E-4	6.8000E-4	6.8000E-4	6.8000E-4	6.8000E-4	6.8000E-4	6.8000E-4	0.00379	0.00628
69	Barium		11	0	0.0246	0.0273	0.0277	0.0461	0.0688	0.0708	0.0882	0.178	0.249
70	Beryllium		11	0	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4	1.1000E-4
71	Cadmium		11	0	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4	1.9000E-4
72	Calcium		11	0	53.6	73	74.25	89.8	110.5	117	128	134.5	139.7
73	Chromium		11	0	5.9000E-4	5.9000E-4	5.9000E-4	5.9000E-4	6.5500E-4	7.0000E-4	7.8000E-4	8.2000E-4	8.5200E-4
74	Cobalt		11	0	2.0000E-4	2.0000E-4	2.0000E-4	2.1000E-4	8.5500E-4	9.2000E-4	0.0018	0.00255	0.00315
75	Copper		11	0	5.2000E-4	5.2000E-4	5.2000E-4	5.2000E-4	5.2000E-4	5.2000E-4	6.7000E-4	7.5500E-4	8.2300E-4
76	Iron		11	0	0.0747	0.0747	0.0747	0.0747	0.0909	0.0963	0.109	1.8	3.152
77	Lead		11	0	9.0000E-5	9.0000E-5	9.0000E-5	9.0000E-5	1.4500E-4	1.5000E-4	2.5000E-4	3.3500E-4	4.0300E-4
78	Magnesium		11	0	21.1	23.3	23.75	27.5	32.15	33.6	36	36.1	36.18
79	Manganese		11	0	0.0017	0.0023	0.00245	0.0063	0.0132	0.0141	0.0207	0.415	0.73
80	Mercury		11	0	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5	5.0000E-5
81	Nickel		11	0	8.5000E-4	8.5000E-4	8.5000E-4	8.5000E-4	8.5000E-4	8.5000E-4	9.3000E-4	0.00217	0.00315
82	Potassium		11	0	1.2	1.22	1.23	1.42	1.555	1.56	1.84	1.925	1.993
83	Selenium		11	0	4.4000E-4	4.4000E-4	4.4000E-4	7.2000E-4	9.1500E-4	9.9000E-4	0.001	0.0015	0.0019
84	Silver		11	0	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4	1.2000E-4
85	Sodium		11	0	18.7	20.7	27.9	96.3	138	155	179	272.5	347.3
86	Thallium		11	0	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4	1.6000E-4
87	Vanadium		11	0	2.0000E-4	2.0000E-4	2.0000E-4	2.2000E-4	3.3000E-4	3.4000E-4	3.6000E-4	4.2000E-4	4.6800E-4
88	Zinc		11	0	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054	0.0054

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				General Statistics on Uncensored Data									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:26:57 PM									
3	User Selected Options												
4	From File			WaterStreet_GW_03012018_e.xls									
5	Full Precision			OFF									
6													
7	From File: WaterStreet_GW_03012018_e.xls												
8													
9	General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method												
10													
11	Variable		NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
12	Aroclor 1016		11	0	0	11	100.00%	0.04	0.082	N/A	N/A	N/A	N/A
13	Aroclor 1221		11	0	0	11	100.00%	0.04	0.082	N/A	N/A	N/A	N/A
14	Aroclor 1232		11	0	0	11	100.00%	0.08	0.16	N/A	N/A	N/A	N/A
15	Aroclor 1242		11	0	0	11	100.00%	0.04	0.082	N/A	N/A	N/A	N/A
16	Aroclor 1248		11	0	0	11	100.00%	0.04	0.082	N/A	N/A	N/A	N/A
17	Aroclor 1254		11	0	0	11	100.00%	0.04	0.082	N/A	N/A	N/A	N/A
18	Aroclor 1260		11	0	0	11	100.00%	0.06	0.12	N/A	N/A	N/A	N/A
19	Aroclor 1262		11	0	0	11	100.00%	0.08	0.16	N/A	N/A	N/A	N/A
20	Aroclor 1268		11	0	0	11	100.00%	0.064	0.13	N/A	N/A	N/A	N/A
21													
22	General Statistics for Raw Data Sets using Detected Data Only												
23													
24	Variable		NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
25	Aroclor 1016		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	Aroclor 1221		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
27	Aroclor 1232		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28	Aroclor 1242		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Aroclor 1248		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Aroclor 1254		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31	Aroclor 1260		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	Aroclor 1262		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
33	Aroclor 1268		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34													
35	Percentiles using all Detects (Ds) and Non-Detects (NDs)												
36													
37	Variable		NumObs	# Missing	10%ile	20%ile	25%ile(Q1	50%ile(Q2	75%ile(Q3	80%ile	90%ile	95%ile	99%ile
38	Aroclor 1016		11	0	0.04	0.04	0.0405	0.081	0.0815	0.082	0.082	0.082	0.082
39	Aroclor 1221		11	0	0.04	0.04	0.0405	0.081	0.0815	0.082	0.082	0.082	0.082
40	Aroclor 1232		11	0	0.08	0.081	0.0815	0.16	0.16	0.16	0.16	0.16	0.16
41	Aroclor 1242		11	0	0.04	0.04	0.0405	0.081	0.0815	0.082	0.082	0.082	0.082
42	Aroclor 1248		11	0	0.04	0.04	0.0405	0.081	0.0815	0.082	0.082	0.082	0.082
43	Aroclor 1254		11	0	0.04	0.04	0.0405	0.081	0.0815	0.082	0.082	0.082	0.082
44	Aroclor 1260		11	0	0.06	0.061	0.061	0.12	0.12	0.12	0.12	0.12	0.12
45	Aroclor 1262		11	0	0.08	0.081	0.0815	0.16	0.16	0.16	0.16	0.16	0.16
46	Aroclor 1268		11	0	0.064	0.065	0.065	0.13	0.13	0.13	0.13	0.13	0.13

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				General Statistics on Uncensored Data									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:26:17 PM									
3	User Selected Options												
4	From File			WaterStreet_GW_03012018_d.xls									
5	Full Precision			OFF									
6													
7	From File: WaterStreet_GW_03012018_d.xls												
8													
9	General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method												
10													
11	Variable		NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
12	4,4'-DDD		11	0	0	11	100.00%	0.004	0.0041	N/A	N/A	N/A	N/A
13	4,4'-DDE		11	0	0	11	100.00%	0.004	0.0041	N/A	N/A	N/A	N/A
14	4,4'-DDT		11	0	0	11	100.00%	0.0042	0.0043	N/A	N/A	N/A	N/A
15	a-BHC		11	0	0	11	100.00%	0.0024	0.0025	N/A	N/A	N/A	N/A
16	Aldrin		11	0	0	11	100.00%	0.0016	0.0017	N/A	N/A	N/A	N/A
17	b-BHC		11	0	1	10	90.91%	0.0027	0.005	0.00418	2.1958E-5	0.00469	1.121
18	hlordane, cis (alpha)		11	0	0	11	100.00%	0.0024	0.0025	N/A	N/A	N/A	N/A
19	dane, trans (gamma)		11	0	0	11	100.00%	0.0056	0.013	N/A	N/A	N/A	N/A
20	d-BHC		11	0	0	11	100.00%	0.0027	0.0028	N/A	N/A	N/A	N/A
21	Dieldrin		11	0	0	11	100.00%	0.0042	0.0044	N/A	N/A	N/A	N/A
22	Endosulfan I		11	0	0	11	100.00%	0.0034	0.0036	N/A	N/A	N/A	N/A
23	Endosulfan II		11	0	0	11	100.00%	0.012	0.012	N/A	N/A	N/A	N/A
24	Endosulfan sulfate		11	0	0	11	100.00%	0.0046	0.0048	N/A	N/A	N/A	N/A
25	Endrin		11	0	0	11	100.00%	0.0065	0.0067	N/A	N/A	N/A	N/A
26	Endrin aldehyde		11	0	0	11	100.00%	0.016	0.017	N/A	N/A	N/A	N/A
27	Endrin ketone		11	0	0	11	100.00%	0.004	0.0041	N/A	N/A	N/A	N/A
28	g-BHC (Lindane)		11	0	0	11	100.00%	0.0016	0.0017	N/A	N/A	N/A	N/A
29	Heptachlor		11	0	0	11	100.00%	0.0016	0.0017	N/A	N/A	N/A	N/A
30	Heptachlor epoxide		11	0	0	11	100.00%	0.0018	0.0019	N/A	N/A	N/A	N/A
31	Methoxychlor		11	0	0	11	100.00%	0.024	0.025	N/A	N/A	N/A	N/A
32	Toxaphene		11	0	0	11	100.00%	0.24	0.25	N/A	N/A	N/A	N/A
33													
34	General Statistics for Raw Data Sets using Detected Data Only												
35													
36	Variable		NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
37	4,4'-DDD		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38	4,4'-DDE		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	4,4'-DDT		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	a-BHC		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	Aldrin		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
42	b-BHC		1	0	0.019	0.019	0.019	0.019	N/A	N/A	0	N/A	N/A
43	hlordane, cis (alpha)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
44	dane, trans (gamma)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45	d-BHC		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
46	Dieldrin		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
47	Endosulfan I		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
48	Endosulfan II		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
49	Endosulfan sulfate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50	Endrin		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
51	Endrin aldehyde		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
52	Endrin ketone		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
53	g-BHC (Lindane)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
54	Heptachlor		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55	Heptachlor epoxide		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
56	Methoxychlor		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
57	Toxaphene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
58													
59	Percentiles using all Detects (Ds) and Non-Detects (NDs)												
60													
61	Variable		NumObs	# Missing	10%ile	20%ile	25%ile(Q1	50%ile(Q2	75%ile(Q3	80%ile	90%ile	95%ile	99%ile
62	4,4'-DDD		11	0	0.004	0.004	0.00405	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041

	A	B	C	D	E	F	G	H	I	J	K	L	M
63		4,4'-DDE	11	0	0.004	0.004	0.00405	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
64		4,4'-DDT	11	0	0.0042	0.0042	0.0042	0.0042	0.00425	0.0043	0.0043	0.0043	0.0043
65		a-BHC	11	0	0.0024	0.0024	0.0024	0.0024	0.00245	0.0025	0.0025	0.0025	0.0025
66		Aldrin	11	0	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.00165	0.00169
67		b-BHC	11	0	0.0028	0.0028	0.0028	0.0035	0.0046	0.0047	0.005	0.012	0.0176
68		hlordane, cis (alpha)	11	0	0.0024	0.0024	0.0024	0.0024	0.00245	0.0025	0.0025	0.0025	0.0025
69		dane, trans (gamma)	11	0	0.0056	0.0057	0.0057	0.0057	0.0058	0.0058	0.012	0.0125	0.0129
70		d-BHC	11	0	0.0027	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
71		Dieldrin	11	0	0.0043	0.0043	0.0043	0.0043	0.00435	0.0044	0.0044	0.0044	0.0044
72		Endosulfan I	11	0	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.00355	0.00359
73		Endosulfan II	11	0	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
74		Endosulfan sulfate	11	0	0.0047	0.0047	0.0047	0.0047	0.00475	0.0048	0.0048	0.0048	0.0048
75		Endrin	11	0	0.0065	0.0066	0.0066	0.0066	0.00665	0.0067	0.0067	0.0067	0.0067
76		Endrin aldehyde	11	0	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.0165	0.0169
77		Endrin ketone	11	0	0.004	0.004	0.00405	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
78		g-BHC (Lindane)	11	0	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.00165	0.00169
79		Heptachlor	11	0	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.00165	0.00169
80		Heptachlor epoxide	11	0	0.0018	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
81		Methoxychlor	11	0	0.024	0.024	0.024	0.024	0.0245	0.025	0.025	0.025	0.025
82		Toxaphene	11	0	0.24	0.24	0.24	0.24	0.245	0.25	0.25	0.25	0.25

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				General Statistics on Uncensored Data									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:27:28 PM									
3	User Selected Options												
4	From File			WaterStreet_GW_03012018_f.xls									
5	Full Precision			OFF									
6													
7	From File: WaterStreet_GW_03012018_f.xls												
8													
9	General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method												
10													
11	Variable		NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
12	ane sulfonate (PFBS)		11	0	10	1	9.09%	0.7	0.7	1.745	0.646	0.804	0.461
13	decanoic acid (PFDA)		11	0	6	5	45.45%	0.5	0.5	8.018	309.6	17.6	2.194
14	d (PFDoA / PFDoDA)		11	0	1	10	90.91%	0.5	0.5	0.818	1.012	1.006	1.23
15	otanoic acid (PFHpA)		11	0	11	0	0.00%	N/A	N/A	57	1498	38.7	0.679
16	ne sulfonate (PFHxS)		11	0	4	7	63.64%	1	1	1.273	0.198	0.445	0.35
17	xanoic acid (PFHxA)		11	0	11	0	0.00%	N/A	N/A	28.91	428.7	20.7	0.716
18	onanoic acid (PFNA)		11	0	9	2	18.18%	0.6	0.6	4.191	30.94	5.562	1.327
19	sulfonic acid (PFOS)		11	0	6	5	45.45%	2	2	4.636	26.78	5.175	1.116
20	octanoic acid (PFOA)		11	0	11	0	0.00%	N/A	N/A	1717	1676733	1295	0.754
21	A / PFTeDA / PFTeA)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
22	id (PFTrDA / PFTriA)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
23	d (PFUnA / PFUnDA)		11	0	1	10	90.91%	1	1	2.545	23.88	4.887	1.92
24													
25	General Statistics for Raw Data Sets using Detected Data Only												
26													
27	Variable		NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
28	ane sulfonate (PFBS)		10	0	0.7	3	1.85	2	0.656	0.81	0.741	-0.0612	0.438
29	decanoic acid (PFDA)		6	0	0.7	63	14.28	5	577.5	24.03	4.448	2.375	1.682
30	d (PFDoA / PFDoDA)		1	0	4	4	4	4	N/A	N/A	0	N/A	N/A
31	otanoic acid (PFHpA)		11	0	2	110	57	55	1498	38.7	56.34	0.0885	0.679
32	ne sulfonate (PFHxS)		4	0	1	2	1.75	2	0.25	0.5	0	-2	0.286
33	xanoic acid (PFHxA)		11	0	1	77	28.91	31	428.7	20.7	13.34	1.044	0.716
34	onanoic acid (PFNA)		9	0	0.9	21	4.989	3	38.6	6.213	1.483	2.633	1.245
35	sulfonic acid (PFOS)		6	0	2	17	6.833	3	46.17	6.795	1.483	1.033	0.994
36	octanoic acid (PFOA)		11	0	59	4800	1717	1600	1676733	1295	1038	1.234	0.754
37	A / PFTeDA / PFTeA)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38	id (PFTrDA / PFTriA)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	d (PFUnA / PFUnDA)		1	0	18	18	18	18	N/A	N/A	0	N/A	N/A
40													
41	Percentiles using all Detects (Ds) and Non-Detects (NDs)												
42													
43	Variable		NumObs	# Missing	10%ile	20%ile	25%ile(Q1	50%ile(Q2	75%ile(Q3	80%ile	90%ile	95%ile	99%ile
44	ane sulfonate (PFBS)		11	0	0.7	0.8	0.9	2	2	2	3	3	3
45	decanoic acid (PFDA)		11	0	0.5	0.5	0.5	0.7	5	6	9	36	57.6
46	d (PFDoA / PFDoDA)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.25	3.65
47	otanoic acid (PFHpA)		11	0	15	17	23	55	85.5	97	110	110	110
48	ne sulfonate (PFHxS)		11	0	1	1	1	1	1.5	2	2	2	2
49	xanoic acid (PFHxA)		11	0	6	12	17	31	36	40	42	59.5	73.5
50	onanoic acid (PFNA)		11	0	0.6	0.9	0.95	3	4	4	6	13.5	19.5
51	sulfonic acid (PFOS)		11	0	2	2	2	2	3	3	14	15.5	16.7
52	octanoic acid (PFOA)		11	0	640	650	695	1600	2250	2300	2300	3550	4550
53	A / PFTeDA / PFTeA)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
54	id (PFTrDA / PFTriA)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
55	d (PFUnA / PFUnDA)		11	0	1	1	1	1	1	1	1	9.5	16.3

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:23:31 PM									
3	**User Selected Options**												
4	From File			WaterStreet_GW_03012018_b.xls									
5	Full Precision			OFF									
6													
7	**From File: WaterStreet_GW_03012018_b.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	-Tetrachlorobenzene		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
13	1,4-Dioxane		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
14	bis (1-chloropropane)		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
15	,6-Tetrachlorophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
16	2,4,5-Trichlorophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
17	2,4,6-Trichlorophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
18	2,4-Dichlorophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
19	2,4-Dimethylphenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
20	2,4-Dinitrophenol		11	0	0	11	100.00%	10	10	N/A	N/A	N/A	N/A
21	2,4-Dinitrotoluene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
22	2,6-Dinitrotoluene		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
23	2-Chloronaphthalene		11	0	0	11	100.00%	0.4	0.41	N/A	N/A	N/A	N/A
24	2-Chlorophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
25	thyl-4,6-dinitrophenol		11	0	0	11	100.00%	5	5.2	N/A	N/A	N/A	N/A
26	2-Methylnaphthalene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
27	thylphenol (o-cresol)		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
28	2-Nitroaniline		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
29	2-Nitrophenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
30	3`-Dichlorobenzidine		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
31	3-Nitroaniline		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
32	ophenyl phenyl ether		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
33	hloro-3-methylphenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
34	4-Chloroaniline		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
35	ophenyl phenyl ether		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
36	thylphenol (p-cresol)		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
37	4-Nitroaniline		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
38	4-Nitrophenol		11	0	0	11	100.00%	10	10	N/A	N/A	N/A	N/A
39	Acenaphthene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
40	Acenaphthylene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
41	Acetophenone		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
42	Anthracene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
43	Atrazine		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
44	Benz(a)anthracene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
45	Benzaldehyde		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
46	Benzo(a)pyrene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
47	enzo(b)fluoranthene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
48	Benzo(g,h,i)perylene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
49	enzo(k)fluoranthene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
50	Biphenyl		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
51	hloroethoxy)methane		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
52	s(2-chloroethyl)ether		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
53	-ethylhexyl)phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
54	utyl benzyl phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
55	Caprolactam		11	0	0	11	100.00%	5	5.2	N/A	N/A	N/A	N/A
56	Carbazole		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
57	Chrysene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
58	benz(a,h)anthracene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
59	Dibenzofuran		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
60	Diethyl phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
61	Dimethyl phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
62	Di-n-butyl phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
63	Di-n-octyl phthalate		11	0	0	11	100.00%	2	2.1	N/A	N/A	N/A	N/A
64	Fluoranthene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
65	Fluorene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
66	Hexachlorobenzene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
67	Hexachlorobutadiene		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
68	hlorocyclopentadiene		11	0	0	11	100.00%	5	5.2	N/A	N/A	N/A	N/A
69	Hexachloroethane		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
70	leno(1,2,3-cd)pyrene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
71	Isophorone		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
72	Naphthalene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
73	Nitrobenzene		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
74	rosodi-n-propylamine		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
75	Nitrosodiphenylamine		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
76	Pentachlorophenol		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
77	Phenanthrene		11	0	1	10	90.91%	0.1	0.1	0.102	3.3058E-5	0.00575	0.0565
78	Phenol		11	0	0	11	100.00%	0.5	0.52	N/A	N/A	N/A	N/A
79	Pyrene		11	0	0	11	100.00%	0.1	0.1	N/A	N/A	N/A	N/A
80													
81	**General Statistics for Raw Data Sets using Detected Data Only**												
82													
83	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
84	-Tetrachlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
85	1,4-Dioxane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
86	bis (1-chloropropane)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
87	,6-Tetrachlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
88	2,4,5-Trichlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
89	2,4,6-Trichlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
90	2,4-Dichlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
91	2,4-Dimethylphenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92	2,4-Dinitrophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
93	2,4-Dinitrotoluene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94	2,6-Dinitrotoluene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
95	2-Chloronaphthalene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
96	2-Chlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
97	thyl-4,6-dinitrophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
98	2-Methylnaphthalene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
99	thylphenol (o-cresol)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	2-Nitroaniline		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
101	2-Nitrophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
102	3`-Dichlorobenzidine		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
103	3-Nitroaniline		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
104	ophenyl phenyl ether		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
105	hloro-3-methylphenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
106	4-Chloroaniline		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107	ophenyl phenyl ether		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
108	thylphenol (p-cresol)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
109	4-Nitroaniline		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
110	4-Nitrophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
111	Acenaphthene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
112	Acenaphthylene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
113	Acetophenone		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
114	Anthracene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
115	Atrazine		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
116	Benz(a)anthracene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
117	Benzaldehyde		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
118	Benzo(a)pyrene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
119	enzo(b)fluoranthene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
120	Benzo(g,h,i)perylene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
121	enzo(k)fluoranthene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
122	Biphenyl		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
123	hloroethoxy)methane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
124	s(2-chloroethyl)ether		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
125	-ethylhexyl)phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
126	utyl benzyl phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
127	Caprolactam		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
128	Carbazole		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
129	Chrysene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
130	benz(a,h)anthracene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
131	Dibenzofuran		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
132	Diethyl phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
133	Dimethyl phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
134	Di-n-butyl phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
135	Di-n-octyl phthalate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
136	Fluoranthene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
137	Fluorene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
138	Hexachlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
139	Hexachlorobutadiene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
140	lorocyclopentadiene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
141	Hexachloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
142	eno(1,2,3-cd)pyrene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
143	Isophorone		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
144	Naphthalene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
145	Nitrobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
146	osodi-n-propylamine		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
147	itrosodiphenylamine		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
148	Pentachlorophenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
149	Phenanthrene		1	0	0.12	0.12	0.12	0.12	N/A	N/A	0	N/A	N/A
150	Phenol		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
151	Pyrene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
152													
153	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
154													
155	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
156	-Tetrachlorobenzene		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
157	1,4-Dioxane		11	0	1	1	1	1	1	1	1	1	1
158	is (1-chloropropane)		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
159	,6-Tetrachlorophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
160	,4,5-Trichlorophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
161	,4,6-Trichlorophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
162	2,4-Dichlorophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
163	2,4-Dimethylphenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
164	2,4-Dinitrophenol		11	0	10	10	10	10	10	10	10	10	10
165	2,4-Dinitrotoluene		11	0	1	1	1	1	1	1	1	1	1
166	2,6-Dinitrotoluene		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
167	2-Chloronaphthalene		11	0	0.4	0.4	0.4	0.4	0.41	0.41	0.41	0.41	0.41
168	2-Chlorophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
169	thyl-4,6-dinitrophenol		11	0	5	5	5	5.1	5.1	5.1	5.1	5.15	5.19
170	2-Methylnaphthalene		11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
171	thylphenol (o-cresol)		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
172	2-Nitroaniline		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
173	2-Nitrophenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
174	3`-Dichlorobenzidine		11	0	2	2	2	2	2	2	2.1	2.1	2.1
175	3-Nitroaniline		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
176	ophenyl phenyl ether		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
177	hloro-3-methylphenol		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
178	4-Chloroaniline		11	0	2	2	2	2	2	2	2.1	2.1	2.1
179	ophenyl phenyl ether		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
180	thylphenol (p-cresol)		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
181	4-Nitroaniline		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
182	4-Nitrophenol		11	0	10	10	10	10	10	10	10	10	10
183	Acenaphthene		11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
184	Acenaphthylene		11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
185	Acetophenone		11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
186	Anthracene		11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

	A	B	C	D	E	F	G	H	I	J	K	L	M
187		Atrazine	11	0	2	2	2	2	2	2	2.1	2.1	2.1
188		Benz(a)anthracene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
189		Benzaldehyde	11	0	1	1	1	1	1	1	1	1	1
190		Benzo(a)pyrene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
191		enzo(b)fluoranthene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
192		Benzo(g,h,i)perylene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
193		enzo(k)fluoranthene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
194		Biphenyl	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
195		hloroethoxy)methane	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
196		s(2-chloroethyl)ether	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
197		-ethylhexyl)phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
198		utyl benzyl phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
199		Caprolactam	11	0	5	5	5	5.1	5.1	5.1	5.1	5.15	5.19
200		Carbazole	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
201		Chrysene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
202		benz(a,h)anthracene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
203		Dibenzofuran	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
204		Diethyl phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
205		Dimethyl phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
206		Di-n-butyl phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
207		Di-n-octyl phthalate	11	0	2	2	2	2	2	2	2.1	2.1	2.1
208		Fluoranthene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
209		Fluorene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
210		Hexachlorobenzene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
211		Hexachlorobutadiene	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
212		hlorocyclopentadiene	11	0	5	5	5	5.1	5.1	5.1	5.1	5.15	5.19
213		Hexachloroethane	11	0	1	1	1	1	1	1	1	1	1
214		eno(1,2,3-cd)pyrene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
215		Isophorone	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
216		Naphthalene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
217		Nitrobenzene	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
218		osodi-n-propylamine	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
219		Nitrosodiphenylamine	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
220		Pentachlorophenol	11	0	1	1	1	1	1	1	1	1	1
221		Phenanthrene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.118
222		Phenol	11	0	0.5	0.5	0.5	0.51	0.51	0.51	0.51	0.515	0.519
223		Pyrene	11	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				**General Statistics on Uncensored Data**									
2	Date/Time of Computation			ProUCL 5.13/1/2018 3:25:34 PM									
3	**User Selected Options**												
4	From File			WaterStreet_GW_03012018_c.xls									
5	Full Precision			OFF									
6													
7	**From File: WaterStreet_GW_03012018_c.xls**												
8													
9	**General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method**												
10													
11	**Variable**		**NumObs**	**# Missing**	**Num Ds**	**NumNDs**	**% NDs**	**Min ND**	**Max ND**	**KM Mean**	**KM Var**	**KM SD**	**KM CV**
12	,1,1-Trichloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
13	2-Tetrachloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
14	,1,2-Trichloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
15	1,1-Dichloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
16	1,1-Dichloroethylene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
17	2,3-Trichlorobenzene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
18	2,4-Trichlorobenzene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
19	loropropane (DBCP)		11	0	0	11	100.00%	2	2	N/A	N/A	N/A	N/A
20	ibromoethane (EDB)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
21	1,2-Dichlorobenzene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
22	1,2-Dichloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
23	Dichloroethylene, cis		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
24	chloroethylene, trans		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
25	1,2-Dichloropropane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
26	1,3-Dichlorobenzene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
27	Dichloropropene, cis		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
28	chloropropene, trans		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
29	1,4-Dichlorobenzene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
30	2-Hexanone		11	0	0	11	100.00%	3	3	N/A	N/A	N/A	N/A
31	Acetone		11	0	0	11	100.00%	6	6	N/A	N/A	N/A	N/A
32	Benzene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
33	Bromochloromethane		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
34	omodichloromethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
35	Bromoform		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
36	Bromomethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
37	Carbon disulfide		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
38	Carbon tetrachloride		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
39	Chlorobenzene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
40	lorodibromomethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
41	Chloroethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
42	Chloroform		11	0	3	8	72.73%	0.5	0.5	1.636	7.504	2.739	1.674
43	Chloromethane		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
44	(isopropyl benzene)		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
45	Cyclohexane		11	0	0	11	100.00%	2	2	N/A	N/A	N/A	N/A
46	omethane (Freon-12)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
47	Ethyl benzene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
48	Methyl acetate		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
49	ketone (2-butanone)		11	0	0	11	100.00%	3	3	N/A	N/A	N/A	N/A
50	obutyl ketone (MIBK)		11	0	0	11	100.00%	3	3	N/A	N/A	N/A	N/A
51	y butyl ether (MTBE)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
52	Methylcyclohexane		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
53	Methylene chloride		11	0	0	11	100.00%	2	2	N/A	N/A	N/A	N/A
54	Styrene		11	0	0	11	100.00%	1	1	N/A	N/A	N/A	N/A
55	Tetrachloroethylene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
56	Toluene		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
57	chloroethylene (TCE)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
58	omethane (Freon-11)		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
59	oethane (Freon 113)		11	0	0	11	100.00%	2	2	N/A	N/A	N/A	N/A
60	Vinyl chloride		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
61	Xylene, m & p		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A
62	Xylene, o		11	0	0	11	100.00%	0.5	0.5	N/A	N/A	N/A	N/A

	A	B	C	D	E	F	G	H	I	J	K	L	M
63													
64	**General Statistics for Raw Data Sets using Detected Data Only**												
65													
66	**Variable**		**NumObs**	**# Missing**	**Minimum**	**Maximum**	**Mean**	**Median**	**Var**	**SD**	**MAD/0.675**	**Skewness**	**CV**
67	,1,1-Trichloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
68	2-Tetrachloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	,1,2-Trichloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
70	1,1-Dichloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
71	1,1-Dichloroethylene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
72	2,3-Trichlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
73	2,4-Trichlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
74	loropropane (DBCP)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75	ibromoethane (EDB)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
76	1,2-Dichlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
77	1,2-Dichloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
78	Dichloroethylene, cis		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
79	chloroethylene, trans		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
80	1,2-Dichloropropane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
81	1,3-Dichlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
82	Dichloropropene, cis		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
83	chloropropene, trans		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
84	1,4-Dichlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
85	2-Hexanone		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
86	Acetone		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
87	Benzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
88	Bromochloromethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
89	omodichloromethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
90	Bromoform		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
91	Bromomethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92	Carbon disulfide		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
93	Carbon tetrachloride		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94	Chlorobenzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
95	lorodibromomethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
96	Chloroethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
97	Chloroform		3	0	1	10	4.667	3	22.33	4.726	2.965	1.39	1.013
98	Chloromethane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
99	(isopropyl benzene)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	Cyclohexane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
101	omethane (Freon-12)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
102	Ethyl benzene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
103	Methyl acetate		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
104	ketone (2-butanone)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
105	obutyl ketone (MIBK)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
106	y butyl ether (MTBE)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
107	Methylcyclohexane		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
108	Methylene chloride		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
109	Styrene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
110	Tetrachloroethylene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
111	Toluene		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
112	chloroethylene (TCE)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
113	omethane (Freon-11)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
114	oethane (Freon 113)		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
115	Vinyl chloride		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
116	Xylene, m & p		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
117	Xylene, o		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
118													
119	**Percentiles using all Detects (Ds) and Non-Detects (NDs)**												
120													
121	**Variable**		**NumObs**	**# Missing**	**10%ile**	**20%ile**	**25%ile(Q1**	**50%ile(Q2**	**75%ile(Q3**	**80%ile**	**90%ile**	**95%ile**	**99%ile**
122	,1,1-Trichloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
123	2-Tetrachloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
124	,1,2-Trichloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

	A	B	C	D	E	F	G	H	I	J	K	L	M
125	1,1-Dichloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
126	1,1-Dichloroethylene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
127	?,3-Trichlorobenzene		11	0	1	1	1	1	1	1	1	1	1
128	?,4-Trichlorobenzene		11	0	1	1	1	1	1	1	1	1	1
129	loropropane (DBCP)		11	0	2	2	2	2	2	2	2	2	2
130	ibromoethane (EDB)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
131	1,2-Dichlorobenzene		11	0	1	1	1	1	1	1	1	1	1
132	1,2-Dichloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
133	Dichloroethylene, cis		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
134	chloroethylene, trans		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
135	1,2-Dichloropropane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
136	1,3-Dichlorobenzene		11	0	1	1	1	1	1	1	1	1	1
137	Dichloropropene, cis		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
138	chloropropene, trans		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
139	1,4-Dichlorobenzene		11	0	1	1	1	1	1	1	1	1	1
140	2-Hexanone		11	0	3	3	3	3	3	3	3	3	3
141	Acetone		11	0	6	6	6	6	6	6	6	6	6
142	Benzene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
143	Bromochloromethane		11	0	1	1	1	1	1	1	1	1	1
144	omodichloromethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
145	Bromoform		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
146	Bromomethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
147	Carbon disulfide		11	0	1	1	1	1	1	1	1	1	1
148	Carbon tetrachloride		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
149	Chlorobenzene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
150	lorodibromomethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
151	Chloroethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
152	Chloroform		11	0	0.5	0.5	0.5	0.5	0.75	1	3	6.5	9.3
153	Chloromethane		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
154	(isopropyl benzene)		11	0	1	1	1	1	1	1	1	1	1
155	Cyclohexane		11	0	2	2	2	2	2	2	2	2	2
156	omethane (Freon-12)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
157	Ethyl benzene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
158	Methyl acetate		11	0	1	1	1	1	1	1	1	1	1
159	ketone (2-butanone)		11	0	3	3	3	3	3	3	3	3	3
160	obutyl ketone (MIBK)		11	0	3	3	3	3	3	3	3	3	3
161	y butyl ether (MTBE)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
162	Methylcyclohexane		11	0	1	1	1	1	1	1	1	1	1
163	Methylene chloride		11	0	2	2	2	2	2	2	2	2	2
164	Styrene		11	0	1	1	1	1	1	1	1	1	1
165	Tetrachloroethylene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
166	Toluene		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
167	chloroethylene (TCE)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
168	omethane (Freon-11)		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
169	oethane (Freon 113)		11	0	2	2	2	2	2	2	2	2	2
170	Vinyl chloride		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
171	Xylene, m & p		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
172	Xylene, o		11	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Attachment B

ProUCL Output: ANOVA

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects	
User Selected Options	
Date/Time of Computation	ProUCL 5.12/14/2018 1:52:40 PM
From File	Water_02142018_BLnLBR_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctane sulfonate (PFOS)(bennington landfill)

Sample 2 Data: Perfluorooctane sulfonate (PFOS)(non-bennington landfi

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	19	15
Number of Non-Detects	7	7
Number of Detects	12	8
Minimum Non-Detect	0.4	0.8
Maximum Non-Detect	2	2
Percent Non-detects	36.84%	46.67%
Minimum Detect	2	2
Maximum Detect	12	23
Mean of Detects	5.75	8.125
Median of Detects	5.5	4.5
SD of Detects	3.306	7.24
KM Mean	3.779	4.707
KM SD	3.604	6.149

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	0.408
TW Critical Value (0.05)	1.645
P-Value	0.342

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 <= Sample 2

P-Value >= alpha (0.05)

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects	
User Selected Options	
Date/Time of Computation	ProUCL 5.12/14/2018 1:53:38 PM
From File	Water_02142018_BLnLBR_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctanoic acid (PFOA)(bennington landfill)

Sample 2 Data: Perfluorooctanoic acid (PFOA)(non-bennington landfill)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	19	15
Number of Non-Detects	1	0
Number of Detects	18	15
Minimum Non-Detect	0.6	N/A
Maximum Non-Detect	0.6	N/A
Percent Non-detects	5.26%	0.00%
Minimum Detect	3	5
Maximum Detect	160	850
Mean of Detects	65.67	129.9
Median of Detects	46	72
SD of Detects	53.18	212.2
KM Mean	62.24	129.9
KM SD	52.36	212.2

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	-0.584
TW Critical Value (0.05)	1.645
P-Value	0.72

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 <= Sample 2

P-Value >= alpha (0.05)

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/14/2018 1:54:50 PM
From File	Water_02142018_BLnLBR_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctane sulfonate (PFOS)(bennington landfill und

Sample 2 Data: Perfluorooctane sulfonate (PFOS)(non-bennington landfi

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	14	14
Number of Non-Detects	3	6
Number of Detects	11	8
Minimum Non-Detect	2	2
Maximum Non-Detect	2	2
Percent Non-detects	21.43%	42.86%
Minimum Detect	2	2
Maximum Detect	12	23
Mean of Detects	6.091	8.125
Median of Detects	6	4.5
SD of Detects	3.239	7.24
KM Mean	5.214	5.5
KM SD	3.211	5.949

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	1.043
TW Critical Value (0.05)	1.645
P-Value	0.148

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 <= Sample 2

P-Value >= alpha (0.05)

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/14/2018 1:55:20 PM
From File	Water_02142018_BLnLBR_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctanoic acid (PFOA)(bennington landfill uncon

Sample 2 Data: Perfluorooctanoic acid (PFOA)(non-bennington landfill ur

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	14	14
Number of Non-Detects	0	0
Number of Detects	14	14
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	12	5
Maximum Detect	160	850
Mean of Detects	67.21	130.6
Median of Detects	46	52.5
SD of Detects	50.04	220.2
KM Mean	67.21	130.6
KM SD	50.04	220.2

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	0.436
TW Critical Value (0.05)	1.645
P-Value	0.332

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 <= Sample 2

P-Value >= alpha (0.05)

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects	
User Selected Options	
Date/Time of Computation	ProUCL 5.13/6/2018 2:40:56 PM
From File	Water_03022018_BLnLBRW_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctane sulfonate (PFOS)(water street)

Sample 2 Data: Perfluorooctane sulfonate (PFOS)(non-water street)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	11	34
Number of Non-Detects	5	14
Number of Detects	6	20
Minimum Non-Detect	2	0.4
Maximum Non-Detect	2	2
Percent Non-detects	45.45%	41.18%
Minimum Detect	2	2
Maximum Detect	17	23
Mean of Detects	6.833	6.7
Median of Detects	3	5
SD of Detects	6.795	5.202
KM Mean	4.636	4.106
KM SD	5.175	4.974

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	-0.491
TW Critical Value (0.05)	1.645
P-Value	0.688

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 <= Sample 2

P-Value >= alpha (0.05)

Tarone-Ware Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects	
User Selected Options	
Date/Time of Computation	ProUCL 5.13/6/2018 2:42:52 PM
From File	Water_03022018_BLnLBRW_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Perfluorooctanoic acid (PFOA)(water street)

Sample 2 Data: Perfluorooctanoic acid (PFOA)(non-water street)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	11	34
Number of Non-Detects	0	1
Number of Detects	11	33
Minimum Non-Detect	N/A	0.6
Maximum Non-Detect	N/A	0.6
Percent Non-detects	0.00%	2.94%
Minimum Detect	59	3
Maximum Detect	4800	850
Mean of Detects	1717	94.85
Median of Detects	1600	50
SD of Detects	1295	149.2
KM Mean	1717	92.08
KM SD	1295	145.6

Sample 1 vs Sample 2 Tarone-Ware Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

TW Statistic	6.402
TW Critical Value (0.05)	1.645
P-Value	7.681E-11

Conclusion with Alpha = 0.05

Reject H0, Conclude Sample 1 > Sample 2

P-Value < alpha (0.05)

Appendix D.2

Background PFOA in Soil

resourceful. naturally.
engineering and environmental consultants

BARR

Technical Memorandum

To: File
From: Charles Gantzer
Subject: Background PFOA in Soil
Date: March 9, 2018
Project: 45/02-1004

Summary

A representative background perfluorooctantoic acid (PFOA) soil concentration was developed for purposes of this report from an analysis of the investigation data. The background concentration provides context for results from a fate and transport model for PFOA in the vicinity of the former Chemfab facilities (Barr, 2017). Background soil samples were collected from three depths (0-6 inches, 6 to 12 inches, and 12 to 18 inches) at four locations north and east of Bennington, VT. Two approaches were used to quantify total organic carbon (TOC) normalized background soil PFOA concentrations. First, an average PFOA/TOC ratio was developed from the soil samples collected at the three depths. Second, a PFOA/TOC ratio was obtained from the slope of the observed linear relationship between TOC content and soil PFOA concentration in the surficial (0-6 inches) soil samples. The two approaches yielded PFOA/TOC ratios that were within a factor of 2 of each other. The averaging approach calculated a ratio of 0.059 ng PFOA/mg TOC, and the slope approach returned a value of 0.109 ng PFOA/mg TOC.

Introduction

Several regional and local factors influence background PFOA concentrations in surficial soils. These include the atmospheric gas and particulate transport of PFOA and its precursors (Ellis *et al*., 2004; Baron *et al*., 2010), dry and wet deposition of PFOA and its salts onto soil surfaces (Scott *et al*., 2006; Kim and Kannan, 2007; Strynar *et al*., 2012; Xiao *et al*., 2015), precipitation infiltration to carry the water-soluble PFOA salts into the soil (Rankin *et al*., 2016), and the local retention of the PFOA salts by the soil column (Zareitalabad *et al*. 2013). When regional rates of deposition and infiltration are relatively uniform, spatial variations in the PFOA/TOC ratio will be small. However, spatial variations in TOC content of surficial soils across the region will influence soil PFOA concentrations.

Background soil values of PFOA/TOC were developed for the Bennington, VT region. Soil samples were collected at four locations north and east of Bennington (Figure D.2.1). The locations ranged from approximately 8 to 22 miles from the former Chemfab facility on Water Street. The same four locations were used by Vermont to characterize background soil concentrations of PAHs, lead, and arsenic (VTDEC, 2017). Sampling intervals were 0 to 6 inches, 6 to 12 inches, and 12 to 18 inches. Analysis included, among other parameters, PFOA concentrations and TOC contents.

Surficial Soil PFOA Concentrations and PFOA/TOC Ratios

The measured PFOA and TOC concentrations for the four surficial (upper 6 inch) soil samples are provided in Table D.2.1. The surficial soil sample from location BG-3 had a PFOA concentration less than the Method Detection Limit (MDL) and its concentration was assumed to equal the MDL for purposes of this analysis.

Table D.2.1. PFOA concentrations, TOC contents, and PFOA/TOC ratios for the superficial soil samples collected at the four sampling locations provided in Figure D.2.1.

Sample Location	PFOA Concentration (ng/g)	TOC Content (mg/kg)	PFOA/TOC Ratio (ng PFOA/mg TOC)
BG-1	0.68	9,630	0.071
BG-2	7.2	58,000	0.12
BG-3	≤ 0.21	8,790	≤ 0.024
BG-4	2.4	32,800	0.073

Comparison to Survey Concentrations

Rankin *et al.* (2016) measured PFOA concentrations in surficial soil samples collected at 33 locations in North America. These data were used to develop cumulative probability distributions of soil PFOA concentrations. To reduce skewness and kurtosis, the data were log transformed. As shown in Figure D.2.2, the median (50th percentile) soil PFOA concentration was about 0.35 ng/g and the concentration corresponding to the 95th percentile was about 1.93 ng/g.

As illustrated in Figures D.2.2 and D.2.3, the four background surficial soil samples have PFOA concentrations and PFOA/TOC ratios in the upper range of the values reported by Rankin *et al.* (2016).

Figure D.2.2 compares the surficial soil PFOA concentrations for the four background locations for this investigation to the cumulative frequency distribution for the 33 North American background soil samples. Except for sample BG-3 with its non-detect PFOA concentration, the background locations had surficial soil PFOA concentrations that correspond to the upper 70th percentile of the Rankin *et al.* (2016) North American samples.

Figure D.2.3 compares the PFOA/TOC ratios for the four background locations to the cumulative frequency distribution for the 33 North American soil samples. Except for sample BG-3 with its non-detect PFOA concentration, the background locations had surficial soil PFOA/TOC ratios that correspond to the upper 90th percentile of the Rankin *et al.* (2016) North American samples.

Background Soil PFOA/TOC Ratio from Average Soil-Column Approach

The average PFOA and TOC concentrations in the upper 18 inches of soil samples are provided in Table D.2.2. All soil column samples from location BG-3 had PFOA concentrations less than the Method Detection Limit (MDL) and the average soil-column concentration was assumed to equal the MDL for purposes of this analysis.

Table D.2.2. Average soil PFOA concentration, soil TOC content, and PFOA/TOC ratios for the upper 1.5 feet of the soil column at the four soil sampling locations provided in Figure D.2.1.

Sample Location	Average PFOA (ng/g)	Average TOC (mg/kg)	Average PFOA/TOC (ng PFOA/mg TOC)*
BG-1	1.99	5,600	0.552
BG-2	3.73	47,800	0.071
BG-3	≤ 0.21	5,560	≤ 0.044
BG-4	1.25	18,100	0.062

* the listed Average PFOA/TOC values were obtained by individually determining the PFOA/TOC value for each of the three soil samples collected at each a location and then calculating the average

The column average PFOA/TOC ratio for location BG-1 was regarded as an outlier, because it was 8 times larger than the next highest value. For the remaining three locations, the average PFOA/TOC ratio was 0.059 ng PFOA/mg TOC.

Background Soil PFOA/TOC Ratio from Slope Approach

Figure D.2.4 compares the measured TOC contents to the measured PFOA concentrations in the four surficial soils collected miles from the former Chemfab facility and 15 years after emissions from the facility stopped. A linear least-squares regression suggests that a linear relationship exists between TOC content and PFOA concentration, despite the sampling locations being miles apart. The linear relationship suggests that the region encompassing the four sampling locations is receiving relatively constant and uniform rate of PFOA deposition. The main assumptions associated with this mechanistic explanation for the linear correlations are (1) the measured PFOA and TOC values do not represent short-term events, and (2) the advection of infiltrating precipitation are similar. Mathematical modeling confirmed that a linear relationship would be expected in response to a constant deposition rate when these two assumptions are met.

Figure D.2.4 represents the background surficial PFOA concentration for the region as a function of soil TOC content. The slope of the line in Figure D.2.4 suggests that the regional deposition of PFOA corresponds to a PFOA/TOC ratio in surficial soils of 0.109 ng PFOA/mg TOC.

Expected Flushing of Surficial Soil in Time Since Emissions From Former Chemfab Facility Ceased

The emissions from the former Chemfab facility stopped in 2002, 15 years prior to collection and analysis of the soil samples at the four background locations shown on Figure D.2.1. Since that time flushing of the soil has likely been sufficient to reduce any signature of the former Chemfab emissions in surficial soils to non-detectable PFOA concentrations in samples collected at these locations. Of the four locations, the

surficial soil sample from BG-2 had the highest TOC content of 58,000 mg/kg. This would represent the soil sample with the slowest PFOA flushing rate. The time requirements to flush 95 percent of PFOA mass from a 6-inch long soil column were estimated using a one-dimensional characterization of deposition-infiltration-retention in water-unsaturated soils. Input parameters included a bulk soil density of 1.5 g/cm^3, an infiltration rate of 19.4 inch/yr, an organic carbon to water partition coefficient (K_{oc}) of 550 mL/g, and the hydraulic properties for a clay loam. The calculated time requirement to remove 95 percent of the PFOA mass from the upper 6 inches of the soil column at location BG-2 (TOC of 58,000 mg/kg) is 14.9 years. Thus, all but 5 percent of the initial mass of PFOA in surficial soil that was present when Chemfab emissions stopped would have flushed deeper into the soil column assuming that no additional loading from alternative sources occurred.

The numerical modeling in Barr (2017) calculated a maximum surficial soil PFOA concentration of 0.21 ng/g near the edge of the air model domain (approximately 5 miles due east of the former Water Street facility, and 6 miles west of sample location BG-2). When the 0.21 ng/g was corrected for the difference in TOC content between the two locations, 0.49 ng/g was assumed to be the PFOA concentration at BG-2 when Chemfab emissions stopped. Now, 15 years later, this concentration would be reduced by 95 percent, as described above. Five percent of 0.49 ng/g is 0.02 ng/g, which is below the MDL of about 0.2 ng/g typically observed during the investigation. This analysis demonstrates that any signature of the former Chemfab emissions in soil PFOA concentrations is expected to no longer be present in surficial soil samples collected at the background locations.

Conclusions

Soil samples were collected at four locations north and east of Bennington (Figure D.2.1). The locations ranged from approximately 8 to 22 miles from the former Chemfab facility on Water Street. Emissions from the former facility stopped 15 years ago. The analysis presented above suggests that PFOA residuals from the historic emissions would be negligible, which suggests that the present-day surficial soil PFOA concentrations at the four background locations are from other continuing sources.

Two approaches were used to quantify background PFOA/TOC ratios. First, an average PFOA/TOC ratio was developed from the soil samples between 0 and 18 inches. Second, a PFOA/TOC ratio was obtained from the slope of the observed linear relationship between TOC content and soil PFOA concentration in the surficial (0-6 inches) soil samples. The two approaches yielded PFOA/TOC ratios that were within a factor of 2 of each another. The averaging approach calculated a ratio of 0.059 ng PFOA/mg TOC, and the slope approach returned a value of 0.109 ng PFOA/mg TOC.

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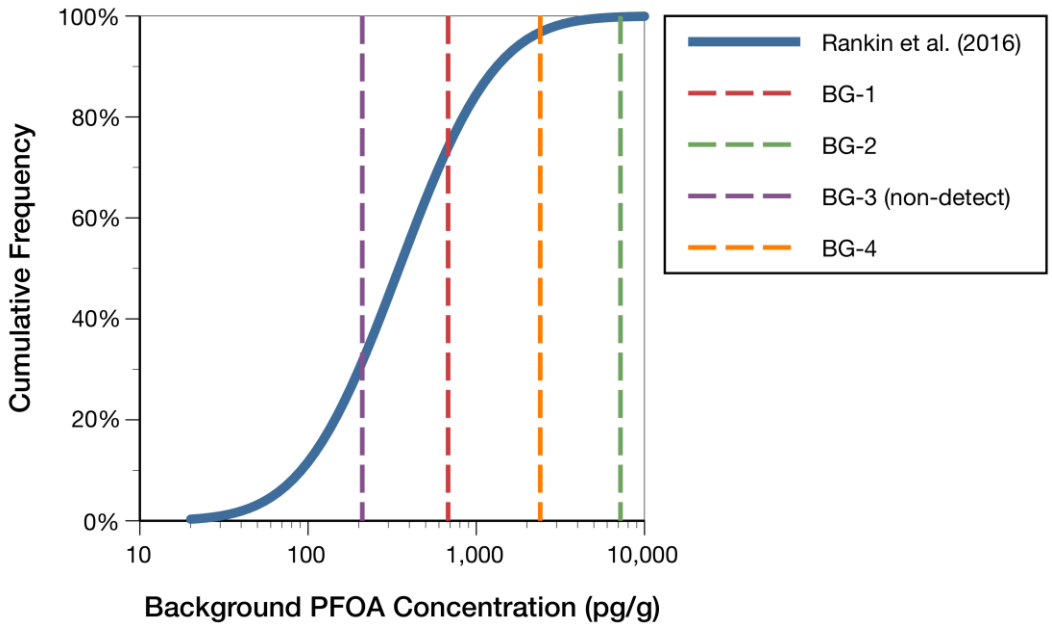
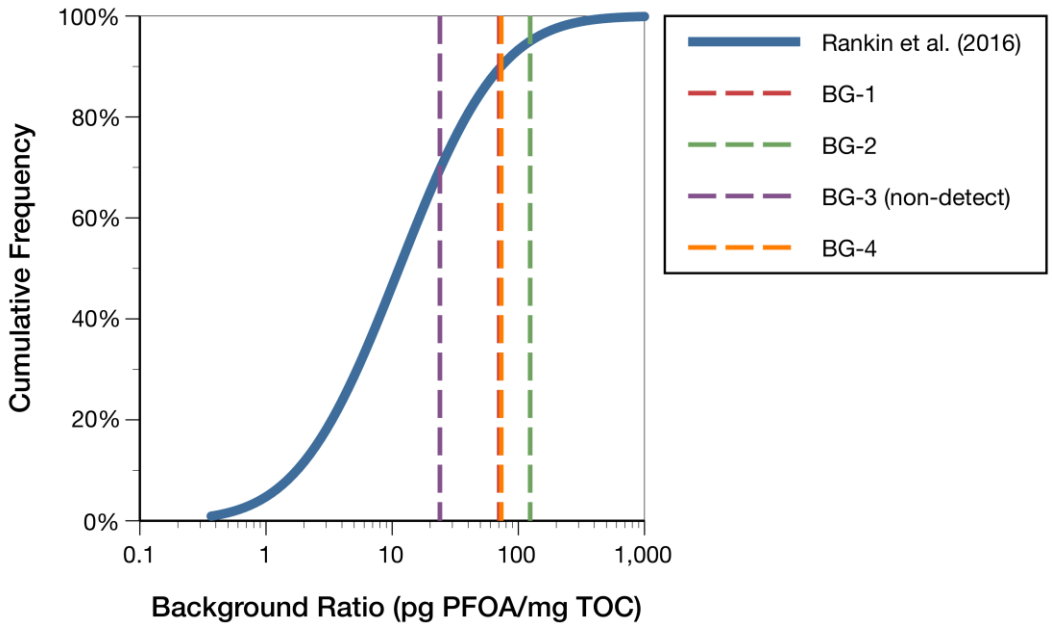
Figures

Figure D.2.1. Background soil sampling locations BG-1, BG-2, BG-3, and BG-4.



Note: 1,000 pg/g = 1 ng/g

Figure D.2.2. Cumulative frequency distribution for background PFOA soil concentrations in the 33 North American soil samples collected and analyzed by Rankin *et al*. (2016) (solid blue line). BG-1, BG-2, BG-3, and BG-4 are the four surficial soil samples collected at the locations provided in Figure D.2.1.



Note: 1,000 pg = 1 ng

Figure D.2.3. Cumulative frequency distribution for background PFOA/TOC ratios in the 33 North American soil samples collected and analyzed by Rankin et al. (2016) (solid blue line). BG-1, BG-2, BG-3, and BG-4 are the four surficial soil samples collected at the locations provided in Figure D.2.1.

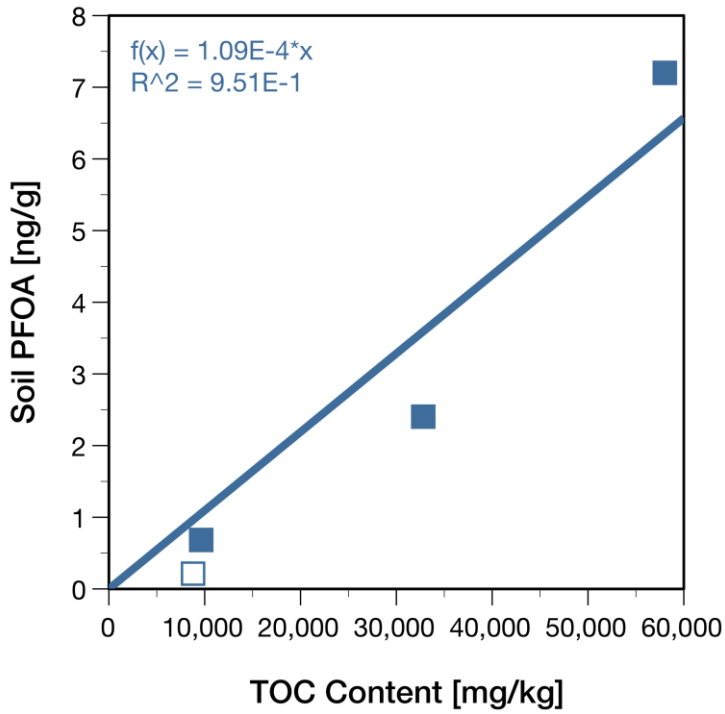


Figure D.2.4. **Linear correlation between soil TOC content and PFOA concentration for four superficial soil samples collected at the locations provided in Figure D.2.1. The open-square symbol is the Method Detection Limit concentration for the soil sampled collected at location BG-3.**

Appendix E

Bedrock Investigation Supporting Documents

Appendix E.1 Bedrock Desktop Review and Outcrop Study Report
Appendix E.2 Private Well Logs and Bennington Landfill Monitoring Well Records
Appendix E.3 Borehole Characterization Results
Appendix E.4 Borehole Structure Interpretation
Appendix E.5 Structural Data Comparison

Appendix E.1

Bedrock Desktop Review and Outcrop Study Report

December 14, 2017
Revised March 5, 2018

Project No.: 177-8327

RE: OUTCROP MAPPING AND AIR PHOTO LINEAMENT ANALYSIS
SAINT-GOBAIN PERFORMANCE PLASTICS
BENNINGTON, VERMONT
VT DEC SITE #199712055

Golder Associates Inc. (Golder), on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), conducted outcrop field geologic mapping and an aerial photograph lineament analysis of the area surrounding the Bennington Landfill, in Bennington, Vermont. The field mapping and lineament analysis was conducted to:

- Verify 2017 Vermont Agency of Natural Resources (VTANR) geologic mapping of the area
- Collect geologic, hydrogeologic and rock mass discontinuity data at the outcrop-level scale
- Collect lineament trend data at a larger scale

Because groundwater flow within the bedrock can be influenced by the nature and orientation of bedrock fractures, which form a secondary porosity, information obtained during this study can be used to assist in future studies of the landfill area and to aid in the siting of monitoring wells, as necessary.

The following sections provide a regional geologic summary, describe the study methods used and summarize the findings.

1.0 REGIONAL GEOLOGIC SUMMARY

The Bennington Landfill (the Site) is located approximately 2.5 miles north of the town of Bennington, in the southwestern corner of Vermont. The Site is located within the Central Vermont Valley physiographic province, lying within the north-south trending topographic belt known as the Vermont Valley, bounded by the Green Mountain Massif to the east and the Taconic Range to the west. The Taconic Range is underlain by metamorphosed Cambrian and Ordovician sedimentary rocks, consisting of slate and phyllite. The Green Mountains are underlain by very resistant Precambrian and Cambrian granite, syenite, gneiss and quartzite. The Vermont Valley is underlain by relatively less resistant Cambrian and Ordovician metasedimentary rocks, consisting of dolomite, quartzite, marble, limestone, slate, and phyllite (Jerris and DeSimone, 1992). Low angle thrust faults associated with the Late Ordovician Taconic Orogeny (~450 to 435 million years ago) carried the older Green Mountain Massif over the younger Vermont Valley rocks (Stanley and Ratcliffe, 1985; Doolan, 1996; Van Diver, 1987).

Recent local scale geologic mapping by VTANR indicates the Site lies over Cambrian aged quartzite and dolomite, gently dipping to the southeast. Specifically, these formations are the Cheshire Formation, consisting of non-calcareous quartzite; and the overlying Dunham Formation consisting of dolomitic quartzite/sandstone, dolomite and phyllite. A low-angle thrust fault (Silk Road Thrust) is mapped striking north-northeast west of Route 7 (Kim, 2017a). A thick mantle of glacially-derived sediments lies upon these formations. The quartzites of the Cheshire Formation, and to a lesser extent the dolomites of the Dunham Formation have been highly to completely hydrothermally altered to kaolin (a clay mineral), and to a lesser extent ochre and umber (iron and manganese hydroxides). Historically the kaolin, ochre and umber were mined in the area for source materials for ceramics and pigments (Burt, 1928; Gordon, 1914). The formation of these secondary materials is suspected to be hydrothermal (i.e., hypogene) replacement of the secondary silica cement in the primary lithologies with kaolin, ocher and umber, as reported for the large kaolin deposits north of the Site in Moncton, VT (also within the Cheshire Formation quartzites; Odgen, 1969). The alumina-bearing fluids causing the alteration may have been developed from granite and

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syenite of the Green Mountain Massif, and traveled along the fractures associated with the low-angle thrust faults. The primary minerals dissolved by these fluids may largely have been the source of the kaolin, ocher and umber. The geologic timing of the alteration is unclear, but would likely be no older than the closing stages of the Taconic orogeny, and would predate the onset of glacial activity in the Early Pleistocene. The partially to completely altered quartzites and dolomites can attain vertical thicknesses of up to 300 feet as determined by site borings (McLaren/Hart, 1997).

2.0 OUTCROP MAPPING

2.1 Desktop Study

Golder conducted a desktop review of the 2017 VTANR geologic mapping (Kim, 2017a,b; Kim and Dowey, 2017), the Remedial Investigation Report documents on the Bennington Landfill (McLaren/Hart, 1997), and other regional geologic reports (Ratcliffe et al., 2011; Jerris and DeSimone, 1992; Potter, 1972; MacFayden, 1956; Burt, 1928; and Gordon, 1914) to identify publicly-accessible outcrop locations. Potentially-accessible outcrop locations were then further evaluated using Google Earth's Street View application for roadways having this feature.

Golder initially identified eight outcrop locations accessible from state highways and within 7,500 feet (ft) radius of the landfill. Summary information for these eight outcrop locations is presented below and Figure 1 illustrates the outcrop locations on a satellite photo/map. The table below summarizes these locations:

Outcrop Location	Latitude [dd mm.mmm]	Longitude [dd mm.mmm]	Access
OC-1	42° 53.955'N	73° 11.967'W	Northbound (right) U.S. Route 7, at Exit 1 off-ramp to eastbound VT Route 279
OC-2	42° 54.115'N	73° 11.920'W	Eastbound (right) VT Route 279, beneath and east of U.S. Route 7 overpass
OC-3	42° 54.371'N	73° 12.273'W	On-ramp (right) to northbound U.S. Route 7 from westbound VT Route 279
OC-4	42° 54.694'N	73° 12.485'W	Northbound (right) U.S. Route 7
OC-5	42° 55.306'N	73° 12.228'W	On-ramp (right) at Exit 2 to northbound U.S. Route 7 from Harwood Hill Road
OC-6	42° 55.786'N	73° 11.618'W	Southbound (right) U.S. Route 7 at median split (note: same access points for OC-6A & 6B stations)
OC-7	42° 55.739'N	73° 11.685'W	Northbound (left) U.S. Route 7 at median split (note: station not visited due to proximity of OC-6, 6A & 6B)
OC-8	42° 56.398'N	73° 10.909'W	Southbound (right) U.S. Route 7

Following identification of these locations, Golder contacted the Vermont Agency of Transportation (VTrans) lead engineering geologist on June 20, 2017 to seek permission to access these locations, and to let the regional VTrans district engineer know of the mapping program. The VTrans engineering geologist granted Golder permission on June 23, 2017 to access the locations, and advised the use of yellow safety vests, an amber rotating safety light, traffic cones, and a warning sign to alert drivers of our presence at the outcrops. These safety precautions were incorporated into our site-specific health and safety plan, and were used during the field mapping.

In late September 2017, at the beginning of the landfill investigation program, Golder also conducted reconnaissance geologic mapping of six outcrops exposed at the northwest portion of the landfill property, as recent publications (Kim, 2017a,b) and the landfill remedial investigation (McLaren/Hart, 1997) indicated the presence of outcrops in this area. Summary information for these six outcrop locations is presented below, and Figure 1 illustrates the outcrop locations on a satellite photo/map. The table below summarizes these locations:

Outcrop Location	Latitude [dd mm.mmm]	Longitude [dd mm.mmm]	Access
OC-9	42° 55.364'N	73° 12.163'W	From quarry access road at northwest corner of landfill, above crest of rip-rap armored slope of Exit 2 of Route 7
OC-9A	42° 55.369'N	73° 12.150'W	From quarry access road at northwest corner of landfill, subcrop in wooded area
OC-10	42° 55.388'N	73° 12.130'W	From quarry access road at northwest corner of landfill, outcrop in wooded area
OC-10A	42° 55.380'N	73° 12.112'W	From quarry access road at northwest corner of landfill, outcrop in wooded area
OC-11	42° 55.383'N	73° 12.041'W	On quarry access road at northwest corner of landfill
OC-12	42° 55.354'N	73° 12.062'W	In quarry pit area at northwest corner of landfill

2.2 Field Work

Golder's senior engineering geologist, assisted by a staff geological engineer conducted field mapping on June 27-28, 2017. Our field mapping investigation consisted of photographic documentation of the outcrops, lithologic descriptions, representative lithologic sampling, and mapping of discontinuities (i.e., breaks) in the rock masses. The discontinuities consisted of bedding planes, joints, faults, and mineral veins. In general, for a specific discontinuity to be noted and measured, it had a persistence greater than three (3) feet. We incorporated this criterion in the field measurements to avoid measuring insignificant discontinuities. We recorded the following notes and measurements for each discontinuity:

- Type (i.e., joint, foliation or vein)
- Orientation (dip and dip direction, degrees [°] and degrees azimuth)
- Persistence (feet, ft)
- Aperture (inches, in)
- Infilling material
- Strength
- Surface roughness
- Shape
- Water
- Discontinuity spacing (ft)

We measured orientations of the discontinuities using a Brunton™ geologic engineering compass with no magnetic declination correction. To correct for magnetic declination, we used a declination correction of 14° west of true north, as indicated by the National Oceanographic and Atmospheric Administration's (NOAA) website for Bennington, Vermont. This correction was applied while processing the data. Golder mapped 118 discontinuity features at the outcrop locations. Table 1 contains a summary of the discontinuity measurements and other notes by outcrop location. Appendix A contains select representative photographs of the outcrop locations.

The remainder of this section provides the lithologic descriptions and discontinuity summaries observed at each outcrop.

2.2.1 OC-1

Photos 1 and 2 of Appendix A show typical outcrop conditions for this location. The outcrop consists of a low, 20-foot (ft) high presplit blasted rock cut, about 375-ft long, striking roughly north-south. The lithology of this outcrop is dominated (~80%) by grayish orange (10 YR 7/4; weathered) to very pale orange (10 YR 8/2; fresh), very fine grained, recrystallized, thin to medium bedded, non-foliated, weakly cross-bedded, quartzite and orthoquartzite, with very close to closely spaced joints (0.07 to 0.7 ft). The minor lithology consists of dark greenish gray (5 GY 4/1; weathered) to greenish black (5 GY 2/1; fresh), fine- to medium-grained, strongly foliated, thinly laminated, biotite-muscovite-chlorite schist, interbedded within thin (up to 2-inch (in)) discontinuous, thinly laminated beds of very pale orange (10 YR 7/4), very fine grained quartzite, with very closely spaced joints (0.07 to 0.2 ft). Milky white quartz veins up to about 1-inch thick occur mostly within the schist. The schist overlies the quartzite at this location. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Moncton Formation (Kim, 2017a,b; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 2 contains a rose diagram and stereonet of the 16 discontinuity measurements from OC-1, generated from data analysis using the Dips (Rocscience, Inc., 2017) software program. These indicate two predominant joint sets (sets J1 and J2 in Table 1), striking north-northwest and east-northeast (respectively), with bedding dipping gently to the south (set B1 in Table 1). The joints have a persistence ranging from 3- to 40 ft; an aperture ranging from less than 0.1 to 2 inches; infilling of quartz veins, soil, silt, broken rock and iron oxide staining; are smooth to very rough; have planar, curved, curvilinear and irregular shapes; are dry to damp; and have spacings ranging from 0.08 to 3 ft. Bedding discontinuities have a persistence greater than 50 ft; apertures of 0.1 to 0.5 inches; quartz vein, soil, slit and broken rock infilling; are rough to very rough; have planar to irregular shapes; are dry to damp; and have spacings of 0.1 to 1 ft.

The OC-1 location corresponds with Domain 7 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 7 indicates the VTANR data have slightly steeper bedding dips to the southeast and shows two distinct fracture (or joint) sets. The predominant joint set on the VTANR plot corresponds with J2 measured by Golder and the other VTANR joint set corresponds with a minor joint set measured by Golder. Although not shown on the VTANR rose diagram, there is a 2% contour zone of fracture plane poles in southwest quadrant of the stereonet which may correspond with the J1 set measured by Golder.

2.2.2 OC-2

Photo 3 of Appendix A shows typical outcrop conditions for this location. The outcrop consists of a low, 25-ft high presplit blasted rock cut, about 510-ft long, striking east-west, with the majority of exposure east of the overpass. Four lithologies exist in this outcrop: 1) a light olive gray (5 Y 6/1; weathered), yellowish gray (5 Y 8/1; fresh), thin to medium bedded, fine-grained, weakly cross-bedded quartzite at the west end of the exposure; grading downwards (and to the west) to 2) a grayish orange (10 YR 7/4; weathered), medium dark gray (N4; fresh), fine to medium grained, weakly foliated, phyllitic quartzite (with minor siltstone), containing recumbent minor folding, fine grained discontinuous milky quartz veins (mostly concordant with foliation), and pyrite cubes; grading further downward into 3) alternating layers of grayish orange (10 YR 7/4; weathered), dark gray (N3; fresh), moderately foliated, fine-grained phyllite and medium-grained schist, containing recumbent minor folding, coarse-grained milky white quartz veins (both concordant with foliation, and discordant as near vertical tension gashes up to ~2-ft long), and pyrite cubes; grading upward into 4) a quartzite similar to 1) described above, present on the west side of the overpass with open folds. Geologic mapping indicates this lithology is also consistent with the Cambrian-aged Moncton Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 3 contains a rose diagram and stereonet of the 24 discontinuity measurements from OC-2. These indicate two predominant joint sets exist (sets J1 and J2 in Table 1), striking northeast and southeast (respectively), with bedding dipping gently to the south (set B1 in Table 1). The joints have a persistence ranging from 3 to 30 ft; an aperture ranging from less than 0.1 to 3 inches; infilling of quartz veins, soil, broken rock, vegetative matter and iron oxide staining; are smooth to very rough; have planar, curved, curvilinear and irregular shapes; are dry to damp; and have spacings ranging from 0.2 to 5 ft. Bedding discontinuities have a persistence ranging from 7 to greater than 50 ft; apertures of 0.1 inch or less; no infilling or are stained with iron hydroxides; are smooth to rough; have planar, undulating and wavy shapes; are dry to seeping; and have spacings of 0.2 to 1.5 ft. One steeply-dipping discontinuity with an aperture of 3 inches was mapped at this outcrop station, and is a suspected normal fault with little movement (ID 16 on Table 1).

The OC-2 location corresponds with Domain 8 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 8 indicates the VTANR data have slightly steeper bedding dips to the southeast compared with the Golder bedding data set and shows three distinct fracture (or joint) sets. Two of these joint sets correspond to the two predominant joint sets (J1 and J2) measured by Golder at this location.

2.2.3 OC-3

Photos 4 through 8 of Appendix A show typical outcrop conditions for this location. The outcrop consists of a low, 20-ft high production blasted rock cut, about 580-ft long, striking west-northwest. The lithology of this outcrop varies, but consists of three dominant types: 1) Very pale orange (10 YR 8/2) to pale olive (10 Y 6/2; weathered), grayish pink (5 R 8/2) to medium dark gray (N4; fresh), thin to medium bedded, non-foliated, weakly weathered, fine to medium grained, weakly cross bedded, slightly calcareous quartzite, with thin veins and coatings of calcite. Joints are closely to moderately spaced (0.2 to 2 ft), and weak ripple marks are preserved on bedding surfaces. 2) Light olive gray (5 Y 6/1), moderate brown (5 YR 4/4), grayish orange (10 YR 7/4; weathered), light brownish gray (5 YR 6/1; fresh), thinly laminated, moderately foliated, very thinly bedded, moderately to highly to completely weathered, very fine grained, micaceous siltstone and phyllite, with abundant pyrite cubes to 0.25-inch, which is the source of heavy iron oxide/hydroxide staining. 3) Olive gray (5 Y 4/1; weathered), medium dark gray (N4; fresh), slightly to moderately weathered, very fine grained, thin to medium bedded to laminated, non-foliated dolomite, with pronounced "elephant skin" weathering, containing thin milky white quartz veins. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Dunham Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 4 contains a rose diagram and stereonet of the 16 discontinuity measurements from OC-3. These indicate three predominant joint sets exist, striking north, north-northeast, and northwest (sets J1, J2 and J3, respectively; see Table 1), with bedding dipping moderately to the southeast (set B1 in Table 1). The joints have a persistence ranging from 3 to 40 ft; an aperture ranging from less than 0.1 to 5 inches; infilling of calcite veins/precipitate, broken rock, vegetative matter and iron oxide staining; are smooth to very rough; have planar, irregular, undulating, stepped, and curved shapes; are dry to flowing; and have spacings ranging from 0.2 to 5 ft. Bedding discontinuities have a persistence ranging from 15 to 50 ft; apertures of 0.1 to 0.5 inches; infilling consisting of decomposed rock, broken rock, silica, oxidized pyrite, and iron oxides; are smooth to very rough; have planar, wavy, and undulating (i.e., ripple marks) shapes; are dry; and have spacings of 0.04 to 1 ft.

During mapping, we located a spring in the middle portion of the outcrop within highly weathered, dark gray phyllite, with an estimated groundwater flow of 1 to 2 gallons per minute (gpm; see Photos 6 through 8 of Appendix A). The spring occurs along a joint (discontinuity #12 of OC-3 in Table 1), open approximately 5-inches, and dipping steeply to the east. The spring opening contains precipitated calcite. Due to presence of green moss, abundant lush vegetation and snails, it is likely that this spring is perennial.

The OC-3 location corresponds with Domain 6 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 6 indicates the VTANR data have similar orientations as the Golder bedding data set (both dipping gently to the southeast) and shows up to six distinct fracture (or joint) sets. Only one of these joint sets corresponds to one of the predominant joint sets (J1) measured by Golder at this location.

2.2.4 OC-4

Photo 9 of Appendix A shows typical outcrop conditions for this location. The outcrop consists of a low, 20-ft high presplit blasted rock cut, about 900-ft long, striking north-south. The lithology of this outcrop consists of pale yellowish brown (10 YR 6/2) to grayish red (5 R 4/2; weathered), grayish orange-pink (5 YR 7/2; fresh), thin to medium bedded, fine to medium grained, recrystallized, non-foliated, weakly cross bedded, weakly weathered to fresh, very strong quartzite, with dark reddish iron and black manganese oxide/hydroxide staining. The orthogonal nature of the predominant joint sets and bedding produce a blocky weathering condition. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 5 contains a rose diagram and stereonet of the 24 discontinuity measurements from OC-4. These indicate two predominant joint sets exist (sets J1 and J2 in Table 1), striking north-northeast and west-northwest (respectively), with bedding dipping gently to the southwest (set B1 in Table 1). The joints have a persistence ranging from 5 to greater than 50 ft; an aperture ranging from less than 0.1 to 14 inches;

infilling of soil, quartz, iron hydroxide staining, broken rock, and organic matter; are very smooth to very rough; have planar, stepped, curved, to irregular shapes; are dry to damp; and have spacings ranging from 0.08 to 4 ft. Bedding discontinuities have a persistence ranging from 25 to greater than 50 ft; apertures of less than 0.1 inch to 1 inches; infilling consisting of broken rock, soil, and organic matter; are smooth to very rough (with ripple marks and flute casts); have planar shapes; are dry to flowing; and have spacings of 0.08 to 1 ft.

During mapping, we located a seep along a bedding plane (discontinuity #3 of OC-3 in Table 1), with an estimated groundwater flow of 1 gpm. This seep may not be perennial.

The OC-4 location corresponds with Domain 5 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 5 indicates the VTANR data have similar orientations as the Golder bedding data set (both dipping gently to the southwest), and shows three distinct fracture (or joint) sets. Two of these joint sets correspond to the two predominant joint sets (J1 and J2) measured by Golder at this location.

2.2.5 OC-5 and OC-5A

Photo 10 of Appendix A shows typical outcrop conditions. The outcrop consists of a circular shaped rock cut, 25- to 40-ft high, presplit and production blasted, about 950-ft long, occupying the center of the on-/off-ramp. An exposure of the same lithology exists in the gore between the north-bound off ramp and Route 7, and this location was designated OC-5A. The lithology of these outcrops consists predominantly of pale yellowish brown (10 YR 6/2) and grayish orange pink (5 YR 7/2; weathered), pale red (10 R 6/2; fresh), thin to medium bedded, fine to medium grained, recrystallized, non-foliated, weakly cross bedded, very strong quartzite, with occasional trace fossil worm burrows (*skolithos*), a common Cambrian trace fossil. A minor lithology consists of medium light gray (N6; weathered), medium dark gray (N4; fresh), very fine grained, thinly laminated, weakly foliated, siltite/phyllite. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 6 contains a rose diagram and stereonet of the 18 discontinuity measurements from OC-5 and OC-5A. These indicate two predominant joint sets exist (J1 and J2 in Table 1), striking northeast and northwest (respectively), with bedding dipping gently to the west (B1 in Table 1). The joints have a persistence ranging from 8 to greater than 50 ft; an aperture ranging from less than 0.1 to 2 inches; infilling of broken rock, soil, iron hydroxide, quartz, and organic matter; are very smooth to very rough; have planar, irregular, to stepped shapes; are dry to damp; and have spacings ranging from 0.5 to 4 ft. Bedding discontinuities have a persistence ranging from 30 to greater than 50 ft; apertures of less than 0.1 inch to 0.25 inches; infilling consisting of broken rock, soil, and organic matter; are rough to very rough (with flute and cast marks); have planar shapes; are dry to seeping; and have spacings of 0.2 to 2 ft.

The OC-5 and OC-5A locations correspond with Domain 3 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 3 indicates the VTANR data have similar orientations as the Golder bedding data set (both dipping gently to the west), and shows two distinct fracture (or joint) sets. These joint sets correspond to the two predominant joint sets (J1 and J2) measured by Golder at these locations.

2.2.6 OC-6, OC-6A and OC-6B

Photos 11 through 14 of Appendix A show typical outcrop conditions for these locations. The outcrops consist of very low, 2- to 5-ft high, and 20- to 110-ft long exposures, striking roughly east-northeast, within about a 500-ft radius. The lithology of these outcrops consists of pinkish gray (5 YR 8/1) to yellowish gray (5 Y 8/1; weathered), grayish orange pink (10 R 8/2), thin to medium bedded, fine to coarse grained, pebbly, recrystallized, non-foliated, weakly cross bedded, very strong quartzite, with occasional *skolithos*. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 7 contains a rose diagram and stereonet of the 16 discontinuity measurements from the OC-6 outcrops. These indicate two predominant joint sets exist (sets J1 and J2 in Table 1), striking north-northeast and northwest (respectively), with bedding dipping gently to the southeast (set B1 in Table 1). The joints have a persistence ranging from 2 to 10 ft; an aperture ranging from 0.1 to 1 inches; infilling of broken rock, soil, manganese/iron hydroxides, and organic matter; are smooth to rough; have planar, curved, irregular and stepped shapes; are dry to damp; and have spacings ranging from 0.7 to 6 ft. Bedding discontinuities have a persistence ranging from 2 to 30 ft; apertures of less than 0.1 inch to 0.25 inches; infilling consisting of broken rock and soil; are smooth to rough (with flute and cast marks); have planar shapes; are dry; and have spacings of 0.3 to 0.5 ft.

The OC-6, OC-6A and OC-6B locations correspond with Domain 2 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 2 indicates the VTANR data have similar orientations as the Golder bedding data set, with both sets having three of four poles dipping gently to the southeast. The VTANR joint data occur in two distinct fracture (or joint) sets. These joint sets correspond to the two predominant joint sets (J1 and J2) measured by Golder at these locations.

Note that due to the proximity of the ample exposures at OC-6, OC-6A and OC-6B, the field crew elected to not visit OC-7 during the field work. OC-7 exposures are oriented in a similar manner as OC-6, OC-6A and OC-6B.

2.2.7 OC-8

Photo 15 shows the outcrop condition for this locations. The outcrop consists of very small limited exposure, only 1-ft high, and about 25-ft square on the northwest side of the highway. The lithology of this outcrop consists of light brown (5 YR 5/6; weathered), grayish orange pink (10 R 8/2; fresh), fine grained, thin to medium bedded, recrystallized, non-foliated, very strong quartzite. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 8 contains a rose diagram and stereonet of the discontinuity measurements from the OC-6 outcrops. Only four (4) discontinuity measurements were obtained at this location. These indicate two predominant joint sets exist (sets J1 and J2 on Table 1), striking north-northwest and northeast, with bedding dipping gently to the east-southeast (set B1 on Table 1). The joints have a persistence ranging from 3 to 10 ft; an aperture ranging from 0.1 to 1 inches; infilling of soil and organic matter; are smooth; have a planar shape; are damp; and have spacings ranging from 1 to 1.5 ft. The measured bedding discontinuity has a persistence of 1 ft (limited by the small outcrop size); an aperture of 0.25 inches; infilling consisting of organic matter; is smooth; has a planar shape; is damp; and has a spacing of 1 ft.

Location OC-8 was not included in the recent VTANR draft fracture map of the Bennington area (Kim, 2017b).

2.2.8 OC-9 and 9A

Photos 16 and 17 show the outcrop and subcrop conditions for these locations. The outcrops consists of limited exposures, at or just below the forest duff grade, and up to 2-ft high. The lithology of these outcrops consists of light brownish gray (5 YR 6/1; weathered), pinkish gray (5 YR 8/1; fresh), fine to medium grained, thin to medium bedded and cross bedded, recrystallized, non-foliated, very strong quartzite, with milky white quartz veins predominantly in near vertical joints. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 9 contains a rose diagram and stereonet of the discontinuity measurements from the OC-10 and 10A outcrops. Thirteen (13) discontinuity measurements were obtained at this location. These indicate one predominant joint set exists (set J1 Table 1), striking north-northeast, with bedding dipping gently to the east-southeast (set B1 on Table 1). The joints have a persistence ranging from 0.5 to 12 ft; an aperture ranging from less than 0.1 to 3 inches; infilling of soil, broken rock, iron/manganese staining, and organic matter; are smooth to very rough; have planar, curved, undulating, stepped and irregular shapes; are dry;

and have spacings ranging from 0.2 to 7 ft. The measured bedding discontinuities have a persistence ranging from 0.75 to 20 ft; are smooth to very rough; have planar, curved and stepped shapes; are dry; and have a spacing of 0.25 ft.

The OC-9 and OC-9A locations may correspond with Domain 4 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 4 indicates the VTANR joint data occur in one distinct fracture (or joint) set. This joint set corresponds to predominant joint set J1 measured by Golder at these locations. The stereonet plot for Domain 4 indicates the VTANR data do not have similar orientations as the Golder bedding data set, with the VTANR data indicating gentle bedding dips to the southeast, and the Golder data indicating gentle bedding dips to the west. This discrepancy may be due to different measurement locations and/or the presence of slight folding of the bedding.

2.2.9 OC-10 and 10A

Photos 18 and 19 show the outcrop and subcrop conditions for these locations. The outcrops consists of low exposures up to 2-ft high. The lithology of these outcrops consists of light brownish gray to brownish gray (5 YR 6/1 and 5 YR 4/1, respectively; weathered), grayish pink to pale red (5 R 8/2 and 5 R 6/2, respectively; fresh), fine to medium grained, thin to medium bedded and weakly cross bedded, recrystallized, non-foliated, very strong quartzite. Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 10 contains a rose diagram and stereonet of the discontinuity measurements from the OC-10 and 10A outcrops. Eleven (11) discontinuity measurements were obtained at these locations. These indicate two predominant joint sets exists (sets J1 and J2 in Table 1), striking north-northeast and west-northwest (respectively), with bedding dipping gently to the west (set B1 on Table 1). The joints have a persistence ranging from 0.75 to 20 ft; an aperture ranging from less than 0.1 to 2.5 inches; infilling of soil, broken rock, and organic matter; are smooth to very rough; have planar, curved, undulating, and irregular shapes; are dry to moist; and have spacings ranging from 0.5 to 3 ft. The measured bedding discontinuities have a persistence ranging from 3 to 8 ft; are smooth to rough; have planar and stepped shapes; are dry; and have spacings ranging from 0.25 to 2.5 ft.

The OC-10 and OC-10A locations correspond with Domain 4 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 4 indicates the VTANR joint data occur in one distinct fracture (or joint) set. This joint set corresponds to predominant joint set J1 measured by Golder at these locations. The stereonet plot for Domain 4 indicates the VTANR data do not have similar orientations as the Golder bedding data set, with the VTANR data indicating gentle bedding dips to the southeast, and the Golder data indicating gentle bedding dips to the west. This discrepancy may be due to different measurement locations and/or the presence of slight folding of the bedding.

2.2.10 OC-11 and 12

Photos 20 to 22 show the outcrop conditions for these locations, near and within the landfill quarry pit. The outcrops consists of at-grade exposures in the access road, and ledge exposures up to 10-ft long (note that blasting associated with the quarry may have disturbed these locations). The lithology of these outcrops consists of grayish orange to yellowish gray (10 YR 7/4 and 5 Y 8/1, respectively; weathered), pinkish gray (5 YR 8/1; fresh), fine to medium grained, very well sorted, thin to medium bedded and cross bedded, recrystallized, non-foliated, very strong quartzite, with milky white quartz veins predominantly in near vertical joints, and rare trace fossil worm burrows (*skolithos*). Geologic mapping indicates this lithology is consistent with the Cambrian-aged Cheshire Formation (Kim, 2017a; Ratcliffe et al., 2011; MacFayden, 1956).

Figure 11 contains a rose diagram and stereonet of the discontinuity measurements from the OC-10 and 10A outcrops. Eleven (11) discontinuity measurements were obtained at these locations. These indicate two predominant joint sets exists (sets J1 and J2 in Table 1), striking north-northeast and west-northwest (respectively), with bedding dipping gently to the southeast (set B1 on Table 1). The joints have a persistence ranging from 1 to 7 ft; an aperture ranging from less than 0.1 to 1 inch; infilling of broken rock

and silt; are smooth to rough; have planar, stepped, undulating, and irregular shapes; are dry; and have spacings ranging from 0.25 to 1 ft. The measured bedding discontinuities have a persistence ranging from 5 to 8 ft; are very rough; have planar, irregular, and stepped shapes; are dry; and have spacings ranging from 0.2 to 2.5 ft.

The OC-11 and OC-12 locations correspond with Domain 4 of the recent VTANR draft fracture map of the Bennington area (Kim, 2017b). The stereonet plot for Domain 4 indicates the VTANR joint data occur in one distinct fracture (or joint) set. This joint set corresponds to predominant joint set J1 measured by Golder at these locations. The stereonet plot for Domain 4 indicates the VTANR data have similar orientations as the Golder bedding data set, both dipping gently to the southeast.

2.2.11 Composite Discontinuity Data

Figure 12 presents the entire discontinuity data set as a rose diagram and stereonet. The data show the presence of three major discontinuity sets, consisting of bedding (B1), and two joint sets (J1 and J2). The bedding poles shown on the stereonet show the local variation in bedding, ranging from dipping shallowly to the southeast to northwest. This is consistent with the broad, open folding recently mapped in the area (Kim, 2017a). The two predominant joint sets, J1 and J2 have approximate average azimuthal trends of 021° and 306°, respectively. The poles plotting within the 2% contour interval in the stereonet indicate the possibility of two minor joint sets (J3 and J4), having azimuthal trends of 163° and 103°, respectively.

Table 2 provides a summary of the discontinuity set data statistics, including the average, minimum, maximum, range, and data count persistence, aperture and spacing for each set. Of the three major discontinuity sets, Golder concludes:

- The bedding has the closest spacing, longest persistence and narrowest aperture.
- Joint Set 1 and Joint Set 2 have similar persistence, aperture and spacing, with Joint Set 1 less persistent and more closely spaced.
- Joint Set 2 has an average aperture twice as large as Joint Set 1.

This indicates the differences in the persistence, aperture and spacing of the two predominant joint sets is minimal, while the bedding is more persistent, narrower in aperture, and more closely spaced. It should be noted that the bedding has relatively low dips, and open, broad folding which creates a bias based on the limited extent of the outcrop exposures.

3.0 PHOTO LINEAMENT ANALYSIS

Golder conducted a photo lineament analysis of the area around the landfill with an approximate radius of 12,500 ft. The purpose of the lineament analysis was to identify possible joint sets at the regional level, and compare their orientations with those collected during the outcrop study, and to compare the results with a similar study conducted for the investigation of the landfill (McLaren/Hart, 1997).

Photo lineament analysis is a remote sensing technique to identify tonal variations that may indicate the presence of fractures and fracture trends within the bedrock or surficial geologic materials. The analysis was conducted using stereo aerial photograph pairs with a 60% overlap, viewed using a stereoscope to produce a three-dimensional image of the ground surface. The aerial photograph pairs are taken to produce a vertical exaggeration of 2X so that subtle tonal variations and surface topographic trends are artificially more pronounced for easier identification.

Golder evaluated publically available black and white stereo air photo images archived on the U.S. Geological Survey's Earth Explorer website (USGS, 2007). Factors used to select the images included scale, extent covered and timeframe taken. Golder located six (6) high-resolution, historical sets of color and black and white stereo air photo flights that covered the landfill area. The scales ranged from 1: 27,200 to 1:80,000. The dates ranged from September 1942 to October 1977. Of these, the September 1, 1942 photographs were taken at the largest scale, i.e., 1:27,200. They are also the oldest photographs, and as

such, contained the least amount of developed area of the sets. Development in the form of road construction, building, farm development, logging, land clearing, landfilling, mining, waterway construction, etc. can mask natural lineaments. Golder therefore chose the 1942 photos for the lineament analysis.

The analyst evaluated the nature of each potential lineament, based on its topographic expression and tonal variations, to estimate whether the lineament was a natural feature. Such features consist of: natural stream and river drainages; lines of robust vegetation growing along fractures carrying groundwater; elevated or reduced tree heights indicating possible variations in groundwater availability along fractures; animal pathways (animals often take the path of least resistance, which may be along a fracture trend); and actual joint sets expressed in the topographic surface, either in bedrock or within shallow surface cover. The analyst then recorded an identification number of each lineament traced, the azimuthal trends, approximate lengths, and spacing to the nearest lineament of the same set. The lineament analysis for both air photos is provided in Appendix B.

The results of the lineament analysis are summarized in Table 3 and on the rose diagram in Figure 10. The lineament analysis indicates there are two predominant lineament directions present around the landfill area, with average azimuthal trends of 044° (roughly northeast-southwest), and 311° (roughly northwest-southeast). These trends are consistent with the two dominant trends presented in the landfill remedial study (McLaren/Hart, 1997); however Golder's analysis did not confirm the two north-south and east-west lineament trends presented in that study. This may be due to fact that the McLaren/Hart study was based aerial photographs taken in 1991, and therefore influenced by anthropogenic development.

The following table provides a summary of the average joint set azimuth trend, persistence and spacing range/arithmetic mean measured from the lineament analysis:

Joint Set	Average Trend (azimuth)	Persistence (ft)	Spacing Range/ Arithmetic Mean (ft)
J1	044°	950	50 – 2,200/380
J2	312°	967	100 – 3,700/705

4.0 SUMMARY OF FINDINGS

The outcrop mapping verifies the recent regional geologic mapping (Kim, 2017a), and indicates the potential presence of a broad, open anticlinal fold with its axis west of the landfill. The outcrop mapping and lineament analysis indicate two predominant fracture trends exist in the area of the landfill. These have average azimuthal trend ranges of 021° to 044° for joint set J1, and 306° to 312° for joint set J2. Based on the lineament analysis, joint set J2 is on average, more widely spaced than joint set J1; this observation is also evident in the outcrop-scale data, but to a lesser degree. The discontinuities formed by these predominant joint sets, along with discontinuities formed by the bedding planes, likely influence groundwater flow within the bedrock, forming preferential groundwater flow pathways parallel to their orientations.

The middle orientation of these trends (033° and 310° for J1 and J2, respectively) are shown on Figures 14, 15 and16, relative to the landfill. These trend zones can be used to help site potential new monitoring wells southwest, south and southeast of the landfill. Analysis of the two predominant joint sets from the outcrop mapping indicates they differ little with respect to persistence, aperture and spacing, and there likely is not a predominant bias between the two in controlling fracture-dominated groundwater flow.

5.0 CLOSING

The undersigned are the principal authors of this Report. Should you have any questions regarding this document, please contact Mr. Alistair Macdonald at (603) 668-0880.

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TABLE 1
DISCONTINUITY SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Outcrop	Discontinuity		Set Designation [1]	Dip	Dip Direction [2]	Persistence	Aperture	Infilling	Strength[3]	Surface Roughness	Fracture Shape	Water	Fracture Spacing	Notes/Comments
	ID	Type		[degrees]	[degrees]	[ft]	[in]						[ft]	
OC-1	1	Bedding	B1	8	199	40	0.1	Milky white quartz vein	High	Very Rough	Planar to Irregular	Dry to Damp	0.5	
	2	Joint	N/A	74	342	5	0.5 - 1	Soil & broken rock	High	Smooth to Rough	Planar	Dry	0.5 - 2	Blasting disturbed
	3	Joint	J3	80	64	7	< 0.1	None	High	Smooth to Rough	Cuvilinear to Irregular	Dry	3	
	4	Joint	N/A	80	344	5	0.5	Soil	Moderate to Low	Smooth	Planar	Damp	0.08 - 0.5	Disturbed
	5	Joint	N/A	73	340	8	0.5	Soil & broken rock	Low	Smooth	Planar	Damp	0.08 - 1	
	6	Joint	J1	85	271	Up to 40	Unknown	None	Low	Smooth	Planar	Dry	0.3	Parallel to rock cut
	7	Bedding	B1	11	178	50+	0.5	Soil/Silt	Moderate	Rough	Planar	Damp	0.2 - 0.7	
	8	Joint	J2	82	29	6	0.5	None	Low	Smooth	Planar to Curved	Dry	0.75	
	9	Joint	N/A	71	327	20	3	Soil & broken rock	Low	Smooth to Rough	Planar	Damp	1.5	Open and shedding rocks, tallus pile below Photo taken
	10	Bedding	B1	21	158	50	0.5	Soil & broken rock	Moderate	Rough	Planar	Damp	0.1 - 1	Maybe a cross-bed
	11	Joint	J3	73	69	3	Tight	None	Low	Smooth	Planar	Dry	Unknown	
	12	Joint	J3	66	67	3	2	Soil & broken rock	Low	Smooth	Planar	Damp	3	Disturbed 2 photos taken at 12:39, 6/27/17
	13	Joint	N/A	79	328	4	0.5	Soil & broken rock	Low	Smooth to Rough	Curved	Damp	0.5 - 2	
	14	Joint	N/A	54	263	25	0.5	Milky white quartz	Low	Smooth	Planar	Dry	1	
	15	Joint	N/A	40	119	40	0.5	Soil	Low	Smooth	Planar	Damp	Unknown	Photo at 12:50, 6/27/17
	16	Joint	N/A	70	5	5	0.5	Broken rock, soil & iron oxide staining	Low	Smooth	Planar to Curved	Damp	0.5 - 1	Iron hydroxide filled schist layer above joint Photo at 12:51, 6/27/17
OC-2	1	Joint	J2	78	30	15	0.5	Thin, fine grained quartz < 1/16"	High	Very Rough	Planar	Dry	0.2	
	2	Bedding	B1	13	207	50+	0.1	None	Low	Rough/Bumpy	Planar	Dry	0.3 - 0.7	
	3	Joint	J1	86	119	10	0.5	Soil	Low	Smooth	Planar to Curved	Damp	0.7 - 1	
	4	Joint	N/A	61	346	3	0.25	Soil & broken rock	High	Very Rough	Planar	Dry	3	
	5	Joint	J2	82	49	10	0.5	None	Low	Smooth	Planar	Dry	0.25 - 1.5	
	6	Joint	J1	83	112	6	Tight	None	Low to Moderate	Rough, Stepped	Planar	Dry	2.5	
	7	Joint	J2	79	34	10	0.5	Soil & broken rock	Low	Smooth	Planar	Dry	0.5 - 1	
	8	Joint	J1	88	280	10	1	Soil	Low	Rough	Planar	Damp	2.5	
	9	Joint	J2	71	40	30	0.5	Soil	High	Rough	Planar	Dry	1.5	Picture of general area at 14:30, 6/27/17
	10	Joint	N/A	81	340	20	0.5	Soil & broken rock	Low	Smooth to Rough	Planar	Damp	1	
	11	Joint	J2	85	46	10	Tight	None	Low	Smooth	Planar	Dry	3	
	12	Bedding	B1	5	186	7	Tight	None	Moderate	Smooth	Undulatory	Dry	0.3	
	13	Joint	J2	83	29	10	0.25	None	Low	Smooth	Planar	Dry	1.5	
	14	Joint	J1	89	297	4	0.25	None	Low	Smooth	Planar	Dry	1.5	
	15	Tension Gash, Quartz in 8" Quartzite Bed	J1	86	280	0.7	0.25	Milky quartz	High, Healed	Smooth	Planar to Curved	Dry	1 - 1.5	
	16	Joint	N/A	74	323	20	0.5	Soil, broken rocks & roots	Moderate	Rough	Planar to Irregular	Damp to Seeping	5	
	17	Fault, Minor Movement	J3	74	72	25	3	Soil, broken rocks & saplings	High	Very Rough	Planar, kind of Stepped	Damp	5	
	18	Bedding	B1	9	141	8	0.1	Iron hydroxides	Low	Smooth but Bumpy	Undulatory & Wavy	Dry	1.5	
	19	Joint	J2	76	32	15	0.25	Soil	Low	Smooth	Planar	Damp	0.25 - 0.7	
	20	Joint	N/A	74	335	10	0.25	Soil & broken rock	Low	Rough, Stepped	Planar	Damp	0.2 - 0.7	
	21	Joint	N/A	83	330	15	0.5	Soil & broken rock	Low	Smooth	Stepped to Planar	Damp	0.25 - 0.8	
	22	Joint	J1	80	309	25	3	Soil, broken rocks & roots	Low	Smooth	Planar to Stepped	Damp	0.5 - 0.8	
	23	Joint	J1	78	303	10	0.5	Soil & broken rock	Low	Smooth	Planar to Curved	Damp	0.7 - 1	
	24	Bedding	B1	16	154	10	Tight to 0.1	None	Low	Smooth	Undulating to Planar	Damp to Seeping	0.2 - 0.5	On west side of the bridge
OC-3	1	Bedding	B1	26	133	15	0.5	Decomposed rock	Low	Smooth	Planar to Wavy	Dry	0.04 - 0.25	West end
	2	Joint	J2	86	217	15	0.25	Thin calcite	Moderate	Rough	Planar to Irregular	Dry	2 - 3	
	3	Joint	J1	76	287	5	0.25	Calcite	Low	Smooth	Planar to Irregular	Dry	0.25	
	4	Joint	J1	84	289	3	1	Broken rock	Low	Smooth	Planar to Undulating	Dry	0.2	
	5	Joint	J1	75	286	4	3	Moss & broken rock	Low	Very Rough	Highly Irregular	Damp	0.2	Open joint, karstic characteristics Picture taken at 16:10, 6/27/17
	6	Joint	J2	83	221	40	0.25	None	Low	Smooth	Planar/Stepped	Dry	0.2 - 2	
	7	Bedding	B1	32	174	40	0.5	Broken rock	Low	Smooth	Planar to Wavy, Ripple Marks	Dry	0.08 - 0.3	Ripple Marks
	8	Joint	J2	85	47	40	0.25	Calcite	Low	Smooth	Planar	Dry	1	
	9	Bedding	B	29	127	35	0.25	Decomposed rock, silica growth, oxidized pyrite cubes	Low	Rough	Planar to Undulating, Ripple Marks	Dry	1	Ripple Marks
	10	Joint	J1	87	120	8	0.1	Iron hydroxides	Low	Smooth	Planar to Curved	Dry	2	
	11	Joint	N/A	85	81	15	0.5	Broken rock & iron hydroxides	Moderate	Very Rough	Irregular to Planar	Dry	1	Measured in dark grey phyllite with milky white quartz veins Picture of structure around joint 11 at 16:40, 6/27/17
	12	Joint	J3	73	81	20+	5	Actively precipitating calcite, mossy crust, weakly cemented rock debris	Moderate	Smooth	Planar to Irregular	Flowing 1 - 2 gpm	2.5	Spring in highly weathered dark grey phyllite layer with milky white quartz veins & iron hydroxides (ocre?), photo at 16:47, 6/27/17 Spring in joint #12, photos and videos taken at 16:40, 6/27/17 Location: N 42°54.370', W 073°12.289'
	13	Bedding/Foliation	B1	28	139	30	0.1	Iron oxides	Moderate	Very Rough	Very Wavy/Undulating	Dry	0.2	
	14	Bedding	B1	31	141	50	0.25 - 0.5	Soil & broken rock	High	Very Rough	Planar to Undulating	Dry	0.3	
	15	Joint	J1	68	267	15	0.5	Broken rock	Low	Smooth	Planar	Dry	5	
	16	Joint	N/A	67	89	20	0.1	None	Low	Smooth	Planar	Dry	2	

TABLE 1
DISCONTINUITY SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Outcrop	Discontinuity		Set Designation [1]	Dip	Dip Direction [2]	Persistence	Aperture	Infilling	Strength[3]	Surface Roughness	Fracture Shape	Water	Fracture Spacing	Notes/Comments
	ID	Type		[degrees]	[degrees]	[ft]	[in]						[ft]	
OC-4	1	Joint	J1	85	291	20	0.1	Soil, iron hydroxide stained quartz	Low	Smooth	Planar	Dry	0.25	
	2	Joint	J2	87	44	20	0.5	Soil, iron hydroxide staining	Moderate	Smooth	Planar to Stepped to Curved	Dry	3	
	3	Bedding	B1	8	213	30	1	Broken rock	Low	Smooth	Planar	Flowing 1 gpm	0.3	Picture at 8:18, 6/28/17
	4	Bedding	B1	4	190	50+	0.25	Broken rock	Moderate	Rough	Planar	Damp	0.08 - 1	Almost under powerlines
	5	Joint	J1	84	283	50	2	Iron hydroxide coating	Low	Smooth	Planar	Dry	0.5	
	6	Joint	J2	88	209	25	0.5	Broken rock	Moderate	Smooth	Planar to Stepped to Irregular	Dry	0.3 - 0.8	
	7	Joint	J1	70	109	15	0.5	None	Low	Smooth	Planar to Curvey	Dry	0.7	
	8	Bedding	B1	12	206	40+	<0.1	Little bit of soil	Moderate, ripple marks	Rough	Planar	Dry	0.3 - 0.7	Ripple Marks GPS Location: N 42°54.753', W 073°12.491'
	9	Joint	J1	85	289	40	0.1	None	Low	Very Smooth	Planar	Dry	0.25	GPS Location: N 42°54.753', W 073°12.491'
	10	Joint	N/A	70	211	10	N/A	None	Moderate	Rough	Planar to Irregular	Dry	Unknown	
	11	Joint	J2	75	33	15	14	None	Moderate	Rough	Planar to Curved	Dry	1.5	Strength: R6 GPS Location: N 42°54.753', W 073°12.491'
	12	Bedding	B1	7	247	50+	0.1	Moss	Moderate	Very Rough, Ripple Marks	Planar	Dry	0.5	Ripple Marks Photo at 8:46 6/28/17 GPS Location: N 42°54.714', W 073°12.479'
	13	Joint	J1	85	282	50+	N/A	None	Low	Smooth	Very Planar	Dry	0.3	GPS Location: N 42°54.714', W 073°12.479'
	14	Joint	N/A	59	12	20	0.5	Soil, broken rock, organic debris	Low	Smooth	Planar	Damp	0.7	
	15	Joint	N/A	73	191	5	Tight	None	High	Very Rough	Planar to Irregular	Dry	4	
	16	Joint	J1	83	305	20	0.25	None	Moderate	Rough	Planar to Irregular	Dry	1	
	17	Bedding	B1	6	223	50+	0.1	None	High	Very Rough. Ripples/Flute Marks	Planar	Damp	0.7	Ripple Marks and Flurte Marks GPS Location: N 42°54.699', W 073°12.484'
	18	Joint	J1	83	291	40	0.25	Iron hydroxide coating	Low	Smooth	Planar	Dry	1.5	GPS Location: N 42°54.699', W 073°12.484'
	19	Joint	J2	85	216	20	4	Soil & broken rock	Low	Smooth	Planar	Damp	0.7	Open joint, photo at 9:06, 6/28/17 GPS Location: N 42°54.699', W 073°12.484'
	20	Bedding	B1	3	190	25	0.25	Soil & broken rock	Moderate	Rough	Planar	Damp	1	GPS Location: N 42°54.633', W 073°12.490'
	21	Joint	N/A	68	19	10	0.25	Soil	Moderate	Rough	Planar to Stepped to Irregular	Damp	3	Photo taken at 9:09, 6/28/17. Sample taken from general area GPS Location: N 42°54.633', W 073°12.490'
	22	Joint	J1	75	310	8	0.25	Soil	Low	Smooth	Planar to Irregular	Damp	3	
	23	Joint	N/A	78	144	20	<0.1	None	Low	Smooth	Planar	Dry	0.2	
	24	Joint	J1	83	291	>10	0.5	Soil	Low	Smooth	Planar	Damp	1.5	
OC-5A	1	Bedding	B1	23	283	50+	<0.1	None	High	Very Rough, Flute and Cast Marks	Planar	Dry	0.3 - 2	Flute and cast marks GPS Location: 42°55.264', W 073°12.290'
	2	Joint	J2	89	213	20	0.5	Broken rock	Moderate	Rough	Planar to Irregular	Dry	2	Photo taken on Nikon at 9:58, 6/28/17
	3	Joint	N/A	52	130	10	<0.1	Soil	Moderate	Rough	Planar to Irregular	Dry	1	Sample taken from general area GPS Location: 42°55.264', W 073°12.290'
OC-5	1	Bedding	B1	19	270	50+	0.25	Soil & broken rock	Moderate	Rough	Planar	Seeping	0.5	Photo of area taken on Nikon at 10:06, 6/28/17 GPS Location: N 42°55.286', W 073°12.265'
	2	Joint	J1	88	117	20	0.25	Iron hydroxide	Low	Smooth	Planar	Dry	0.5	Kind of disturbed GPS Location: N 42°55.286', W 073°12.265'
	3	Joint	N/A	88	350	50+	0.5	Soil & broken rock	Low	Smooth	Planar	Dry	1 - 2	GPS Location: N 42°55.286', W 073°12.265'
	4	Joint	N/A	55	87	20	1	Soil & broken rock	Low	Smooth	Planar	Damp	2	
	5	Bedding	B1	15	293	30	Tight	None	Moderate	Rough	Planar	Dry	1.5	Near big slide in outcrop GPS Location: N 42°55.296', W 073°12.224'
	6	Joint	J1	89	126	30	1	Vein quartz	High	Very Rough	Planar to Stepped	Dry	0.5	
	7	Joint	J2	70	46	6	0.5	Soil & broken rock	Low	Smooth	Planar to Irregular	Damp	4	Near small rock slide close to big rock slide 2 photos taken of area on Nikon at 10:15, 6/28/17 GPS Location: N 42°55.296', W 073°12.224'
	8	Bedding	B1	23	269	50+	0.25	None	Moderate	Rough	Planar	Dry	0.2	Near production blast Photo taken on Nikon at 10:29, 6/28/17 Sample taken from general location GPS Location: N 42°55.316', W 073°12.237'
	9	Joint	N/A	779	10	8	2	Soil & broken rock	Low	Smooth	Planar to Irregular	Damp	1.5	
	10	Joint	J1	80	122	10	0.5	Soil & moss	Low	Smooth	Planar to Irregular	Damp	0.2 - 0.3	
	11	Joint	N/A	37	319	8	0.5	Soil & moss	Low	Smooth	Planar	Damp	3	
	12	Bedding	B1	26	274	30	0.25	Soil & moss	Moderate	Rough, Flute and Cast Marks	Planar	Damp	1	Photo taken on Nikon at 10:38, 6/28/17, Possily worm holes GPS Location: N 42°55.375', W 073°12.266'
	13	Joint	N/A	55	169	25	1	Soil & broken rock	Low	Smooth	Planar	Damp	2	
	14	Joint	J4	85	14	8	<0.1	Moss	Low	Smooth	Planar to Irregular	Damp	0.25	
	15	Joint	J3	80	84	30	0.25	Soil	Low	Smooth	Planar	Damp	1	

TABLE 1
DISCONTINUITY SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Outcrop	Discontinuity		Set Designation (1)	Dip	Dip Direction (2)	Persistence	Aperture	Infilling	Strength(3)	Surface Roughness	Fracture Shape	Water	Fracture Spacing	Notes/Comments
	ID	Type		[degrees]	[degrees]	[ft]	[in]						[ft]	
OC-6A	1	Bedding	B1	7	152	30	0.1	None	Moderate	Rough, Flute and Cast Marks	Planar	Dry	0.3	Photo taken at 11:48, 6/28/17, worm tubes? Other side of the road from OC-6 and OC-6B GPS Location: N 42°55.758, W 073°11.675 Sample taken
	2	Joint	J4	89	12	10	Unknown	Unknown	Moderate	rough	Planar to Stepped	Dry	0.7 - 1	
	3	Joint	J1	80	292	6	Unknown	Unknown	Moderate	Rough	Curved to Stepped to Planar	Dry	5	
	4	Joint	J1	80	267	4	1	Soil, broken rocks & moss	Low	Smooth	Planar	Damp	0.7	
OC-6B	1	Bedding	B1	11	266	2	Tight	None	Low	Smooth	Planar	Dry	0.3	Photo taken at 11:26, 6/28/17 Sample taken GPS Location: N 42°55.777, W 073°11.724
	2	Joint	J2	83	219	6	0.25	Manganese or Limonite or other iron hydroxide	High	Rough	Planar to Stepped	Dry	3	
	3	Joint	J1	84	280	4	0.1	Soil	Low	Snooth	Planar	Dry	5	
	4	Joint	N/A	88	148	8	0.25	Moss	Moderate	Rough	Planar	Dry	Unknown	
OC-6	1	Bedding	B1	12	176	8	0.1	Soil	Moderate	Rough, Flute and Cast Marks	Planar	Dry	0.3	Photo at 13:37, 6/28/17 GPS Location: N 42°55.778', W 073°11.670'
	2	Joint	N/A	70	177	7	Unknown	N/A	Low	Smooth	Planar to Irregular	Dry	1.5	
	3	Joint	J1	83	291	10	0.1	Black/yellow/orange limonite	Moderate	Rough	Planar to Stepped	Dry	1	
	4	Bedding	B1	17	137	20	0.25	Soil & broken rock	Moderate	Rough, Flute and Cast Marks	Planar	Dry	0.5	Sample taken from general area GPS Location: N 12°55.784', W 073°11.628'
	5	Joint	J2	89	213	8	1	Soil & broken rock	Low	Smooth	Planar	Damp	3	
	6	Joint	J1	61	300	5	0.75	Iron hydroxide staining	Moderate	Rough	Planar to Irregular	Damp	0.7	
	7	Joint	J1	68	110	2	Unknown	Soil & broken rock	Low	Rough	Planar	Dry	6	
	8	Joint	J1	64	286	2	1	Soil & broken rock	Low	Smooth	Planar to Curved	Damp	2.5	
OC-8	1	Bedding	B1	12	99	1	0.25	Moss	Low	Smooth	Planar	Damp	1	Very small outcrop GPS Location: N 42°56.404', W 073°10.909' 2 photos taken at 10:57, 6/28/17
	2	Joint	J4	81	14	6	1	Soil & Moss	Low	Smooth	Planar	Damp	1.5	
	3	Joint	J1	87	111	10	0.1	Soil	Low	Smooth	Planar	Damp	1	
	4	Joint	J1	77	320	3	N/A	Soil	Low	Smooth	Planar	Damp	Unknown	
OC-9	1	Bedding	B	29	284	20	N/A	None	Moderate	Very rough	Curved	Dry	0.25	Small outcrop Milky white quartz veins in Joints 2 & 7 GPS Location: N 42°55.364', W073°12.163' 3 photos taken 17:31, 9/25/17
	2	Joint	J1	87	308	12	Tight	Iron/manganese oxide	Low	Smooth	Planar	Dry	0.25	
	3	Joint	J1	71	269	2	0.5	Moss/soil	High	Rough	Undulating	Dry	1	
	4	Joint	N/A	40	261	6	0.2	Moss/broken rock	Moderate	Rough	Curved	Dry	1	
	5	Joint	J2	68	33	8	0.5	Soil/roots/moss	Moderate	Very rough	Planar	Dry	1.5	
	6	Joint	J1	89	273	5	3	Moss/soil	Low	Smooth	Planar	Dry	1	
	7	Joint	N/A	75	241	3	1.5	Moss/soil/broken rock	Moderate	Rough	Planar	Dry	7	
	8	Bedding	B	20	258	10	N/A	None	Low	Smooth	Planar	Dry	N/A	
	9	Joint	N/A	63	180	1	N/A	Moss/soil/broken rock	Moderate	Rough	Irregular	Dry	3	
	10	Joint	J1	83	296	3	0.5	Moss	Low	Smooth	Planar	Dry	0.75	
OC-9A	1	Bedding	N/A	12	328	0.75	N/A	None	High	Rough	Stepped	Dry	N/A	Very small subcrop GPS Location: N 42°55.369', W073°12.150' 1 photo taken 8:03, 9/26/17
	2	Joint	J1	88	284	2	0.75	Soil/roots/moss	Low	Smooth	Planar	Dry	0.75	
	3	Joint	N/A	66	225	0.5	Tight	Moss	Moderate	Rough	Irregular/Undulating	Dry	0.17	
OC-10	1	Bedding	B	25	272	3	N/A	None	Moderate	Rough	Planar/Stepped	Dry	2.5	GPS Location: N 42°55.388', W073°12.130' 1 photo taken 10:54, 9/26/17
	2	Joint	J1	71	106	0.75	0.05	Soil/moss	Low	Smooth	Planar	Dry	0.75	
	3	Joint	J1	70	107	3	0.25	Soil/moss/roots/br rock	Low	Smooth	Planar	Dry	0.75	
	4	Joint	J2	78	22	0.75	N/A	Soil/roots/moss	Moderate	Rough	Undulating	Moist	1	
	5	Joint	N/A	85	357	2	Unknown	Unknown	High	Rough	Planar/Undulating	Dry	3	
OC-10A	1	Bedding	B	21	278	6	Unknown	Soil/moss	Moderate	Rough	Planar	Dry	0.25	GPS Location: N 42°55.380', W073°12.112' 4 photos taken 11:11, 9/26/17
	2	Joint	J1	80	290	5	0.1	Soil/moss	Moderate	Rough	Planar	Dry	1	
	3	Joint	J2	85	201	5	0.25	Soil/moss/broken rock	Moderate	Rough	Curved	Dry	1.5	
	4	Bedding	B	6	266	8	Unknown	Unknown	Low	Smooth	Planar	Dry	0.3	
	5	Joint	J1	83	119	20	0.25	Soil/moss	Low	Smooth	Planar	Dry	0.5	
	6	Joint	J2	76	215	2	0.5	Soil/moss/broken rock	High	Very rough	Undulating/irregular	Dry	1.5	
OC-11	1	Bedding	B	16	134	8	N/A	None	High	Very rough	Irregular/planar	Dry	0.2	Very small subcrop in access road GPS Location: N 42°55.383', W073°12.041' 1 photo taken 12:33, 9/26/17
	2	Joint	J1	84	292	1	Unknown	Broken rock/silt	Low	Smooth	Planar	Dry	0.3	
	3	Joint	J2	77	221	2	1	Broken rock/silt	Moderate	Rough	Irregular/planar	Dry	0.3	
OC-12	1	Bedding	B	21	168	5	Unknown	Unknown	High	Very rough	Planar	Dry	2.50	Outcrop in quarry/blasting area GPS Location: N 42°55.354', W073°12.062' 2 photos taken 15:40, 9/26/17
	2	Joint	J1	87	116	2	Tight	None	Low	Smooth	Planar	Dry	0.25	
	3	Joint	J1	89	116	2	Tight	None	Low	Smooth	Planar	Dry	0.25	
	4	Joint	J2	74	42	3	Unknown	Unknown	Moderate	Rough	Planar	Dry	Unknown	
	5	Joint	N/A	58	32	6	Tight	None	High	Very rough	Undulating/stepped	Dry	Unknown	
	6	Bedding	B	18	143	7	Unknown	Unknown	High	Very rough	Planar/stepped	Dry	Unknown	
	7	Joint	J1	84	297	3	Unknown	Unknown	Moderate	Rough	Planar	Dry	1	
	8	Joint	J2	76	29	7	Unknown	Unknown	Low	Smooth	Planar	Dry	Unknown	

Notes:

(1) Discontinuity sets are as follows:
B1 = Bedding
J1 = Joint Set 1
J2 = Joint Set 2
J3 = Joint Set 3
J4 = Joint Set 4

(2) Dip direction data corrected for magnetic declination (14 degrees west of north).

(3) Shear strength of infilling materials as follows:
Low = friction angle < 20 degrees
Medium = 20 degrees < friction angle < 30 degrees
High = 30 degrees < friction angle

N/A = not applicable
ft = feet; in = inches

Preppared by: LLM
Checked by: JRS
Reviewed by: APTM

TABLE 2
DISCONTINUITY SET DATA STATISTICS SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Set Number	Dip [degrees]	Dip Direction [degrees]	Trend (1) [degrees]	Persistence [ft]	Aperture [in]	Discontinuity Spacing [ft]
BEDDING B						
Average	16	204	12	18.9	0.3	0.7
Minimum	3	99	9	0.8	0.1	0.2
Maximum	32	328	238	50.0	1.0	2.5
Range	29	229	229	49.3	0.9	2.3
Count	37	measurements				
JOINT SET J1						
Average	81	238	21	10.5	0.7	1.3
Minimum	61	106	16	0.7	0.1	0.2
Maximum	89	320	230	50.0	3.0	6.0
Range	28	214	214	49.3	3.0	5.8
Count	47	measurements				
JOINT SET J2						
Average	80	105	306	13.4	1.2	1.7
Minimum	68	22	338	0.8	0.3	0.2
Maximum	89	221	131	40.0	14.0	4.0
Range	21	199	199	39.3	13.8	3.8
Count	26	measurements				
JOINT SET J3						
Average	74	73	343	13.6	2.6	2.9
Minimum	66	64	296	3.0	0.3	1.0
Maximum	80	84	276	30.0	5.0	5.0
Range	14	20	20	27.0	4.8	4.0
Count	6	measurements				
JOINT SET J4						
Average	85	13	283	8.0	1.0	0.9
Minimum	81	12	282	6.0	1.0	0.3
Maximum	89	14	284	10.0	1.0	1.5
Range	8	2	2	4.0	0.0	1.3
Count	3	measurements				

Notes:

(1) Average trend expressed for the northern half of the azimuthal circle, i.e., from 270 to 90 degrees.

ft = feet

in = inches

Preppared by: LLM
Checked by: JRS
Reviewed by: APTM

TABLE 3
LINEAMENT SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Lineament ID	Azumuth [degrees]	Joint Set[(1)]	Length [ft]	Spacing [ft]
1	026	J1	750	100
2	056	J1	600	300
3	045	J1	1200	100
4	049	J1	1200	750
5	355	N/A	600	N/A
6	031	J1	1000	1000
7	045	J1	700	200
8	039	J1	600	200
9	026	J1	600	200
10	039	J1	900	200
11	039	J1	800	200
12	039	J1	600	800
13	310	J2	1100	100
14	311	J2	1100	100
15	003	N/A	700	N/A
16	032	J1	900	400
17	037	J1	900	400
18	028	J1	2500	600
19	044	J1	1100	1100
20	031	J1	1100	450
21	301	J2	1200	300
22	314	J2	600	300
23	304	J2	1000	300
24	044	J1	600	900
25	312	J2	1800	800
26	047	J1	500	400
27	041	J1	900	300
28	039	J1	600	300
29	050	J1	1300	1600
30	302	J2	600	1400
31	028	J1	1000	1300
32	330	N/A	2000	2600
33	278	N/A	1200	200
34	278	N/A	700	200
35	039	J1	600	100
36	060	J1	500	100
37	057	J1	600	150
38	056	J1	1200	200
39	044	J1	500	200
40	049	J1	800	200
41	048	J1	1000	200
42	036	J1	1500	100
43	054	J1	800	100
44	051	J1	700	350
45	052	J1	4600	350
46	055	J1	1500	400
47	037	J1	600	250
48	051	J1	300	150
49	041	J1	1100	200
50	054	J1	400	100
51	048	J1	1600	200
52	049	J1	600	200
53	052	J1	1000	350
54	026	J1	300	200
55	026	J1	250	200

TABLE 3
LINEAMENT SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Lineament ID	Azumuth [degrees]	Joint Set[(1)]	Length [ft]	Spacing [ft]
56	021	J1	900	650
57	029	J1	900	650
58	324	J2	1600	200
59	032	J1	1000	200
60	024	J1	800	200
61	026	J1	800	200
62	026	J1	1000	300
63	020	N/A	850	400
64	307	J2	950	200
65	042	J1	1200	200
66	045	J1	700	200
67	047	J1	2400	250
68	045	J1	1300	250
69	048	J1	1200	200
70	054	J1	600	200
71	046	J1	500	200
72	354	N/A	600	N/A
73	323	J2	900	800
74	043	J1	950	250
75	041	J1	800	200
76	043	J1	950	200
77	041	J1	600	200
78	049	J1	800	1150
79	057	J1	950	1150
80	047	J1	1300	250
81	049	J1	500	300
82	051	J1	500	300
83	323	J2	750	2500
84	054	J1	800	250
85	059	J1	750	250
86	327	J2	1000	2500
87	061	J1	600	350
88	056	J1	600	300
89	056	J1	800	300
90	056	J1	450	150
91	058	J1	350	150
92	061	J1	750	700
93	053	J1	600	400
94	057	J1	350	150
95	056	J1	550	150
96	032	J1	950	200
97	016	N/A	800	N/A
98	298	J2	1000	400
99	297	J2	1100	400
100	038	J1	850	1200
101	038	J1	950	1200
102	011	N/A	600	N/A
103	322	J2	1950	500
104	314	J2	1000	500
105	320	J2	1900	200
106	320	J2	800	200

TABLE 3
LINEAMENT SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Lineament ID	Azumuth [degrees]	Joint Set[(1)]	Length [ft]	Spacing [ft]
107	323	J2	2200	250
108	307	J2	900	400
109	057	J1	1100	300
110	059	J1	900	300
111	028	J1	1400	250
112	320	J2	1800	300
113	324	J2	750	300
114	026	J1	600	200
115	324	J2	1200	250
116	318	J2	400	250
117	035	J1	800	650
118	016	N/A	1100	150
119	016	N/A	1000	150
120	069	J1	600	400
121	064	J1	600	450
122	045	J1	1300	650
123	064	J1	500	450
124	058	J1	900	200
125	050	J1	1350	1600
126	349	N/A	1800	N/A
127	029	J1	1500	600
128	338	N/A	1400	50
129	354	N/A	1200	50
130	279	N/A	700	50
131	299	J2	550	3100
132	354	N/A	1200	50
133	019	N/A	950	300
134	056	J1	900	N/A
135	296	J2	800	3100
136	057	J1	600	150
137	059	J1	500	150
138	324	J2	1000	350
139	318	J2	950	250
140	319	J2	850	250
141	012	N/A	1000	100
142	004	N/A	1200	100
143	058	J1	400	250
144	057	J1	400	250
145	066	J1	500	300
146	036	J1	1050	150
147	033	J1	1200	150
148	021	J1	1150	300
149	089	N/A	600	N/A
150	285	N/A	2600	N/A
151	029	J1	1800	250
152	021	J1	900	1600
153	294	J2	400	N/A
154	327	J2	900	3700
155	008	N/A	1300	N/A
156	294	J2	1050	N/A
157	045	J1	3400	1400
158	048	J1	850	300
159	051	J1	650	300
160	043	J1	650	150
161	041	J1	800	150

TABLE 3
LINEAMENT SUMMARY
ST. GOBAIN BEDROCK MAPPING
BENNINGTON, VERMONT

Lineament ID	Azumuth [degrees]	Joint Set[(1)]	Length [ft]	Spacing [ft]
162	332	N/A	800	1200
163	036	J1	900	250
164	026	J1	750	250
165	027	J1	1900	50
166	041	J1	1200	900
167	317	J2	850	1200
168	038	J1	900	250
169	038	J1	750	250
170	023	J1	500	250
171	034	J1	1100	200
172	031	J1	1450	150
173	030	J1	700	150
174	036	J1	1950	100
175	025	J1	1500	900
176	044	J1	1500	50
177	044	J1	1400	50
178	038	J1	750	400
179	308	J2	900	1100
180	013	N/A	1200	50
181	014	N/A	1100	50
182	018	N/A	1200	150
183	296	J2	500	300
184	299	J2	500	300
185	283	N/A	2400	500
186	002	N/A	1250	N/A
187	073	N/A	800	200
188	057	J1	1300	250
189	061	J1	1100	250
190	043	J1	800	150
191	032	J1	1100	150
192	031	J1	800	300
193	319	J2	1000	200
194	321	J2	850	200
195	299	J2	650	450
196	303	J2	950	450
197	025	J1	1900	2200
198	060	J1	400	150
199	062	J1	850	150
200	059	J1	1050	200
201	055	J1	800	200
202	308	J2	400	200
203	313	J2	400	150
204	313	J2	500	150

Notes:
1) Joint Set J1 Range: 020 - 070°; Joint Set J2 Range: 290 - 330°
N/A = lineament outside not in J1 or J2 set
2) Lineament length and spacing estimated using approximate air photo scaling.
3) See Appendix B for stereo air photos and lineament locations.

Prepared by: LLM
Checked by: JRS
Reviewed by: APTM

FIGURES

Reference: Google Earth Imagery Date 9/18/2014 (accessed 2/27/2018)

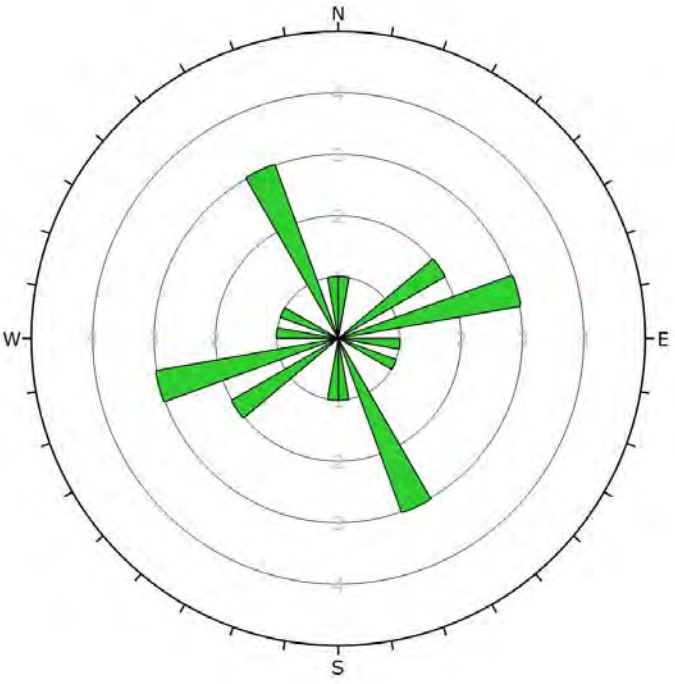
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	2/27/18
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OUTCROP LOCATION MAP

Golder Associates

ST. GOBAIN /BENNINGTON/VT

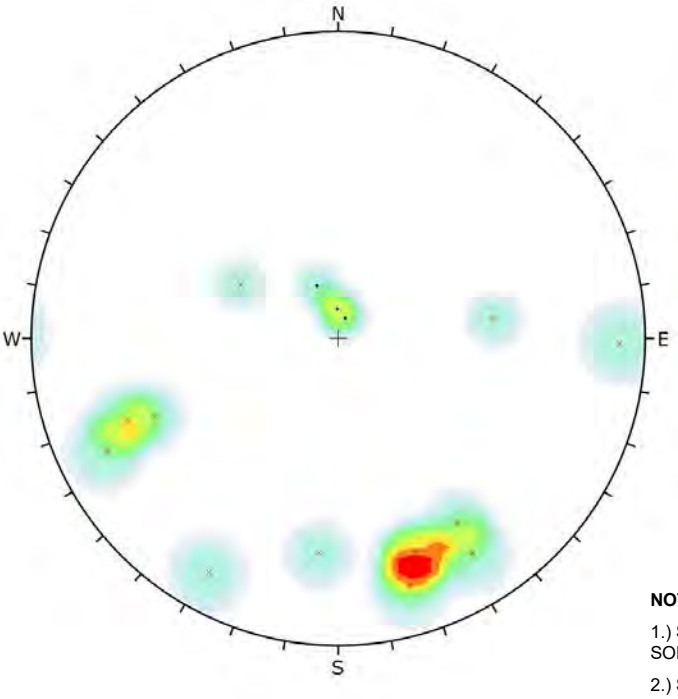
Figure: 1



St. Gobain Bedrock Mapping
Outcrop 1 (OC-1)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	12
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 1 (OC-1)

Symbol	TYPE	Quantity
•	Bedding	3
×	Joint	13

Color	Density Concentrations
	0.00 - 1.80
	1.80 - 3.60
	3.60 - 5.40
	5.40 - 7.20
	7.20 - 9.00
	9.00 - 10.80
	10.80 - 12.60
	12.60 - 14.40
	14.40 - 16.20
	16.20 - 18.00

Contour Data	Pole Vectors
Maximum Density	17.67%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

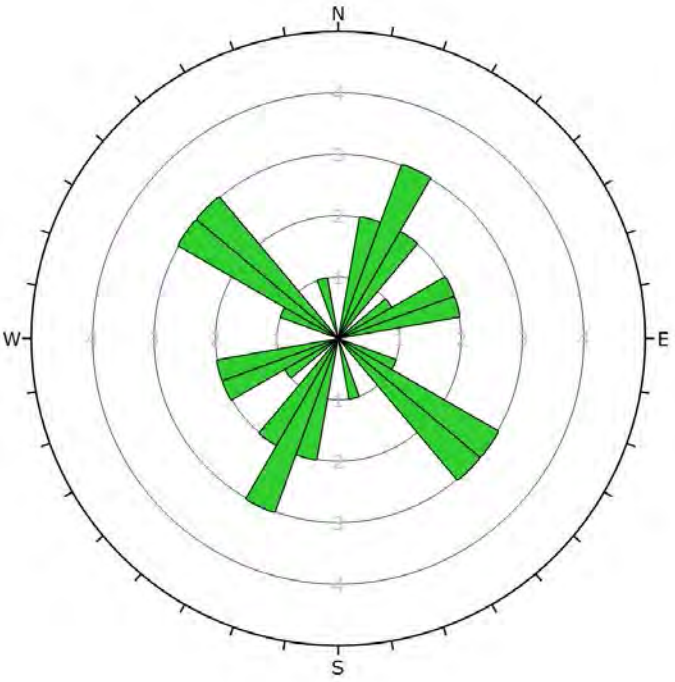
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-1 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

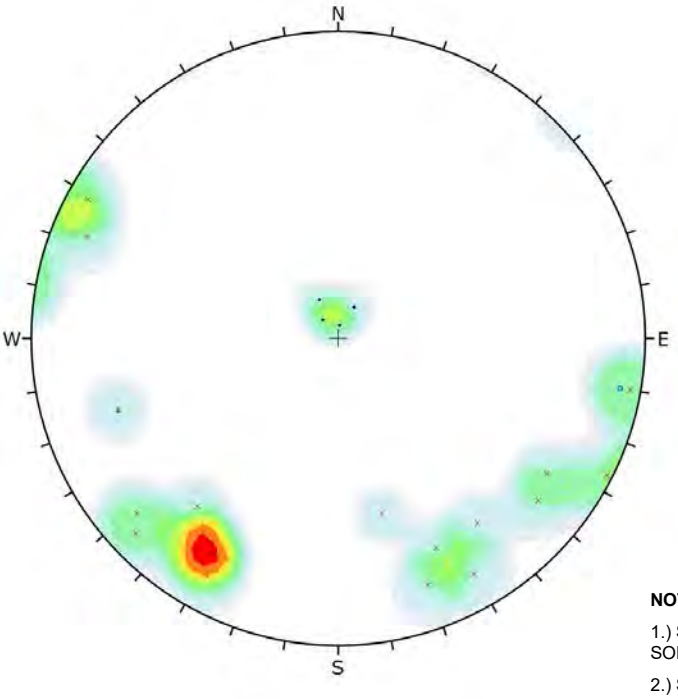
Figure: **2**



St. Gobain Bedrock Mapping
Outcrop 2 (OC-2)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	20
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 2 (OC-2)

Symbol	TYPE	Quantity
•	Bedding	4
▲	Fault	1
×	Joint	18
○	Tension Gash	1

Color	Density Concentrations
	0.00 - 1.70
	1.70 - 3.40
	3.40 - 5.10
	5.10 - 6.80
	6.80 - 8.50
	8.50 - 10.20
	10.20 - 11.90
	11.90 - 13.60
	13.60 - 15.30
	15.30 - 17.00

Contour Data	Pole Vectors
Maximum Density	16.16%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	24 (24 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

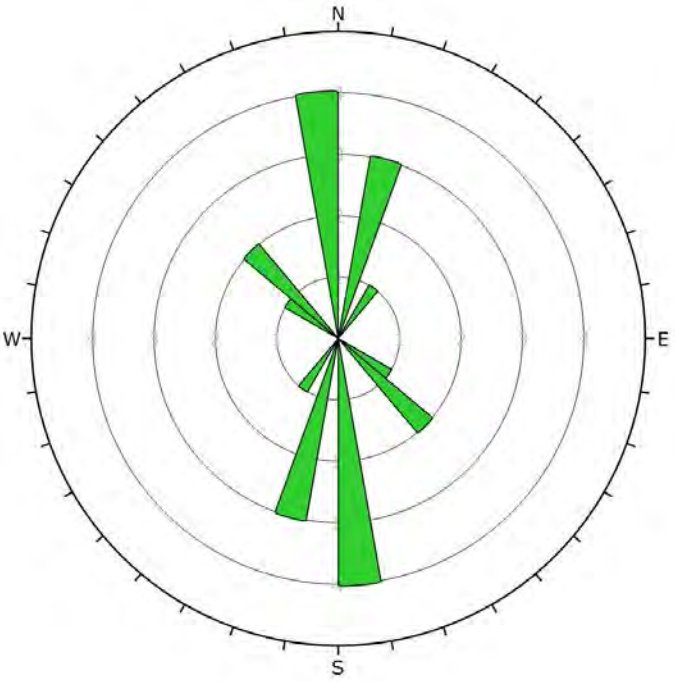
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-2 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

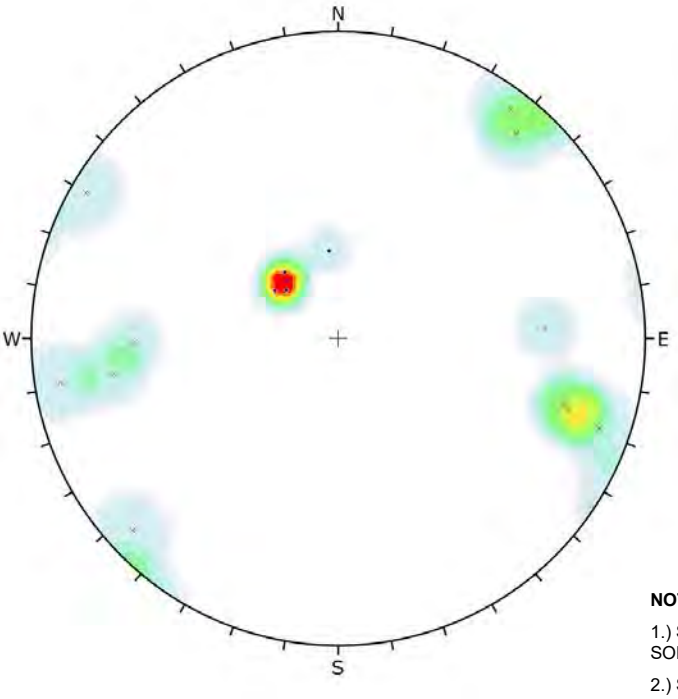
Figure: 3



St. Gobain Bedrock Mapping
Outcrop 3 (OC-3)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	11
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 3 (OC-3)

Symbol	TYPE	Quantity
•	Bedding	4
*	Bedding/Folliation	1
×	Joint	11

Color	Density Concentrations
	0.00 - 2.30
	2.30 - 4.60
	4.60 - 6.90
	6.90 - 9.20
	9.20 - 11.50
	11.50 - 13.80
	13.80 - 16.10
	16.10 - 18.40
	18.40 - 20.70
	20.70 - 23.00

Contour Data	Pole Vectors
Maximum Density	22.71%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

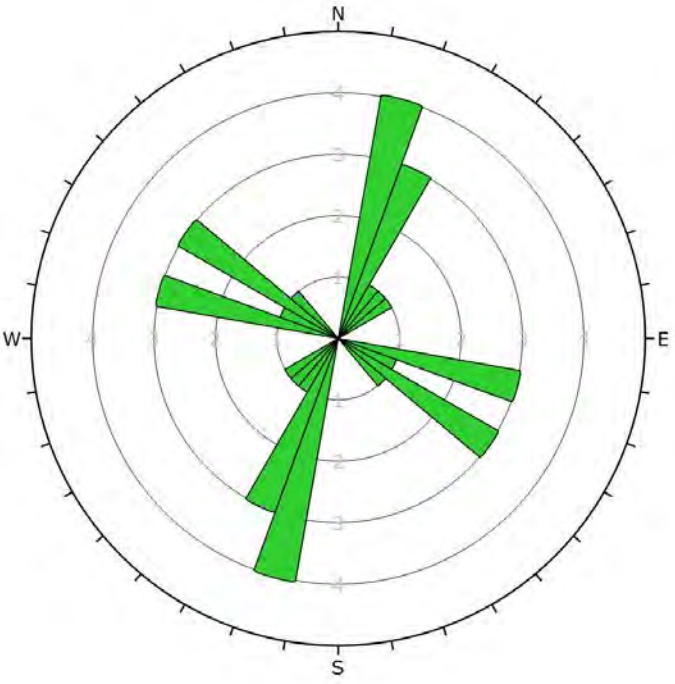
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-3 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

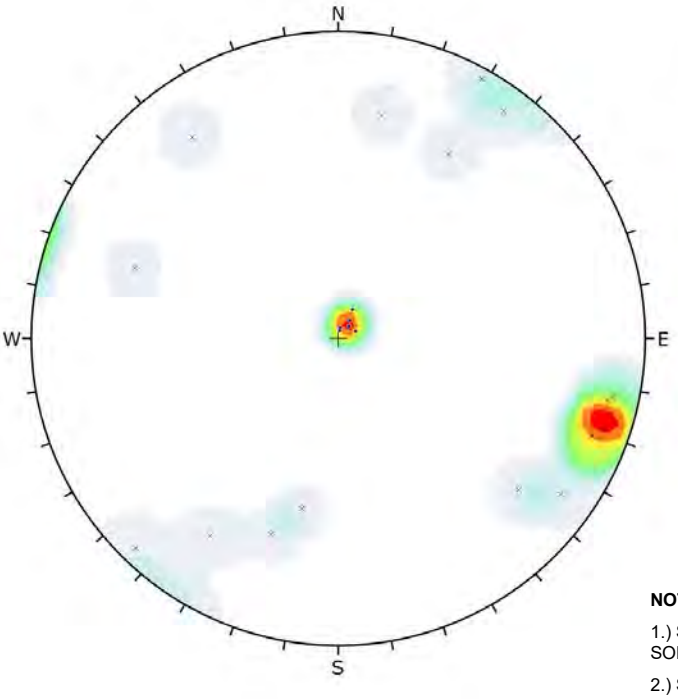
Figure: **4**



St. Gobain Bedrock Mapping
Outcrop 4 (OC-4)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	18
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 4 (OC-4)

Symbol	TYPE	Quantity
•	Bedding	6
×	Joint	18

Color	Density Concentrations
	0.00 - 2.40
	2.40 - 4.80
	4.80 - 7.20
	7.20 - 9.60
	9.60 - 12.00
	12.00 - 14.40
	14.40 - 16.80
	16.80 - 19.20
	19.20 - 21.60
	21.60 - 24.00

Contour Data	Pole Vectors
Maximum Density	23.32%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	24 (24 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

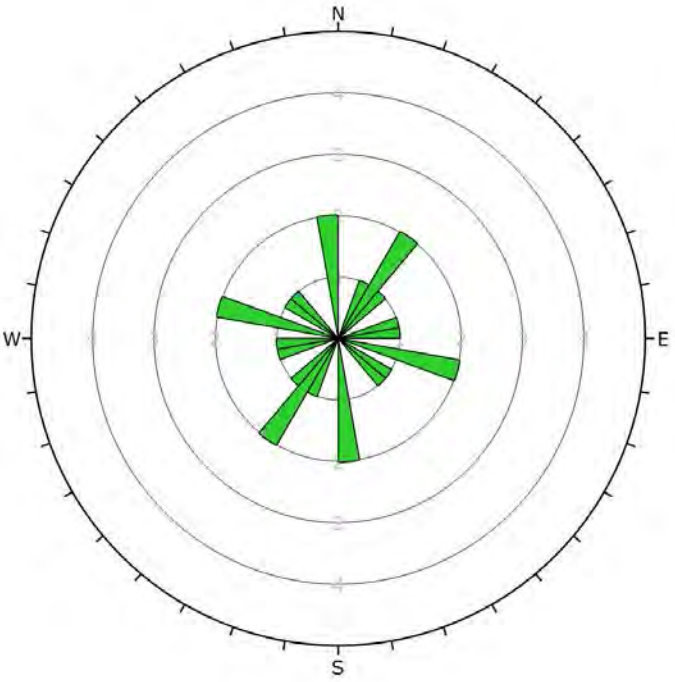
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-4 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

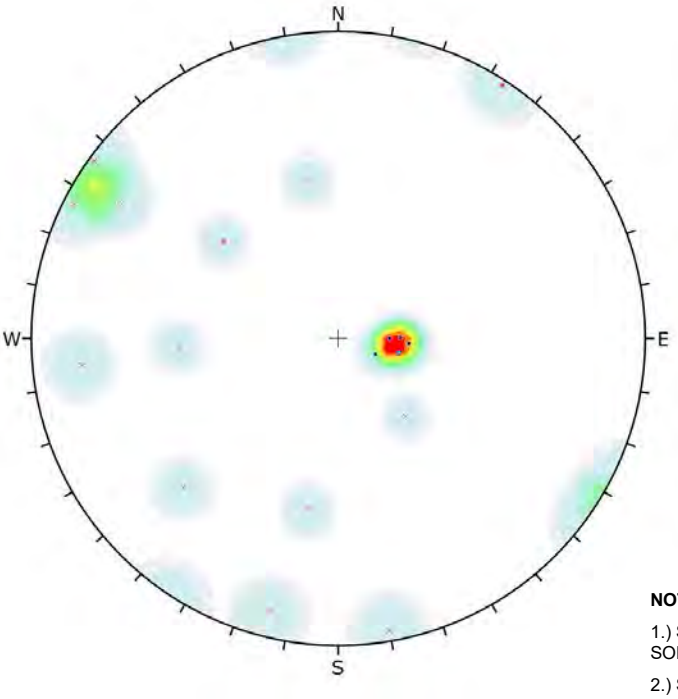
Figure: **5**



St. Gobain Bedrock Mapping
Outcrop 5 and Outcrop 5A (OC-5,OC-5A)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	12
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 5 and Outcrop 5A (OC-5,OC-5A)

Symbol	TYPE	Quantity
•	Bedding, OC-5	4
○	Bedding, OC-5A	1
×	Joint, OC-5	11
+	Joint, OC-5A	2

Color	Density Concentrations
	0.00 - 2.20
	2.20 - 4.40
	4.40 - 6.60
	6.60 - 8.80
	8.80 - 11.00
	11.00 - 13.20
	13.20 - 15.40
	15.40 - 17.60
	17.60 - 19.80
	19.80 - 22.00

Contour Data	Pole Vectors
Maximum Density	21.79%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	18 (18 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

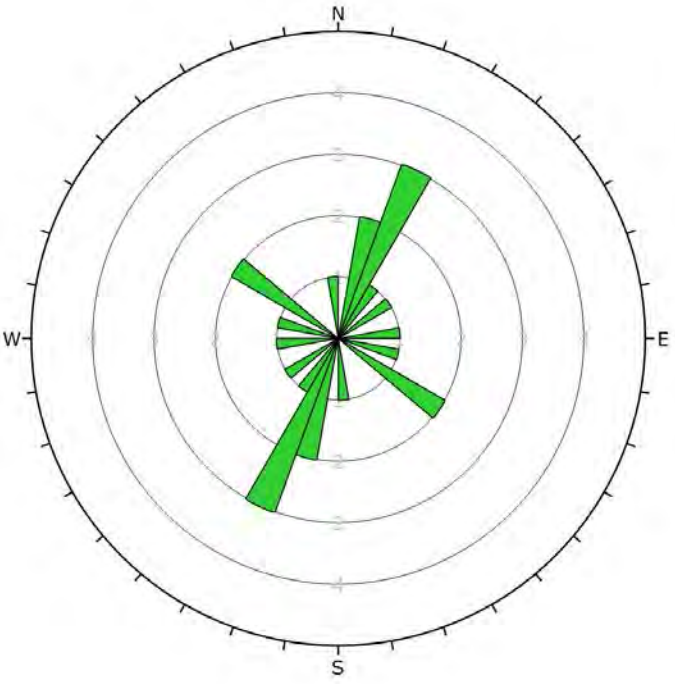
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-5 & 5A ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

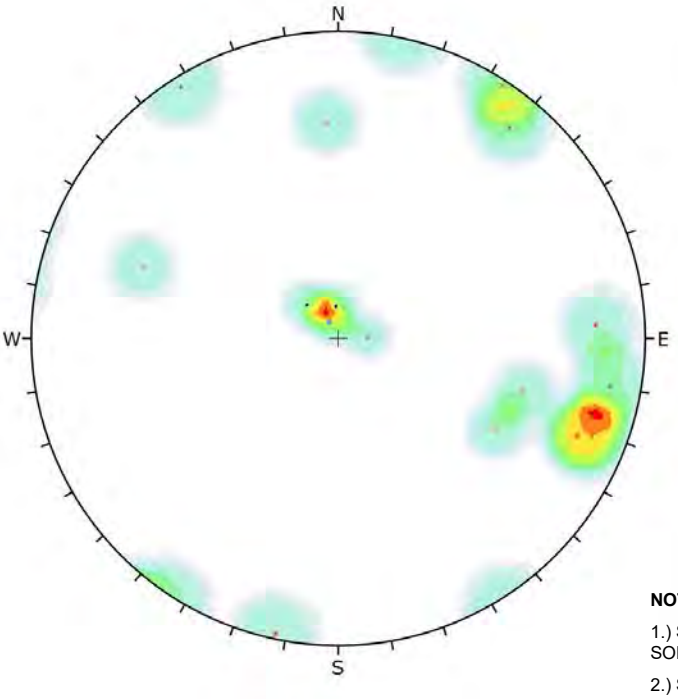
Figure: **6**



St. Gobain Bedrock Mapping
Outcrops 6, 6A, and 6B (OC-6,OC-6A,OC-6B)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	12
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrops 6, 6A, and 6B (OC-6,OC-6A,OC-6B)

Symbol	TYPE	Quantity
•	Bedding, OC-6	2
◦	Bedding, OC-6A	1
○	Bedding, OC-6B	1
×	Joint, OC-6	6
*	Joint, OC-6A	3
+	Joint, OC-6B	3

Color	Density Concentrations
	0.00 - 1.60
	1.60 - 3.20
	3.20 - 4.80
	4.80 - 6.40
	6.40 - 8.00
	8.00 - 9.60
	9.60 - 11.20
	11.20 - 12.80
	12.80 - 14.40
	14.40 - 16.00

Contour Data	Pole Vectors
Maximum Density	15.30%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

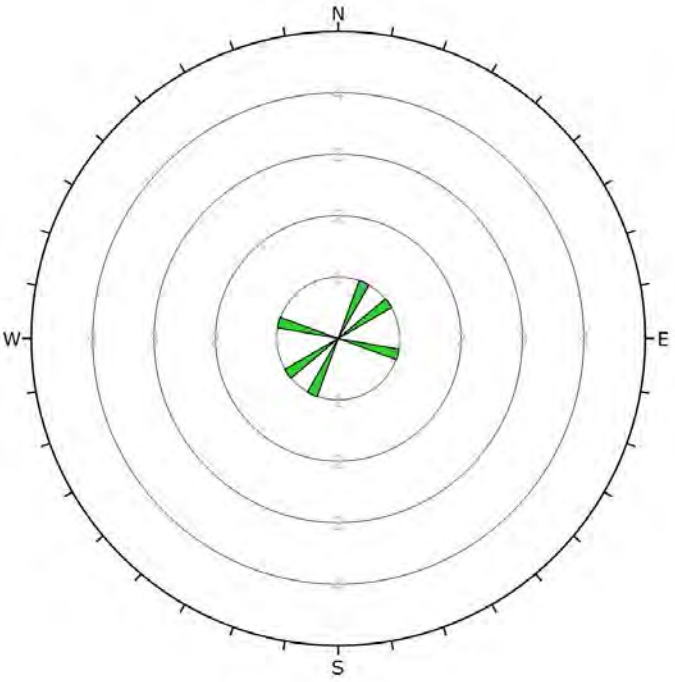
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-6, 6A & 6B ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

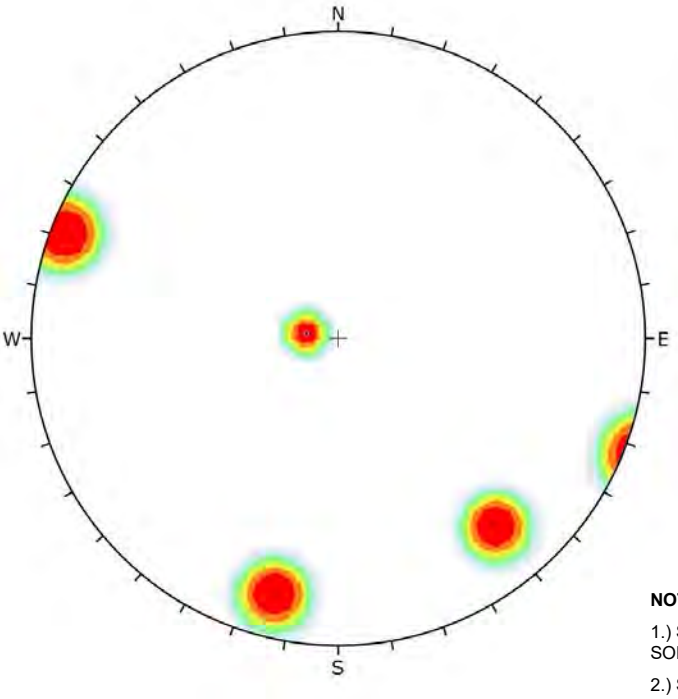
Figure: 7



St. Gobain Bedrock Mapping
Outcrop 8 (OC-8)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	3
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrop 8 (OC-8)

Symbol	TYPE	Quantity
•	Bedding	1
×	Joint	3

Color	Density Concentrations
	0.00 - 2.50
	2.50 - 5.00
	5.00 - 7.50
	7.50 - 10.00
	10.00 - 12.50
	12.50 - 15.00
	15.00 - 17.50
	17.50 - 20.00
	20.00 - 22.50
	22.50 - 25.00

Contour Data	Pole Vectors
Maximum Density	24.88%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	4 (4 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

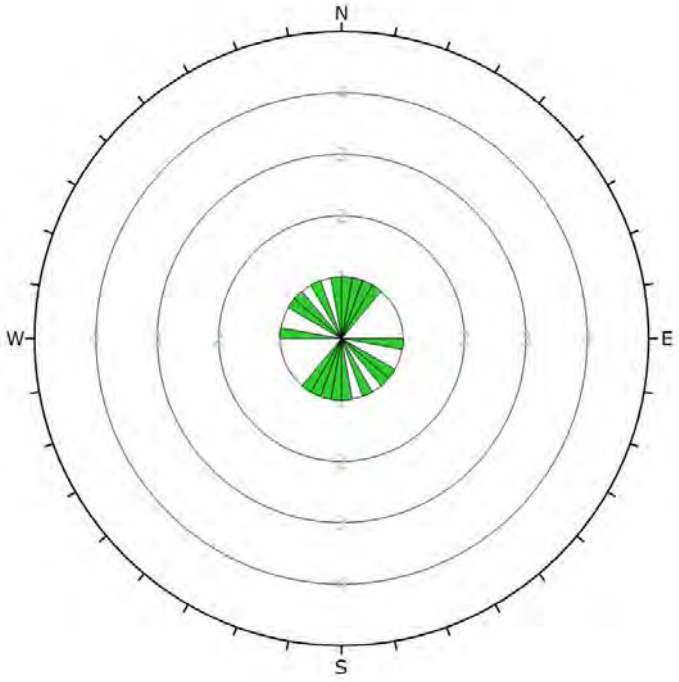
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-8 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

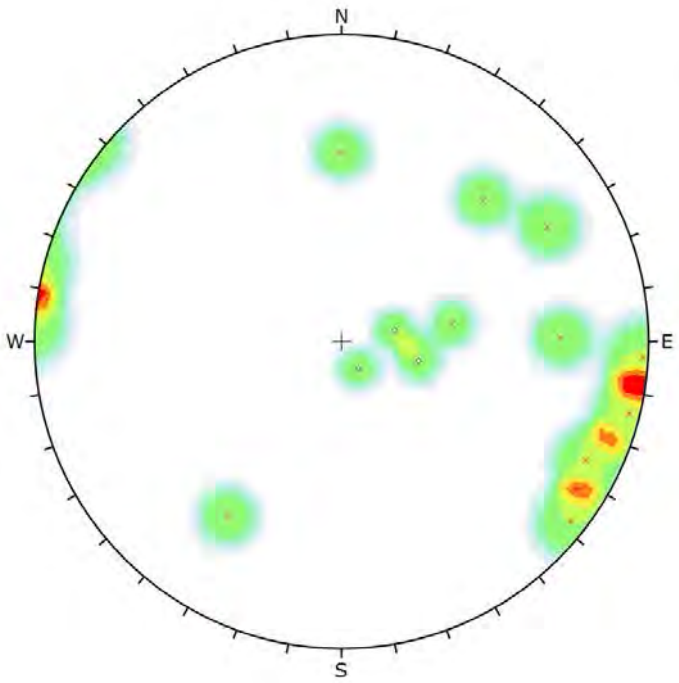
Figure: **8**



St. Gobain Bedrock Mapping
Outcrops 9 & 9A (OC-9,9A)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	9
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Outcrops 9 & 9A (OC-9,9A)

Symbol	TYPE	Quantity
◦	Bedding	3
·	Joint	10

Color	Density Concentrations
	0.00 - 1.30
	1.30 - 2.60
	2.60 - 3.90
	3.90 - 5.20
	5.20 - 6.50
	6.50 - 7.80
	7.80 - 9.10
	9.10 - 10.40
	10.40 - 11.70
	11.70 - 13.00

Contour Data	Pole Vectors
Maximum Density	12.94%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	13 (13 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

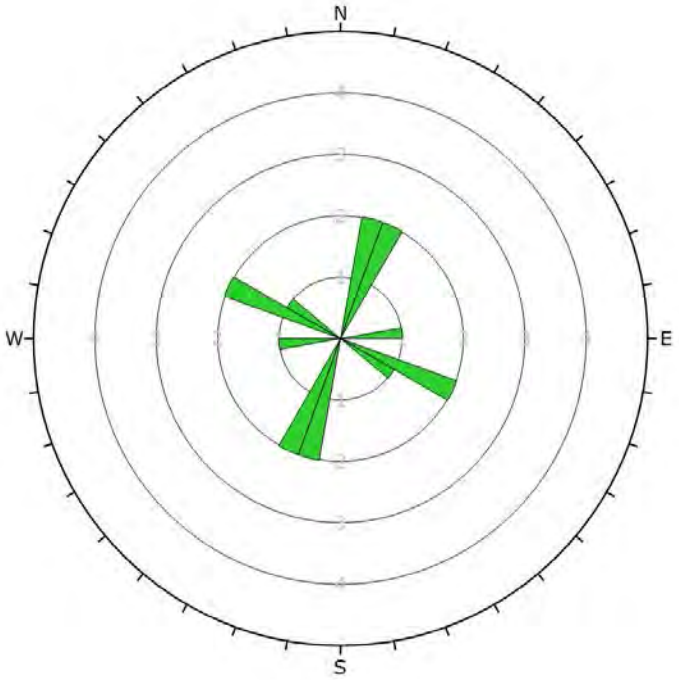
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-9 &9A ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

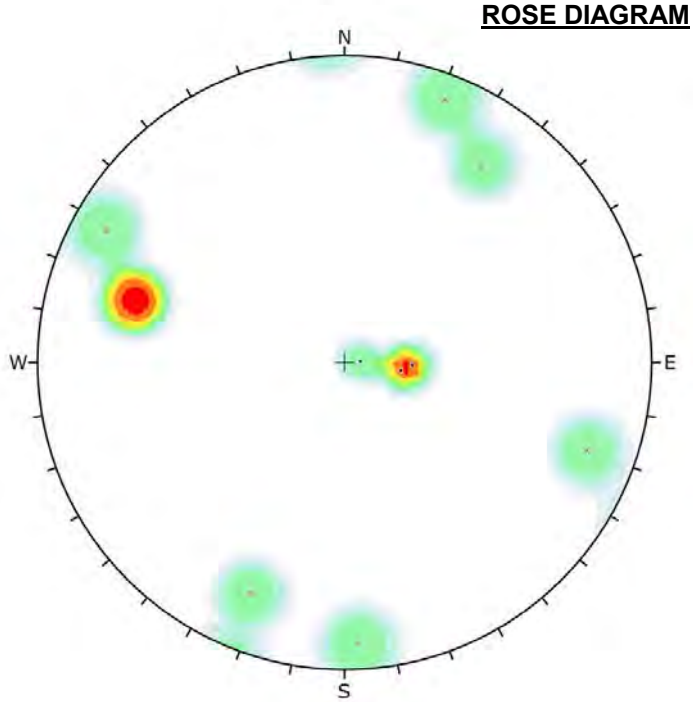
Figure: 9



St. Gobain Bedrock Mapping
Oucrops 10 & 10A (OC-10,10A)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	8
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
Oucrops 10 & 10A (OC-10,10A)

Symbol	TYPE	Quantity
·	Bedding	3
×	Joint	8

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

Contour Data	Pole Vectors
Maximum Density	18.12%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	11 (11 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

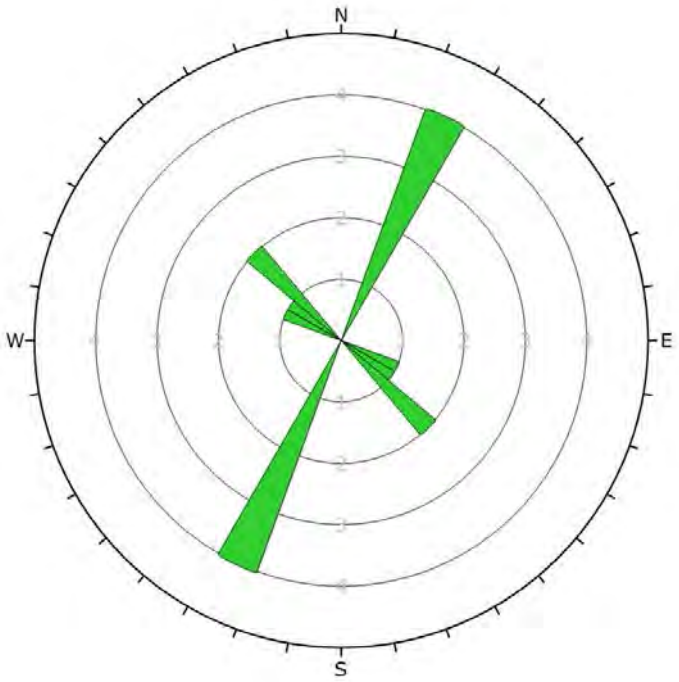
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-10 &10A ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

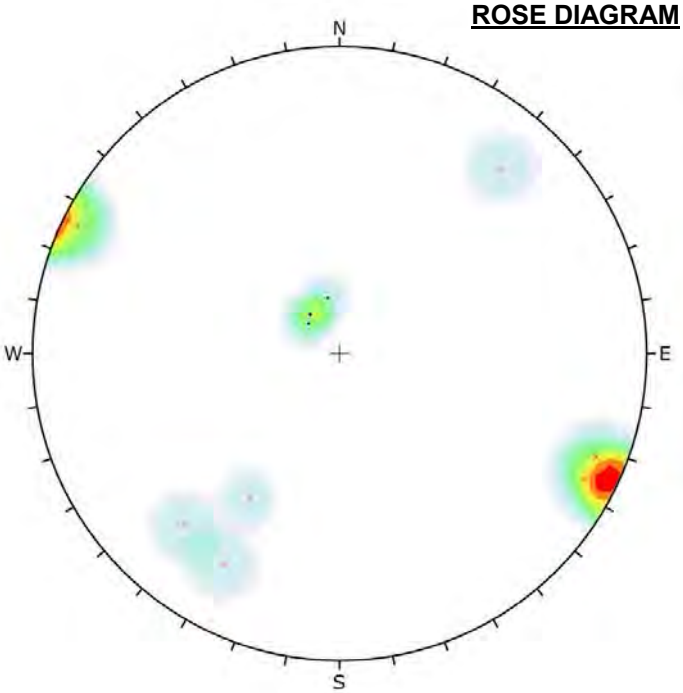
Figure: 10



St. Gobain Bedrock Mapping
Outcrops 11 & 12 (OC-11,12)

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	5 planes per arc
Planes Plotted	8
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



Outcrops 11 & 12 (OC-11,12)

Symbol	TYPE	Quantity
·	Bedding	3
×	Joint	8

Color	Density Concentrations
	0.00 - 3.40
	3.40 - 6.80
	6.80 - 10.20
	10.20 - 13.60
	13.60 - 17.00
	17.00 - 20.40
	20.40 - 23.80
	23.80 - 27.20
	27.20 - 30.60
	30.60 - 34.00

Contour Data	Pole Vectors
Maximum Density	33.02%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	11 (11 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

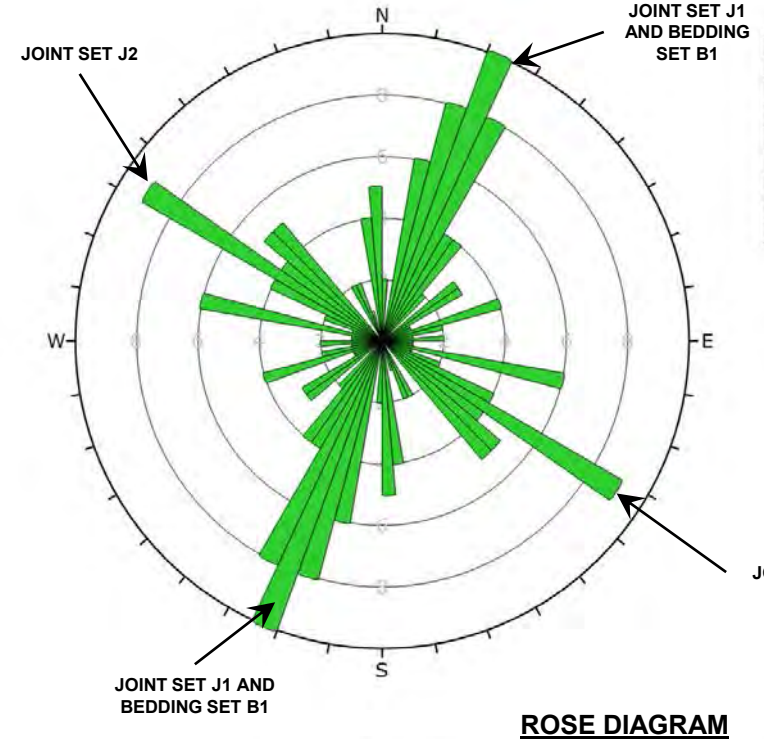
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

OC-11 & 12 ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

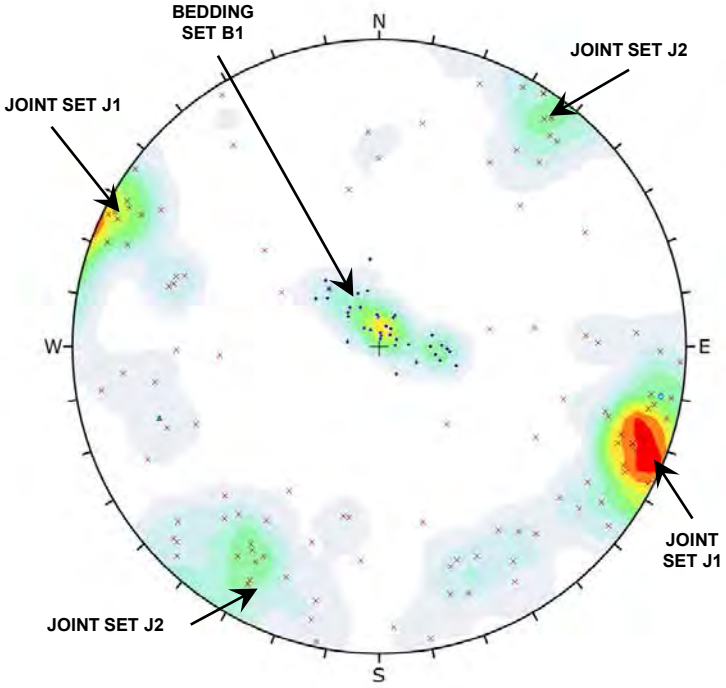
Figure: 11



St. Gobain Bedrock Mapping
All Outcrops

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	5°
Outer Circle	10 planes per arc
Planes Plotted	113
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

ROSE DIAGRAM



St. Gobain Bedrock Mapping
All Outcrops

Symbol	TYPE	Quantity
•	Bedding	36
×	Bedding/Foliation	1
▲	Fault	1
×	Joint	114
○	Tension Gash	1

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
	8.00 - 9.00
	9.00 - 10.00

Contour Data	Pole Vectors
Maximum Density	9.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	153 (153 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 FOR OUTCROP DATA SUMMARY.

STEREONET

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figures 1-12.pptx
REV BY:	APTM	DR ST:	01

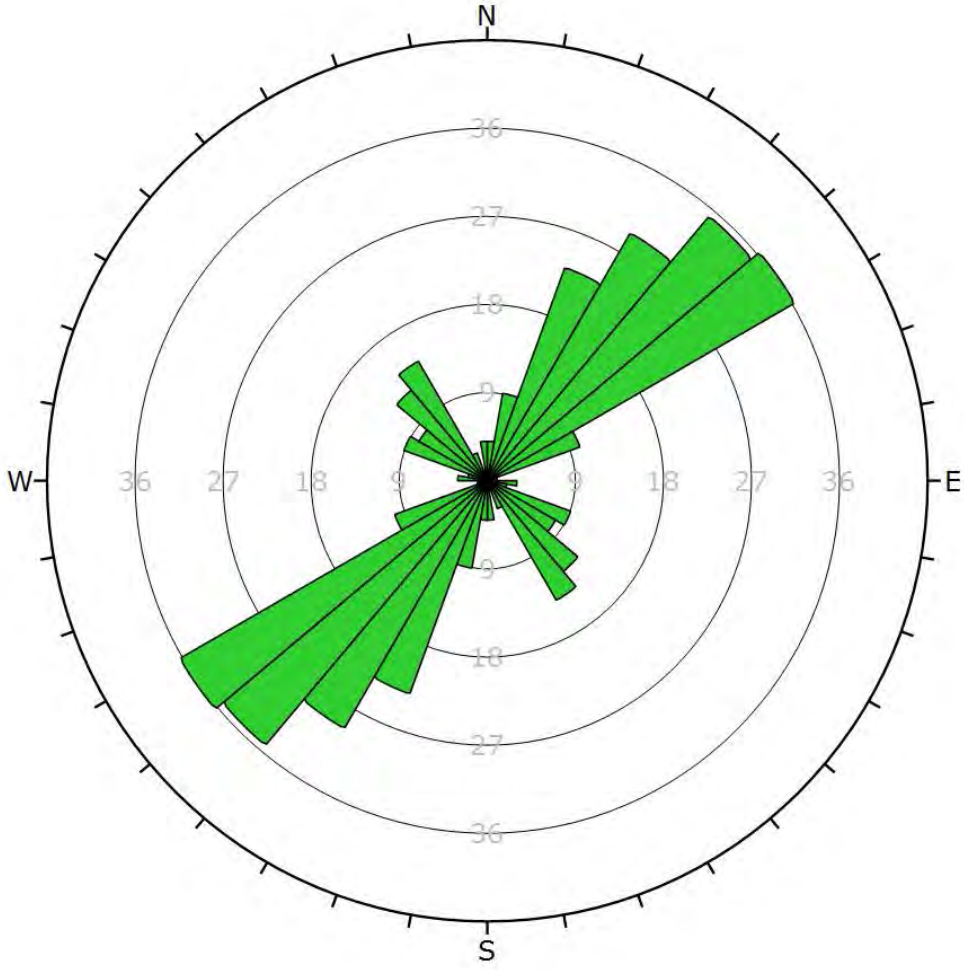
ALL OUTCROP DATA ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 12

St. Gobain Bedrock Mapping
Lineament Measurements
Bennington, Vermont



Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	45 planes per arc
Planes Plotted	204
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 8/8/2017.

2.) SEE TABLE 3 FOR LINEAMENT DATA SUMMARY.

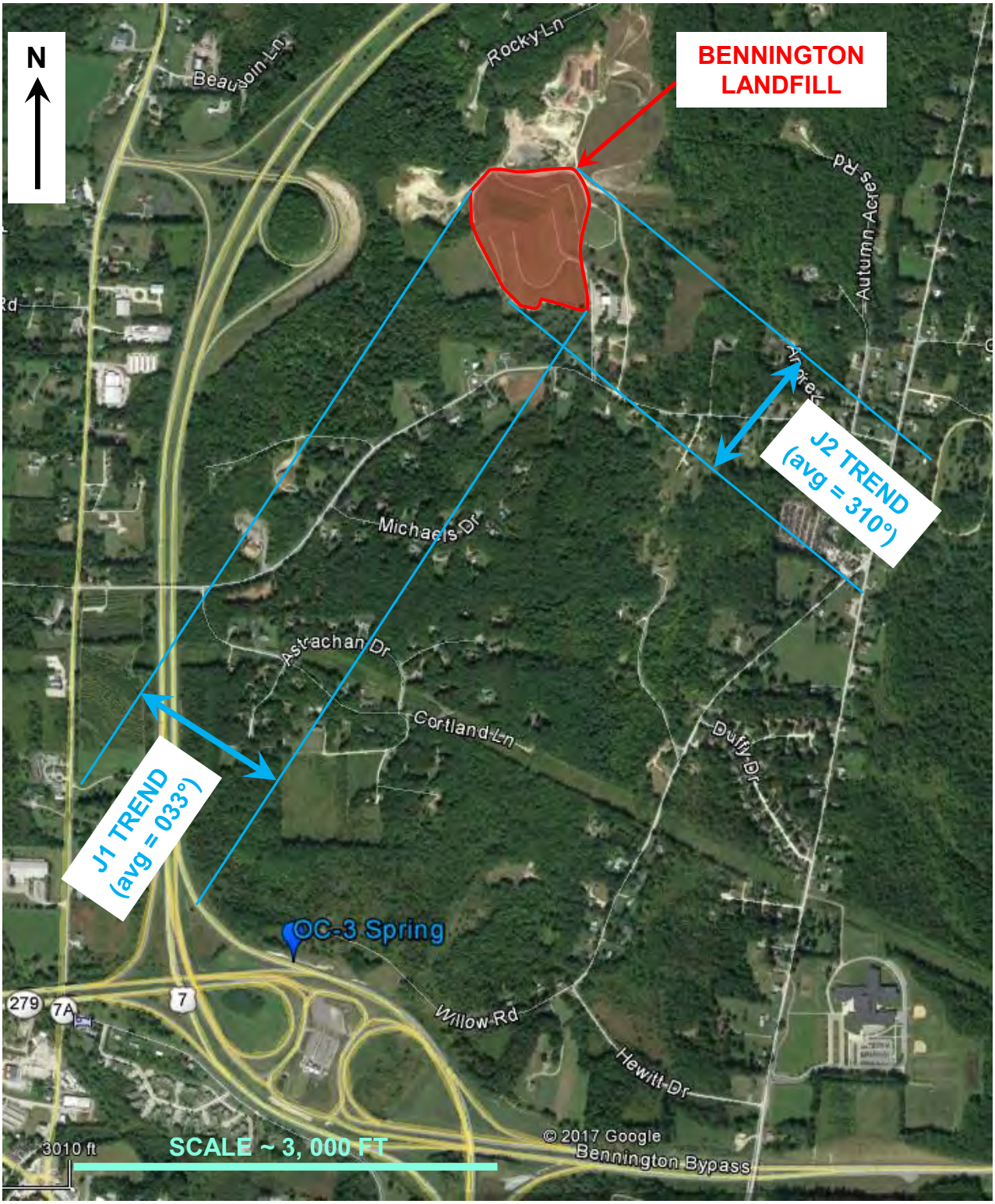
PROJ NO.	177-8327	SCALE:	N/A
DR. BY:	LLM	DATE:	12/13/17
CHK BY:	JRS	FILE No.	Figure 13.pptx
REV BY:	APTM	DR ST:	01

PHOTOLINEAMENT ROSE DIAGRAM

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 13



Reference: Google Earth Imagery Date 9/18/2014 (accessed 7/18/2017)

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	JRS	DATE:	12/13/17
CHK BY:	JSP	FILE No.	Figures 14-16.pptx
REV BY:	APTM	DR ST:	01

RECOMMENDED BEDROCK MONITORING WELL TREND ZONES – AIR PHOTO MAP

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 14

Reference: U.S. Geological Survey, 1997. Bennington Quadrangle, 7.5-Minute Series (Topographic), original scale 1:24,000

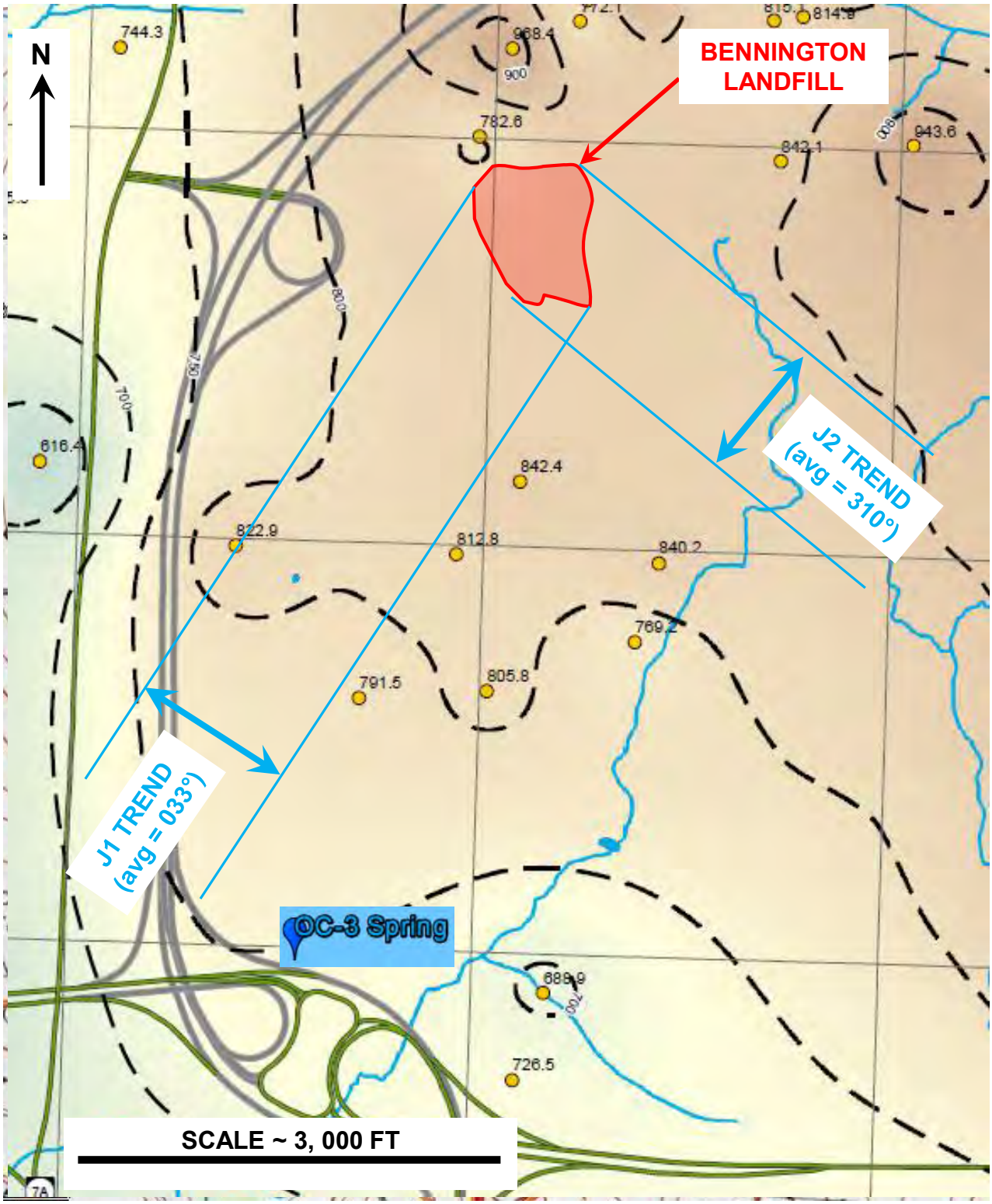
PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	JRS	DATE:	12/13/17
CHK BY:	JSP	FILE No.	Figures 14-16.pptx
REV BY:	APTM	DR ST:	01

RECOMMENDED BEDROCK MONITORING WELL TREND ZONES – TOPOGRAPHIC MAP

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 15



Reference: Kim, J. and Dowey, C., 2017. Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed), Vermont Geological Survey Open-File Report 2017-3D, 06-02017 Version, original scale 1:12,000

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	JRS	DATE:	12/13/17
CHK BY:	JSP	FILE No.	Figures 14-16.pptx
REV BY:	APTM	DR ST:	01

RECOMMENDED BEDROCK MONITORING TREND ZONES – VGS 2017 BEDROCK GROUNDWATER CONTOUR MAP

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 16

APPENDIX A
OUTCROP MAPPING PHOTO LOG

PHOTO 1 Photo of OC-1 location within the Moncton Formation, view to north-northeast. Note bedding dipping gently to the south (photo date 06/27/17, file IMG_9339.JPG).	
PHOTO 2 Photo of OC-1 location, view to southeast (photo date 06/27/17, file DSC_1786.JPG).	

PHOTO 3 Photo of OC-2 location within the Moncton Formation, view to east. Note bedding dipping gently to the south (photo date 06/27/17, file IMG_9365.JPG).	
PHOTO 4 Photo of southeast end of OC-3 location within the Dunham Formation, view to northwest. Note bedding dipping moderately to the southeast, and preserved ripple marks (photo date 06/27/17, file DSC_1805.JPG).	

PHOTO 5 Photo of northwest end of OC-3 location, view to east (photo date 06/27/17, file DSC_1820.JPG).	
PHOTO 6 Photo of middle portion of OC-3, showing location of flowing spring, view to north (photo date 06/27/17, file DSC_1820.JPG).	

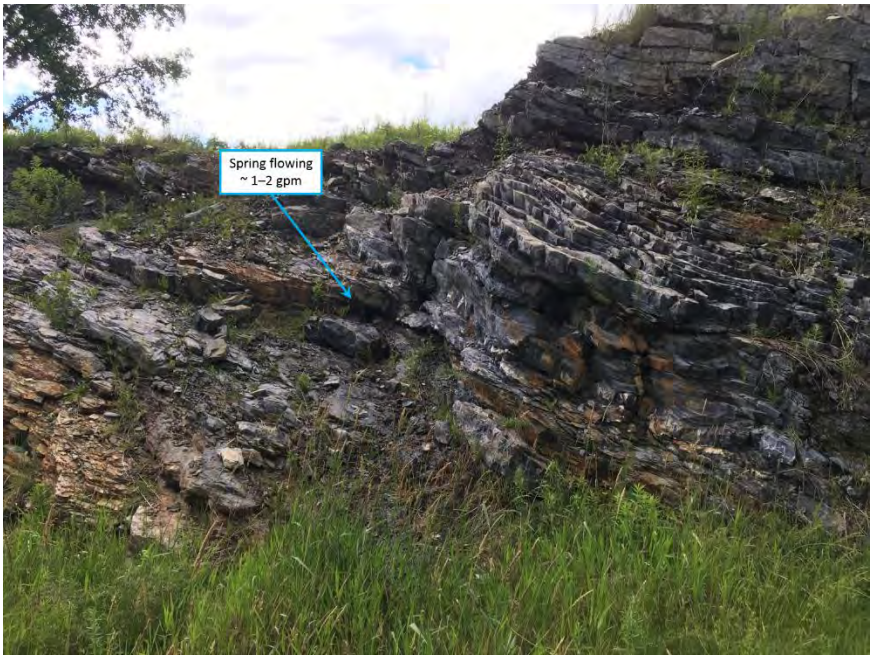
PHOTO 7 Photo of middle portion of OC-3, showing detailed location of flowing spring, emanating from open, near vertical joint dipping steeply to the east, and striking north-south, within highly weathered dark gray phyllite with milky white quartz veins and iron hydroxides. View to north (photo date 06/27/17, file IMG_9382.JPG).	
PHOTO 8 Close-up photo of spring at OC-3 at coordinates N 42° 54.370', W 073° 12.289', hand-held GPS for scale. Note green moss and snails suggesting possible perennial flow (photo date 06/27/17, file IMG_9375.JPG).	

PHOTO 9 Photo of middle portion of OC-4 (beneath high-tension power lines), showing typical conditions of the Cheshire Formation, view to northeast. Note orthogonal quartzite blocks formed from nearly horizontal bedding and two steeply dipping joint sets (photo date 06/28/17, file IMG_9388.JPG).	
PHOTO 10 Photo of middle portion of OC-5, showing bedding dipping moderately to the west in the Cheshire Formation (photo date 06/28/17, file DSC_1861.JPG).	

PHOTO 11 Photo of middle portion of OC-6, showing bedding dipping gently to the southeast in the Cheshire Formation. View to the northeast (photo date 06/28/17, file DSC_1886.JPG).	
PHOTO 12 Panoramic photo of OC-6A, showing bedding dipping gently to the southeast in the Cheshire Formation. View to the east (photo date 06/28/17, files DSC_1892 & DSC_1893.JPG).	

PHOTO 13 Photo of OC-6B, showing bedding dipping gently to the southwest in the Cheshire Formation. View to the west (photo date 06/28/17, file DSC_1894).	
PHOTO 14 Photo of OC-6B, showing bedding dipping gently to the southeast in the Cheshire Formation. View to the west (photo date 06/28/17, file DSC_1888).	

PHOTO 15

Photo of OC-8 within the Cheshire Formation, view to the west (photo date 06/28/17, file IMG_9394).

PHOTO 16

Photo of OC-9 within the Cheshire Formation, view to the south-southwest, field book for scale (photo date 09/26/17, file IMG_0117).

PHOTO 17 Photo of OC-9A subcrop within the Cheshire Formation (photo date 09/26/17, file IMG_0120).	
PHOTO 18 Photo of OC-10 outcrop within the Cheshire Formation (photo date 09/26/17, file IMG_0137).	

PHOTO 19

Photo of OC-10A outcrop within the Cheshire Formation, field book and hand-held GPS unit for scale. View to north-northeast (photo date 09/26/17, file IMG_0139).

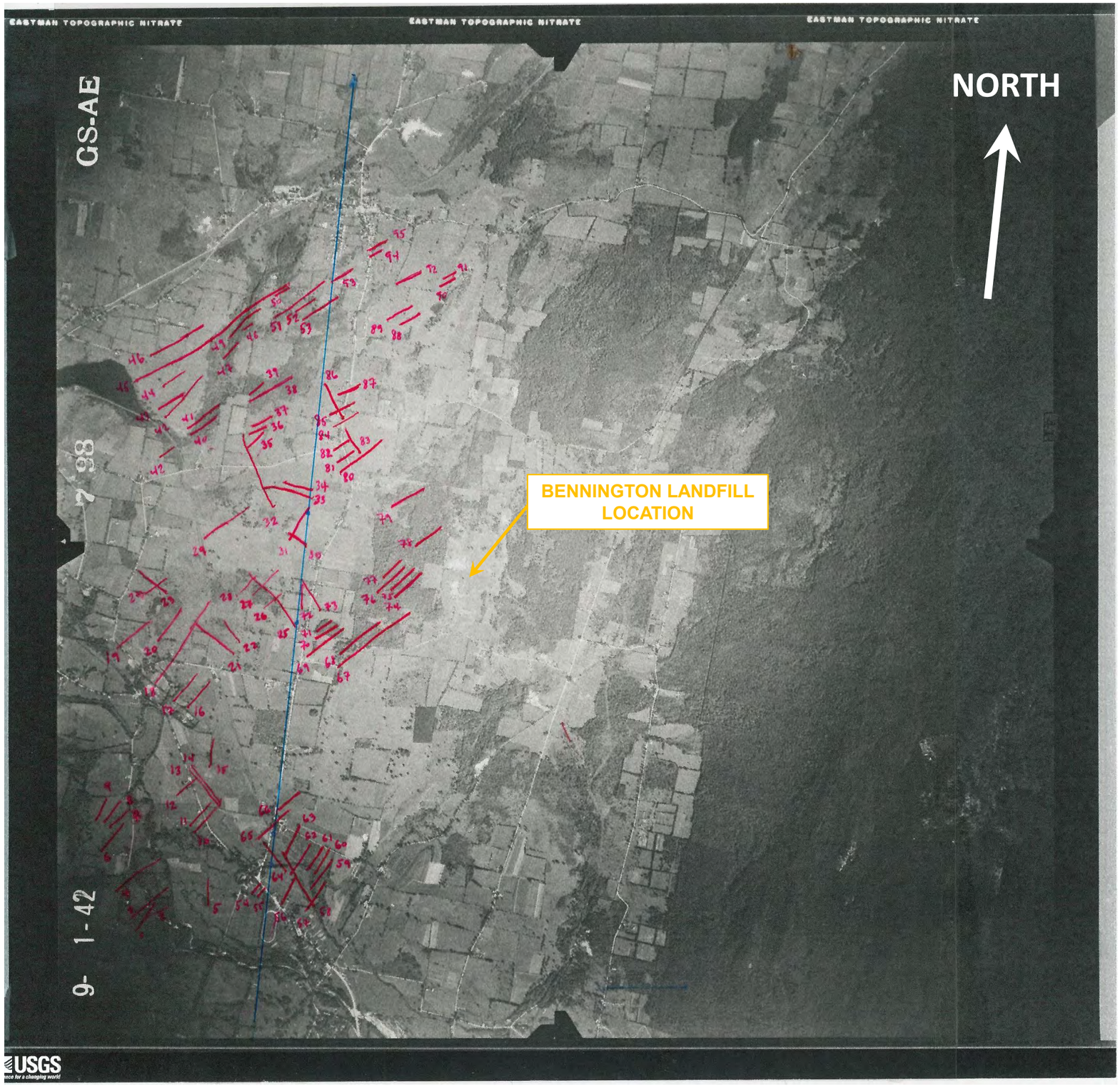
PHOTO 20

Photo of OC-11 subcrop within the Cheshire Formation, exposed in landfill access road. View to southwest (photo date 09/26/17, file IMG_0157).

PHOTO 21 Photo of OC-12 outcrop within the Cheshire Formation, exposed in quarry pit area. View to southwest (photo date 09/26/17, file IMG_0164).	
PHOTO 22 Close-up photo of OC-12 outcrop within the Cheshire Formation, exposed in quarry pit area. Note faint cross-bedding dipping to southeast (to left), in bed crossed by blue mechanical pencil (photo date 09/26/17, file IMG_0165).	

APPENDIX B

1942 STEREO AIR PHOTOS



LEGEND

124 Lineament Trace and ID

Approximate North-South Azimuth Control

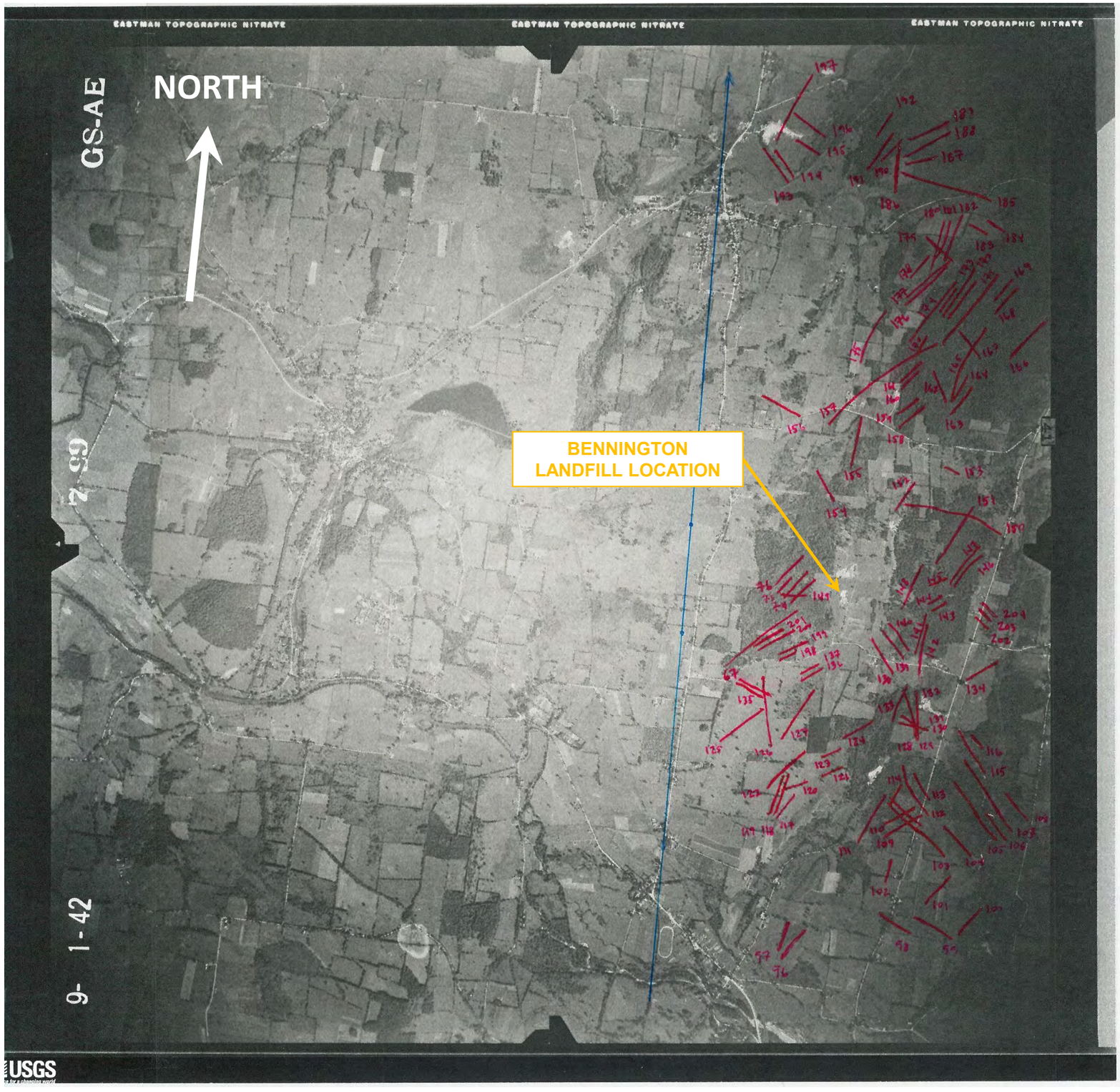
REFERENCE

U.S. Geological Survey, 2007. Aerial Photo Single Frame, Entity ID AR1AE0000070098, Black & White, 60% Stereo Overlap, Center Coordinates 42.927944, -73.192526, Acquisition Date 01-Sep-42, Scale 1:27,200 (high resolution download file 1AE0000070098.tif, 99 MB; accessed 6/15/17 from https://earthexplorer.usgs.gov/)

APPROXIMATE SCALE

2000 feet

Appendix B-1 Air Photo Lineament Analysis



LEGEND

124 — Lineament Trace and ID

Approximate North-South Azimuth Control

REFERENCE

U.S. Geological Survey, 2007. Aerial Photo Single Frame, Entity ID AR1AE0000070099, Black & White, 60% Stereo Overlap, Center Coordinates 42.925019, -73.228977, Acquisition Date 01-Sep-42, Scale 1:27,200 (high resolution download file 1AE0000070099.tif, 99 MB; accessed 6/15/17 from https://earthexplorer.usgs.gov/)

APPROXIMATE SCALE

2000 feet

Appendix B-2 Air Photo Lineament Analysis

Appendix E.2

Private Well Logs and Bennington Landfill Monitoring Well Records

VERMONT OFFICIAL STATE WEBSITE

32 Cortland Lane

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	08-31-1978
Date Report Received:	04-02-1979
Well Driller License Number:	16 = H Allen Follett , A & W Artesian Well Co Inc
Well Report Number:	128
Well Number/Tag Number:	
Comments:	CASING SEAL: 8 3/4" HOLE 10' IN ROCK. WATER LEVEL DURING YIELD TEST=200'.
Town:	Bennington
Map Cell:	
Tax Map:	
E-911 Address:	32 Cortland Lane (GIS location from state well database is approximately
Sub Division:	100 feet from the known 32 Cortland Lane well.
Lot Number:	
Owner's First Name:	
Owner's Last Name:	Environmental Design
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	
Drilling Equipment Code:	
Total Depth of Well (in feet):	245.00
Yield (in GPM):	10.00
Yield Test Tested For (in hours):	0.00
Static Water Level (in feet):	30.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	10
Total Casing Length (in feet):	21.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	0.00
Casing Length Exposed (in feet):	0.00
Casing Material:	
Casing Weight (in lbs/foot):	0.00
Casing Finish Code:	
Length of Liner used (in feet):	0.00
Liner Diameter (in inches):	0.00
Liner Material:	
Liner Weight (in lbs/foot):	0.00
Liner Type:	
Grout Type:	0
Seal Type:	
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

Gravel Size or Type:	
Method of Sealing Casing Code:	6 = Other
Yield Test Method Code:	3 = Compressed air
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI128
Latitude:	42.91237
Longitude:	-73.19986
Location Determination Method:	4 = screen digitized
Well Type:	
Depth To Liner Top (in feet):	0.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	
DOE:	
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	3156

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	10.00		O	Other overburden	overburden
View	10.00	245.00		R	Rock, bedrock, ledge, etc.	limestone

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VERMONT OFFICIAL STATE WEBSITE

49 Michaels Drive

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	02-20-2001
Date Report Received:	07-02-2001
Well Driller License Number:	93 = Clarence Gould Sr. , Gould & Sons Well Drilling
Well Report Number:	16851
Well Number/Tag Number:	16851
Comments:	
Town:	Bennington
Map Cell:	
Tax Map:	
E-911 Address:	19 Michaels Drive
Sub Division:	
Lot Number:	
Owner's First Name:	John/Jackylnn
Owner's Last Name:	Meyers
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	1 = New Supply
Drilling Equipment Code:	
Total Depth of Well (in feet):	260.00
Yield (in GPM):	30.00
Yield Test Tested For (in hours):	3.00
Static Water Level (in feet):	120.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	23
Total Casing Length (in feet):	230.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	228.50
Casing Length Exposed (in feet):	1.50
Casing Material:	1 = Steel
Casing Weight (in lbs/foot):	17.00
Casing Finish Code:	
Length of Liner used (in feet):	0.00
Liner Diameter (in inches):	0.00
Liner Material:	
Liner Weight (in lbs/foot):	0.00
Liner Type:	
Grout Type:	0
Seal Type:	
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

Address thought to be 49 Michaels Drive because 19 Michaels Drive does not exist (according to parcel data)

Gravel Size or Type:	
Method of Sealing Casing Code:	1 = Drive shoe only
Yield Test Method Code:	
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI16851
Latitude:	42.91588
Longitude:	-73.20341
Location Determination Method:	4 = screen digitized
Well Type:	
Depth To Liner Top (in feet):	0.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	Y
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	Cathy Deyo
DOE:	7/23/2001 12:00:00 AM
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	84613

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	22.00		H	Hardpan	hardpan w/ rocks
View	22.00	184.00		R	Rock, bedrock, ledge, etc.	rotten ledge w/ ocra
View	184.00	260.00	30	R	Rock, bedrock, ledge, etc.	broken up, crumbly colored limestone, white & red

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VERMONT OFFICIAL STATE WEBSITE

54 Cortland Lane

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	09-03-1996
Date Report Received:	11-27-1996
Well Driller License Number:	196 = Frederick Morey , Morey Well Servicing
Well Report Number:	2093
Well Number/Tag Number:	570
Comments:	
Town:	Bennington
Map Cell:	19A6
Tax Map:	
E-911 Address:	54 Cortland Lane (owner's name matches)
Sub Division:	
Lot Number:	
Owner's First Name:	BILL
Owner's Last Name:	KNIGHT
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	1 = New Supply
Drilling Equipment Code:	2 = Rotary (AP)
Total Depth of Well (in feet):	540.00
Yield (in GPM):	4.00
Yield Test Tested For (in hours):	0.00
Static Water Level (in feet):	75.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	26
Total Casing Length (in feet):	60.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	0.00
Casing Length Exposed (in feet):	0.00
Casing Material:	
Casing Weight (in lbs/foot):	0.00
Casing Finish Code:	1 = Above ground, finished
Length of Liner used (in feet):	0.00
Liner Diameter (in inches):	0.00
Liner Material:	
Liner Weight (in lbs/foot):	0.00
Liner Type:	
Grout Type:	0
Seal Type:	
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

Gravel Size or Type:	
Method of Sealing Casing Code:	1 = Drive shoe only
Yield Test Method Code:	3 = Compressed air
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI2093
Latitude:	42.91692
Longitude:	-73.19437
Location Determination Method:	4 = screen digitized
Well Type:	
Depth To Liner Top (in feet):	0.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	
DOE:	
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	3517

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	12.00		O	Other overburden	LOAMY SANDY GRAVEL
View	12.00	26.00		H	Hardpan	HARDPAN
View	26.00	43.00		R	Rock, bedrock, ledge, etc.	FRACTURED LIMESTONE & CHESHIRE QUARTZ
View	43.00	540.00		R	Rock, bedrock, ledge, etc.	GREY & CREAM COLORED LIMESTONE-WATER

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VERMONT OFFICIAL STATE WEBSITE

901 Rocky Lane

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	06-18-2013
Date Report Received:	07-26-2013
Well Driller License Number:	23 = Clyde (Jack) Frost , Frost Inc
Well Report Number:	48930
Well Number/Tag Number:	48930
Comments:	installed 4" PVC to well bottom to stabilize well bottom' are slotted. set pump @ 245' water fracture @ 235' -- 250-255' very cl
Town:	Bennington
Map Cell:	
Tax Map:	
E-911 Address:	901 Rocky Lane
Sub Division:	
Lot Number:	
Owner's First Name:	Richard
Owner's Last Name:	Morgan
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	1 = New Supply
Drilling Equipment Code:	
Total Depth of Well (in feet):	260.00
Yield (in GPM):	45.00
Yield Test Tested For (in hours):	1.00
Static Water Level (in feet):	235.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	20
Total Casing Length (in feet):	80.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	60.00
Casing Length Exposed (in feet):	20.00
Casing Material:	1 = Steel
Casing Weight (in lbs/foot):	17.00
Casing Finish Code:	
Length of Liner used (in feet):	240.00
Liner Diameter (in inches):	4.00
Liner Material:	1 = Plastic (AB, PVC)
Liner Weight (in lbs/foot):	40.00
Liner Type:	
Grout Type:	0
Seal Type:	none- bottom 3 slotted
Diameter Drilled In Bedrock (in inches):	
Depth Drilled In Bedrock (in feet):	
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	
Screen Diameter (in inches):	
Screen Slot Size (in inches):	
Depth to top of Screen below land surface (in feet):	

Gravel Size or Type:	
Method of Sealing Casing Code:	1 = Drive shoe only
Yield Test Method Code:	
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI48930
Latitude:	42.92708
Longitude:	-73.19622
Location Determination Method:	14 = GPS location
Well Type:	Bedrock
Depth To Liner Top (in feet):	20.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	Heather Campbell
DOE:	12/3/2013 1:35:00 PM
UOC:	Heather Campbell
DOC:	12/3/2013 1:39:00 PM
WellReportID:	111816

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	20.00		T	Till	& loose gravel
View	20.00	80.00		R	Rock, bedrock, ledge, etc.	Bedrock-quartz-broken
View	80.00	260.00		R	Rock, bedrock, ledge, etc.	bedrock-quartz-broken

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VERMONT OFFICIAL STATE WEBSITE

1102 Rocky Lane

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	04-11-2005
Date Report Received:	06-13-2005
Well Driller License Number:	23 = Clyde (Jack) Frost , Frost Inc
Well Report Number:	30221
Well Number/Tag Number:	30221
Comments:	Pump setting 200'
Town:	Bennington
Map Cell:	
Tax Map:	
E-911 Address:	Rocky Lane
Sub Division:	
Lot Number:	
Owner's First Name:	Jon
Owner's Last Name:	Goodrich
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	1 = New Supply
Drilling Equipment Code:	
Total Depth of Well (in feet):	220.00
Yield (in GPM):	25.00
Yield Test Tested For (in hours):	1.00
Static Water Level (in feet):	185.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	35
Total Casing Length (in feet):	140.00
Casing Diameter (in inches):	7.00
Casing Length Below Land Surface (in feet):	138.50
Casing Length Exposed (in feet):	1.50
Casing Material:	1 = Steel
Casing Weight (in lbs/foot):	17.00
Casing Finish Code:	
Length of Liner used (in feet):	84.00
Liner Diameter (in inches):	4.00
Liner Material:	1 = Plastic (AB, PVC)
Liner Weight (in lbs/foot):	40.00
Liner Type:	
Grout Type:	0
Seal Type:	jasswell x 4
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

GPS well location from state well database matches known location of 1102 Rocky Lane well

Gravel Size or Type:	
Method of Sealing Casing Code:	1 = Drive shoe only
Yield Test Method Code:	
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI30221
Latitude:	42.92450
Longitude:	-73.19920
Location Determination Method:	14 = GPS location
Well Type:	Bedrock
Depth To Liner Top (in feet):	130.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	MARYT
DOE:	6/30/2005 12:00:00 AM
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	97739

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	35.00		S	Sand	
View	35.00	127.00		R	Rock, bedrock, ledge, etc.	rotten oakr
View	127.00	140.00		R	Rock, bedrock, ledge, etc.	quartzite hard
View	140.00	160.00		R	Rock, bedrock, ledge, etc.	quartzite hard
View	160.00	180.00		R	Rock, bedrock, ledge, etc.	qua tzite b oken up
View	180.00	220.00		R	Rock, bedrock, ledge, etc.	qua tzite b oken up

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VERMONT OFFICIAL STATE WEBSITE

1371 Harwood Hill Road

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	04-25-1966
Date Report Received:	02-01-1967
Well Driller License Number:	16 = H Allen Follett , A & W Artesian Well Co Inc
Well Report Number:	7
Well Number/Tag Number:	
Comments:	WATER LEVEL DURING YIELD TEST: 275'. YIELD TEST: 3 GPM @ 230'; 2.5 GPM @ 100'.
Town:	Bennington
Map Cell:	19A2
Tax Map:	
E-911 Address:	The state well database shows 2 wells on the 1371 Harwood Hill Road parcel. This well record is for the well that is closer (within 150 feet) to the known location of the transducer-equipped well at this address.
Sub Division:	
Lot Number:	
Owner's First Name:	CLIFFORD
Owner's Last Name:	DENIO
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	
Drilling Equipment Code:	2 = Rotary (AP)
Total Depth of Well (in feet):	275.00
Yield (in GPM):	6.00
Yield Test Tested For (in hours):	0.00
Static Water Level (in feet):	20.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	5
Total Casing Length (in feet):	111.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	0.00
Casing Length Exposed (in feet):	0.00
Casing Material:	
Casing Weight (in lbs/foot):	0.00
Casing Finish Code:	
Length of Liner used (in feet):	0.00
Liner Diameter (in inches):	0.00
Liner Material:	
Liner Weight (in lbs/foot):	0.00
Liner Type:	
Grout Type:	0
Seal Type:	
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

Gravel Size or Type:	
Method of Sealing Casing Code:	
Yield Test Method Code:	3 = Compressed air
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI7
Latitude:	42.92030
Longitude:	-73.20946
Location Determination Method:	4 = screen digitized
Well Type:	
Depth To Liner Top (in feet):	0.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	
DOE:	
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	3037

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	5.00		H	Hardpan	hardpan topsoil 4' boney. overburd '
View	5.00	111.00		R	Rock, bedrock, ledge, etc.	soft shale which had to be cased
View	111.00	275.00		R	Rock, bedrock, ledge, etc.	shale

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VERMONT OFFICIAL STATE WEBSITE

1400 Becks Drive

AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Well Completion Report Searchable Database

Home

Return

Date Well Was Completed:	07-20-2000
Date Report Received:	08-17-2000
Well Driller License Number:	23 = Clyde (Jack) Frost , Frost Inc
Well Report Number:	15386
Well Number/Tag Number:	15386
Comments:	
Town:	Bennington
Map Cell:	19A6
Tax Map:	
E-911 Address:	Willow Rd
Sub Division:	
Lot Number:	
Owner's First Name:	
Owner's Last Name:	Freeman Builders
Purchaser's First Name:	
Purchaser's Last Name:	
Well Use Code:	01 = Domestic
Reason for Well Code:	1 = New Supply
Drilling Equipment Code:	
Total Depth of Well (in feet):	200.00
Yield (in GPM):	50.00
Yield Test Tested For (in hours):	0.00
Static Water Level (in feet):	30.00
Well Is Overflowing:	N
Date Measured:	
Depth To Bedrock (in feet):	70
Total Casing Length (in feet):	100.00
Casing Diameter (in inches):	6.00
Casing Length Below Land Surface (in feet):	98.50
Casing Length Exposed (in feet):	1.50
Casing Material:	1 = Steel
Casing Weight (in lbs/foot):	17.00
Casing Finish Code:	
Length of Liner used (in feet):	0.00
Liner Diameter (in inches):	0.00
Liner Material:	
Liner Weight (in lbs/foot):	0.00
Liner Type:	
Grout Type:	0
Seal Type:	
Diameter Drilled In Bedrock (in inches):	0.00
Depth Drilled In Bedrock (in feet):	0.00
Screen Make and Type:	
Screen Material:	
Screen Length (in feet):	0.00
Screen Diameter (in inches):	0.00
Screen Slot Size (in inches):	0.000
Depth to top of Screen below land surface (in feet):	0.00

GPS well location from state database is within 50 feet of known 1400 Becks Drive well location. Becks Drive is accessed from Willow Road.

Gravel Size or Type:	
Method of Sealing Casing Code:	1 = Drive shoe only
Yield Test Method Code:	
Well Development Code:	
Not Steel Casing:	N
Has Water Been Analyzed	N
Well Has Screen:	N
AW Partial:	N
Unique GIS Name:	BI15386
Latitude:	42.91510
Longitude:	-73.19370
Location Determination Method:	14 = GPS location
Well Type:	
Depth To Liner Top (in feet):	0.00
HydroFractured:	N
Hydro Fractured Resulting Flow (GPM):	0.00
Well Location Submitted As A Dot On A Map:	N
Abandoned Per Water Supply Rule:	N
Date Of Abandonment:	
Reason For Abandonment:	
Well Driller Supervising Abandonment:	
Date Of Deepening or Hydrofracture:	
Well Driller Deepened/Fractured:	
Provided VDH Info To Owner:	N
Signed Form:	
RecordStatus:	A
UOE:	
DOE:	9/1/2000 12:00:00 AM
UOC:	GISLatLongUpdater
DOC:	4/10/2008 12:00:00 AM
WellReportID:	80480

	Starting Depth	Ending Depth	Water Bearing	Lithology Code	Code Description	Lithology Description
View	0.00	70.00		B	Boulders, cobbles, stones	boulders/cobbles
View	70.00	100.00		R	Rock, bedrock, ledge, etc.	rotten limestone soft
View	100.00	185.00	50	R	Rock, bedrock, ledge, etc.	Broken Fractures
View	185.00	200.00		R	Rock, bedrock, ledge, etc.	shite limestone/broken up/soft

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Superfund Records Center
SITE: Bennington
BREAK: 3.6
OTHER: 7001

FINAL DRAFT

REMEDIAL INVESTIGATION REPORT

BENNINGTON LANDFILL SITE
BENNINGTON, VERMONT

Submitted to:

U.S. Environmental Protection Agency
Region I

McLaren/Hart Environmental Engineering Corporation
25 Independence Blvd.
Warren, NJ 07059

February 14, 1997

SDMS DocID
7001

TABLE 2-2
BORING PROGRAM SUMMARY TABLE
BENNINGTON LANDFILL
REMEDIAL INVESTIGATION

DRILLING METHODOLOGIES

Boring No.	Hollow Stem Auger	Dual Air-Rotary	Casing Advancer	Mud Rotary	Wireline Coring
B-1-3	0-49	49-104 ; 112-232 (TD)	–	–	104-112 (Bldr)
B-2-3	0-12	12-91	91-340	340-555	555-576 (BR)
B-3-3	–*	0-151	151-269	–	–
B-4-3	0-7	29-218 (TD)	–	–	9-29 (BR)
B-5-3	0-66	66-220 (TD)	–	–	–
B-6-3	–**	0-141	–	–	141-163 (BR)
B-7-3	0-22	29-126	–	–	22-29 (Bldr);126-177 (BR)
B-8-3	0-18 (TD)	–	–	–	–
B-9	0-7.3 (TD)	–	–	–	–
B-10	0-16 (TD)	–	–	–	–
B-11	0-30 (TD)	–	–	–	–
B-12	0-8.6 (TD)	–	–	–	–
B-13	0-13.5 (TD)	–	–	–	–
B-14	0-32 (TD)	–	–	–	–
B-15	0-14 (TD)	–	–	–	–
B-16D	0-5	–	–	5-27 (TD)	–
B-17A	0-27 (TD)	–	–	–	–

Measurements are recorded as feet below ground surface.
* Augering not attempted due to cobbles/boulders at surface
** Augering not attempted; adjacent water table well indicated need to double-case B-6-3.
(TD)-Total depth of borehole.
(Bldr) - Cored through boulder.
(BR) - Cored through bedrock.

TABLE 2-3
CONSTRUCTION SUMMARY - MONITORING WELLS, PIEZOMETERS AND BORINGS
BENNINGTON LANDFILL
REMEDIAL INVESTIGATION

	A	B		C	D	E	F	G
BORING / WELL NUMBER	GROUND SURFACE ELEVATION	RISER ELEVATION	RISER TYPE/ DIAMETER	TOTAL DEPTH OF BORING	TILL DEPTH	BEDROCK DEPTH	CORED INTERVAL	SCREENED INTERVAL
B-1-1	915.86	918.70	PVC / 2" ID	14	NA	NA	NA	3.5 - 13.5
B-2-1	915.22	917.58	"	10	"	"	"	3.5 - 9.5
B-3-1	926.93	929.67	"	17	"	"	"	6 - 16
B-4-1	971.31	NA	"	NA	"	23.7	"	NA
B-5-1	911.91	914.42	"	13	"	NA	"	1.5 - 11.5
B-6-1	948.17	951.38	"	24.5	22	"	"	12.5 - 22.5
B-7-1	957.45	960.67	"	11.5	11	"	"	1.5 - 11.5
B-8-1	944.53	947.12	"	11.9	NA	"	"	1.5 - 11.5
B-9 (PZ)	911.20	913.51	PVC / 1" ID	7.3	"	"	"	1 - 6
B-10 (PZ)	931.46	934.47	"	16	12	"	"	6 - 11
B-11	929.97	NA	NA	30	7	"	"	NA
B-12	960.86	962.99	PVC / 2" ID	8.6	8	"	"	3.5 - 8.5
B-13 (PZ)*	934.22	936.205	PVC/1" ID	13.5	10	"	"	5 - 10
B-14	935.215	937.66	PVC/2" ID	32	29	"	"	19 - 29
B-15	914.01	916.375	PVC/2" ID	14	NA	"	"	4 - 14
B-16	913.82	916.53	PVC/2" ID	14.8	NA	"	"	4.8 - 14.8
B-17	900.53	902.72	PVC/2" ID	12	NA	"	"	2 - 12
B-1-2	915.75	918.27	PVC / 2" ID	21	20	NA	NA	15 - 20
B-2-2	915.39	917.48	"	23	23	"	"	18 - 23
B-5-2	912.28	914.50	"	19.5	19.5	"	"	14.5 - 19.5
PZHB-01	908.22	910.51	GALV. / 2" ID	10	NA	NA	NA	3 - 8
PZHB-02	904.31	906.52	"	8	"	"	"	3 - 8
PZ-SOL	930.37	933.71	"	10	"	"	"	2 - 7
PZ(N of MW4)	911.10	913.49	"	7.5	"	"	"	3 - 8
B-1-3	915.64	NA	NA	230	20	>232	NA	NA
B-2-3	915.16	917.60	PVC / 2" ID	576	~20	550	554 - 575.9	560.9 -575.9
B-3-3	926.20	NA	NA	269	14	>269	NA	NA
B-4-3	989.58	992.09	PVC / 2" ID	218	NA	7	9.5 - 29	203 - 218
B-5-3	912.86	NA	NA	218	18	>220	NA	NA
B-6-3	948.28	950.86	PVC / 2" ID	163.5	22	135.5	142.5 - 163.5	146.6 - 161.6
B-7-3	956.51	959.77	"	177.5	11	121	126.8 - 177.5	162.5 - 177.5
B-8-3	944.34	NA	NA	18	14	>18	NA	NA

* - Top of piezometer screen extends 1 foot into bentonite seal.

TABLE 2-3 (CONTINUED)
CONSTRUCTION SUMMARY - MONITORING WELLS, PIEZOMETERS AND BORINGS
BENNINGTON LANDFILL
REMEDIAL INVESTIGATION

		H		I	J	K	L	M
BORING / WELL NUMBER	SCREEN TYPE/ DIAMETER	GRAVEL PACK INTERVAL	GRAVEL PACK SIZE	COLLAPSE INTERVAL	BENTONITE OR FLINT SHOT	GROUTED INTERVAL	CONCRETE PAD	8" DIAMETER CASING
B-1-1	PVC / 2" ID	2.5 - 14	#0 Morie	NA	1.5 - 2.5	NA	+0.5 - 1.5	NA
B-2-1	"	2.5 - 10	"	"	"	"	"	"
B-3-1	"	5 - 17	#2 Morie	"	2 - 5	"	+0.5 - 2	"
B-4-1	NA	NA	NA	"	23.7 - 36.4	Backfill 0-23.7	NA	"
B-5-1	PVC / 2" ID	1 - 13	#2 Morie	NA	0.5 - 1	NA	+0.5 - 1	"
B-6-1	"	10.5 - 22.5	#0 Morie	"	8.5 - 10.5	2.5 - 8.5	+0.5 - 2.5	"
B-7-1	"	1 - 11.5	#2 Morie	"	0.5 - 1	NA	+0.5 - 0.5	"
B-8-1	"	1 - 11.5	#0 Morie	"	0.5 - 1	"	+0.5 - 0.5	"
B-9 (PZ)	PVC / 1" ID	NA	Formation	1 - 7.3	0.5 - 1	"	+0.5 - 0.5	"
B-10 (PZ)	"	"	"	4 - 11.5	2-4 / 11.5-16	"	+0.5 - 2	"
B-11	NA	"	NA	NA	NA	Backfill 0-30	NA	"
B-12	PVC / 2" ID	3 - 8.6	NA	"	1 - 3	NA	0.5 - 1	"
B-13 (PZ)*	PVC/ 1" ID	6 - 12	#1 Morie	"	2 - 6	0.5 - 2	+0.5 - 0.5	"
B-14	PVC/ 2" ID	17 - 30	#1 Morie	"	14 - 17, 30 - 32	1 - 14	+0.5 - 0.5	"
B-15	PVC/ 2" ID	3 - 14	#1 Morie	"	0.5 - 3	NA	+0.5 - 0.5	"
B-16	PVC/ 2" ID	3.5 - 14.8	#1 Morie	"	0.5 - 3.5	NA	+0.5 - 0.5	"
B-17	PVC/ 2" ID	1.5 - 12	#1 Morie	"	0.5 - 1.5	NA	+0.5 - 0.5	"
B-1-2	PVC / 2" ID	12.3 - 21	#0 Morie	NA	10-12.3/20-21	1.5 - 10	+0.5 - 1.5	NA
B-2-2	"	16 - 23	#1 Morie	"	14 - 16	1.5 - 14	+0.5 - 1.5	"
B-5-2	"	13 - 19.5	#1 Morie	"	9.5 - 13	1.5 - 9.5	+0.5 - 1.5	"
PZHB-01	SS WELLPT / 2" ID	NA	NA	NA	1 - 2	NA	0 - 1	NA
PZHB-02	"	"	"	"	1 - 2	"	0 - 1	"
PZ-SOL	"	"	"	"	1 - 2	"	0 - 1	"
PZ(N of MW4)	"	2.3 - 3.3	#0 Morie	3.3 - 8	1.4 - 2.3	"	0 - 1.4	"
B-1-3	NA	NA	NA	NA	NA	0 - 230	NA	NA
B-2-3	PVC / 2" ID	550.5 - 575.9	#2 Morie	"	548.5 - 550.5	1.5 - 548.5	+0.5 - 1.5	"
B-3-3	NA	NA	NA	"	NA	0 - 269	NA	"
B-4-3	PVC / 2" ID	200 - 218	#2 Morie	"	195 - 200	1.5 - 195	+0.5 - 1.5	"
B-5-3	NA	NA	NA	190 - 218	NA	0 - 218	NA	"
B-6-3	PVC / 2" ID	144.4 - 161.6	#2 Morie	"138.3-142/161.6-163.5	142 - 144.4	1.5 - 138.3	+0.5 - 1.5	0 - 26
B-7-3	"	159.5 - 177.5	"	NA	158.5 - 159.5	1.5 - 158.5	+0.5 - 1.5	NA
B-8-3	NA	NA	NA	"	NA	0 - 18	NA	"

* - Top of piezometer screen extends 1 foot into bentonite seal.

TABLE 2-4
MONITORING WELL DEVELOPMENT SUMMARY
BENNINGTON LANDFILL
REMEDIAL INVESTIGATION

Well No.	Screen Depth	Depth to Water Below PVC, 4/12/93	Purging Method	Purge Rate (gal/min)	Volume Purged (gal)
B-1-1	3.5-13.5	6.62	B/K	1.0	285
B-1-2	15-20	6.21	B/K	1.0a/1.2b	340
B-2-1	3.5-9.5	5.99	Waterra/ B/K / Bailer	5.0c/1.2d	445
B-2-2	18-23	5.87	B/K	5.0	385
B-2-3	561-576	124.27	Grundfos/QED	2.5e/1.0f	2145
B-3-1	6-16	10.04	B/K	1.0g/2.0h	490
B-4-3	203-218	198.02	Grunfos	0.3	1860
B-5-1	1.5-11.5	4.11	B/K	1.1	315
B-5-2	14.5-19.5	4.19	Waterra	1.1	620
B-6-1	12.5-22.5	18.72	Waterra/Bailer	<0.2	45.7*
B-6-3	146.5-161.5	115.34	Grundfos	2.0	1390
B-7-1	1.5-11.5	3.33	Waterra	0.5	235
B-7-3	162.5-177.5	107.49	QED	0.4	665
B-8-1	1.5-11.5	2.67	Waterra/ B/K	<0.2	125*
B-12	3.5-8.5	2.92	B/K	3.5	605
B-14	19.0 - 29.0	24.56**	B/K	*	11.5
B-15	4.0 - 14.0	3.15**	B/K	1.0	110
B-16	4.8 - 14.8	4.96**	B/K	*	23
B-17	2.0 - 12.0	0.43**	B/K	*	35

All depths are reported in feet below ground surface
* : Indicates well was purged to dryness
** : Measured on May 16, 1994 following Phase 1B installation.
a : April 1
b : April 2
c : March 29
d : April 1
e : Grundfos
f : QED
g : April 5 and 7
h : April 8

Purging Methods:

Bail - Stainless steel bailer
B/K - Brainard-Kilman hand pump
Grundfos - Submersible impeller pump
QED - QED air displacement pump
Waterra - Waterra inertial pump

SOIL BORING LOG

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McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**
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TOC ELEVATION _____ (MSL) DATE(S) 10/19/92 TOTAL DEPTH 554.0'
MONITORING DEVICE HnU SCREENED INTERVAL 560.9-575.9'
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT Maher/J.Moran,G.Burn/
PROPORTIONS: and(35-50%), some(20-35%) little(10-20%), trace (0-10%) MEMO _____
MEMO _____

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
0	8 9 7 7		0.0	Dry, coarse quartzite and phyllite gravel, some light brown silt, trace clay.
2	4 5 5 6		0.0	Same as above.
4	4 4 3 6		0.0	Top, slightly moist, light brown medium to fine sand. Middle, stiff light brown medium to fine sand. Middle, wet stiff light brown sand, trace silt. Bottom, wet stiff light brown sand, trace silt and fine gravel.
6	9 17 14 13		0.0	Wet, stiff medium to fine sand, trace silt, trace gravel, angular to sub-angular quartzite, phyllite. (Water at 7.0')
8	21 60 53 29		0.0	Top, wet light brown coarse sand. bottom, medium to fine sand, angular coarse gravel, sub angular fine gravel, quartzite, phyllite.
10	16 48 20 28		0.0	0-3" same as above, wet. 3-10" Light brown fine sand, angular quartzite, phyllite, wet." 10-12" Fine sand, trace silt, (olive grey) wet.
12	3 6 8 17		0.0	Auger is abandoned 9/30/92. Marked so air rotary can continue. Augers are angled in hole. 10/19/92, 0.4' Medium sand, trace silt (quartzite, phyllite) wet. 0.3' coarse sand, trace silt, wet. 0.8' Coarse gravels (quartzite, phyllite) fine sands, trace silt.

▼ =First Water ▼ =Static Water

WRNLG

10-14 93

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**
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Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	15 14 15 21		0.0	0-3" Same as above, coarse sand, trace silt, wet. 3-9" fine sand to coarse sand, fine gravel. 9-14" pebbles (fine gravel) with silty sand.
15				
16	75/3" 1 5 6		0.0	Medium sand, trace silt (fining upward) moist quartzite, phyllite.
17				
18	75/3"			Coarse sand, trace silt, quartzite chip in nose of spoon.
19				
20				Advanced casing to 22.0' (cuttings: smooth rounded quartzite phyllite).
21				
22	17 21 19 30		0.0	Very stiff light brown clay, trace silt, little coarse sand, trace gravel(quartzite, phyllite) medium. Very stiff dry light brown clay, trace silt, little coarse sand, trace medium gravel (quartzite, phyllite).
23				
24	15 23 29 46		0.0	Same as above.
25				
26	37 19 22 36		0.0	Dry, very stiff light brown yellow orange clay, some silt, trace fine sand. Homogenious mix. clay/silt, fine sand/silt. Bottom, purple quartzite chip in nose of spoon.
27				
28	16 26 35 32		0.0	Tight moist light brown clay, trace silt, trace sand, some quartzite (coarse) chips.
29				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
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Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
31	17 32 62 46		0.0	Pushing cobble, very little sample collected, very stiff light brown clay, trace silt, trace coarse sand.
32	19 43 40 57			Still pushing boulder. No sample collected.
34	17 28 27 49		0.0	Very stiff yellowish orange to tan clay, trace silt, trace fine sandy material. Clay has bands of tan silt 1/4" to 1/3" wide with very fine grains in both materials, trace oxidized phyllite through out.
36	5 9 14 23		0.0	Very stiff yellowish orange and silt clay.
38	7 15 47 39		0.0	Top, stiff gray fine sand and silt trace clay, middle very stiff gray clay, bottom gray/brown silt and clay, trace sand.
40	7 22 69 97		0.0	Top, stiff fine to medium yellowish/brown sand & silt, middle, stiff fine yellowish/brown sand & silt. Bottom, very stiff dark brown fine to coarse sand, trace of silt and clay.
42	3 12 21 45		0.0	Top, damp stiff light brown interbedded clay, silt, trace fine sand.
44	10 25 29 32		0.0	Very stiff dry clay, some silt, trace fine sand, trace fine (subrounded) quartzite and phyllite gravel.
45				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**
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Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	75/0"			No recovery, drilled down to 48.0'.
47				
48	4 16 12 19		0.0	Very stiff dark brown clay, trace silt, trace fine sand, trace coarse quartzite gravel.
49				
50	17 25 75/3"		0.0	Wet, yellowish orange to light brown silts/clays, trace fine sand.
51				
52	16 23 24 54		0.0	No recovery.
53				
54	17 27 63 28		0.0	Top, stiff light brown clay, little silt, trace coarse sand, Middle, coarse gravel (dolomite). Bottom, stiff light brown clay, trace silt, some highly weathered phyllite.
55				
56	5 13 28 24		0.0	No recovery.
57				
58	9 27 33 45		0.0	Dry light brown clay, trace silt, trace medium to coarse sand. Top Coarse quartzite/sandy quartzite gravel. Bottom very stiff light brown clay and silt, some coarse quartzite gravel, trace phyllite/coarse sand through out.
59				
60	12 29 27 33		0.0	Very stiff light brown silt some clay, some sub rounded quartzite medium to coarse gravel.
61				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
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Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
63	16 39 37 34		0.0	Very stiff brown silt, little clay, trace fine to medium sand, angular phyllite, dolomite, and quartzite gravel fragments.
64	25 31 43 32		0.0	Top, very stiff light brown silt some clay, trace fine sand. Middle, very stiff light brown, trace silt, clay, sand, coarse dolomite gravel. Bottom, same as above, fine dolomite gravel throughout.
66	13 26 47 46		0.0	Very stiff light brown to yellow orange, little silt, some clay, trace fine sand, trace subrounded quartzite and phyllite gravel.
68	13 23 33 40		0.0	Same as above.
70	11 21 33 48		0.0	Same as above (increase in gravel).
72	13 28 42 47		0.0	Same as above, increased (subrounded - angular) fine to coarse quartzite gravel.
74	18 24 31 35		0.0	Dry, very stiff light brown silt, trace clay. Trace subangular to angular quartzite, pyllite, dolomite, and rose colored quartzite gravels.
76	13 26 52 39		0.0	Same as above (weathered phyllite throughout).

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

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Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
79	10 20 20 30		0.0	Same as above.
80	18 23 33 43		0.0	No recovery.
82	10 27 23 35		0.0	Same as above.
84	9 71 65 82		0.0	No recovery.
86	9 25 23 75/3"		0.0	Top dry light brown very stiff silt, trace clay, with rounded subangular coarse sands of quartzite, phyllite, and dolomite.
88	88 63 100/3"		0.0	
90	00/4.5		0.0	Top, light brown wet clay, trace silt, trace fine sand, with sub angular quartzite and phyllite. Bottom, dark brown wet medium stiff clay, fine to medium grained sand.
92				Hard obstruction at 90.5'. Set up to core. 4" casing and roller bit advanced through boulder to depth of 94.5' Resume drilling and splitspoon sampling with barber rig.
93	67 287/6"		0.0	

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
95				
96	53 100/6 150/1		0.0	95.5-95.8, brownish orange clayey silt, trace gravel, trace coarse sand; very dense and dry. 95.8-95.9 light brown fine silty sand, very moist.
97				
98	52 85 160/2"		0.0	Brownish orange clayey silt with trace coarse sand and little subangular to rounded quartzite and dolomite gravel, very dense and dry to slightly moist.
99				
100	73 179/6 250/3		0.0	Brownish orange clayey silt, trace coarse sand, trace subangular gravel; very dense, dry to slightly moist.
101				
102	73 250/1"		0.0	Brownish orange clayey silt, little gravel.
103				
104	23 38 65 158/5"		0.0	Brown orange grey laminated clay, alternating bands, occasional band of grey silt, very dense, slightly moist.
105				
106	130/6" 260/4"		0.0	Light brown clay, trace coarse sand 105.5 to 106'; reddish brown weathered sandstone grading to brownish orange fine sand with some reddish brown staining, moist.
107				
108	195/5"		0.0	Orange brown medium to coarse sand, trace silt reddish, some medium gravel (sandstone), moist.
109				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
111	20 3/4"		0.0	Brown fine to medium sand, trace silt, some fine to medium gravel fragments (weathered sandstone), moist.
112	34 70 200/4"		0.0	Tan stiff silt, trace fine sand, trace clay, moist, trace medium white quartz gravel fragments at bottom of spoon.
113				
114	72 200/2"		0.0	Reddish brown medium to coarse sand and weathered sandstone gravel, trace oxidation, some silt, little quartz gravel fragments, loose, moist.
115				
116	174 200/4"		0.0	Top 0.4' White quartz, black and red speckled coarse sand, loose, trace of angular white quartz gravel, saturated. Bottom 0.6' Reddish brown medium to coarse sand, some medium gravel, trace of silt and fine sand, black manganese oxide? staining, loose, saturated.
117				
118	91 162 200/4"		0.0	Top 0.2' Dark brown silt and fine sand, some fine to medium sandstone gravel fragments, trace of coarse gravel, loose, moist. Middle 0.4' Black Red manganese oxide? staining, silt and fine sand, loose, moist. Bottom 0.3' Light tan silty clay, trace fine sand, very stiff, moist.
119				
120	42 195 200/6"		0.0	Tan to orange brown silty clay, medium stiff, trace manganese oxide staining (black), some medium to coarse sub rounded to angular quartzite/sandstone gravel, trace of medium to coarse sand, moist.
121				
122	16 43 35 48		0.0	Top 0.2' tan very stiff clay, trace silt, trace of black manganese oxide staining. Bottom 0.7' Reddish brown, very stiff clay, slightly mottled (tan), trace of silt, and fine to coarse sand, moist.
123				
124	19 27 37 59		0.0	Reddish brown very stiff clay, trace silt, and fine sand, medium sand and black manganese oxide staining, moist.
125				

SOIL BORING LOG

McLaren Hart

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Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
127	14 27 42 61		0.0	Top 0.9' orange brown slightly mottled reddish brown very stiff clay, trace of black manganese oxide staining, trace silt, moist. Middle 0.6' trace fine to coarse white quartz sand, trace fine gravel within very stiff clay. Bottom 0.5' Black to brown clay with fine to coarse quartzite and sandstone gravel subrounded to angular, trace fine to coarse sand, moist.
128	14 37 52 87		0.0	Top 0-2' orange brown clay with white quartzite gravel (subround to angular), trace manganese oxide staining (Black-red), very stiff, moist, trace silt. Bottom 1.8' Orange brown very stiff clay, trace of red and tan mottled clay, trace of manganese oxide staining, trace silt.
129				
130	15 80 76 65		0.0	Orange brown, slightly mottled red clay, very stiff. Subrounded and angular quartzite. Coarse gravel fragments at top and bottom of split spoon sample, moist, trace of black manganese oxide staining.
131				
132	15 40 52 88		0.0	Orange brown clay, some silt, trace of reddish brown mottled, little fine to medium quartzite and phyllite gravel, trace of white clay and black manganese oxide staining, very stiff, moist, trace fine to medium sand.
133				
134	22 52 37 102		0.0	Orange brown clay, some silt, trace of reddish brown mottled clay, black speckled manganese oxide staining, trace of fine gravel (white quartz and grey phyllite?), trace of fine to coarse sand, very stiff, moist.
135				
136	22 26 58 84		0.0	Same as above, no reddish brown mottled clay.
137				
138	12 30 51 72		0.0	Top 1.3' Orange brown clay, same as above, trace of red iron staining. Bottom 0.7' Orange brown to red clay, slightly mottled with yellow-brown clay.
139				
140	23 23 45 100		0.0	Orange brown clay, slightly mottled black speckled manganese oxide, trace of vertical black seams, trace silt and fine to coarse sand, very stiff, moist to dry.
141				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
143	15 32 31 92		0.0	Orange brown clay speckled with black manganese oxide staining, trace silt and fine to medium sand, very stiff, moist to dry.
144 145	14 28 56 65		0.0	Top 1.3' Same as above. Bottom 0.7' Orange brown clay with black speckled manganese oxide staining, some fine to medium sand (brown), trace of fine gravel and silt, very stiff, moist to dry.
146 147	28 38 75 90		0.0	Top 0.9' orange brown clay, very stiff, little fine to medium sand, coarse sand, little fine quartz and phyllite gravel, trace black manganese oxide staining, moist. Bottom 1.1' orange brown clay, slightly mottled, speckled black manganese oxide staining, trace fine to coarse sand and silt, moist to dry, very stiff.
148 149	26 38 44 132		0.0	Orange brown clay, slightly mottled (tan), speckled black manganese oxide staining, trace silt, fine sand, very stiff, moist to dry.
150 151	23 44 81 145		0.0	Top 1.0' orange brown slightly mottled (tan) clay, speckled black manganese oxide staining, some silt, very stiff, moist. Bottom 1.0' Orange brown clay some fine to coarse sand with fine gravel, trace of medium gravel (white quartz and greenish grey phyllite), trace of manganese oxide (black) very stiff, moist.
152 153	31 35 53 87		0.0	Orange brown clay, some fine to coarse sand top 0.8' to little fine to coarse sand, bottom 1.2' trace medium to coarse phyllite and quartz gravel fragments, trace silt, trace of black manganese oxide staining, moist, very stiff.
154 155	9 26 35 44		0.0	Top 0.2' orange brown clay, some fine to coarse sand, trace silt, trace of black manganese oxide, trace of fine gravel (quartz & white weathered mineral),very stiff, moist. Bottom 1.8' Orange brown clay, some seam 0.2' of dark brown silt with clay, slightly mottled (tan), trace black manganese staining, very stiff, moist.
156 157	23 21 42 90		0.0	Orange brown clay, trace of yellow brown clay, little fine to coarse sand (quartz), trace fine quartz and phyllite gravel, trace silt, very stiff, moist, trace of black manganese oxide.

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Integral\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
159	65 200 107 126		0.0	Orange brown (+) and black medium stiff clay, some silt.
160	22 32 24 98		0.0	Orange brown very stiff clay, little silt manganese oxide stain, quartzite and phyllite gravel fragments.
161				
162	26 29 38 60		0.00	Orange brown to yellow varigated stiff clay, little silt, manganese oxide stain, quartzite and grey phyllite gravel fragments.
163				
164	9 12 27 45		0.00	Same as above.
165				
166	16 25 33 68		0.00	Orange brown stiff clay, little fine sand little S.H., manganese oxide stain, phyllite & quartzite gravel fragments.
167				
168	15 27 42 127		0.00	Orange brown moist stiff clay, little silt, manganese oxide stain, phyllite and quartzite gravel fragments.
169				
170	22 33 44 97		0.00	Orange brown moist stiff clay, little fine sand, little silt, manganese oxide stain, phyllite and quartzite gravel fragments.
171				
172	18 36 47 62		0.00	Orange brown moist stiff clay, little silt, little fine sand, manganese oxide staining, phyllite and quartz gravel fragments.
173				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
175	12 24 46 82		0.00	Orange yellow moist stiff clay, little silt, manganese oxide staining, phyllite and quartzite gravel fragments.
176	18 25 150/3"		0.00	Same to 177' then orange yellow moist fine to medium sand, silt, trace clay.
177				
178	60 200/5"		0.00	
179			0.00	
180	128 200/3"		0.00	Same as above.
181				
182	50 50 90 145		0.0	Orange brown fine to medium moist stratified sand, trace clay manganese oxide stain.
183				
184	29 33 36 134		0.00	Silt, little clay, trace fine sand, phyllite and quartzite gravel fragments.
185				
186	24 20 25 85		0.00	Yellow brown silt, little clay, little fine to coarse sand, trace fine gravel (quartz fragments) lens of medium to coarse sand at 187.6' (approx 0.1' thick) wet.
187				
188	25 20 34 44		0.00	Yellow brown moist stiff silt, little clay, trace fine sand, coarse quartzite and phyllite gravel fragments.
189				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
191	19 29 68 85		0.00	Yellow orange to brown moist stiff rythmitic silt, little clay, trace fine sand, phyllite and quartzite gravel fragments.
192	17 39 85 77		0.00	Light gray moist stiff silt, little fine sand, trace clay, phyllite and quartzite gravel fragments, manganese staining.
193				
194	10 32 78 105		0.00	Same as above, laminated.
195				
196	21 15/3"		0.00	Light gray moist fine sand, little silt, phyllite gravel fragments.
197			0.00	
198	18 23 82 150/3"		0.00	Light gray laminated fine sand and silt, trace clay, phyllite and quartz gravel fragments.
199				
200	57 150/6"		0.00	
201			0.00	
202	17 41 51 120		0.00	Orange brown moist laminated silt and fine sand, quartz and phyllite gravel fragments.
203				
204	85 91 94 150		0.00	Light brown dry to moist very stiff silt, some clay, Orange brown laminationas spaced 1-4mm apart.
205				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	20 43 39 100		0.00	Same as above, little fine sand.
207				
208	16 34 45 160/5"		0.00	Same as above.
209				
210	15 60 150/3"		0.00	Light gray to brown medium stiff to stiff silt, little clay, little fine sand, phyllite and quartz gravel fragments. Roller bit to 212'.
211			0.00	
212	28 150/5"		0.00	Light gray to light orange moist stiff silt, little fine sand, trace clay (orange & yellow laminations). Drilling to 214'.
213			0.00	
214	111 150/4"		0.00	Orange brown moist silt, light medium to fine gravel, light fine sand (yellow and orange laminations). Drilling to 216'.
215			0.00	
216	35 28 75 75		0.00	Dark gray stiff silt, little clay, quartz fragments to 217 feet. 217-217.8' brown stiff silt, some dark brown-black organic debis little clay, quartz fragments. 217.8'-218' brown stiff clay, little silt.
217				
218	20 31 72 95		0.00	Light brown moist stiff silt and clay, phyllite and quartz gravel fragments.
219				
220	15 27 40 66		0.00	Brown moist stiff silt, some clay, dense medium to fine sand, gravel (quartz, phyllite).
221				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
223	40 42 120 150/2		0.00	Light brown stiff clay with little silt, trace of fine to medium sand; slightly moist.
224	16 30 41 71		0.00	Same as above however, fine white speckles of clay noted through out brown clay matrix. Portion of sample lost through barrel upon retrieval.
225				
226	25 40 51 110		0.00	Light brown stiff clay with speckles of white clay throughout brown clay matrix, little silt, trace fine to medium sand; slightly, moist.
227				
228	11 44 38 42		0.00	Light brown stiff clay with white speckles of clay through out brown clay matrix, little silt, trace of fine to medium sand, slightly moist 222.8-229.Little light brown clay with white speckles and fine to medium sand/phyllite chips.
229				
230	21 30 40 75		0.00	Same as above however, trace of quartzite gravel present.
231				
232	26 32 48 135		0.00	Light brown very stiff clay with white speckles of clay through out brown clay matrix, little silt, trace fine to medium sand; slightly moist, grey clay seam at 232.7'.
233				
234	27 31 44 150		0.00	Same as above.
235				
236	23 30 32 100		0.00	Light brown stiff clay with white speckles of clay through out brown clay matrix with little silt, trace of fine to coarse sand, trace phyllite gravel. Portion of sample lost through barrel upon retrieval causing less than full recovery.
237				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Integral\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
239	39 44 50 150		0.00	Light olive brown clay, some silt, trace of fine to medium sand, trace of white speckled clay, stiff, slightly moist.
240	15 26 42 140		0.00	Light olive brown clay with some silt, little fine to medium sand, stiff, slightly moist. 241.5-242 light brown silty clay with little fine to medium sand and little sub angular or quartzite gravel, cohesive, slightly moist.
242	15 24 79 150/5"		0.00	Light olive brown clay, stiff, with little silt, trace fine to medium sand, 243.5-244 light brown silty clay and quartzite, phyllite, feldspar gravel which is highly weathered.
244	56 51 59 150		0.00	Light brown stiff clay with little silt, trace of fine to medium sand, trace to little quartzite, phyllite gravel (weathered) weathered feldspar; slightly moist.
246	31 40 42 150/4"		0.00	Light brown stiff clay with little silt, trace of fine to medium sand, trace of phyllite gravel, slightly moist.
248	15 70 98 150/1"		0.00	Light brown stiff clay with little silt, trace of fine to medium sand, little quartzite, phyllite gravel (weathered). slightly moist.
250	20 50 150 150/4		0.00	Light brown/red brown mottled stiff clay with little silt, trace of fine to medium sand, trace of quartzite, phyllite gravel 251.3-251.7' mottled clay and gravel, 251.8-252 clay is very stiff.
252	26 52 59 150/4"		0.00	Light brown/red brown mottled clay (stiff) with little silt, trace of fine to medium sand, trace of weathered quartzite, phyllite gravel, slightly moist.

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
255	28 38 47 150/5"		0.00	Red brown clay (stiff) with little silt, trace of fine to medium sand, trace of quartzite, phyllite gravel (weathered).
256	25 46 45 150/5"		0.00	Same as above.
257				
258	35 36 52 105		0.00	Dark red brown/light brown mottled stiff clay with trace fine to medium sand, dry to slightly moist, trace of silt.
259				
260	16 19 48 64		0.00	Red brown/light brown stiff mottled clay with greater percentage of light brown, with trace of silt and fine sand, dry to slightly moist.
261				
262	15 26 48 125		0.00	Red brown/light brown stiff mottled clay with little fine to medium sand, trace of silt, dry to slightly moist.
263				
264	12 28 150/5"		0.00	Dark red brown/light brown, very stiff mottled clay (somewhat swirled texture) with little fine to medium sand, trace silt, trace sub rounded to sub angular quartzite, phyllite gravel, with an occasional weathered cluster of sandstone? surrounded by a ring of iron oxide staining; dry.
265				
266	12 15 14 70		0.00	Brownish orange/light brown stiff mottled clay with trace of silt, trace of sand.
267				
268	26 55 102 105/3		0.00	Brownish orange/light brown streaks of stiff clay with trace silt, little to some fine to medium sand, trace coarse sand.
269				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
271	12 35 63 95		0.00	Brownish orange light brown mottled stiff clay with trace silt, little to some fine to medium sand, trace coarse sand with iron oxide staining (270-270.5'). Trace fine to medium sand (270.5-271.3').
272 273	40 80 97 112		0.00	Brownish orange light brown mottling stiff to very stiff clay with trace of silt, trace fine to medium sand, trace of quartzite, phyllite gravel, dry.
274 275	33 60 83 150/1"		0.00	Same as above.
276 277	10 18 20 68		0.00	Brownish orange light brown very stiff mottled clay with a swirled texture with trace silt, trace of fine to medium sand, trace of quartzite, phyllite gravel slight weathering; dry.
278 279	15 42 51 100		0.00	Brownish orange light brown very stiff mottled clay with trace of silt, trace of fine to medium sand, little weathered phyllite and quartzite gravel, dry.
280 281	12 31 40 59		0.00	Brownish orange light brown stiff mottled clay with trace of silt, trace of fine to medium sand, trace of weathered quartzite, phyllite gravel.
282 283	14 21 38 54		0.00	0-6" same as above. 6-22' stiff orange brown and yellow brown varigated silt with some clay, trace fine to medium sand, dry to moist.
284 285	12 20 35 50		0.00	0-2" same as above, quartz fragments. 2-11" fine to coarse sand, some clay, red clay laminations at top moist and cohesive. 11-24" very stiff orange brown clay, trace fine sand, trace fine angular gravel. (Rock fragments of phyllite.) Sharp contrast between layers.

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
287	29 55 85 150/3"		0.00	Very stiff, dry to moist, varigated orange brown/yellow brown at bottom, yellowish weathered sandstone fragment, near vertical fabric otherwise same as above.
288	10 22 23 75		0.00	Very stiff, dry to moist, varigated at base orange brown clay little silt, trace fine sand, trace angular gravel/rock fragments.
289				
290	12 28 40 50		0.00	Same as above, area of yellow brown clay in middle 1/3.
291				
292	15 20 32 80		0.00	Same as above, orange and yellow brown becoming reddish brown toward base. at 18" some staining (manganese oxide?) black for 2".
293				
294	12 24 52 55		0.00	Same as above, orange brown, some yellow at top 3".
295				
296	33 61 70 150/5"		0.00	Same as above with yellow brown mottling/variegation 6"-24" small mass of manganese oxide minerals, gravel sized botryoidal mineral (psilomelane?) Faint planar fabric.
297				
298	60 37 58 78		0.00	Same as above, yellow brown to orange brown at base.
299				
300	24 45 54 127		0.00	Same as above, some yellow brown mottle in top 1/3.
301				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	15 40 46 130		0.00	Same as above, orange brown, 302.5-303' abundant fine gravel sized fragments included in matrix.
303				
304	15 37 65 150/5"		0.00	Orange brown clay, little silt, same as above, stiff, trace fine to medium sand, trace to little fine gravel (rock fragments) staining manganese oxide? black, dry to moist.
305				
306	18 43 60 150/3"		0.00	Same as above.
307				
308	31 60 68 145		0.00	Same as above, quartzite gravel fragments.
309				
310	12 45 50 70		0.00	Same as above, sandstone? gravel fragments.
311				
312	25 40 55 91		0.00	Orange brown, dry, very stiff, trace sand, phyllite fragments sandstone? fragments white, cream 20-24" black dark brown variegated manganese oxide.
313				
314	28 46 39 72		0.00	Same as above, dark orange brown to black brown variegated areas of black staning 18-24".
315				
316	6 51 69 105		0.00	Same as above except orange brown, some minor black staining 0-6". 18-22" little sand, (red sandstone?) phyllite gravel fragments (black, light grey).
317				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
319	56 120 150/4"		0.00	Stiff orange brown clay. Angular rock fragments to 1 inch diameter, trace fine to medium sand (fragments are quartz quartzite, green gray very fine sandstone, and phyllite.)
320	29 50 67 94		0.00	Top 6" same as above, Bottom 18" very stiff orange brown clay, trace silt, trace fine sand, trace fine gravel size rock fragments (angular) dry.
321				
322	24 37 37 89		0.00	Same as above, orange brown clay infrequent black staining. Less gravel than above.
323				
324	18 35 38 61		0.00	Same as above.
325				
326	30 54 150/1"		0.00	Same as above, except light yellow brown, stiff.
327				
328	150/5"		0.00	Yellow brown and orange brown variegated silt, trace clay. Also one large quartzite fragment (white) in nose of spoon, dry.
329				
330	150/5"		0.00	
331				
332			0.00	
333				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
335				
336				
337				
338				Re-advanced 4" casing to this depth.
339	43		0.00	0-5" damp, light brown silty clay, trace coarse sandy size quartzite 5-8" damp, base grainy clayee silt, some fine quartzite. 8-20" damp (dryer) more structured light brown silty clay, trace coarse quartzite, trace ochre & manganese staining in silty clay laminates.
340	85			
341				
342				Mud rotary with 3 7/8"roller bit. at 340' cutting samples taken during 10' intervals.
343				
344				
345				
346				Orange brown silt and clay, some fine to coarse angular sand size quartzite (white and clear) and little phyllite (green to black) mixed with bentonite mud.
347				
348				
349				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
351				
352				
353				
354				
355				
356				Same as above, trace of organic (wood fragments?).
357				
358				
359				
360				
361				
362				
363				
364				
365				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Orange red silt and clay, some fine to coarse angular sand size quartz (+), dolomite, and phyllite, trace of black ochre, cubic, trace fine quartz gravel.
367				
368				
369				
370				
371				
372				
373				
374				
375				
376				Same as above, trace very coarse sand size phyllite not fine quartz gravel.
377				
378				
379				
380				
381				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
383				
384				
385				
386				Orange brown silt and clay, some fine to coarse angular sand size quartz (+) (white to clear), grey phyllite, black mineral?, trace cubic ochre, trace wood fragments.
387				
388				
389				
390				Managery of minerals Quartz, quartzite, sandstone, phyllite, ochre, dolomite, quarts angular to very angular/ochre is sub rounded clay light brown woody material (black). Black gray angular chips when scratched and acid fizzed+ dolomite. Gray when scratched.
391				
392				
393				
394				
395				
396				
397				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
399				
400				Same as above, Light brown clay, green organics 2 leafs (1) whole woody material. Majority of minerals are quartz/quartzite.
401				
402				
403				
404				
405				
406				
407				
408				
409				
410				Same as above, major mineral quartzite, pieces are rounded to very angular. clay is still light brown.
411				
412				
413				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B2-3**

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
15				
16				
17				
18				
19				
20				Same as above, a lessening of the dolomite.
21				
22				
23				
24				
25				
26				
27				
28				
29				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
430				Same as above, major mineral is quartzite, increase in dolomite (might be because of sample amount collected).
431				
432				
433				
434				
435				
436				
437				
438				
439				
440				Same as above, major mineral still quartzite but a small increase in the percentage of dolomite and phyllite.
441				
442				
443				
444				
445				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

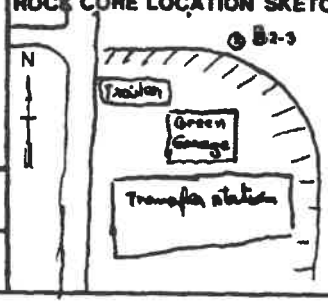
Boring No: B2-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
447				
448				
449				
450				Same as above. Similar materials encountered to total depth of unconsolidated deposits (550'). Refer to rock core log B-2-3.
451				
452				
453				
454				
455				
456				
457				
458				
459				
460				
461				

FRED C. HART ASSOCIATES, INC.

ROCK CORE LOG

ROCK CORE LOCATION SKETCH MAP



BORING NO. B2-3	
PROJECT NO./NAME 120800657004061 / Bennington Landfill	**LOCATION** Bennington VT
HART GEOLOGIST/OFFICE C. Kavanaugh / Albany	**START/FINISH DATE** 3-3-93 /
DRILLING CONTRACTOR/EQUIPMENT/DRILLER/CORE BIT SIZE Maher R / Gus Pech Bmt / J. Bequin / Wireline HQ core	
	GROUNDWATER OBSERVATION At ___ Ft. ___ Date ___ Time; At ___ Ft. ___ Date ___ Time; At ___ Ft. ___ Date ___ Time
REMARKS: 550' overburden (Glacial Till and saprolite)	

DEPTH	RUN NO.	CORE TIME (min)	RECOVERY inch.	% RECOVER	ROD	DESCRIPTION	CRACKS: ANGLE	CRACKS: COND.	CRACKS: SPACING	GRAPHIC LOG.	REMARKS
						Temporary 6" Barber Rig casing Temporary 4" Casing spun into Top of bedrock Commence coring from 554'					550 - 554' Top of Bedrock "weathered" Drill down w/ Barber rig
554'	1	10.75	32/48	48%	0	upper .35' purple QTZT "cleshire" (F-grained) ~~stone with lining of core~~ .35'-1.9' Rest of core variously angled sandy dolomite broken pieces 3" longest fractured within length - some dark banding in dolomite & additional fractures in some					Many small chunks of dolomite clogged up core barrel - had to pull up at 4' coring - chunks were angular.
559'											
10	2	6.18	34"/60"	50%	50%	at times sandy dolomite V.F grained various 90° and 60° fractures (small) that are filled with light light orange silt. one solid 18" core Toward bottom core exhibit "multiple" interior fractures running mainly vertical to 60° all inundated with orange silt					
564'											
	3	5.3	38"/53	73	0	total run consisted of crushed mat. no one piece of solid core some fragments have thin (mm) of dark orange material (carbon?) that was used to fill fractures within rock matrix. material was - sandy Dol (fractured)					
569'											

BORING NO. B2-3

DEPTH	RUN NO.	CORE TIME	RECOVERY'	% RECOVERY	ROD	ROCK CORE DESCRIPTION	CRACKS: ANGLE	CRACKS: COND.	CRACKS: SPACING	CRACKS: GRAPHIC LOC.	REMARKS
568	4	13.0	8/93 = 86%	0%		Sandy dolomite (Fizz upon acidification) occasional layers of layering sandy with-in some of the larger 3" pieces - Majority ≈ 95% of otter pieces all sandy dolomite and highly fractured so not solid core piece exist. - more solid pieces show signs of water ways and upon setting in core box in trailer for a day will break at fractures displaying sand fillings. Fluid Sand at surface to no Test Touch					
						E.O.C. 575.9'					

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 1 of 14

TOC ELEVATION _____ (MSL) DATE(S) 10/6/92 2/3/93 TOTAL DEPTH 218.0'
MONITORING DEVICE HnU SCREENED INTERVAL _____
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT Maher/J.Moran,G.Burn/See Memo
PROPORTIONS: and(35-50%), some(20-35%) little(10-20%), trace (0-10%) MEMO _____
MEMO _____

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
0	10 20 30 30		0.00	6" Moist olive green clay & silt, few phyllite fragments. 6-15" Dark grey weathered phyllite with iron stains on foliated planes
2	70 90 130 85		4.00	0-15 Same as above. 15-24" olive silt, trace clay, dry.
4			2.4	Same as above, moist mottled orange-brown. Auger refusal at 5.5'. Pounded spoon from 5.5'. Silt, some rock fragments.
6			0.00	Auger refusal at 6.8' Pieces of weathered phyllite. Rock flower. Pieces of weathered quartzite.
9			0.00	Stopped using Roller bit.
10				Phyllite, some quartzite (weathered surface) on fractures incompetent rock.
11				
12				
13				

▼ =First Water ▼ =Static Water

WRNLG

10/14/93

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Incompetent phyllite gray, trace weathered surfaces.
15				
16				
17				
18				Incompetent weathered phyllite at joints of fractures that exist.
19				
20				Gray quartzite with weathered surfaces at fractures.
21				
22				Gray quartzite with weathered surfaces at fractures.
23				
24				Gray-yellowish orange weathered quartzite at fractures.
25				
26				Fine quartzite, trace phyllite weathered fractures.
27				
28				End of coring.
29		G	0.00	

237

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
			0.00	Pinkish quartzite.
31				
32				Same as above.
33				
34				Same as above.
35				
36				Whitish orange/buff colored quartzite.
37				
38		G		Whitish orange, brownish, some white, trace pink colored quartzite.
39				
40				Whitish orange to brown quartzite.
41				
42				Whitish orange to brownish quartzite.
43				
44				Light orange to brownish grey quartzite.
45				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
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Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Light orange to brownish, some gray quartzite.
47				
48				Light orange to brownish/whitish quartzite.
49				
50				Light orange/brownish quartzite.
51				
52				Light orange/brownish quartzite to gray quartzite.
53				
54		G		Orange brown to white quartzite, trace blackish quartzite.
55				
56				Orange brown quartzite trace white quartzite.
57				
58				Orange brown quartzite.
59				
60				Brown to orange quartzite.
61				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 5 of 14

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				White quartzite to some white quartzite.
63				
64				White-orange quartzite, trace phyllite.
65				
66				White/orange quartzite.
67				
68				White-orange quartzite.
69				
70		G		White-orange quartzite.
71				
72				White to orange quartzite
73				
74				White to orange quartzite
75				
76				White to orange quartzite.
77				

SOIL BORING LOG

240

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 6 of 14

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
79				
80				Gray phyllite, some quartzite, trace weathered phyllite.
81				
82				Gray-black phyllite, some quartzite.
83				
84				Gray-black phyllite, trace quartzite.
85				
86		G		Gray to black phyllite, trace quartzite.
87				
88				Gray to black phyllite, trace weathered phyllite, trace quartzite.
89				
90				White, cloudy, pink quartzite, trace phyllite.
91				
92				Cloudy white/Pink quartzite.
93				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 7 of 14

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Gray, cloudy white, trace pink quartzite, trace phyllite.
95				
96				Dark gray-black phyllite, some weathered phyllite.
97		G		
98				Dark gray-black phyllite, trace weathered phyllite, trace quartzite.
99				
100			0.00	Dark gray-black phyllite, some weathered phyllite, trace quartzite.
101				
102				Dark gray-black phyllite, some weathered phyllite.
103				
104				Dark gray-black phyllite, some weathered phyllite.
105		G		
106				Light gray phyllite, some weathered phyllite.
107				
108				Light gray phyllite, some weathered phyllite, trace quartzite.
109				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Light gray phyllite, some weathered phyllite, trace quartzite.
111				
112				Light gray phyllite, some weathered phyllite, trace quartzite.
113				
114				Phyllite, black-gray-weathered.
115				
116				Light gray phyllite, trace quartzite.
117				
118		G		Gray phyllite, trace weathered phyllite (Br).
119				
120				Gray phyllite, some weathered quartzite.
121				
122				Black/gray phyllite, some weathered phyllite/weathered quartzite.
123				
124				Very weathered phyllite orange/brown trace quartz-weathered quartzite.
125				

SOIL BORING LOG

24

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Integrity/ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Black phyllite/weathered quartzite.
127				
128				Black phyllite, trace weathered phyllite, trace quartzite.
129				
130				Black phyllite, trace weathered phyllite, trace quartzite.
131				
132				Black phyllite, trace weathered phyllite,trace quartzite.
133				
134		G		Black phyllite, trace weathered phyllite, trace quartzite.
135				
136				Black phyllite, trace weathered phyllite, trace quartzite.
137				
138				Black phyllite, trace weathered phyllite, trace quartzite.
139				
140				Same as above.
141				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Same as above.
143				
144				Same as above.
145				
146				Same as above.
147				
148				Same as above.
149				
150		G		Same as above.
151				
152				Black phyllite, trace weathered phyllite, trace quartz, trace quartzite.
153				
154				Black phyllite, trace weathered phyllite, trace quartzite.
155				
156				Black phyllite, trace weathered phyllite and tan quartzite.
157				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 11 of 14

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Black phyllite, trace weathered phyllite.
159				
160				
161				
162				
163				
164				
165				
166		G		Same as above.
167				
168				
169				
170				Black phyllite, trace weathered phyllite, trace white quartzite.
171				
172				
173				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
175				
176				Black to trace weathered phyllite.
177		G		
178				
179				
180			0.00	Black to some weathered phyllite.
181				
182				
183				
184				
185		G		
186				Black to some weathered phyllite.
187				
188				
189				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3

Depth Below Surface (ft.)	Blow Counts	Sample Integrity/ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Tan quartz some white quartzite, some phyllite, trace weathered phyllite.
191				
192				
193				
194				
195				
196				Tan to orange tan quartzite some weathered trace phyllite/weathered phyllite.
197				
198		G		
199				
200				Tan-orange tan sandy quartzite, trace phyllite/weathered phyllite.
201				
202				
203				
204				
205				

245

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B4-3
Page 14 of 14

Depth Below Surface (ft.)	Blow Counts	Sample Integrity\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
				Tan-gray-weathered brown quartzite, trace white quartzite, trace phyllite.
207				
208				
209				
210				Gray through tan to yellowish tan, trace weathered quartzite edges and sides of some pieces.
211				
212		G		
213				
214				
215				
216				White to tan coarse size quartzite. Sandy trace phyllite, occasional weathered pieces.
217				
218		—		
219				
220				
221				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3
Page 1 of 10

TOC ELEVATION _____ (MSL) DATE(S) 1/5/93 TOTAL DEPTH 142.0'
MONITORING DEVICE OVM SCREENED INTERVAL _____
SAMPLING METHOD Split Spoon SUBCONTRACTOR & EQPT Maher/John Bowon/Barber Air Rotary
PROPORTIONS: and(35-50%), some(20-35%) little(10-20%), trace (0-10%) MEMO _____
MEMO _____

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
1				
2				
3				
4				
5				
6				
7				Drilled down through tan fine sand and silt, little fine to medium gravel. Refer to boring log B6-1 for shallow stratigraphic information.
8				
9				
10				
11				
12				
13				

▼ =First Water ▼ =Static Water

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
15				Fine sand, slightly damp cuttings.
16				
17				
18				
19				Till encountered at B6-1. See boring log.
20				
21				
22				
23				
24				Boulder encountered.
25				
26	6 4 5 14		0.0	Brown medium stiff silt, some fine to medium angular to subrounded quartzite (white to pink). trace fine through coarse sand.
27				
28	7 34 75 45		0.0	Brown very stiff silt and fine sand, medium to coarse gravel fragments (subrounded and angular quartzite). trace medium to coarse sand and fine gravel. Damp to Dry.
29				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
31	20 28 13 8		0.0	Brown fine to coarse sand and silt, medium sand to loose, coarse gravel fragments, grey and white/pink quartzite, Saturated, trace fine gravel.
32 33	1 6 36 21		0.0	Top: same as above, saturated. Bottom Brown very stiff to medium stiff silt and fine sand. Some coarse sand and fine gravel, little medium to coarse gravel fragments damp to dry.
34 35	7 38 50 75		0.0	Brown silt and fine sand, dry white to grey quartzite fragments medium to coarse sand size and fine to coarse gravel size. Cuttings only no split spoon recovery.
36 37	10 12 10 12		0.0	Brown very stiff silt, some coarse sand and fine gravel(Quartzite and phyllite), trace medium to coarse gravel of quartzite. Dry.
38 39	31 30 40 75		0.0	Same as above.
40 41	21 41 68 62		0.0	Top: Dark brown silt, same as above, dry. Bottom: orange brown silt, same as above.
42 43	10 22 31		0.0	No recovery.
44 45	9 13 30 68		0.0	Color change 0-5" light brown silt, some clay, Dry Trace subrounded quartz. Dolomite. 5-16" Brown dry silt, trace clay, fine to medium angular to subangular quartz and phyllite.

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B6-3**
Page 4 of 10

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
47	13 35 38 45		0.0	Same as above, some medium rounded-subrounded quartz.
48	24 33 46 53		0.0	Same as above 2"-4" occurance of sand stone, light brown.
49				
50	24 48 70 89		0.0	Same as above, trace damp.
51				
52	15 32 75\1"		0.0	Same as above. Brown dry stiff silt, trace clay, subrounded quartz.
53				
54	10 29 35 57		0.0	Brown very stiff silt, little medium to coarse sand and fine gravel (quartzite and phyllite) trace coarse gravel fragments (quartzite) trace clay, dry. Trace mica, fine gravel (subrounded to subangular).
55				
56	19 25 40 49		0.0	Same as above.
57				
58	19 52 40 44		0.0	Same as above, trace of highly weathered phyllite.
59				
60	33 32 35 40		0.0	Same as above.
61				

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B6-3**
Page 5 of 10

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
63	29 40 47 51		0.0	Same as above.
64	11 18 27 32		0.0	Brown, very stiff silt, little fine gravel (subrounded to subangular quartz and phyllite) little clay, trace medium to coarse sand and mica flakes, damp to dry.
66	16 30 70 47		0.0	Brown stiff silt, little medium to coarse sand, trace fine gravel (quartz and phyllite, trace medium to coarse gravel (quartz and quartzite) subrounded to subangular, dry.
68	5 20 47 75\0"		0.0	Brown, very stiff silt, little medium to coarse sand and fine to medium gravel (subrounded to subangular quartz and weathered phyllite, trace quartzite) trace clay, dry.
70	9 27 34 37		0.0	Brown very stiff silt, little medium to coarse sand and fine to medium gravel, subrounded to subangular quartz and phyllite, little coarse gravel (highly weathered-feldspar and phyllite) purple quartzite, dry, trace clay.
72	32 150\3"		0.0	No recovery (Quartzite gravel fragments)
74			0.0	Brown very stiff silt, little medium to coarse sand and fine to medium gravel, subrounded and subangular quartz, phyllite and quartzite, trace clay, dry.
76			0.0	No recovery. Soil cuttings the same as above.

SOIL BORING LOG

McLaren Hart

Project: **Bennington Landfill**
Project Location: **Bennington Landfill, VT**
Project Number: **12.0000657.000**

Boring No: **B6-3**
Page 6 of 10

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
			0.0	Brown very stiff silt, same as above.
79				
80	25 29 37 41		0.0	Brown very stiff silt, little medium to coarse sand and fine to medium gravel (subrounded and subangular quartzite, and phyllite), trace clay and coarse pink quartzite gravel fragments, dry.
81				
82	17 24 31 52		0.0	Same as above, little clay, dry no coarse pink quartzite.
83				
84	11 25 34 41		0.0	Poor recovery, same as above, loose, damp to dry.
85				
86	14 22 30 27		0.0	Brown very stiff silt, little medium to coarse sand and fine to medium subrounded to subangular gravel (quartz, quartzite and phyllite), trace clay and medium to coarse weathered phyllite gravel size fragments, dry.
87				
88	34 100\3"		0.0	Brown soft silt, little medium to coarse sand an fine quartz and phyllite/gravel, damp- poor recovery
89				
90	11 22 33 44		0.0	Top 1.3' Brown very stiff silt, little medium to coarse sand and fine to medium subrounded to subangular quartz and phyllite gravel, trace coarse gravel size quartz, trace clay, dry. Bottom 0-7' Brown very stiff silt, some clay, trace medium to coarse sand and fine to medium quartz and phyllite gravel, slightly laminated dry to damp.
91				
92	13 23 33 43		0.0	Poor to no recovery same as bottom 0.7' above, soft, damp.
93				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID\FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	6 100\3"		0.0	Brown very stiff clay trace fine to medium phyllite gravel, disturbed varves, damp to dry.
95				
96	100\5"		0.0	No recovery, Split spoon refusal at 96.5'.
97				
98	10 28 29 50		0.0	orange brown stiff silt, little fine to coarse sand and fine gravel (quartz and silt stone), dry, friable.
99				
100	13 30 49 69		0.0	Orange brown stiff silt, some fine sand, little medium to coarse sand and fine gravel (quartz) trace medium gravel, quartz and siltstone, dry, very friable, trace phyllite, little white feldspar(weathered)medium to coarse sand size grains.
101				
102	42 50 39 56		0.0	Orange brown fine sand, some silt, trace fine to medium gravel, subangular (quartz, siltstone, and highly weathered feldspar), dry, very friable, soft.
103				
104	7 18 25 61		0.0	Orange brown silt, very stiff, trace medium to coarse sand size (phyllite, weathered feldspar),trace fine gravel fragments (phyllite, weathered feldspar and quartz) Dry, trace clay.
105				
106	11 60 58 65		0.0	Top .3' orange brown fine to medium sand, trace silt, loose, dry. Middle 0.3' Orange brown silt, trace fine sand. weathered phyllite. Bottom 1.1' Orange brown silt slightly varved, trace white clay bands, trace fine sand dry.
107				
108	7 20 44 70		0.0	Orange brown medium stiff silt, little white bands/clusters of clay, trace fine gravel and medium gravel, trace fine sand, dry.
109				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
111	20 42 69 73		0.0	Orange brown and light brown clay and silt, trace medium to coarse sand and fine gravel. Middle 1.1-1.4' pink, white and orange brown silt and clay, trace weathered phyllite fragments, dry.
112 113	15 33 46 55		0.0	Orange brown and light brown silt, soft, slightly distorted laminations, trace coarse sand size fragments, dry.
114 115	7 22 29 39		0.0	Dark brown (+) with light brown/tan silt, very stiff, trace clay, dry.
116 117	15 39 75/0"		0.0	Orange brown to brown silt, trace white clay, trace coarse sand and fine gravel(phyllite and quartz) medium stiff, dry.
118 119	3 5 12 19		0.0	Dark brown silt, some clay, trace black and orange/red oxidation deposits, trace coarse sand size weathered phyllite, trace tan fine sand lens at bottom of spoon damp to moist, soft.
120 121	18 21 75/0"		0.0	Brown and white mottled silt/very fine sand trace medium gravel size weathered dolomite, damp to moist, wet, trace clay.
122 123	40 75/3"		0.0	Same as above. Trace coarse gravel size rock fragments of white/grey dolomite (weathered),moist, soft, saturated outside of sample.
124 125	48 100/2"		0.0	White/grey coarse gravel size rock fragments (weathered dolomite, fine grained). Soft white/grey soft silt in bottom of spoon, moist. Top portion of sample mixed with brown saturated silt.

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Interval\ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
	70 125/2"		0.0	White/grey and brown (+) mottled silt, some coarse gravel fragments (white/grey fine grained dolomite), soft, moist.
127				
128			0.0	No recovery
129				
130	30 36 6 64		0.0	White/grey fine grained, fine to coarse gravel size rock fragments (dolomite) some brown saturated silt and white/grey silt, saturated.
131				
132	12 17 62 92		0.0	Top 0.4' tan trace brown fine sand, some silt. Middle 0.5' Orange/tan and white/grey mottled fine sand, some silt, trace fine to medium gravel size dolomite (weathered) fragments wet. Bottom 1.0' Same as middle with little dark brown clay seams, silt and orange/brown iron oxide staining. wet.
133				
134	10 97/2"		0.0	Tan fine sand, trace silt 0-0.4'Bottom 0.3' Tan fine sand, little medium to coarse medium gravel size weathered dolomite (white/grey) saturated, loose.
135				Hard material encountered a 135.5'
136			0.0	Light grey angular dolomite chips in cuttings.
137				
138			0.0	
139				
140			0.0	Coarse sand size and fine to medium gravel size dolomite rock fragments, trace of phyllite.
141				

SOIL BORING LOG

McLaren Hart

Project: Bennington Landfill
Project Location: Bennington Landfill, VT
Project Number: 12.0000657.000

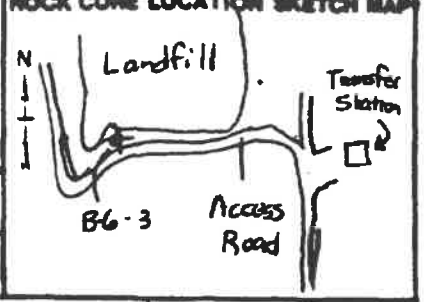
Boring No: B6-3

Depth Below Surface (ft.)	Blow Counts	Sample Integrity/ Recovery (ft.)	Field PID/FID (ppm)	Burmister System Soil Description Color, Texture, Moisture, Etc.
143				End of borehole at 142.5 ft. Refer to Rock Core Log.
144				
145				
146				
147				
148				
149				
150				
151				
152				
153				
154				
155				
156				
157				

ROCK CORE LOG

BORING NO. B-6-3

ROCK CORE LOCATION SKETCH MAP



PROJECT NO./NAME: 120000657004 / Phase 2A RI Bennington Landfill	LOCATION: Bennington, Vermont		
HART GEOLOGIST/OFFICE: J. Peterson / Warren, NJ	START/FINISH DATE: 1-26-93 / 1-26-93		
DRILLING CONTRACTOR: D.L. Maher	DRILLING EQUIPMENT: Gus Pech / BRAT	DRILLER: Jeff Quinn	CORE BIT SIZE:
WATER SOURCE: Hydrant - Houghton Ln.	WELL INSTALLED? YES ☒ NO ☐	T.D.-BOREHOLE: 163.5'	NO. OF CORE RUNS: 3
THICKNESS AND TYPE OF OVERBURDEN: 136' feet of till and saprolite			GROUNDWATER OBSERVATION: At ___ Ft. ___ Date ___ Time; At ___ Ft. ___ Date ___ Time; At ___ Ft. ___ Date ___ Time
REMARKS:			

DEPTH	RUN NO.	CORE TIME (min)	RECOVERY	% RECOVERY - RQD	ROCK CORE DESCRIPTION	CRACKS: ANGLE	CRACKS: COND.	CRACKS: SPACING	GRAPHIC LOG	REMARKS
140					Drilled 6" diameter dual air-rotary borehole to 142.5'. Refer to boring log B-6-3 for stratigraphic information. Commence coring at 142.5'					
145	RUN #1	3.7 min.	2.1 / 6.0	35% / 0%	Light gray fine sandy dolomite. Fracture surfaces deeply weathered, with vf. yell-brown sandy material and red-brown/black oxidation stain. Fractures/core deeply pitted (dissolution)					Numerous fractures at high angle to core (>45° dip). (Not possible to assign depths due to poor core recovery)
150	RUN #2	9 min.	5.7' / 9.0'	63% / 2.2/9.0 = 24%	Dolomite as above, no black oxidation stain					Fractured dolomite as above.

HART

FRED C. HART ASSOCIATES, INC.

BORING NO. B-6-3

DEPTH	RUN NO.	CORE TIME	RECOVERY	% RECOVERY	RQD	ROCK CORE DESCRIPTION	CRACKS: ANGLE	CRACKS: COND.	CRACKS: SPACING	CRACKS: GRAPHIC LOC.	REMARKS
155	RUN #2 (Cont'd)	9 min.	5.7 / 9.0	63 %	2.2/9.0 = 24 %	As above: Light gray fine sandy dolomite. Fracture surfaces deeply weathered, with vf. yell-brn sandy material and red-brn oxidation stain. Fractures and core deeply pitted (dissolution).					Numerous fractures at high angle to core (>45° dip). Not possible to assign depths due to poor recovery
160	RUN #3	10 min	4.8/6.0	80 %	1.9/6.0 = 32 %	Dolomite as above.					Similar to above; smooth, high angle fractures: 157.5' to 160', 162' to 163'. Sandy high angle fracture at 160.5' - 161'. Subhorizontal fractures at 158', 160' and 161.5'.
165						End coring at 163.5' Note: During coring operations, a total of 1350 gallons of drilling water was lost to the formation.					

Appendix E.3

Borehole Characterization Results

GEOPHYSICAL LOGGING, GROUNDWATER FLOW EVALUATION & STRADDLE PACKER GROUNDWATER SAMPLING

SAINT-GOBAIN PERFORMANCE PLASTICS SITE

Bennington, Vermont

DRAFT Report

Prepared for:

Barr Engineering Co
4300 Market Pointe Drive
Minneapolis, MN 55435

Prepared by:

RealTime Aquifer Services (RAS, Inc)

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Golden, Colorado 80401
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February 2018
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Well SG3-MW17-BR3
Well SG3-MW17-BR4
Appendix F Pumping, Injection and Drawdown Figures
Well SG3-MW17-BR1
Well SG3-MW17-BR2
Well SG3-MW17-BR3
Well SG3-MW17-BR4

List of Acronyms

Acronym	Definition
AFC	Ambient Flow Characterization
API units	The unit of radioactivity used for natural gamma ray logs. This unit is based on an artificially radioactive concrete block at the University of Houston, Texas, USA, that is defined to have a radioactivity of 200 American Petroleum Institute (API) units.
ATV	acoustic televiewer
btosc	below top of steel casing
boc	Bottom of casing
CPS	counts per second
cm	centimeter
DI	Deionized Water (or fresh, low conductivity water)
EM	Electromagnetic
EMPLX	Emplacement, or flushing, of borehole fluids with deionized water
FEC	Fluid Electrical Conductivity
ftags	feet above ground surface
ftbgs	feet below ground surface
GS or gs	Ground Surface
GPL	Geophysical Logging
HPL	Hydrophysical Logging
HPEM	Advanced hydrophysics EM measurement
Lpm	Litres per minute
m	meter
mags	meters above ground surface
masl	meters above sea level
mbtosc	meters below top of steel casing
mm	millimeters
m/day	meters per day
NG	Natural Gamma
OBI	Optical Borehole Imager
ohm-m	ohm-meters
PDI	Pumping During Injection
Q	Flow rate (units of volume/time)
Q_I	Interval specific flow rate
T	Temperature
TD	Total Depth
toc	top of casing
TP	Technical Procedures
µS/cm	microsiemens per centimeter

1.0 Overview

During the period from November 2, 2017, through January 26, 2018, RAS, Inc. of Golden, Colorado, conducted geophysical logging and flow evaluation testing in four new boreholes located at the Saint-Gobain Performance Plastics (SGPP) site in Bennington, Vermont. Based on borehole conditions and resulting well construction, groundwater sampling by straddle packer was conducted in two of these wells (SG3-MW17-BR2 and SG3-MW17-BR3). The work was performed under a direct contract to Barr Engineering Co. This report presents the results of the geophysical, flow logging and packer sampling work undertaken in November 2017 through January 2018, in wells SG3-MW17-BR1, SG3-MW17-BR2, SG3-MW17-BR3 and SG3-MW17-BR4. In addition, three 2-inch monitoring wells, B-2-3, B-4-3, and B-6-3 were geophysically logged with natural gamma and single point resistance.

For reference, a summary of the well construction and other data for each well has been presented below on Table 1.1, and well locations are presented on Figure 1.1 on the following page. The top of casing elevation for each well and the image used in Figure 1.1 were provided by Client. All depths referenced in this report are in units of feet below ground surface (ftbgs), however they are often referred to as just feet.

Borehole Name/Well Number	Top of Casing Elevation (ft above NAVD88)	Depth to Bottom of PVC in Casing (ft)	Casing Stickup (ftags)	Total Borehole Depth (ft)	Groundwater Elevation (ft above NAVD88)	Date of Measurement
SG3-MW17-BR1	980.93	369.0	2.9	Drilled to 380, collapsed from 380 to 369	787.21	1/9/18
SG3-MW17-BR2	959.16	No PVC installed	2.4	263.0	847.45	1/9/18
SG3-MW17-BR3	947.70	272.0	1.8	Drilled to 273.5, collapsed from 273.5 to 272	816.64	1/9/18
SG3-MW17-BR4	897.49	457.5	3.19	Drilled to 459, collapsed from 459 to 457.5	788.94	1/9/18

Table 1-1: Well Construction and Depth to Water Detail of Tested Wells

Notes: Top of casing elevation and groundwater elevation are referenced to ft above NAVD88, or feet (ft). Casing stickup is in feet above ground surface (ftags).

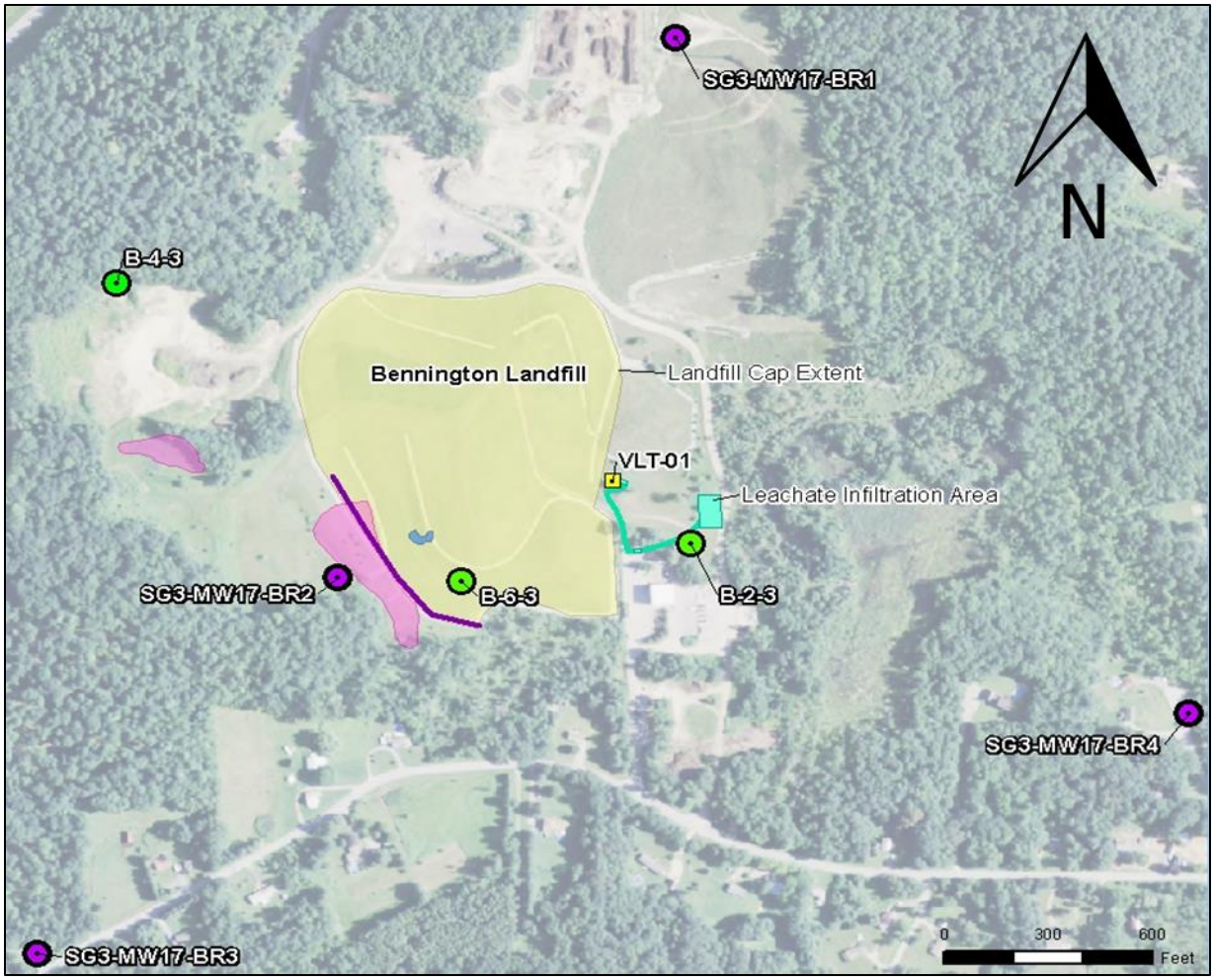

Figure 1-1: Aerial Photo of the SGPP Bennington Vermont Site with Approximate Site Boundary and Well Locations.

The aerial image above was provided by Client and has been included for reference. This photo is centered approximately over the Bennington, Vermont facilities. The wells logged during the 2017-2018 field effort are located approximately by the purple and green dots.

2.0 Introduction

This report has been prepared by RealTime Aquifer Services (RAS, Inc.) to describe the results of geophysical logging, flow evaluation and packer sampling in four new boreholes located at the Saint-Gobain Performance Plastics (SGPP) Site in Bennington, Vermont. The work was performed under a contract with Barr Engineering Co. (Barr). This report herein presents the results of work conducted between November 2, 2017, and January 26, 2018.

The activities described in this report were conducted in accordance with Technical Procedures described in the control documents published with the Scope of Work and previously provided to Barr, unless described otherwise in this document. The objective of this work was to employ geophysical logging, flow evaluation, packer testing and sampling in four new boreholes in order to provide information that would assist in the evaluation of hydrogeologic conditions.

The evaluation of the hydrostratigraphy was completed in the context of geology which is summarized as fractured meta-sediments comprised mainly of quartzite, phyllite and phyllitic quartzite. Evaluation of the water-bearing intervals, associated flow and straddle packer sampling of the identified water-bearing intervals were a focus of this investigation. Evaluation of the relationships between the water-bearing intervals and those water-bearing intervals with elevated perfluorooctanoic acid (PFOA), along with assessment of the structural, geologic or geophysical signatures were also performed. Please refer to the tables, figures and montages in the Appendices which provide additional information regarding the testing.

3.0 Methodology

RAS's investigation involved the application of the electromagnetic flowmeter (EMFM) approach (collectively called "flow evaluation") at the four well locations, to identify hydraulically active zones and characterize flows. Geophysical logging methods were employed in advance of the flow testing. The geophysical logging suite conducted at the site consisted of acoustic televiewer (ATV), optical borehole imager (OBI), caliper, natural gamma, 16–64 inch normal, spontaneous potential, single point resistance, and induction resistivity. Flow was evaluated in all wells during ambient (static) and pumping conditions.

A brief description of the geophysical logging, flow evaluation methods conducted and their general uses have been provided for reference in the Methodology discussion, Sections 3.1, 3.2, and 3.3. A summary table of the geophysical, flow and straddle packer testing and sampling conducted in each well has been presented below in Table 3.1. In addition, as attachments to this report, tables with summarized testing and data including hydrostratigraphy and packer testing results along with pumping, drawdown data have been included in the Appendices.

Isolated interval groundwater sampling by straddle packer testing method was conducted in two wells (SG3-MW17-BR2 and SG3-MW17-BR3) to evaluate the vertical distribution of water quality. These samples were collected under isolated, interval specific pumping conditions. The EM flowmeter was deployed, during pumping, prior to sampling, to identify the hydraulically conductive features.

For discussion and scale purposes, qualitative assessments of some data have been presented in this report. For example, fracture density in a borehole is referred to as low, moderate, or high when there are less than 0.5 fractures/meter, between 0.5 and 1.0 fractures/meter, and more than 1.0 fracture/meter, respectively. Also, mean fracture aperture is referred to as small, moderate or large when less than 20 millimeters (mm), between 20 and 50 mm, and greater than 50 mm, respectively (and their Imperial equivalent).

Note that in this report, fracture orientation is presented in terms of dip (used to refer to the dip angle in degrees from horizontal), and dip direction in degrees from true north, of a fracture or a subset of fractures in a well. Also, tadpole and stereonet (Wulff, upper hemisphere) graphical presentations of fractures are presented in Appendix B and on the montages.

Borehole Name/ Well Number/Construction	Geophysical, Flow Evaluation and Packer Testing/Sampling Methods Applied
SG3-MW17-BR1 **(unstable borehole, cased with 4-inch, screened PVC)**	3-arm caliper, induction resistivity, natural gamma, EM flowmeter, fluid electrical conductivity and temperature. Flow logs conducted during static and pumping conditions. Straddle packer sampling not applicable due to screened well construction.
SG3-MW17-BR2 **(open and stable borehole)**	3-arm caliper, 16-64 inch normal resistivity, spontaneous potential, single point resistivity, natural gamma, acoustic televiewer and optical televiewer. EM flowmeter, fluid electrical conductivity and temperature. Flow logs were conducted during static and pumping conditions. Straddle packer sampling. Four intervals were selected for sampling, Three intervals successfully sampled.
SG3-MW17-BR3 **(open and unstable borehole during logging, subsequently cased with PVC screen)**	3-arm caliper, 16-64 inch normal resistivity, spontaneous potential, single point resistivity, natural gamma, acoustic televiewer and optical televiewer. EM flowmeter, fluid electrical conductivity and temperature. Flow logs were conducted during static and pumping conditions. Straddle packer sampling. Six intervals were selected for sampling, but due to unstable and hazardous borehole conditions, only one interval could be successfully sampled.
SG3-MW17-BR4 **(cased with 4-inch screened PVC)**	3-arm caliper, induction resistivity, natural gamma, EM flowmeter, fluid electrical conductivity and temperature. Flow logs conducted during static and pumping conditions. Straddle packer sampling not applicable due to screened well construction.
2-inch monitoring wells **B-2-3, B-4-3, B-6-3**	Natural Gamma, single point resistance

Table 3-1: Summary of Field Testing Methods Conducted in Each Well.

For consistent QA/QC, several methods were deployed at the site to ensure quality data collection and correct tool operation as fully described in the Technical Procedures in Appendix C. One of the most important and easiest methods to control data quality and tool function is to run a repeat section of each log in each well, which was done as standard protocol. In addition, tools used by RAS are also calibrated in the shop prior to mobilizing for the project to verify conformation with the manufacturer's specifications. Once on the project site, calibrations were again verified both before and after logging, using various field equipment and standardized jigs. Manual confirmation of accurate depth measurements was also conducted upon arrival at each well head. All depths are referenced to the ground surface immediate to the wellhead.

3.1 Geophysical Logging Methods

A brief description of the data collection methods including normal resistivity, natural gamma, EM induction resistivity, ATV, OBI, and three-arm caliper is provided below. Additional more detailed descriptions of the technical data collection procedures are provided in Appendix C.

Normal Resistivity (16-64, SP, SPR)

The Spontaneous Potential Log (SP) is a traditional geophysical measurement based on measuring spontaneous potential derived in a drill hole from electrochemical, electro-kinetic, or streaming potentials and redox effects. When the fluid column is fresher than the formation water, current flows between different formations. When the fluid column is more saline than water in the aquifer, current flow and the log will be reversed. Streaming potentials are caused by the movement of an electrolyte through permeable media. In water wells, streaming potential may be significant at depth intervals where water is moving in or out of the hole. The volume of investigation of an SP sonde is highly variable, because it depends on the resistivity and cross-sectional area of beds intersected by the borehole. Single-point resistance (SPR) systems measure the resistance, in, between an electrode in the well and an electrode at the surface or between two electrodes in the well. Because no provision exists for determining the length or cross-sectional area of the travel path of the current, the measurement is not an intrinsic characteristic of the material between the electrodes and reported only in ohms (Ω). Normal Resistivity (16-64 inch) measurements are made when constant current is maintained between an electrode at the bottom of the sonde and a remote-current electrode. The voltage for the long normal (64-in.) and the short normal (16-in.) is measured between a potential electrode for each, located on the sonde, and a remote potential electrode. The SP electrode is located between the short normal electrodes.

Natural Gamma

Natural gamma or gamma logs are the most widely used methods for the identification of lithology and stratigraphic correlation because they provide useful data under the greatest range of borehole conditions and for a wide range of rock types. Gamma logs do not measure lithology directly; rather they use a downhole scintillometer to measure the amount of natural radioactive activity that occurs in the rocks. While rocks can be characterized according to their gamma intensity, knowledge of the local geology is needed to accurately identify lithology. Correlation among stratigraphic units is also a common application as the gamma measurement is often included on multi-parameter tools (Keys, 1997). At the well locations, the gamma and resistivity measurements were acquired at the same time from the same tool and generally were among the

first measurements acquired in each well. The natural gamma tool was calibrated in the factory but was not calibrated in the field because gamma calibration requires use of a radioactive source and licenses from U.S. and/or Canadian Nuclear Safety Commission (CNSC).

Electromagnetic Induction Resistivity

Electromagnetic (EM) induction logs refer to quantitative resistivity logs to investigate different volumes of material around the borehole in either air or fluid filled boreholes. The EM induction tool provides reliable measurements and is little affected by borehole fluids. The basic induction system uses a low frequency (20 kHz) electromagnetic signal to stimulate eddy currents in the formation several borehole diameters away from the borehole. These eddy currents set up a secondary magnetic field which induces a current that is measured in the receiving coil of the tool. The magnitude of the received current is proportional to the electrical conductivity/resistivity of the formation. As resistivity is a function of the dimensions of the material being measured and is an intrinsic property of that material, resistivity curves can be interpreted quantitatively when they are properly calibrated. Calibration of the tool followed the manufacturer's (Century Geophysical) specification. Prior to logging the tool is placed in a ring of known resistivity, the tool is then help up in air, which has near-zero conductivity, and the tool readings are then verified to these calibrated and known values.

Acoustic Televiewer (ATV)

The ATV is a logging device that can provide high resolution information on the location and character of secondary permeability, such as fracture and solution openings. It also can provide the strike and dip of planar features such as fractures and bedding planes. The ATV employs a rotating, high-frequency transducer that functions as both transmitter and receiver (Zemanek et al. 1969). The ATV provides an oriented map of the borehole wall by bouncing a high frequency sound wave off the borehole wall and recording the travel time and amplitude of the returning sound wave. By rotating the transmitter and receiver, a complete mapping of the borehole wall is possible. Not unlike sonar, small changes in travel time and amplitude of the reflected signal are indicators of fractures. Imaging of the borehole wall is required to evaluate fracture distribution and orientation (dip and dip direction). The ATV requires that the intervals of interest be fluid-filled for proper operation. However, this fluid is only required to obtain an acoustic couple between the tool and formation and does not need to be clear and transparent.

Optical Borehole Imager (OBI)

The OBI is an image logging device that can provide high resolution, 360-degree image of the borehole wall, both above and below the water table. Processing of the image provides information on the location and character of secondary permeability, such as fracture and solution openings. The oriented image also can provide the strike and dip of planar features such as fractures and bedding planes. Collection of a high-quality processible image below the water table requires relatively clear and transparent formation fluid.

Three-arm Caliper

Caliper logs provide a continuous record of borehole diameter and are widely used for logging at mining projects, water supply studies, and environmental investigations. Caliper logs are essential

to guide the interpretation of other logs because many types of logs are affected by changes in well diameter (Zemanek et al. 1969). They are also useful for providing information on well construction, such as identifying breaks or obstructions, and borehole breakouts. The three-arm caliper tool employs three mechanical arms that are extended to the borehole wall using a "worm gear" type assembly. The arms are extended after the tool is lowered to the bottom of the zone of interest. The extended arms press against the borehole wall and the average diameter is recorded. The caliper log can be useful to test the appropriateness of subsequent logging with respect to preventing loss or damage to downhole tools and to the wells themselves. Interpretation of the caliper tool is based on direct evaluation of borehole diameter size and variations throughout the tested interval.

3.2 Borehole Flow Evaluation

The EM flowmeter was deployed to identify the water bearing, or hydraulically conductive intervals. A recent upgrade to this tool included installation of a high-resolution fluid electrical conductivity sensor.

The electromagnetic flowmeter consists of an electromagnet and two electrodes (placed 180 degrees apart) that are cast in a durable epoxy. The epoxy is molded to a cylindrical shape that minimizes the turbulence associated with channeling the water past the electrodes and electromagnets. The flowmeter has no moving parts. The flowmeter operates according to Faraday's Law of Induction, which states that the voltage induced by a conductor moving at right angles through a magnetic field is directly proportional to the velocity of the conductor through that field. The flowing water is the conductor, the electromagnet generates the magnetic field, and the electrodes measure the induced voltage. The electronics attached to the electrodes will transmit a voltage that is directly proportional to the velocity of the water. An advanced version of the EM flowmeter was deployed for this project, which incorporated a high resolution FEC sensor (and temperature). This upgrade optimized advancements of both the EM and hydrophysical logging approaches and is a proprietary and upgraded version of the EM tool (dubbed the 9724 and HPEM). The upgraded FEC/T sensor afforded better, less obstructed flow through the EM sensor, better flow by the FEC/T sensor and improved FEC response. The upgrade has resulted in better identification and quantification of water bearing intervals in the borehole of interest.

3.3 Straddle Packer Testing and Sampling

Based on the results of the borehole geophysical and flow evaluation surveys, the identified water bearing intervals were selected for application of the straddle/single packer sampling system. The straddle packer system deployed was developed for the challenging site specific conditions and was designed to collect isolated groundwater samples and interval specific hydrogeologic information. Two packer elements (TAM LI units) were deployed at either 10 or 20 foot intervals of separation. Three pressure transducers (In-situ Troll 300 or 500s) were attached to the packer assembly above, below and between the packer elements (upper, middle and lower). An airline was attached to the 2-inch stand pipe during downhole advancement. The upper packer had a pass-through line to connect to a stainless steel sub-assembly to inflate the lower packer. The packers were inflated to pressures in accordance with the manufacturer's specifications.

Two pumping systems were employed during sampling. The first was a bladder system (GeoTech Mfr) and the second was a 2-inch Redi-flow electric submersible. The bladder system proved to be effective but at a low discharge rate. The electric submersible provided higher pumping rates.

The electric submersible pump was equipped with a dedicated pressure transducer. After installation, operation of the pump was initiated, and discharged groundwater was monitored at the surface for flow rate and inorganic parameters. Pumping was conducted until such time that three packed off interval volumes were discharged and field parameters were stable, at which time a sample was collected. Manual water level measurements were also collected to measure the water level above the upper packer to support pressure transducer data.

At the conclusion of sampling, the packer string was removed, the pressure transducers were retrieved and data were downloaded. The straddle packer pressure data were immediately reviewed to ensure that the packers had sealed correctly, that the conductive interval had been isolated, and the collected groundwater sample was representative of the isolated interval. Raw digital data and plots of the packer pressure history for each interval sampled are presented in the project data base. Review of the pressure data suggested that all packer seals were sufficiently tight and all intervals sampled were representative of the conductive interval.

A summary of the packer testing results for each well tested has been included in Appendix E.

4.0 Well Testing Technical Results

A discussion of the findings for each well is presented below. Please also refer to the fracture tables and structural information in Appendix B and the hydrostratigraphy and packer testing results summary tables in Appendix E. In addition, these results should be reviewed together with the integrated color data montages provided in Appendix D.

4.1 Well SG3-MW17-BR1

Depth to water in well SG3-MW17-BR1 was measured at 186.91 ftbgs on November 29, 2017. At the time of logging, the total depth of this well was 369 feet.

Due to extremely challenging subsurface conditions and the resulting unstable borehole conditions, well SG3-MW17-BR1 was completed with 4-inch screened PVC to maintain an accessible wellbore for logging operations. A 6-inch steel casing was advanced to 320 feet and open hole core drilling conducted to a total depth of 380 feet. However, the bottom 11 feet of the borehole collapsed before PVC screen could be installed. As such, a collapsed interval below the bottom of PVC casing is present, but could not be accessed for logging.

Based on SG3-MW17-BR1 well completion with PVC screen, only 3-arm caliper, induction resistivity, natural gamma and EM flowmeter were applicable. The results of these logs can be found in Appendix D.

The resistivity log was collected by the induction method and is viable in the open, saturated and unsaturated hole, as well as in the saturated and unsaturated interval of the PVC casing. However the induction resistivity is not applicable in the steel cased interval. Resistivity logs typically display high resistivity values in the massive quartzite intervals with decreased resistivity in highly fractured, hydraulically conductive intervals. The phyllite and phyllitic quartzite will typically cause a more dramatic decrease in resistivity due to more electrically conductive clays and silts.

The natural gamma (NG) log measures the natural gamma activity typically associated with potassium based mineral assemblages (i.e. potassium feldspars) and potassium-based clays. In more mature sand, gravel, silt, clay, lacustrine and fluvial systems, and similarly derived meta-sediments, NG typically varies inversely with resistivity. This traditional relationship applies to at the subject site. The NG log for SG3-MW17-BR1 does not show any variations that suggest any phyllite or argillaceous materials present or that the logged interval is exclusively quartzite. The response from the induction resistivity supports the gamma log and the interpretation of a single lithologic unit.

Results from the EM flowmeter tests suggest the presence of two principal hydraulically conductive intervals in well SG3-MW17-BR1. Review of the static (Ambient) EM flow meter results presented in SG3-MW17-BR1 Montage (Appendix D) suggests that elevated FEC water inflows from 295 to 303 ftbgs, then flows down and exits at bottom of the screen. Given the well construction, with the bottom 10-15 feet drilled, but collapsed and not exposed to the screen, this would suggest that out flow is occurring at this interval. Furthermore, the results from logging up and down, suggest the flow velocity is below the lower detection limit of the EM flowmeter (0.1gpm). Only by comparing the pumping and static FEC logs does the flow direction become apparent. These logs also suggest inflow from 295-303 feet had intervals with specific FEC of

approximately 2,930 uS/cm. This is significantly elevated compared to the other wells tested. During pumping at 20 gpm, with an associated drawdown of 1.4 feet, flow was dominated by this deeper interval. Please refer to Appendix E for logs and discussion.

4.2 Well SG3-MW17-BR2

Well SG3-MW17-BR2 was a stagnant, non-flowing well (under ambient conditions) with depth to water of 112.2 feet and a total depth of about 263 feet, at the time of initial geophysical logging on December 10, 2017. The wellbore was reasonably stable and remained open during all tests and logging. Five (5) hydraulically conductive intervals were identified in the saturated section of this well during EM flowmeter testing during pumping. Overall, the well was moderately conductive with four of the five conductive intervals in the saturated section considered significant. Please refer to Appendix D for Integrated Log Montages and the Summary Hydrostratigraphy Table in Appendix E, in referenced to the following discussion. The five identifiable hydraulically conductive features in the saturated interval were located at the depths 148-151, 167-172, 204-217, 250-254.5, and 259-264 ftbgs. EM flowmeter data collected during pumping suggested the interval at 204-217 ftbgs was the dominant conductive interval.

Of five conductive intervals, four intervals were selected for groundwater sampling using the straddle packer assembly by combining the lower two intervals (250-254.5 and 259-264 ftbgs). Straddle packer sampling was conducted at 144-154, 165-175, 199-219 and 243-264 ftbgs. Only the uppermost interval 144-154, under pumping conditions associated with straddle packer sampling procedures, did not produce sufficient groundwater to collect a viable sample. Please see well SG3-MW17-BR2 summary tables in Appendix E for more details on the packer testing.

Geophysical data collected from well SG3-MW17-BR2 suggested the presence of a strong correlation between conductive flow intervals and open fractures identified in the ATV and OBI logs. Of the 232 total fractures identified, 54 fractures (23%) were located within conductive intervals. All of the 5 conductive features were found in intervals containing open fractures. Since each flow interval contained multiple open fractures, it cannot be determined which individual structural feature was the primary contributor to flow within any interval.

Of the 54 water-bearing fractures identified, a significant percentage (~33%) were low angle fractures (<30º dip), eleven (20%) were moderate-angle fractures (30-60º dip), and the remaining 25 conductive fractures (47%) were high-angle (>60º dip). The average dip of all water-bearing fractures was 45.8º. The average conductive fracture dip direction was 93.4º or primarily in the east direction. The greatest density of all the fractures in well SG3-MW17-BR2 (both conductive and non-conductive) had a dip direction toward the southeast. Specifically, the average dip for all the features was 34º, and average dip direction was 136º. These averages are traditional presentations of fracture analysis results. Additional analysis of these data, and incorporation with previously defined fracture trends would be appropriate with this data. However, this additional analysis should be done by those familiar with the previous efforts and as such are not included in this report. Please refer to Appendix B SG3-MW17-BR2 Fracture Table and Stereo Nets for more details.

The caliper log for wellbore SG3-MW17-BR2 presents the borehole diameter from the average of three independent caliper "arms". Overall, and as supported by the ATV log, wellbore SG3-MW17-BR2 displayed several intervals of significant increase in borehole diameter (or

"excursions"). In all cases, borehole diameter excursions were coincident with conductive intervals. For example, from 167.1-171 and 206-210.2 ftbgs, conductive features are found in associated voids, with diameters exceeding six inches. However, several conductive intervals were also identified in nominal diameter portions of the borehole.

The resistivity logs were collected by galvanic methods and are viable only in the open hole, saturated interval and below steel casing. These logs typically display high resistivity values in the massive quartzite intervals with decreased resistivity in highly fractured, conductive intervals. However, the phyllite and phyllitic quartzite also cause a decrease in resistivity as noted in the interval from 254-259 ftbgs. Spontaneous Potential (SP) was also recorded during resistivity logging and displayed the traditional response to clays, phyllites and argillaceous intervals. Comparison of the resistivity logs (16, 64 and SPR) and SP to the OBI log as presented in the attached montage, further confirms this relationship and suggests that resistivity, and SP responses are more associated with lithology than conductive fractures.

The natural gamma (NG) log measures the natural gamma activity typically associated with potassium based mineral assemblages (i.e. potassium feldspars) and potassium based clays. In more mature sand, gravel, silt, clay, lacustrine and fluvial systems, and similarly derived meta-sediments, NG typically varies inversely with resistivity. This traditional relationship applies at the subject site, and review of the NG log from well SG3-MW17-BR2 provides several examples of this traditional relationship. In intervals with high resistivity, the NG is typically low with 30-70 API units and corresponds to quartzite. In contrast, the previously cited low-resistivity example at 254-259 ftbgs displays a very high NG (>225 API units) and corresponds with the black phyllite interval of the OBI and geology logs. Please refer to the well summary table in Appendix E for more details.

Flow rates in all five conductive intervals were assessed during pumping conditions, with inflow rates ranging from <0.1 (lower evaluation limit) to 1.7 gpm. See the well SG3-MW17-BR2 summary Hydrostratigraphy Table in Appendix E for more flow details. The five identifiable hydraulically conductive features were located in the intervals from 148-151, 167-172, 204-217, 250-254.5 and 259-264 ftbgs. Results from the pump test suggested inflow rates of <0.1, 0.9, 1.7, 0.8 and 0.9 gpm, respectively. As discussed earlier, the dominant interval during pumping was inferred at 204-217 feet. Based on these flow meter results, four intervals were selected for straddle packer sampling, 144-154, 165-175, 199-219, and 243-264 ftbgs. Unfortunately, groundwater production was insufficient to collect a viable groundwater sample from the interval at 144-154 ftbgs. The other intervals generated sufficient groundwater during packer sampling, and representative samples were collected. The analytical results from these groundwater samples are being provided by others.

4.3 Well SG3-MW17-BR3

Depth to water in well SG3-MW17-BR3 was measured at 129.1 ftbgs on January 6, 2018. At the time of logging, the total depth of this well was ~268 feet. The wellbore was reasonably stable and remained open during all geophysical and flow logging. However, after packer sampling the uppermost conductive intervals, formation from the wall of the borehole fell on top of the packer and precluded its immediate removal. The packer assembly was successfully removed the following day without damage to the packer.

Six (6) hydraulically conductive intervals were identified in the saturated interval of this well during EM flowmeter pump testing. Well SG3-MW17-BR3 did not display discernible vertical flow under ambient conditions (<0.2 gpm) with the EM Flowmeter. Overall, the well was highly conductive with multiple significant conductive intervals in the saturated section. Please refer to Appendix D for Integrated Log Montages and Appendix F for the Summary Hydrostratigraphy Table as they complement the following discussion. The six identifiable hydraulically conductive features in the saturated interval were located at the depths from 147.4-158.5, 167.8-174.0, 188.2-192.7, 205.0-210.0, 223.5-226.0 and 246.0-248.0 ftbgs. EM flowmeter data collected during pumping suggested the intervals from 247.4-258.5 and 205-210 ftbgs were the dominant conductive intervals.

All six of the identified conductive intervals were selected for groundwater sampling using the straddle packer assembly. On January 22, 2018, Straddle packer sampling was initiated at 129 (water level) - 161 feet with a single packer. At the conclusion of collecting the groundwater sample from this interval, and during removal of the packer assemble from the borehole, the packer got stuck and could not be withdrawn. Efforts were continued that evening, without success, and the packer was lowered to an interval corresponding to increased diameter (as determined by the caliper tool). The packer assembly was left at that depth over night. Fortunately, the next morning, the formation materials had cleared, and the packer was removed from the borehole without further incident. Upon inspection and operational checks at the surface, it was determined the packer had not sustained any damage. Both pressure transducers were also recovered.

Given the apparent unstable nature of the upper, fractured interval, and the strong likelihood of additional formation materials caving off the borehole wall during continued packer sampling operations, the decision was made to suspend packer sampling operations. In addition, 4-inch PVC screen was installed over the saturated interval of the formation to maintain wellbore integrity.

Given these borehole conditions, only the uppermost interval from 129 (WL) – 161 ftbgs was sampled with the packer system. Please see the well SG3-MW17-BR3 Summary Tables in Appendix E for more details on the packer testing.

Geophysical data collected from well SG3-MW17-BR3 (and similar to SG3-MW17-BR2) suggested strong correlation between conductive flow intervals and open fractures identified in the ATV and OBI logs. Of the 204 total fractures identified, 25 fractures (12%) were located within conductive intervals. All of the six conductive features were found in intervals containing open fractures. Since each flow interval contained multiple open fractures, it cannot be determined which individual structural feature was the primary contributor to flow within any interval.

Of the 25 water-bearing fractures identified, ten, or (~40%) were low angle fractures (<30º dip), three (12%) were moderate-angle fractures (30-60º dip), and the remaining 12 conductive fractures (48%) were high-angle (>60º dip). The average dip of all water-bearing fractures was 47º. The average conductive fracture dip direction was 303º or primarily in the northwest direction. The greatest density of all the fractures in well SG3-MW17-BR3 (both conductive and non-conductive) had a dip direction toward the southeast. Specifically, the average dip for all the features was 38º, and average dip direction was 125º. These averages are traditional presentations of fracture analysis results. Additional analysis of these data, and incorporation with previously defined fracture trends would be appropriate with this data. However, this additional analysis should be

done by those familiar with the previous efforts and as such not included in this report. Please see Appendix B for the detailed well SG3-MW17-BR3 Fracture Table and Stereo Nets.

The caliper log for wellbore SG3-MW17-BR3 presents the borehole diameter from the average of three independent caliper "arms". Overall, and as supported by the ATV log, wellbore SG3-MW17-BR3 displayed numerous intervals of significant increases in borehole diameter (or "excursions"). Unlike SG3-MW17-BR2, not all borehole diameter excursions were coincident with conductive intervals. Review of the SG3-MW17-BR3 Log Montage (Appendix D), clearly shows that borehole excursions at depths from 193-195, 198.4-201.4, and 211-213.8 ftbgs are not associated with conductive intervals. In contrast, five of the six conductors identified in SG3-MW17-BR3, do occur at intervals of borehole excursions with diameters often exceeding eight inches. However, one conductive interval was identified in nominal diameter portions of the borehole, from 246-248 ftbgs.

The resistivity logs were collected by galvanic methods and are viable only in the open hole, saturated interval and below steel casing. These logs typically display very high resistivity values (exceeding 2500 ohm-m) in the massive quartzite intervals with measurable decreases in resistivity at the fractured, conductive intervals. More significant to resistivity response, the phyllite and phyllitic quartzite caused larger decreases in resistivity as noted in the several intervals of SG3-MW17-BR3. A good example of a resistivity low, as associated only with lithology, occurs at the interval from 227.8 – 233.3 ftbgs. No conductive intervals are present at this zone, and the OBI log clearly shows dark laminar banding. Furthermore, the dramatic increase in natural gamma additionally supports this interpretation.

Spontaneous Potential (SP) was also recorded during resistivity logging and displayed the traditional response to clays, phyllites and argillaceous intervals. Comparison of the resistivity logs (16, 64 and SPR) and SP to the OBI log as presented in the attached montage, confirms this relationship and suggests that resistivity and SP responses are more strongly affected by lithology than conductive fractures. Examples of this in SG3-MW17-BR3 occur again at the depths from 227.8-233.3 and 249.5 – 270 ftbgs.

The natural gamma (NG) log measures the natural gamma activity typically associated with potassium based mineral assemblages (i.e. potassium feldspars) and potassium-based clays. In more mature sand, gravel, silt, clay, lacustrine and fluvial systems, and similarly derived meta-sediments, NG typically varies inversely with resistivity. This traditional relationship applies at the subject site. Review of the NG log from well SG3-MW17-BR3 provides two excellent examples of this traditional relationship. The first example, a non-water bearing interval with high resistivity, where NG is low (~30 API units), borehole diameter is in gauge, and SP is low, occurs at the zone from 241.9-244.8 ftbgs and corresponds to clean, massive quartzite. In contrast, the previously cited low resistivity example at the zone from 249.5-259 ftbgs displays a very high NG (>225 API units) and corresponds with the black phyllite interval shown in the OBI and geology logs.

Flow rates in all six conductive intervals were assessed during pumping conditions, with inflow rates ranging from 2.0 to 6.0 gpm. The six identifiable hydraulically conductive features were located in the intervals from 147.4-158.5, 167.8-174.0, 188.2-192.7, 205.0-210.0, 223.5-226.0 and 246.0-248.0 ftbgs. Results from the pump test suggested inflow rates of 5.4, 4.0, 3.3, 6.0 and 2.0 gpm, respectively. These results would suggest that two intervals dominated flow, those from

147.4 – 158.5 and 205 – 210 ftbgs, which contributed a combined 50% of the total calculated flow rate. Based on these flow meter results, these six intervals were selected for straddle packer sampling, however, and as previously discussed, unstable borehole conditions precluded safe operation of the packer sampling system after sampling only the uppermost conductive interval. The analytical results from this groundwater sample is not presented in this report but provided separately by others. Please refer to the summary Hydrostratigraphy Table in Appendix E for more details regarding the hydraulically conductive intervals in well SG3-MW17-BR3.

4.4 Well SG3-MW17-BR4

Due to extremely challenging subsurface conditions encountered during drilling and the resulting unstable open borehole condition, well SG3-MW17-BR4 was completed with 4-inch screened PVC at the completion of drilling to maintain an accessible wellbore for future logging and testing activities. A 6-inch steel casing was advanced to 406 feet and open hole core drilling was conducted to a total depth of 459 feet. However, the bottom 1.5 feet of the borehole collapsed before PVC screen could be installed, resulting in only a small interval of collapsed borehole below the bottom of PVC casing not accessible to logging. The PVC screened interval was reported as 389 feet to 457.5 feet. At the time of logging, the depth water was 104.77 ftbgs, on December 19, 2017.

Based on SG3-MW17-BR4 well completion with PVC screen, only 3-arm caliper, induction resistivity, natural gamma and EM flowmeter were applicable. The results of these logs can be found in Appendix D.

The natural gamma (NG) log measures the natural gamma activity typically associated with potassium based mineral assemblages (i.e. potassium feldspars) and potassium-based clays. The NG log for SG3-MW17-BR4 shows apparent variations that suggest a phyllite present over the interval from 434.5 – 440.0 feet and argillaceous material in the interval from 407–415 feet. The NG log suggests the remaining intervals to be exclusively quartzite. The response from the induction resistivity supports this gamma log interpretation.

EM flow meter logging was conducted in well SG3-MW17-BR4 under static and pumping conditions. EM flowmeter results suggested that no significant vertical flow was present, and formation water displayed an FEC range from 260 to 400 uS/cm, decreasing with depth.

EM flowmeter logging during pumping conditions suggest the presence of a variable and inconsistent flow system within the screened PVC. The data suggest no dominant or preferential flow intervals. Flow measurements are therefore variable and challenging to directly interpret. However, the general flow trend is decreasing with depth from maximum flow (5.1 gpm) over the screened interval from 398 ft (top of screen) to 444 feet. Minimum inflow was noted from 444 to 456 feet (total depth). During pumping at 5.1 gpm, with an associated drawdown of ~1.5 feet, flow was principally distributed over the interval from 398 – 444 ft (80% or 4.1 gpm) with the remaining 20% (1.0 gpm) over the interval from 444-456 feet. Please refer to Appendix E for logs and additional discussion.

4.5 Well B-2-3

In addition to the new wells drilled in 2017, RAS also conducted a limited logging program of natural gamma and single point resistance in three (3) existing 2-inch monitoring wells at the subject site. The lithologic record was developed and provided by others and has been included with these logs in Appendix D. Please refer to these montages when reading the following discussions. Unfortunately, due, most likely, to "dog legs" in the casing, the logging sonde could not advance to the report total depth for all the wells logged. The geophysical data presented the actual depth the sonde could advance in each well at the time of logging; all logs are referenced to ground surface.

The geophysical logs in the data montage for MW B-2-3 display low and slightly decreasing gamma with depth over the uppermost interval of the log from 4 to 21 feet. This interval corresponded to elevated resistivity which also decreases with depth. These geophysical responses are typical of sand and confirmed by the lithology log. The remaining interval from 21-90 feet exhibits generally higher gamma response and depressed resistivity. Elevated gamma response is noted at 32-34.8 feet, without a corresponding response in resistivity. There is another elevated gamma response at 41.3-44.3 feet, with a corresponding decrease in resistivity, and a decrease in gamma response and corresponding increase in resistivity over the interval from 58.8-62 feet. These variable geophysical responses, and variability, are typical of the glacial till ascribed to this interval from 21-90 feet. In general, with the depths adjusted by the geophysical response previously described, the lithology log is supported by the geophysical data.

4.6 Well B-4-3

The geophysical logs in the data montage for well B-4-3 display significant variability and suggest similar variability in lithology. The gamma and single point resistance logs would appear to suggest that the interval from 2 – 206 has an elevated gamma and suppressed resistivity. From 206-212 feet, the dramatic increase in resistivity and decreasing gamma suggest the first encounter with true quartzite bedrock. The dramatic increases in gamma response at the intervals from 2-21.5, 53.2-55.8, 58.0-60.5, 62.5-65.0, 77.2-89.0, and the intervals of high gamma at the depths from 96.0-189.7 feet, along with the corresponding resistivity, are noted, and likely associated with intervals of increased clay or potassium rich mineralogy (potassium feldspars, cobble of phyllite, etc).

4.7 Well B-6-3

The geophysical logs of the data montage for B-6-3 display moderate variability and suggest similar variability in lithology. Based on our review of the other data collected from this project, and misclassification of the lithology of B-4-3, the gamma and single point resistance logs would appear suggest that the following lithology 0-7.5 feet, poorly graded sand; 7.5-19.8 feet, till; 19.8-30.0, moderately graded dry sand; 30.0-50.0, feet transitional interval with increasing fines with depth; 50.0-101.4, till; 101.4-112.0, interval with cleaner, more coarse grained materials; 112-125.9 (TD), till. The geophysical data is supportive of the provided lithology, with adjustments to contact depths and lithology as noted.

5.0 Limitations

Water levels have been measured in the well bores at the times and under the conditions stated in the report. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made. Except as noted within the text of the report, no quantitative laboratory testing was performed to verify the calibration of the water level tools. Where such analyses have been conducted by an outside laboratory, RAS, Inc. has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data.

Conclusions and recommendations contained in this report may be based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. As suggested within the report, these data are developed based on the field calibration of the logging tool. Where more specific information is necessary, the tool measurements should be verified based on quantitative lab analyses of grab samples obtained directly from the wellbore. Moreover, it should be noted that the variations in the types and concentrations of groundwater constituents and variations in their flow paths may occur due to seasonal water table fluctuations, past site practices, the passage of time, and other factors.

The values for bedrock hydraulic conductivity, if given in this report, should be viewed as "equivalent hydraulic conductivities", which are computed based on an assumed, or equivalent, interval length and a uniformly pervious porous media behavior. This industry standard approach has several limitations, which are well documented in the current literature. In addition, the accuracy of the equivalent hydraulic conductivities when presented herein is subject to the applicability of the boundary condition assumptions inherent in the permeameter/slug test/pumping test analysis method used.

RAS's logging was performed in accordance with generally accepted industry practices involving similar studies at the same time and in the same general area. RAS has observed that degree of care and skill generally exercised by others under similar circumstances and conditions. Interpretation of logs (whether made directly from visual observations or by data processing or otherwise), or interpretation of test or other data, and any recommendation or hydrogeologic description based upon such interpretations, are opinions based upon inferences from measurements, empirical relationships and assumptions. These inferences and assumptions require engineering judgment, and therefore are not scientific certainties. As such, other professional engineers or analysts may differ as to their interpretation. Accordingly, RAS cannot and does not warrant the accuracy, correctness or completeness of any such interpretation, recommendation or hydrogeologic description. All technical data, evaluations, analysis, reports, and other work products are instruments of RAS's professional services intended for one time use on this project. Any reuse of work product by Client for other than the purpose for which they were originally intended will be at Client's sole risk and without liability to RAS. RAS makes no warranties, either express or implied. Under no circumstances shall RAS or its employees be liable for consequential damages.

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Appendix A

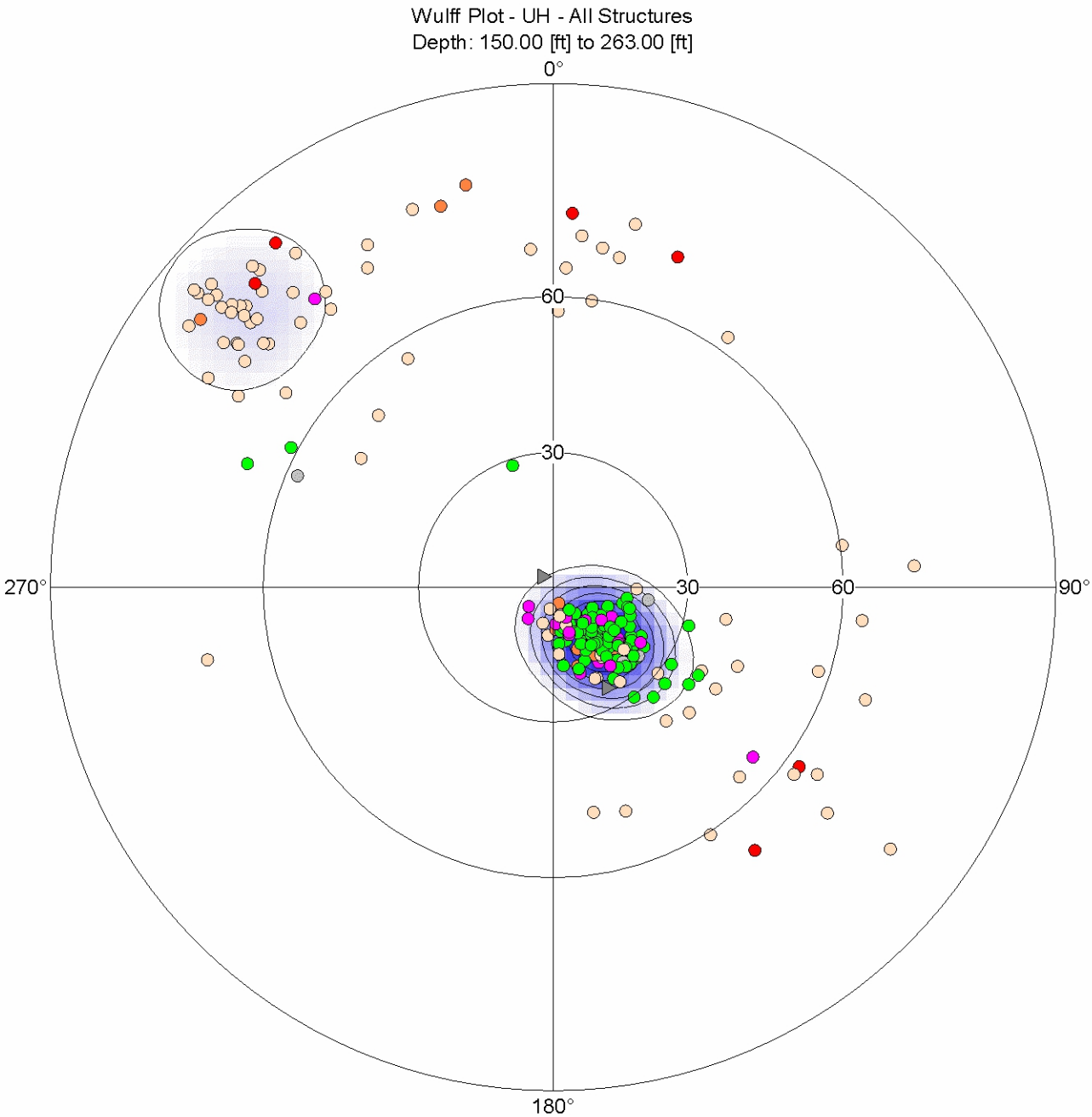
Data

Dropbox link restricted

Appendix B

Structure Processing Data Tables and Polar Diagrams

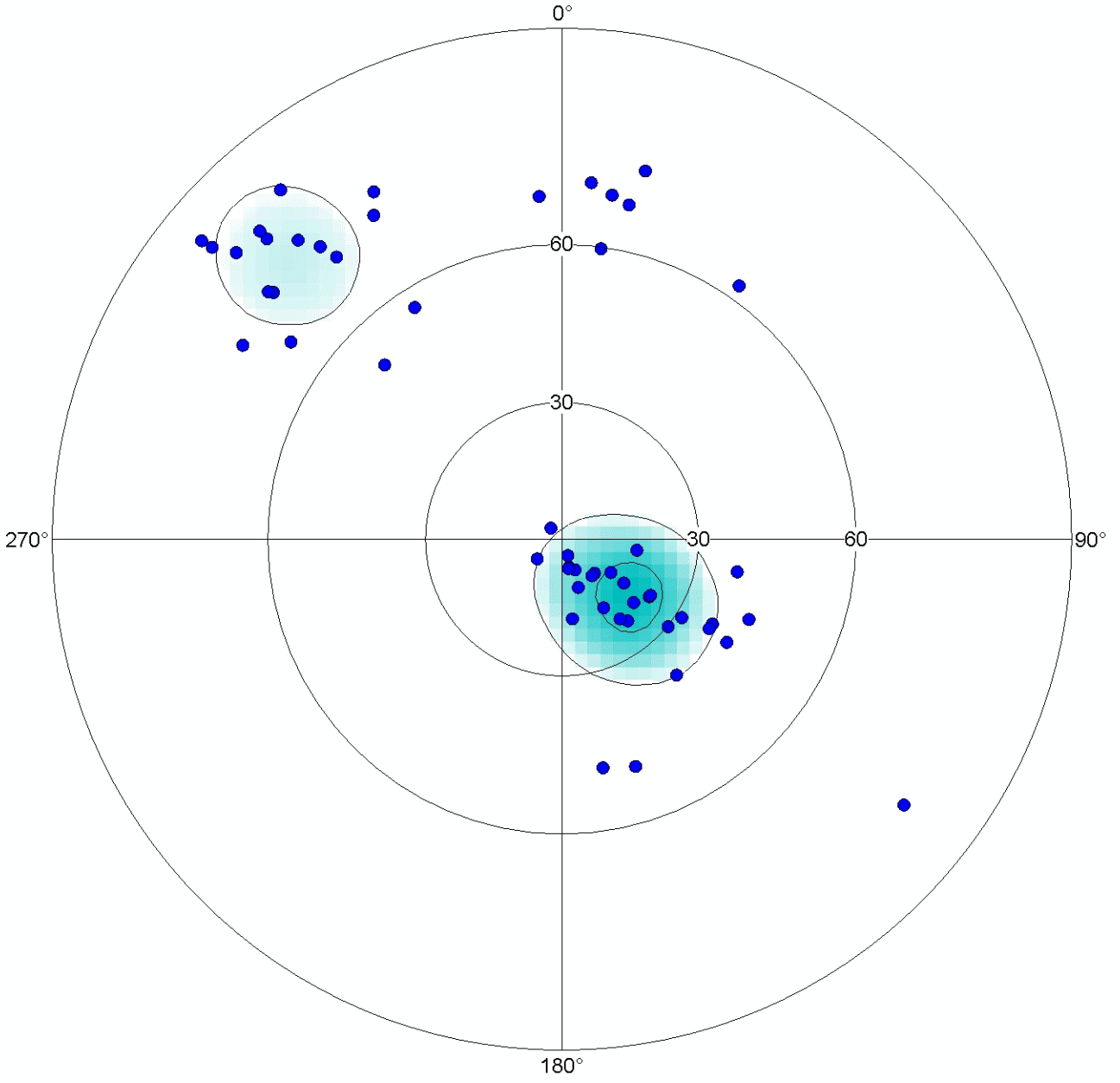
SG3-MW17-BR2



	Counts	Dip[deg]	Azi[deg]
Mean	232	34.31	136.33
●	24	19.98	146.76
●	95	18.69	136.53
●	86	57.04	344.15
●	13	28.78	152.85
●	6	72.62	13.65
▶	4	11.56	147.25
●	4	31.69	125.38

SG3-MW17-BR2

Wulff Plot - UH - Water Bearing Structures
Depth: 150.00 [ft] to 263.00 [ft]



	Counts	Dip[deg]	Azi[deg]
Mean	54	45.79	93.43
●	54	45.79	93.43

REALtime Aquifer Services

Geophysical log of SG3-MW17-BR2

CSM Investigation **Benington, VT**

Saint-Gobain Performance Plastics

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**NA**	SERVICE COMP.:	**RAS**
PROJECT:	**45021004.00**	LATITUDE (DEG)	**N/A**	DRILL START DATE:	**N/A**	WELL AZIM (deg):	**VERTICAL**
FIELD:		LONGITUDE (DEG)	**N/A**	DRILL END DATE:	**N/A**	WELL INCL (deg):	**VERTICAL**
STATE	**VERMONT**	ELEVATION (FT):	**N/A**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
			WATER

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
STEEL			

REMARKS

MAGNETIC DECLINATION: N/A

RECORDED BY:

LOGGER TD:

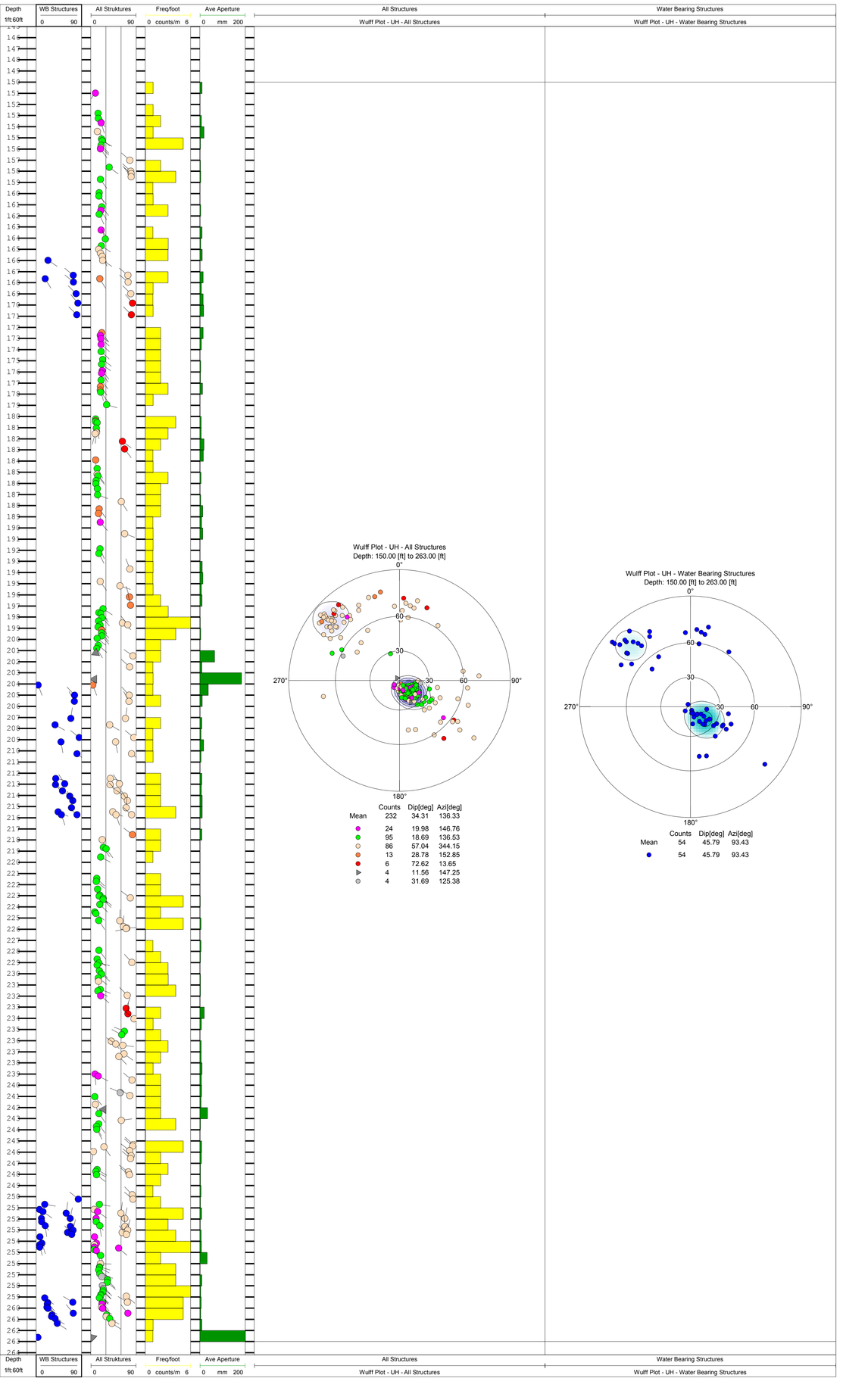
DRILLER TD:

LEGEND

GEOLOGICAL STRUCTURE

Weak Zone / Undifferentiated · Major Open Joint / Fracture · Intermediate Open Joint/Fracture · Minor Open Joint / Fracture · Partially Open Joint / Fracture · Filled Fracture / Joint

Bedding / Banding / Foliation · Induced Fracture · Water Bearing Fracture/Joint



	Counts	Dip[deg]	Azi[deg]
Mean	232	34.31	136.33
	24	19.98	146.76
	95	18.69	136.53
	86	57.04	344.15
	13	28.78	152.85
	6	72.62	13.65
	4	11.56	147.25
	4	31.69	125.38

	Counts	Dip[deg]	Azi[deg]
Mean	54	45.79	93.43
	54	45.79	93.43

WELL SGPP MWBR-2

STRUCTURE DATA

Depth ft	Azimuth deg	Dip deg	Aperture mm	Structure type
151.0	218.56	9.29	9	Minor Open Joint / Fracture
152.8	142.49	14.18	0	Bedding / Banding / Foliation
153.3	139.62	14.91	0	Bedding / Banding / Foliation
153.7	162.34	20.45	12	Minor Open Joint / Fracture
154.4	132.2	13.14	18	Partially Open Joint / Fracture
155.1	128.59	21.2	0	Bedding / Banding / Foliation
155.3	118.99	22.73	0	Bedding / Banding / Foliation
155.6	136.31	20.43	0	Bedding / Banding / Foliation
155.9	130.16	19.68	4	Partially Open Joint / Fracture
156.0	143.39	19.04	6	Minor Open Joint / Fracture
157.0	311.06	77.27	4	Partially Open Joint / Fracture
157.6	125.54	36.74	0	Bedding / Banding / Foliation
158.0	312.42	79.28	3	Partially Open Joint / Fracture
158.2	311.87	79.82	4	Partially Open Joint / Fracture
158.5	322.27	79.97	3	Partially Open Joint / Fracture
158.7	144.86	19.29	0	Bedding / Banding / Foliation
159.9	153.5	16.69	0	Bedding / Banding / Foliation
160.2	136.26	16.23	0	Bedding / Banding / Foliation
161.2	142.39	21.81	0	Bedding / Banding / Foliation
161.5	148.57	19.89	9	Minor Open Joint / Fracture
161.8	153.37	16.53	0	Bedding / Banding / Foliation
163.3	138.62	20.6	9	Minor Open Joint / Fracture
164.1	341.33	28.62	0	Bedding / Banding / Foliation
164.7	122.74	20.85	0	Bedding / Banding / Foliation
165.0	144.4	15.46	7	Partially Open Joint / Fracture
165.4	145.04	19.32	6	Partially Open Joint / Fracture
165.6	154.11	22.79	10	Partially Open Joint / Fracture
166.0	123.38	23.27	13	Partially Open Joint / Fracture
167.3	310.44	73.33	15	Partially Open Joint / Fracture
167.6	148.64	17.91	15	Intermediate Open Joint/Fracture
167.9	310.08	74.02	9	Partially Open Joint / Fracture
169.0	315.45	79.06	6	Partially Open Joint / Fracture
169.8	321.11	82.63	14	Major Open Joint / Fracture
170.9	315.52	80.48	15	Major Open Joint / Fracture
172.5	142.72	21.63	15	Intermediate Open Joint/Fracture
172.7	128.29	18.76	11	Minor Open Joint / Fracture
173.0	129.95	19.87	6	Minor Open Joint / Fracture
173.5	130.41	20.6	6	Minor Open Joint / Fracture
174.2	132.76	20.46	0	Bedding / Banding / Foliation
174.9	127.51	23.61	0	Bedding / Banding / Foliation
175.3	124.33	21.39	0	Bedding / Banding / Foliation
175.9	141.15	22.43	5	Minor Open Joint / Fracture
176.1	142.8	21.38	5	Minor Open Joint / Fracture
176.7	142.1	20.24	0	Bedding / Banding / Foliation
177.3	142.98	19.11	17	Intermediate Open Joint/Fracture
177.6	162.51	18.78	15	Intermediate Open Joint/Fracture
177.8	141.82	19.62	0	Bedding / Banding / Foliation
178.9	106.03	31.36	0	Bedding / Banding / Foliation
180.2	168.17	9.43	0	Bedding / Banding / Foliation
180.4	158.5	9.38	18	Intermediate Open Joint/Fracture
180.5	155.38	9.18	0	Bedding / Banding / Foliation
180.6	165.91	12.57	0	Bedding / Banding / Foliation
181.0	165.2	10.76	0	Bedding / Banding / Foliation
181.4	186.45	11.13	8	Partially Open Joint / Fracture
181.5	196.03	8.52	7	Partially Open Joint / Fracture
182.2	126.11	62.44	19	Major Open Joint / Fracture
182.9	142.5	66.84	15	Major Open Joint / Fracture
183.9	175.84	9.78	15	Intermediate Open Joint/Fracture
184.7	150.29	12.68	0	Bedding / Banding / Foliation
185.2	140.17	12.42	12	Partially Open Joint / Fracture
185.3	141.08	13.86	0	Bedding / Banding / Foliation
185.8	169.78	10.27	0	Bedding / Banding / Foliation
186.0	164.95	9.81	0	Bedding / Banding / Foliation
186.5	173.6	12.98	0	Bedding / Banding / Foliation
187.0	109.42	13.27	0	Bedding / Banding / Foliation
187.6	147.44	60.54	6	Partially Open Joint / Fracture
188.3	143.11	16.55	11	Intermediate Open Joint/Fracture
188.7	158.24	15.09	11	Intermediate Open Joint/Fracture
189.5	137.96	18.64	7	Minor Open Joint / Fracture

WELL SGPP MWBR-2

STRUCTURE DATA

Depth ft	Azimuth deg	Dip deg	Aperture mm	Structure type
190.5	109.83	66.87	11	Partially Open Joint / Fracture
191.9	156.73	18.05	0	Bedding / Banding / Foliation
192.3	152.43	16.19	0	Bedding / Banding / Foliation
193.7	339.54	77.39	10	Partially Open Joint / Fracture
194.8	144.58	18.72	12	Partially Open Joint / Fracture
195.2	107.65	57.96	6	Partially Open Joint / Fracture
196.2	343.51	76.57	8	Intermediate Open Joint/Fracture
196.9	347.7	78.53	8	Intermediate Open Joint/Fracture
197.3	123.53	24.48	0	Bedding / Banding / Foliation
197.6	127.56	16.25	0	Bedding / Banding / Foliation
197.7	136.54	20.12	0	Bedding / Banding / Foliation
198.1	136.98	22.33	0	Bedding / Banding / Foliation
198.3	140.38	15.39	0	Bedding / Banding / Foliation
198.5	127.88	62.53	3	Partially Open Joint / Fracture
198.7	322.36	73.09	1	Partially Open Joint / Fracture
198.7	142.05	18.26	0	Bedding / Banding / Foliation
198.9	154.1	14.38	0	Bedding / Banding / Foliation
199.2	137.25	21.3	11	Intermediate Open Joint/Fracture
199.4	140.47	21.42	0	Bedding / Banding / Foliation
199.7	138.57	21.94	0	Bedding / Banding / Foliation
199.9	128.12	12.73	0	Bedding / Banding / Foliation
200.5	129.16	14.59	0	Bedding / Banding / Foliation
200.8	148.36	11.8	0	Bedding / Banding / Foliation
201.2	126.15	10.18	123	Weak Zone / Undifferentiated
201.5	305.63	83.41	5	Partially Open Joint / Fracture
202.5	312.12	76.94	8	Partially Open Joint / Fracture
203.6	150.18	7.05	182	Weak Zone / Undifferentiated
204.1	159.48	3.92	36	Intermediate Open Joint/Fracture
205.0	318.51	76.09	9	Partially Open Joint / Fracture
205.6	331.51	75.47	9	Partially Open Joint / Fracture
207.1	8.34	68.48	10	Partially Open Joint / Fracture
207.7	119.33	37.45	6	Partially Open Joint / Fracture
208.8	309.58	85.05	4	Partially Open Joint / Fracture
209.2	169.78	48.95	16	Partially Open Joint / Fracture
210.3	127.77	80.72	4	Partially Open Joint / Fracture
212.5	100.57	38.56	9	Partially Open Joint / Fracture
213.0	327.52	56.52	5	Partially Open Joint / Fracture
213.0	139.76	38.47	7	Partially Open Joint / Fracture
213.6	314.46	52.03	6	Partially Open Joint / Fracture
214.1	306.04	66.62	14	Partially Open Joint / Fracture
214.5	329.73	72.55	5	Partially Open Joint / Fracture
215.1	4.8	70.01	10	Partially Open Joint / Fracture
215.5	113.15	43.6	9	Partially Open Joint / Fracture
215.7	311.32	80.78	4	Partially Open Joint / Fracture
215.7	161.93	50.21	17	Partially Open Joint / Fracture
217.5	307.11	82.74	6	Intermediate Open Joint/Fracture
218.0	155.31	22.69	10	Partially Open Joint / Fracture
218.7	146.4	24.72	0	Bedding / Banding / Foliation
218.8	143.48	30.48	0	Bedding / Banding / Foliation
219.5	117.23	19.47	0	Bedding / Banding / Foliation
221.5	133.57	11.58	0	Bedding / Banding / Foliation
221.7	129.34	10.78	0	Bedding / Banding / Foliation
222.4	138.99	13.35	0	Bedding / Banding / Foliation
222.9	133.13	17.65	0	Bedding / Banding / Foliation
223.0	129.51	16.36	0	Bedding / Banding / Foliation
223.2	306.54	78.46	3	Partially Open Joint / Fracture
223.2	130.2	24.6	0	Bedding / Banding / Foliation
223.4	134.64	24.49	0	Bedding / Banding / Foliation
223.8	134.37	17.85	0	Bedding / Banding / Foliation
224.5	140.23	7.82	0	Bedding / Banding / Foliation
224.6	128.29	10.06	0	Bedding / Banding / Foliation
225.2	146.16	15.85	0	Bedding / Banding / Foliation
225.2	1.17	57.48	4	Partially Open Joint / Fracture
225.8	2.32	64.76	4	Partially Open Joint / Fracture
225.9	86.57	71.49	4	Partially Open Joint / Fracture
226.0	258.07	70.21	6	Partially Open Joint / Fracture
227.9	141.93	16.04	0	Bedding / Banding / Foliation
228.7	128.07	12.7	0	Bedding / Banding / Foliation
229.0	317.17	81.35	4	Partially Open Joint / Fracture
229.0	103.28	16.25	0	Bedding / Banding / Foliation

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STRUCTURE DATA

Depth ft	Azimuth deg	Dip deg	Aperture mm	Structure type
229.2	136.21	12.68	0	Bedding / Banding / Foliation
229.7	131.27	16.84	0	Bedding / Banding / Foliation
230.0	129.97	21.39	0	Bedding / Banding / Foliation
230.4	126.7	14.68	0	Bedding / Banding / Foliation
230.7	174.84	15.25	6	Partially Open Joint / Fracture
231.4	110.21	18.61	0	Bedding / Banding / Foliation
231.5	119.33	14.07	0	Bedding / Banding / Foliation
231.9	316.3	72.04	2	Partially Open Joint / Fracture
232.0	130.69	19.45	4	Minor Open Joint / Fracture
233.1	20.79	70.08	20	Major Open Joint / Fracture
233.6	3.04	73.28	16	Major Open Joint / Fracture
234.0	309.63	85.66	5	Partially Open Joint / Fracture
235.2	292	66.54	0	Bedding / Banding / Foliation
235.5	298.09	61.17	0	Bedding / Banding / Foliation
236.1	132.72	40.49	5	Partially Open Joint / Fracture
236.3	303.86	49.44	5	Partially Open Joint / Fracture
236.4	96.27	63.45	4	Partially Open Joint / Fracture
237.2	125.3	65.53	4	Partially Open Joint / Fracture
237.4	135.5	55.82	6	Partially Open Joint / Fracture
239.0	175.76	8.39	9	Minor Open Joint / Fracture
239.2	116.97	14.88	6	Minor Open Joint / Fracture
239.5	310.16	81.58	6	Partially Open Joint / Fracture
240.7	293.48	58.06	7	Filled Fracture / Joint
240.9	301.16	77.52	5	Partially Open Joint / Fracture
241.0	139.97	7.87	0	Bedding / Banding / Foliation
241.7	161.16	9.22	8	Partially Open Joint / Fracture
242.2	151.92	25.52	66	Weak Zone / Undifferentiated
242.5	143.96	16	0	Bedding / Banding / Foliation
243.2	81.68	60.38	9	Partially Open Joint / Fracture
243.5	146.44	15.72	0	Bedding / Banding / Foliation
243.7	153.7	11.34	0	Bedding / Banding / Foliation
244.0	151.9	11.88	0	Bedding / Banding / Foliation
245.3	311.49	84.51	5	Partially Open Joint / Fracture
245.5	310.95	83.1	6	Partially Open Joint / Fracture
245.5	144.59	26.05	7	Partially Open Joint / Fracture
245.9	307.63	76.95	8	Partially Open Joint / Fracture
246.0	188.6	5.14	8	Partially Open Joint / Fracture
246.3	310.43	80.13	5	Partially Open Joint / Fracture
246.6	311.27	78.54	7	Partially Open Joint / Fracture
247.6	120.55	12.65	0	Bedding / Banding / Foliation
247.7	118.07	10.16	0	Bedding / Banding / Foliation
247.8	306.19	74.5	5	Partially Open Joint / Fracture
248.0	307.55	76.63	4	Partially Open Joint / Fracture
248.0	127.34	11.32	0	Bedding / Banding / Foliation
249.8	316.87	82.33	4	Partially Open Joint / Fracture
250.2	309.82	83.53	3	Partially Open Joint / Fracture
250.7	98.68	16.93	0	Bedding / Banding / Foliation
251.1	165.62	6.59	10	Partially Open Joint / Fracture
251.3	124.19	13.34	4	Minor Open Joint / Fracture
251.5	7.77	59.68	4	Partially Open Joint / Fracture
251.9	11.4	67.46	2	Partially Open Joint / Fracture
252.0	136.4	10.6	10	Minor Open Joint / Fracture
252.3	140.81	10.68	0	Bedding / Banding / Foliation
252.6	172.14	17.89	0	Bedding / Banding / Foliation
252.7	356.09	67.84	4	Partially Open Joint / Fracture
253.0	12.82	72.94	4	Partially Open Joint / Fracture
253.2	35.05	62.37	5	Partially Open Joint / Fracture
253.4	321.27	70.57	6	Partially Open Joint / Fracture
253.6	156.33	7.59	5	Minor Open Joint / Fracture
254.2	161.18	11.44	13	Minor Open Joint / Fracture
254.3	166.68	6.8	10	Partially Open Joint / Fracture
254.5	232.08	7.16	6	Minor Open Joint / Fracture
254.6	130.34	55.08	3	Minor Open Joint / Fracture
254.7	143.95	6.38	0	Bedding / Banding / Foliation
254.8	160.27	10.96	4	Minor Open Joint / Fracture
255.3	162.2	19.38	0	Bedding / Banding / Foliation
256.0	91.4	18.98	61	Partially Open Joint / Fracture
256.3	105.27	17.58	0	Bedding / Banding / Foliation
256.4	117.31	17.36	0	Bedding / Banding / Foliation
256.6	125.03	15.84	0	Bedding / Banding / Foliation

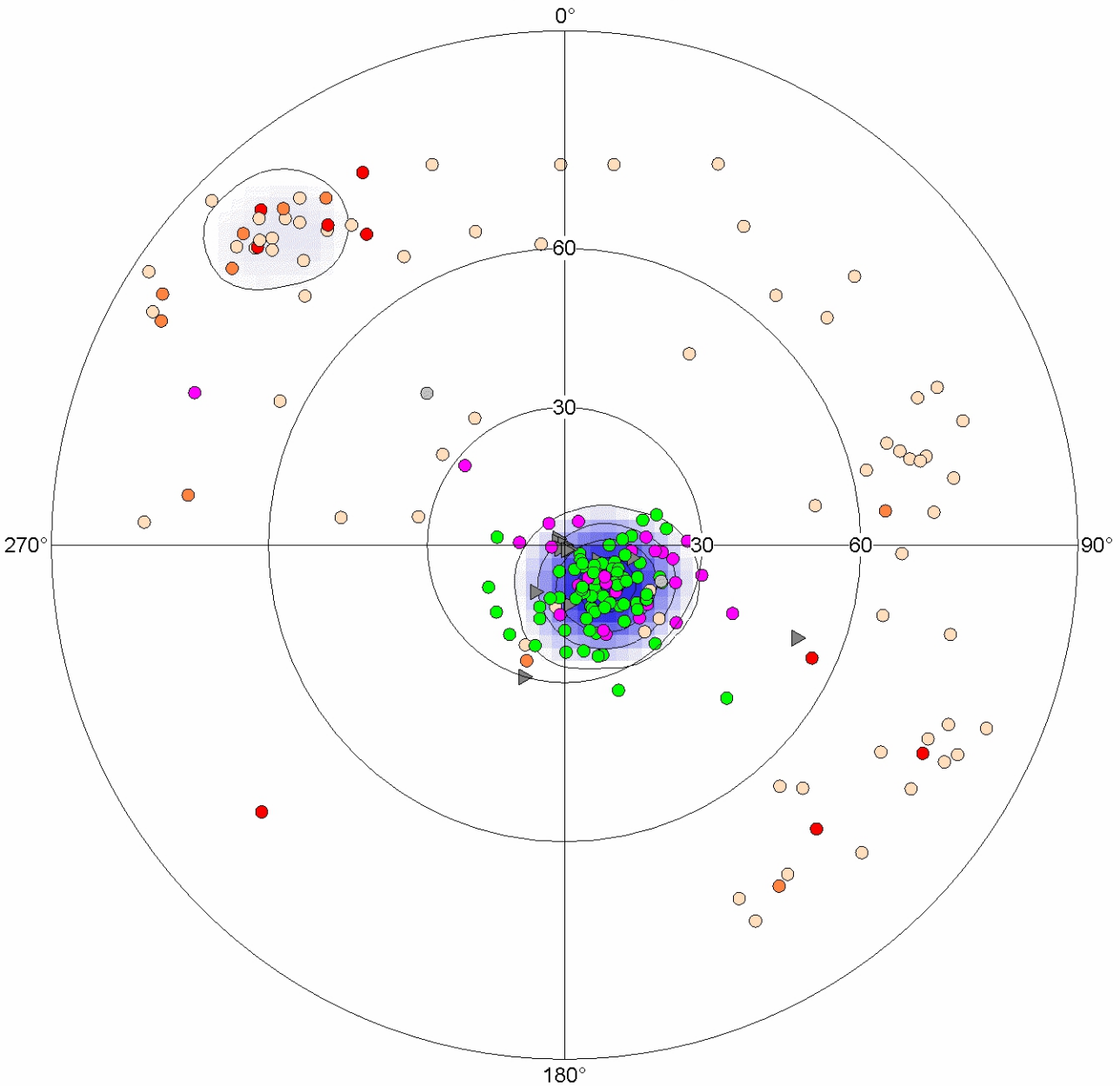
WELL SGPP MWBR-2

STRUCTURE DATA

Depth ft	Azimuth deg	Dip deg	Aperture mm	Structure type
256.9	105.62	17.95	0	Bedding / Banding / Foliation
257.2	97.76	21.72	19	Filled Fracture / Joint
257.5	137.59	33.09	0	Bedding / Banding / Foliation
257.7	130.66	32.82	0	Bedding / Banding / Foliation
258.0	136.58	23.09	13	Filled Fracture / Joint
258.2	129	24.7	14	Filled Fracture / Joint
258.4	137.5	24.21	0	Bedding / Banding / Foliation
258.6	130.6	23.81	0	Bedding / Banding / Foliation
258.8	142.23	19.83	0	Bedding / Banding / Foliation
258.9	131.87	19.78	0	Bedding / Banding / Foliation
258.9	129.43	70.49	2	Partially Open Joint / Fracture
259.1	125.26	17.01	0	Bedding / Banding / Foliation
259.5	301.25	72.43	6	Partially Open Joint / Fracture
259.5	141.07	23.26	0	Bedding / Banding / Foliation
259.6	143.84	22	6	Minor Open Joint / Fracture
259.9	131.41	21.38	12	Partially Open Joint / Fracture
260.0	122.42	23.41	4	Minor Open Joint / Fracture
260.5	320.4	73.27	4	Minor Open Joint / Fracture
260.6	123.1	31.49	0	Bedding / Banding / Foliation
260.7	129.36	30.3	6	Partially Open Joint / Fracture
260.9	121.29	37.33	0	Bedding / Banding / Foliation
261.4	122	41.81	8	Partially Open Joint / Fracture
262.6	314.1	3.6	694	Weak Zone / Undifferentiated

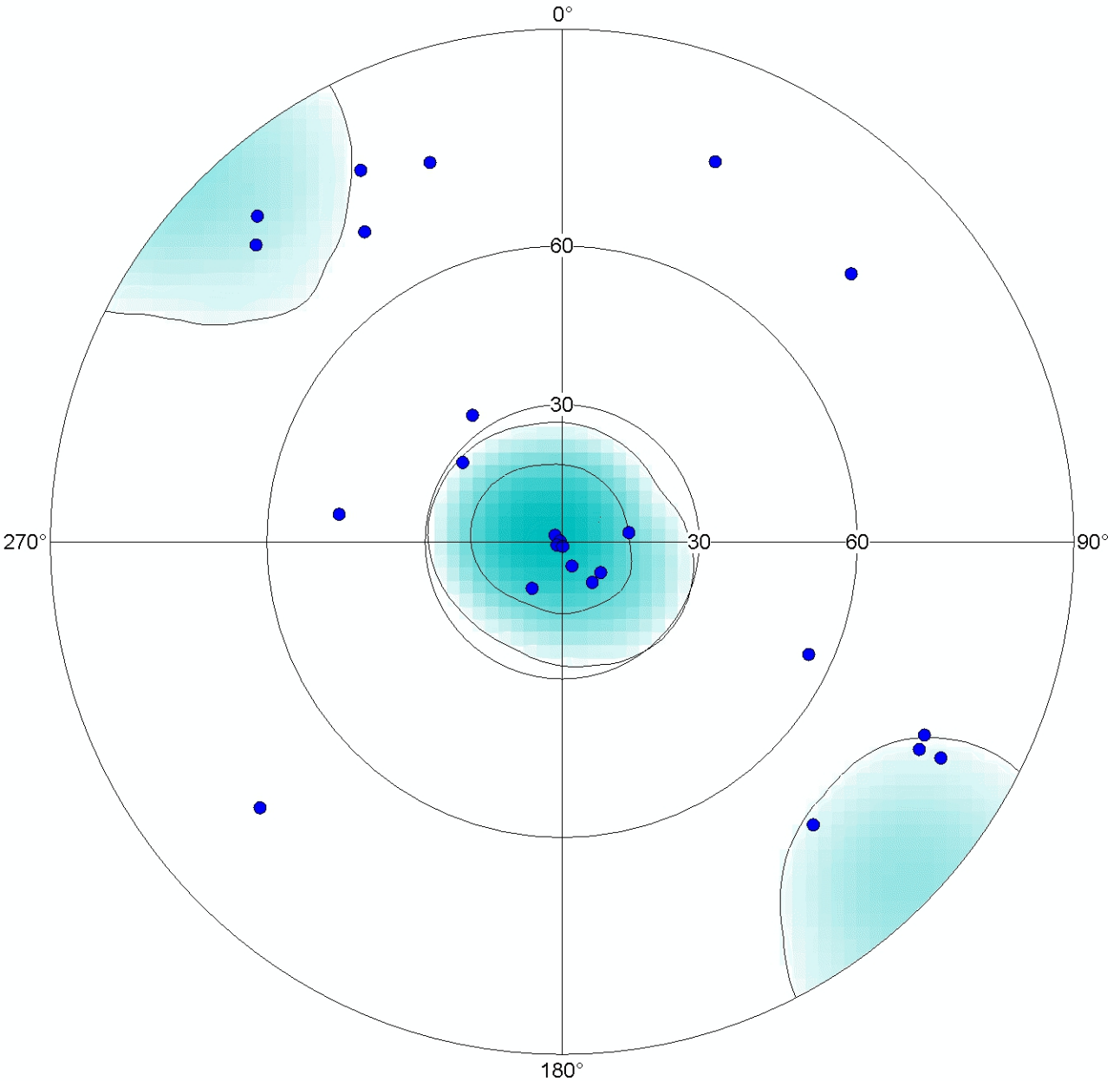
SG3-MW17-BR3

Wulff Plot - UH - All Structures
Depth: 114.00 [ft] to 273.00 [ft]



	Counts	Dip[deg]	Azi[deg]
Mean	204	38.34	125.18
○	67	68.06	39.43
○	27	20.34	122.78
○	75	16.31	141.08
○	10	73.66	299.54
▶	14	10.47	176.38
○	9	74.60	321.20
○	2	33.15	34.17

Wulff Plot - UH - Water Bearing Structures
Depth: 114.00 [ft] to 273.00 [ft]



	Counts	Dip[deg]	Azi[deg]
Mean	25	46.59	302.70
●	25	46.59	302.70

REALtime Aquifer Services

Geophysical log of SG3-MW17-BR3

CSM Investigation **Bennington, VT**

Saint-Gobain Performance Plastics

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	SERVICE COMP.: **RAS**
PROJECT:	**45021004.00**	LATITUDE (DEG)	**N/A**	DRILL START DATE: **N/A**	WELL AZIM (deg): **VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**N/A**	DRILL END DATE: **N/A**	WELL INCL (deg): **VERTICAL**
STATE	**VERMONT**	ELEVATION (FT):	**N/A**	RIG NUMBER: **N/A**	

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)

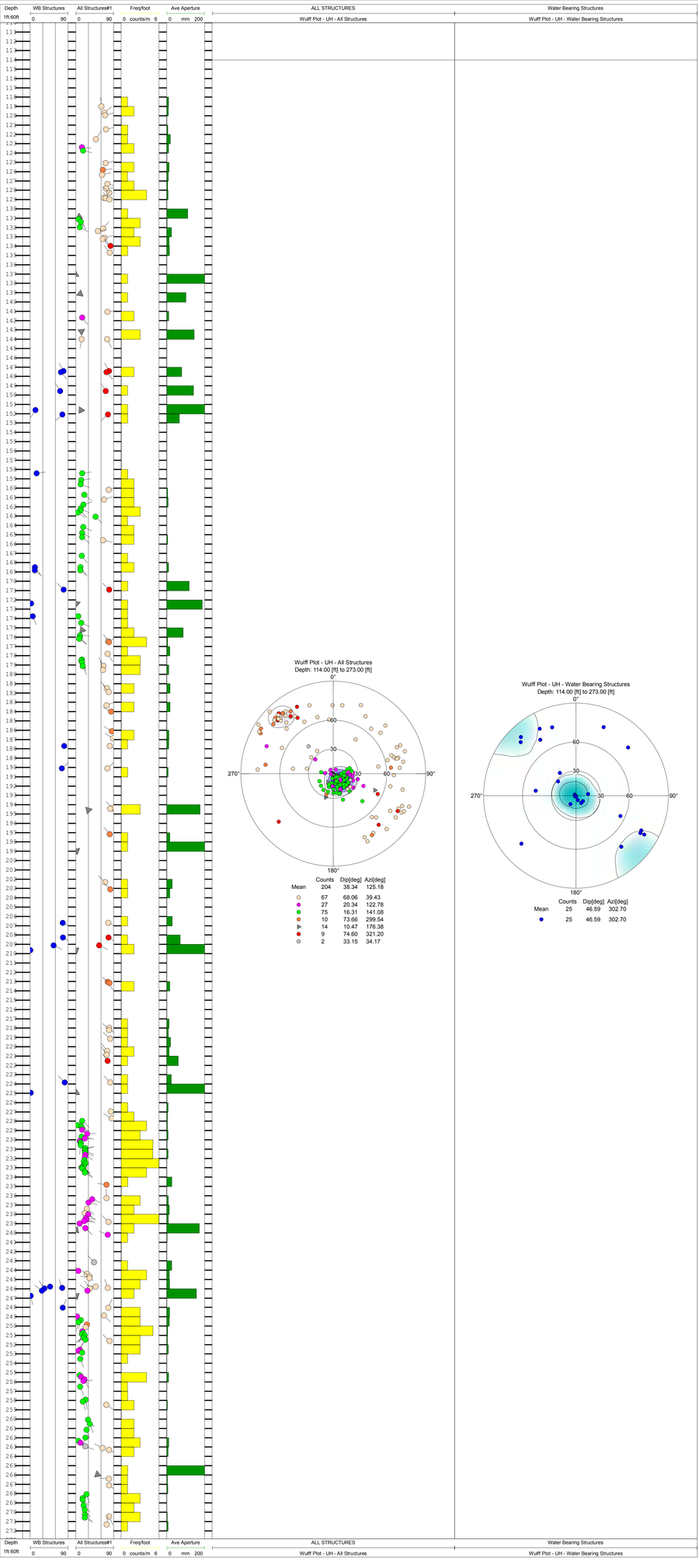
REMARKS

MAGNETIC DECLINATION: N/A
RECORDED BY:
LOGGER TD:
DRILLER TD:

LEGEND

GEOLOGICAL STRUCTURE

Weak Zone / Undifferentiated
Major Open Joint / Fracture
Intermediate Open Joint/Fracture
Minor Open Joint / Fracture
Partially Open Joint / Fracture
Filled Fracture / Joint
Bedding / Banding / Foliation
Induced Fracture
Water Bearing Fracture/Joint



	Counts	Dip[deg]	Azi[deg]
Mean	204	38.34	125.18
	67	68.06	39.43
	27	20.34	122.78
	75	16.31	141.08
	10	73.66	299.54
	14	10.47	176.38
	9	74.60	321.20
	2	33.15	34.17

	Counts	Dip[deg]	Azi[deg]
Mean	25	46.59	302.70
	25	46.59	302.70

WELL SGPP MWBR-3

STRUCTURE DATA

Depth	Azimuth	Dip	Aperture	Structure type
ft	deg	deg	mm	
119.0	355.49	60.87	9	Partially Open Joint / Fracture
119.7	49.15	68.15	8	Partially Open Joint / Fracture
119.9	75.96	69.41	8	Partially Open Joint / Fracture
121.5	76.17	71.92	5	Partially Open Joint / Fracture
122.5	33.2	47.95	19	Partially Open Joint / Fracture
123.4	95.44	14.97	17	Minor Open Joint / Fracture
123.8	103.25	17.3	0	Bedding / Banding / Foliation
125.1	76.71	70.89	7	Partially Open Joint / Fracture
125.8	83.93	64.36	15	Intermediate Open Joint/Fracture
126.3	75.99	62.48	8	Partially Open Joint / Fracture
127.3	103.06	75.28	3	Partially Open Joint / Fracture
127.8	84.88	71.66	5	Partially Open Joint / Fracture
128.3	313.76	79.7	3	Partially Open Joint / Fracture
128.8	91.47	66.62	7	Partially Open Joint / Fracture
128.8	29.37	70.9	7	Partially Open Joint / Fracture
129.0	319.4	79.88	6	Partially Open Joint / Fracture
130.8	115.51	8.06	110	Weak Zone / Undifferentiated
131.1	138.02	6.5	0	Bedding / Banding / Foliation
131.4	145.87	12.31	0	Bedding / Banding / Foliation
132.0	116.67	9.37	0	Bedding / Banding / Foliation
132.1	40.26	64.98	33	Partially Open Joint / Fracture
132.4	80.95	52.63	16	Partially Open Joint / Fracture
133.1	74.37	68.3	11	Partially Open Joint / Fracture
133.2	138.25	64.39	3	Partially Open Joint / Fracture
134.0	317.81	82.73	21	Major Open Joint / Fracture
134.7	322.58	80.71	13	Partially Open Joint / Fracture
137.1	0	0	479	Weak Zone / Undifferentiated
139.1	128.14	10.45	100	Weak Zone / Undifferentiated
141.1	80.24	75.16	8	Partially Open Joint / Fracture
141.7	141.15	15.12	12	Minor Open Joint / Fracture
143.2	176.51	13.27	397	Weak Zone / Undifferentiated
144.0	188.96	13.87	27	Partially Open Joint / Fracture
144.0	153.69	75	7	Partially Open Joint / Fracture
147.4	331.47	79	40	Major Open Joint / Fracture
147.5	138.34	72.98	117	Major Open Joint / Fracture
149.6	327.4	71.31	141	Major Open Joint / Fracture
151.6	212.99	12.46	3525	Weak Zone / Undifferentiated
152.1	228.69	76.34	66	Major Open Joint / Fracture
158.4	82	15.11	0	Bedding / Banding / Foliation
159.1	83.63	12.93	0	Bedding / Banding / Foliation
159.6	109.25	11.8	0	Bedding / Banding / Foliation
160.2	72.64	78.23	7	Partially Open Joint / Fracture
160.7	128.68	20.58	0	Bedding / Banding / Foliation
161.2	72.44	66.77	13	Partially Open Joint / Fracture
161.8	72.19	18.26	0	Bedding / Banding / Foliation
162.2	116.62	11.92	0	Bedding / Banding / Foliation
162.4	136.06	11.4	0	Bedding / Banding / Foliation
162.7	120.41	3.99	0	Bedding / Banding / Foliation
163.1	133.28	46.99	0	Bedding / Banding / Foliation
164.2	113.94	17.69	0	Bedding / Banding / Foliation
164.8	119.25	15.11	0	Bedding / Banding / Foliation
165.3	128.82	15	0	Bedding / Banding / Foliation
165.6	102.53	64.8	7	Partially Open Joint / Fracture
167.3	142.95	14.41	0	Bedding / Banding / Foliation
168.5	143.64	11.35	0	Bedding / Banding / Foliation
168.8	128.73	11.07	0	Bedding / Banding / Foliation
170.9	314.07	79.58	118	Major Open Joint / Fracture
172.4	311.7	2.2	186	Weak Zone / Undifferentiated
173.8	156.93	5.92	0	Bedding / Banding / Foliation
174.5	114.03	13.23	0	Bedding / Banding / Foliation
175.3	100.65	15.25	171	Weak Zone / Undifferentiated
175.8	90.24	10.05	0	Bedding / Banding / Foliation
176.1	137.63	10.19	0	Bedding / Banding / Foliation
176.2	124.67	8.07	0	Bedding / Banding / Foliation
176.4	67.08	76.49	4	Partially Open Joint / Fracture
176.5	325.45	78.69	11	Intermediate Open Joint/Fracture
177.8	145.81	75.45	16	Partially Open Joint / Fracture
178.4	156.53	14.96	0	Bedding / Banding / Foliation
178.5	151.78	12.94	0	Bedding / Banding / Foliation

WELL SGPP MWBR-3

STRUCTURE DATA

Depth	Azimuth	Dip	Aperture	Structure type
ft	deg	deg	mm	
178.7	156.58	15.38	0	Bedding / Banding / Foliation
179.1	330.83	65.53	12	Partially Open Joint / Fracture
179.1	155.54	16.33	0	Bedding / Banding / Foliation
179.5	344.09	64.79	16	Partially Open Joint / Fracture
181.5	317.37	73.87	15	Partially Open Joint / Fracture
181.9	320.54	78.19	18	Partially Open Joint / Fracture
183.3	67.4	73.35	14	Partially Open Joint / Fracture
184.0	298.98	83.93	19	Intermediate Open Joint/Fracture
186.1	301.91	85.46	10	Intermediate Open Joint/Fracture
186.9	303.29	88.26	11	Partially Open Joint / Fracture
187.7	119.65	80.87	10	Partially Open Joint / Fracture
190.1	47.26	75.19	7	Partially Open Joint / Fracture
194.4	314.21	87.68	7	Partially Open Joint / Fracture
194.4	118.04	81.87	23	Partially Open Joint / Fracture
194.6	197.62	30.05	496	Weak Zone / Undifferentiated
197.2	320.06	81.03	16	Intermediate Open Joint/Fracture
198.9	292.4	2	1710	Weak Zone / Undifferentiated
202.3	313.79	70.07	28	Partially Open Joint / Fracture
203.1	314.05	82.13	16	Intermediate Open Joint/Fracture
206.7	118.07	77.54	28	Partially Open Joint / Fracture
208.3	120.16	77.84	70	Major Open Joint / Fracture
209.1	114.54	55.82	114	Major Open Joint / Fracture
209.6	290.4	0.6	2518	Weak Zone / Undifferentiated
213.0	147.81	76.22	17	Intermediate Open Joint/Fracture
213.1	309.71	80.19	14	Intermediate Open Joint/Fracture
218.0	135.96	79.57	12	Partially Open Joint / Fracture
218.2	316.29	79.08	8	Partially Open Joint / Fracture
219.1	312.23	81.61	19	Partially Open Joint / Fracture
220.5	322.94	75	14	Partially Open Joint / Fracture
220.9	326.25	73.65	10	Partially Open Joint / Fracture
221.5	323.41	75.55	60	Major Open Joint / Fracture
223.8	316.81	82.13	23	Partially Open Joint / Fracture
224.9	237.4	1.4	1180	Weak Zone / Undifferentiated
227.0	113.46	83.69	6	Partially Open Joint / Fracture
227.7	299.52	85.34	5	Partially Open Joint / Fracture
228.0	130.34	15.24	0	Bedding / Banding / Foliation
228.4	132.93	4.82	0	Bedding / Banding / Foliation
228.6	117.74	13.25	0	Bedding / Banding / Foliation
228.8	123.5	15.05	0	Bedding / Banding / Foliation
228.9	132.21	15.41	12	Minor Open Joint / Fracture
229.3	87.91	26.96	5	Minor Open Joint / Fracture
229.7	99.77	13.72	0	Bedding / Banding / Foliation
229.8	94.24	21.66	12	Minor Open Joint / Fracture
230.1	161	9.56	7	Minor Open Joint / Fracture
230.3	157.89	11.5	0	Bedding / Banding / Foliation
230.4	167.78	12.18	0	Bedding / Banding / Foliation
230.6	186.37	11.75	0	Bedding / Banding / Foliation
230.9	80.58	22.77	0	Bedding / Banding / Foliation
231.1	71.5	21.41	0	Bedding / Banding / Foliation
231.2	111.01	22.97	0	Bedding / Banding / Foliation
231.4	108.86	22.28	0	Bedding / Banding / Foliation
231.6	125.64	22.49	13	Minor Open Joint / Fracture
231.8	154.86	21.74	15	Minor Open Joint / Fracture
232.1	160.37	20.71	0	Bedding / Banding / Foliation
232.3	179.98	18.98	0	Bedding / Banding / Foliation
232.5	179.05	23.53	0	Bedding / Banding / Foliation
232.7	163.5	19.78	0	Bedding / Banding / Foliation
232.8	138.07	18.28	0	Bedding / Banding / Foliation
233.0	126.68	13.91	0	Bedding / Banding / Foliation
233.0	127.65	14.76	0	Bedding / Banding / Foliation
233.1	120.39	15.95	0	Bedding / Banding / Foliation
233.4	123.94	21.74	0	Bedding / Banding / Foliation
233.5	123.6	21.75	0	Bedding / Banding / Foliation
234.8	277.59	73.04	26	Intermediate Open Joint/Fracture
236.3	359.35	73.04	5	Partially Open Joint / Fracture
236.4	112.04	38.99	10	Minor Open Joint / Fracture
236.7	102.65	30.63	9	Minor Open Joint / Fracture
237.4	127.89	26.41	13	Partially Open Joint / Fracture
237.9	118.07	21.44	12	Partially Open Joint / Fracture
238.0	124.7	29.7	8	Minor Open Joint / Fracture

WELL SGPP MWBR-3

STRUCTURE DATA

Depth	Azimuth	Dip	Aperture	Structure type
ft	deg	deg	mm	
238.4	97.55	24.07	11	Minor Open Joint / Fracture
238.6	108.82	25.8	9	Minor Open Joint / Fracture
238.7	93.84	20.06	8	Minor Open Joint / Fracture
238.8	315.21	77.94	3	Partially Open Joint / Fracture
239.0	144.03	9.14	10	Minor Open Joint / Fracture
239.5	134.41	23.05	8	Minor Open Joint / Fracture
239.7	136.9	1.4	334	Weak Zone / Undifferentiated
240.2	292.4	75.92	1	Minor Open Joint / Fracture
243.1	317.76	43.58	25	Filled Fracture / Joint
244.1	324.47	6.11	7	Minor Open Joint / Fracture
244.4	137.26	26.01	9	Partially Open Joint / Fracture
244.7	306.57	33.05	10	Partially Open Joint / Fracture
244.9	281.07	32.42	24	Partially Open Joint / Fracture
245.8	277.17	47.47	15	Partially Open Joint / Fracture
245.9	340.74	76.19	8	Partially Open Joint / Fracture
246.0	324.55	33.72	19	Partially Open Joint / Fracture
246.2	308.52	27.89	9	Minor Open Joint / Fracture
246.8	167.2	1.2	303	Weak Zone / Undifferentiated
248.0	21.99	77.29	16	Partially Open Joint / Fracture
248.9	135.59	67.1	11	Partially Open Joint / Fracture
249.0	261.6	3.03	15	Minor Open Joint / Fracture
249.4	195.18	12.37	0	Bedding / Banding / Foliation
249.6	192.13	6.08	0	Bedding / Banding / Foliation
249.8	198.4	26.68	37	Intermediate Open Joint/Fracture
250.1	201.62	23.59	10	Partially Open Joint / Fracture
250.6	183.88	15.51	11	Minor Open Joint / Fracture
250.7	198.87	17.28	0	Bedding / Banding / Foliation
250.9	202.2	14.82	0	Bedding / Banding / Foliation
251.0	225.41	21.19	0	Bedding / Banding / Foliation
251.3	240.99	19.28	0	Bedding / Banding / Foliation
251.5	211.66	23.18	0	Bedding / Banding / Foliation
251.6	314.88	80.05	8	Partially Open Joint / Fracture
252.5	273.9	10.21	19	Minor Open Joint / Fracture
252.7	30.83	6.24	3	Minor Open Joint / Fracture
252.9	276.91	15.17	0	Bedding / Banding / Foliation
253.5	159.03	10.68	0	Bedding / Banding / Foliation
255.3	134.03	8.98	0	Bedding / Banding / Foliation
255.4	132.57	12.57	12	Minor Open Joint / Fracture
255.7	155.6	20.82	10	Minor Open Joint / Fracture
255.9	84.18	18.12	13	Minor Open Joint / Fracture
256.5	157.23	10.23	0	Bedding / Banding / Foliation
257.9	169.81	23.68	0	Bedding / Banding / Foliation
258.1	163.2	17.07	0	Bedding / Banding / Foliation
258.5	123.14	72.75	6	Partially Open Joint / Fracture
260.1	137.39	29.21	0	Bedding / Banding / Foliation
260.5	159.47	33.56	0	Bedding / Banding / Foliation
261.1	160.79	25.47	0	Bedding / Banding / Foliation
262.0	196.46	23.15	0	Bedding / Banding / Foliation
262.3	136.63	5.79	0	Bedding / Banding / Foliation
262.6	128.48	11.45	17	Minor Open Joint / Fracture
262.9	110.59	22.72	13	Filled Fracture / Joint
263.1	296.82	63.79	7	Partially Open Joint / Fracture
263.3	115.04	79.04	6	Partially Open Joint / Fracture
266.0	111.74	51.87	263	Weak Zone / Undifferentiated
266.4	273.2	78.73	3	Partially Open Joint / Fracture
267.1	125.1	79.08	4	Partially Open Joint / Fracture
268.1	163.02	25.57	0	Bedding / Banding / Foliation
268.5	141.81	16.36	0	Bedding / Banding / Foliation
268.7	147.25	16.52	0	Bedding / Banding / Foliation
269.3	135.08	18.53	0	Bedding / Banding / Foliation
269.8	141.84	21.45	0	Bedding / Banding / Foliation
270.3	131.39	21.57	0	Bedding / Banding / Foliation
270.4	153.01	78.72	6	Partially Open Joint / Fracture
270.6	120.93	21.22	0	Bedding / Banding / Foliation
271.3	7.48	73.44	6	Partially Open Joint / Fracture

Appendix C

Technical Procedures

DRAFT

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Wireline Straddle Packer for Aquifer Characterization

TP 5

Prepared by: William H. Pedler Date: 11-20-2006

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP 5
Revision History

Revision Level	Issue Date	Change Summary
0	5/2000	New procedure.
1	7/8/2002	Initial revisions for Wireline Straddle Packer
2	1/2/2003	Revisions for fluid extraction testing and sampling
3	7/27/04	Considerations when using pipe for discharge, heavy packer
4	11/20/06	Correction to Hvorslev Equation
5	9/15/2014	Review and modifications to methods and analysis

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1.0 SCOPE

1.1 Background

Packer testing is an integral part of the hydraulic characterization program. This program is intended to provide the data necessary to build both discrete feature and continuum simulations of the groundwater flow system.

The identification of conducting features and the characterization their properties is critical to building these models. A feature is any geologic entity which conducts water preferentially over its surrounding materials. Features may reflect a diversity of geologic origin including individual strata (as in a classic confined aquifer), single fractures, fracture zones, fault zones, or sedimentary subunits (e.g. coarse clastic channels).

Hydraulic characterization of boreholes has several four major components, including:

- Flow logging to identify conductive features and provide approximate information on their conductive properties;
- Borehole geophysics and imaging to assist in understanding the geologic nature of the conductive feature (stratigraphic, lithologic, or structural);
- Packer testing to measure the conductive properties of the feature and infer information on its hydraulic geometry.

This procedure describes the packer testing component of the program. The definition of packer testing for this work is simply any hydraulic test that isolates a portion of a borehole for testing using packers. Packers are inflatable glands which achieve a temporary, local isolation of a feature identified by flow logging. Once the packers isolate a section of borehole, the hydraulic test then consists of withdrawing or injecting water from the interval and observing the pressure responses. A single-well packer test is one which measures pressure responses only in the pumping well. A test which monitors pressure in other boreholes is a multi-well or interference test.

There are many variations on packer testing depending on the manner of injection or withdrawal. All methods, however, have a common basis for analysis in the diffusion equation of groundwater flow. The knowledge of total mass and rate of water injection or withdrawal is necessary to interpret hydraulic information from the pressure responses. Although constant rates or constant pressures of pumping are desirable, some form

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of test analysis is possible as long as the experiment includes careful measurement of both flow rates and pressures.

1.2 Purpose

The objective of packer testing is a determination of hydraulic properties.

The hydraulic properties reflect both flow capacity and the storage capacity of the features. *Transmissivity* (L^2/T) and *storativity* (dimensionless) are properties of the feature as a whole. *Hydraulic conductivity* (L/T) and *specific storage* (1/L) are properties of the materials within the feature.

1.3 Analysis Methods <<***to be revised as appropriate for testing procedures***>

Analysis of the pressure and flow data from the wireline straddle packer by one or more of the following methods:

Hvorslev Falling Head Analysis – This approach (Hvorslev, 1951) was applied to data collected during falling head data where sufficient recovery was observed (at least 50% recovery).

$$K = \frac{r^2 \ln(L/R)}{2LT_o}$$

where: T is transmissivity, K is hydraulic conductivity, L the length of the tested interval, R is the radius of the tested interval, r is the radius of the fall pipe, and T_o is the time it takes the water level to fall or rise to 37 percent of the initial reading.

Permeameter Analysis – This approach (Fetter, 1980) was applied to data that was collected during falling head type tests and were the change in pressure during the test period was insufficient for application of Hvorslev's equation for falling head tests.

$$K = \frac{dt^2 L}{dc^2 t} \ln\left(\frac{ho}{h}\right)$$

where: *dt* and *dc* are the standpipe and borehole diameters; *L* is the length of the packed interval; *ho* and h, the initial and final head values and *t* the period of testing.

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Theim Analysis – This approach (Theim, 1906) was applied to data collected during constant injection testing. Two injection rates are typically conducted and the arithmetic mean of this analysis on each data set is reported.

$$T = KL = \frac{Q}{2\pi\Delta h_w} \ln \frac{r_e}{r_w}$$

where: T is transmissivity, K is hydraulic conductivity, L the length of the tested interval, r_w is the radius of the tested interval, r_e is the effective pumping radius, of the fall pipe, Δh_w is the differential pressure (injection minus formation) and Q the injection rate.

1.4 Applicability

The applicability of this procedure is governed by the following assumptions:

- All tests will be performed by methods which limit the injection of water into the rock in order to minimize alteration of water chemistry.
- Packer tests are only performed on higher conductivity features for which *wellbore storage* can be overcome within reasonable time periods (thirty minutes or less). The hydraulic properties of lower conductivity features and materials are obtained from the flow logging.

Within these bounds, this procedure is applicable to constant rate pump tests and slug tests. Different types of packer testing may be required at later stages of the project; at such time necessary revisions and/or additions would be made to this procedure.

Constant-rate injection or pumping tests use either injection tubing or a submersible pump mounted in the packer interval or installed in the packer test piping to inject/produce water at a constant, or nearly constant rate. As discussed above, the pressure drawdown and the recovery after termination of injection/pumping provide a basis for test analysis.

Slug tests involve an instantaneous or rapid removal or introduction of a measured volume of water from or to the well. A PVC displacement slug or a bailer are common means of removing or introducing the water slug from or to the test piping.

The choice of constant rate injection/withdrawal or slug tests will depend on the expected transmissivity of the test zone as estimated from the flow logging of the borehole. Tests using either method will be analyzed for

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hydraulic property and geometry information. The transmissivity cutoffs for using constant rate withdrawal versus slug test will depend on expected information than can be obtained within a four-hour period of time. Longer tests may be performed to investigate major features (such as faults) or where interference monitoring is involved. The type of test selected for a particular interval of a borehole and guidance on the required test period durations will be given by a SWI which supplements this procedure.

2.0 REFERENCES

1) Theim, G. *Hydrolgische Methoden.* Leipzig: Gebhart, 1906, p 56.

2) Fetter, C.W., *Applied Hydrogeology*, Macmillan Publishing Co., 1988, p 129.

3) Hvorslev, M.J., (1951) *Time Lag and Soil Permeability in Ground Water Observations,* Waterways Experimental Station, Corps. Of Engineers, US Army.

3.0 DEFINITIONS

Packer Testing: Any hydraulic test that isolates a portion of a borehole for testing using packers. Packers are inflatable glands which achieve a temporary, local isolation of an interval of a borehole.

Packer Test Program: A series of packer tests completed in one or more boreholes during a specific time period.

Hydrophysical Logging: The use of DI water and fluid electrical conductivity logging to identify conductive features and provide approximate information on their conductive properties.

Pressure Transducer: A device which converts the pressure exerted on the transducer to an electronic signal (e.g. voltage, current or frequency). The electronic signal can be measured by a Data Logging System and by the use of appropriate calibration constants be converted into the pressure exerted on the transducer.

Flowmeter: A device which converts a volumetric (e.g. cubic meters per second) or mass (e.g. kilograms per second) flow rate passing through it into an electronic signal (e.g. voltage, current or frequency). The electronic signal can be measured by a Data Logging System and by the use of appropriate calibration constants be converted into the flow rate passing through the flowmeter.

Data Logging System: An automated data acquisition system capable of measuring the electronic signals generated by the pressure transducers and

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flowmeters and recording the value of the signals to an digital computer file. The system may allow control of the data acquisition rate, presentation of the data as printouts or graphs, downloading the data in a variety of units and formats and other ancillary functions.

Wireline or Drill Rods/Tubing: The means for lowering and raising the packer assembly in the borehole and containing the water level of the packered interval. Drill rods are threaded, steel rods normally used for drilling. Tubing also consists of threaded, steel tubes, however these are not necessarily used for drilling and may have special, more watertight threads than drill rods.

Packer Assembly: The various pieces of downhole equipment which are assembled together to create an assembly of two inflatable packers separated by perforated straddle pipe which can be used to isolate a length of borehole. The downhole equipment includes inflatable packers, perforated straddle pipe, subs, crossovers, inflation line and other equipment.

Electro-submersible Pump: A down hole pump powered by electricity to extract water from a borehole.

Water Level Measuring Device: An electronic water level sonde.

Bailer: A device for removing water from a borehole, drill rods or tubing. It consists of a hollow tube with a non-return valve (or similar) on the lower end such that water may flow up into the tube but not out of the bottom.

Field Analysis: The analysis of packer test data, on-site, during or soon after the packer test. The analysis may use a variety of analysis methods ranging from hand calculations or manual type curve matching through to the use of sophisticated computer analysis. The purpose of the analysis is to evaluate the quality of the data and derive early estimates of some parameters. Field analysis results for a packer test will be superseded at a later time by the results of a detailed evaluation and analysis.

4.0 REQUIREMENTS

4.1 Prerequisites

Prerequisites for packer testing :

- approved list of borehole intervals to be tested (selected from borehole logging information and other data review and analysis).
- Specific Work Instruction from the Geosciences Discipline Lead or his designee to the Packer Testing Field Team Leader. This work instruction will describe the implementation and other pertinent details of the planned testing program. This work instruction could include

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details of the operation of a specific piece of equipment (e.g. data logger, inflation pressures for packers etc.), specific time periods for each packer test (e.g. duration of constant rate pumping for each proposed test interval) or other information or instruction considered necessary by Geosciences Discipline Lead or his designee.

- tools, material and equipment necessary for the test as described below.

4.2 Tools, Material, Equipment

All pressure data will be collected using electronic pressure transducers and recorded using a data logging system. The transducers will be selected such that the range will not exceed eight times the expected maximum pressure. All pressure transducers will be calibrated to traceable standards as provided by the manufacturer. Pressure transducers will be located within the test interval to eliminate any frictional pressure loss effects in the measurements. Pressure transducers will be located above and below the test interval, in addition to the packered test section.

Flow rate measurements will be taken continuously during constant rate withdrawal tests. The flowmeters will be selected such that the flow is no more than 80% nor less than 10% of the full scale capacity of the meter. Flowmeters will have electronic readouts and will be continuously recorded with the pressure transducers using an automated data acquisition system. Flowmeters will be calibrated to traceable standards.

The expected flow rates for each test will be estimated on the basis of the hydrophysical logging results. Electro-submersible pumps will be selected which are suitable for the expected flow rates.

The required specification of the various pieces of testing equipment will be specified in procurement documents and/or SWI as necessary.

Equipment for constant rate testing :

- Wireline drawworks
- Wireline straddle packer assembly or pipe mounted packer assembly
- Injection line and flow regulation equipment
- pressure transducers
- flowmeters
- data logging system

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- water level measuring device
- stopwatch
- graduated cylinder or similar volume measuring device of suitable accuracy
- test data sheets and notebook

Equipment for slug tests:

- wireline system and drawworks
- wireline straddle packer assembly or pipe mounted packer assembly
- pressure transducers
- data logging system
- solid PVC slug of length and diameter appropriate for tubing diameter and rope (or bailer and rope)
- water level measuring device
- test data sheets and notebook

4.3 Precautions and Limits

The readings from pressure instruments will be checked against water level measurements at least once during each test as a check on instrument performance.

Digital Flow meters will be checked against flow measurement to a graduated cylinder or another known volume at least once prior to testing.

On-site analysis may be carried out to check that the collected data is appropriate for subsequent detailed analysis. The evaluation of the data based on this analysis may be used to make a decision to repeat a test on a specific borehole interval.

5.0 RESPONSIBILITIES

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6.0 DETAILED PROCEDURE

6.1 Constant Rate Withdrawal/Injection

In this procedure an electro-submersible pump is used to remove water from a packered interval of a borehole at a constant rate. For constant injection rate testing, a surface injection pump will be used. Measuring the changing pressure as the water is pumped out/in allows the collection of a dataset which can be analyzed as described in Sections 1.2 and 1.3 above.

The following is an outline of the procedures to be followed to conduct a constant rate withdrawal test. This will be supplemented by a Specific Work Instruction providing additional details on each particular packer test, as described in Section 4.1 above. Any deviations from this procedure or the specifications of the SWI shall be recorded by the Test Supervisor.

Constant rate withdrawal/injection test :

1. Record well number, time, and date; unlock any protective casing and clean out man-hole as necessary.

2. Obtain an accurate static water level measurement.

3. Down-hole packer assembly will be constructed. A function check of the pressure transducers and data logging system will be completed. Pressure testing of the packer assembly may be completed if appropriate. Additional systems checks once the packer assembly is submerged should be conducted (pump check, pressure transducer operation during descent, clear discharge/injection lines, packer inflation, data acquisition system, tool telemetry, etc.)

4. The packer assembly will be attached to wireline, airline and injection tubing and lowered to the required depth interval. If more than one interval are to be tested in the same borehole the sequence of testing will be specified in the SWI.

5. When the packer assembly is at the required depth the data logging system will be initiated. A borehole water level measurement will be taken and the measurement checked against the pressure transducer reading.

6. The data logging system will be set to record data at short intervals (say every 15 seconds) in order to observe hydrostatic pressure changes prior, during and after inflation of the packers. Hydrostatic pressure data will be recorded for a minimum of 30 minutes prior to

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inflation, continuously during inflation and a minimum of 30 minutes after inflations

7. The packers will be inflated to the required pressure using either air or water. These details will be specified in the SWI. Packer inflation pressure will be monitored and manually recorded. Inflation pressure will be recorded not less than one reading every 10 minutes during the period of packer element inflation.

8. The water level of the packered section will be allowed stabilize to the satisfaction of the Test Supervisor. Observation of the pressures recorded by the data logging system should show that the water level to be either static or changing slowly prior to proceeding. It is anticipated that this phase of the test should not take longer than 30 minutes. However, if significant variations, as determined by Test Supervisor, are observed this period may be extended.

9. During this stabilization period the pressure in the section below the packer will be observed (as monitored by pressure transducer) and the water level in the borehole annulus will be observed (as monitored by pressure transducer), in addition, regular manual measurements of the annulus water level will be taken (to confirm pressure transducer). These observations and or measurements will be continued throughout the test to allow evaluation of the integrity of the packer seal.

10. The data logging system will be set to collect data at a high rate (say once every 2-3 seconds) in order to collect frequent data during the early time of the test. Thereafter the rate of data collection may be reduced, at the Test Supervisor's discretion, as the rate of pressure change reduces.

11. Extraction (or injection) will be started at the required rate.

12. Check the flow rate recorded by the data logging system against flow to a graduated cylinder or other known volume at least once every hour during the constant rate pumping period. Or confirm injection rates prior to testing.

13. Monitor the water level, adjusting the equipment to maintain a constant flow as necessary.

14. If it is possible to download data from the logging system while it is operating, at an appropriate point during the test period data may be downloaded and subjected to field analysis. This will allow a judgment of whether the data is sufficient for detailed analysis and whether a further slug test is necessary.

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15. If formation fluid sampling is required, a volume of formation water equivalent to a minimum of three test interval volumes will be withdrawn prior to sample collection.

16. Once the testing period and fluid sampling is completed to the satisfaction of the Test Supervisor the pumping may be stopped. The period of pumping may be specified by SWI. Alternatively the Test Supervisor may decide to stop pumping if on-site analysis indicates that an adequate data set has been collected. In some cases pumping may have to be stopped because the water level is drawing down close to the level of the pump. Prior to stopping injection the data logging system will be set to collect data at a high rate (say once per second) in order to collect frequent data during the early time of the recovery period of the test. Thereafter the rate of data collection may be reduced, at the Test Supervisor's discretion, as the rate of pressure change reduces.

17. Turn off the pump and monitor the recovery of the water level.

18. Once the recovery period is completed to the satisfaction of the Test Supervisor the test may be terminated. The period of recovery or the total duration of the testing for the packered interval may be specified by SWI. Alternatively the Test Supervisor may decide that recovery is sufficiently complete if on-site analysis indicates that an adequate data set has been collected or 80% recovery has been reached.

19. If the test is terminated at this point, the packers will be deflated. Once the packers are fully deflated the annulus water level will be measured and cross checked against the transducer readings collected by the data logging system. The data logging system will be stopped and the pump and packer assembly removed from the borehole.

20. Prior to installation or demobilization, the packer assembly, discharge line, power and air lines, and wireline will be properly decontaminated using deionized water and alconox soapy mix, and triple rinsing with deionized water.

6.2 Slug Test

In this procedure pulse injection is used to suddenly raise (slug-in test) the water level of a packered interval of borehole. Measuring the changing pressure as the water level recovers allows the collection of a dataset which can be analyzed as described in Sections 1.2 and 1.3 above.

The following is an outline of the procedures to be followed to conduct a slug test. This will be supplemented by a Specific Work Instruction providing additional details on each particular packer test, as described in

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Section 4.1 above. Any deviations from this procedure or the specifications of the SWI shall be recorded by the Test Supervisor.

Phase 1: Slug-in test

1. Record well number, time, and date; unlock any protective casing and clean out man-hole as necessary.

2. Obtain an accurate static water level measurement.

3. Down-hole packer assembly will be constructed. A function check of the pressure transducers and data logging system will be completed. Pressure testing of the packer assembly may be completed if appropriate. Additional systems checks once the packer assembly is submerged should be conducted (pump check, pressure transducer operation during descent, clear discharge/injection lines, packer inflation, data acquisition system, tool telemetry, etc.)

4. The packer assembly will be attached to wireline, airline and injection tubing and lowered to the required depth interval. If more than one interval are to be tested in the same borehole the sequence of testing will be specified in the SWI.

5. When the packer assembly is at the required depth a function check of the pressure transducer and data logging system will be completed. A borehole water level measurement will be taken and the measurement checked against the pressure transducer reading.

6. The data logging system will be set to record data at short intervals (say every 15 seconds) in order to observe pressure changes during the inflation of the packers.

7. The packers will be inflated to the required pressure using either air or water. These details will be specified in the SWI.

8. The water level of the packered section will be allowed stabilize to the satisfaction of the Test Supervisor. Observation of the pressures recorded by the data logging system should show that the water level to be either static or changing slowly prior to proceeding. It is anticipated that this phase of the test should not take longer than 30 minutes.

9. During this stabilization period the pressure in the section below the packer will be observed and the water level in the borehole annulus will be observed or regular measurements of the annulus water level will be taken (if not monitored by pressure transducer). These

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observations and or measurements will be continued throughout the test to allow evaluation of the integrity of the packer seal.

10. The data logging system will be set to collect data at a high rate (say once per second) in order to collect frequent data during the early time of the test. Thereafter the rate of data collection may be reduced, at the Test Supervisor's discretion, as the rate of pressure change reduces.

11. The injection pump will be briefly initiated so as to create a near instantaneous pressure pulse. The Injection line will be opened to atmospheric pressure immediately after pulse injection

12. Monitor the recovery of the water level.

13. If it is possible to download data from the logging system whilst it is operating, at an appropriate point during the test period data may be downloaded and subjected to field analysis. This will allow a judgment of whether the data is likely to be amenable to later detailed analysis and whether a further slug test is necessary.

14. Once the test has recovered to the satisfaction of the Test Supervisor the test may be terminated or the second phase of the test may be initiated. Usually at least 80% recovery will be required, however, if the SWI specifies a limited test period the test may be terminated at the expiration of this period. Alternatively the Test Supervisor may decide to terminate the test prior to 80% recovery if on-site analysis indicates that an adequate data set has been collected.

15. If the test is terminated at this point, the packers will be deflated. Once the packers are fully deflated the annulus water level will be measured and cross checked against the transducer readings collected by the data logging system. The data logging system will be stopped and the packer assembly removed from the borehole.

7.0 RECORDS

The Test Supervisor is responsible for ensuring that full and detailed records are collected for all packer tests.

Each test will be given a unique identifier which will be part of all records associated with that test.

Test Data Sheets will be completed to record details of the borehole, the test interval, the equipment and its depth locations during the test, and the test procedure. Examples of Test Data Sheets are given in Appendix A, although final Test Data Sheets will be produced to be compatible with the equipment procured and the specific test procedures associated with this equipment.

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Each data logging file will be assigned a unique file name and will be copied to two clearly labeled floppy disks as back-up as soon as is reasonably practical following the completion of the test. Any plots produced during the test by the data logging system shall be clearly labeled to identify the portion of the test they represent.

Any data analysis files produced during the test shall be copied to two clearly labeled floppy disks as back-up as soon as is reasonably practical following the completion of the test. Any plots or documents produced during the test by the on-site data analysis shall be clearly labeled to identify the portion of the test they represent.

The Test Supervisor shall produce a short report (which may be in memo or letter form) giving details of the test as soon as practical after the completion of the test. This report will, at a minimum, give an overview of the test (including test interval, test method and test equipment), describe any problems encountered and present the results of any on site analyses. The Test Data Sheets, plots of the test data, analysis plots or printouts or other detailed information may be attached to the report as appendices. The report shall be submitted to the Geosciences Discipline Lead and he shall copy the report to other members of the project team as appropriate.

All test records and data files shall be maintained in accordance with the Project's QA Records procedure, Reference 2.2, and appropriate records shall be copied to the Project Database Administrator for input to the Project Database and subsequent records management in accordance with the Project Data Management Plan, Reference 2.3.

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APPENDIX A TEST DATA SHEETS

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TP 5 : TEST DATA SHEET 1

PACKER TEST DETAILS

UNIQUE TEST IDENTIFIER	
BOREHOLE NO.	
TEST NO	
TEST TYPE	

BOREHOLE DATA

Borehole No.	
Depth of casing (ft)	
Total Borehole Depth (ft)	
Elevation of Borehole datum point (ft)	

TEST INTERVAL DATA

Depth of Top of Interval (ft)	
Depth of Bottom of Interval (ft)	
Length of Interval (ft)	
Nominal Borehole Diameter (in)	

PRESSURE TRANSDUCER DATA

	Depth (ft)	Serial #
Transducer P1 - above test section		
Transducer P2 - test interval		
Transducer P2 - below test interval		

NAME	SIGNATURE	DATE	PAGE
			of

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TP 5 : TEST DATA SHEET 2

PACKER TEST ASSEMBLY DETAILS

UNIQUE TEST IDENTIFIER	
BOREHOLE NO.	
TEST NO	
TEST TYPE	

DESCRIPTION OF ITEM	SERIAL #	DIAMETER (in)	LENGTH (ft)	DEPTH TO BASE (ft)

NAME	SIGNATURE	DATE	PAGE
			of

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TP 5 : TEST DATA SHEET 3

PACKER TEST LOG

UNIQUE TEST IDENTIFIER	
BOREHOLE NO.	
TEST NO	
TEST TYPE	

DATE	TIME	ACTION

NAME	SIGNATURE	DATE	PAGE
			of

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General Procedure and Work Instructions for Geophysical Logging

TP-13

Prepared by: _____ Date: 7-6-2003
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-13
Revision History

Revision Level	Issue Date	Change Summary
0	1/10/01	New procedure.
1	3/15/06	Water Level Measurements and GPS Data

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing procedures common to all geophysical logging measurements for the <specify project name> (Project), to assure the accuracy, validity, and applicability of the methods used.

1.1.2 This procedure further describes the components of geophysical logging systems common to all such measurements, and provides specific guidelines for calibration, standardization and performance verification of the equipment, and for data acceptance and documentation.

1.1.3 This procedure is intended to replace those sections of the Technical Procedures for the individual log measurements which are common to all measurements.

1.1.4 In applying this procedure to an individual measurement, the requirements of this procedure shall be superseded by those stipulated in the Technical Procedure applicable to that measurement.

1.2 Applicability

1.1.1 This procedure applies to all geophysical log measurements acquired using wireline methods.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1 or who use data obtained from this procedure if it is deemed to potentially affect public health and safety related to a nuclear waste repository.

2.0 REFERENCES

2.1 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D5753-95, October 1995. (http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/PAGES/D5753.htm?L+mystore+uouy0628)

2.2 Mathews, M.A., J.H. Scott, C.M. LaDelfe, Test pits for calibrating well logging equipment in fractured hard rock environments. SPWLA, 26th Annual Logging Symposium Proceedings, 1985.

3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D5753-95.

3.1 Logging is the process of recording one or more measurements as a function of depth in a borehole.

3.2 Wireline - Typically, a multistrand steel cable that connects the logging sonde at one end to the logging truck at the other. Provides a means to raise and lower the sonde in the borehole, and allows electronic communication and transmission of power between the sonde and the surface electronics.

3.3 Sonde - Instrument package that is attached to the end of a wireline and lowered into a borehole to provide one or more measurements as a function of depth in the hole.

3.4 Surface electronics - Electronic equipment that provides control and may provide power to run a wireline log. The raw signals from the measurement device(s) may be translated to engineering values by this equipment. The surface electronics also include hard copy display of the results of the log, and a means of digital recording of the data.

3.5 Validation or Standardization - The process of verifying that a measurement is repeatable.

3.6 Calibration - The process of demonstrating that a measurement is accurate.

3.7 Measurement device - A device that provides one or a number of measurements.

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A single sonde may include a number of measurement devices.

3.8 Wireline tension - the sum of the weight of a downhole sonde and wireline, and the force applied due to motion of the sonde. When the sonde is stationary, typically is the weight of the equipment as suspended in the wellbore fluid. When running into the hole the tension is typically a bit lower than when stationary; when coming out it is typically greater. Tension is monitored to provide a record of the motion of the tool, to ensure against tool sticking while running into the hole, and to prevent loss of the tool when coming out of the wellbore.

3.9 Depth Measurement - Depth is measured with a pulse digital optical encoder that outputs a specific number of pulses for a tangential measure wheel of known circumference. The pulse frequency is translated to a logging speed that allows the Logging Engineer to monitor the rate of ascent of the given sonde. The pulses are counted and normalized to provide depth measurements that are recorded by the surface recording equipment along with the caliper information.

3.10 Personnel:

3.10.1 Logging Engineer - Employee or designate of the company providing the measurement device who is responsible for overall operations and data quality.

The Logging Engineer typically monitors tool operations by watching surface displays, keeps track of field records, and ensures that acquired data are properly transported and archived.

The Logging Engineer is responsible for ensuring full compliance with this procedure and with the specific Technical Procedure for the measurement being made, and for ensuring that all assigned personnel are adequately trained and qualified to perform these activities.

3.10.2 Technician: Responsible for electrical and mechanical integrity of the logging sonde, the wireline, and the logging truck. The technician typically runs the wireline, monitors depths, and assists in general operations as required.

The Logging Engineer and the Technician may be the same person.

3.10.3 Client Project Director: Person responsible for 1) ensuring that all assigned personnel have been trained in the Project Quality Assurance Program (QAP), 2) ensuring that all assigned personnel have required safety training, and 3) Ensuring that the overall requirements of the QAP for this project are followed. The Client PD is responsible for ensuring the safety of personnel on site.

4.0 REQUIREMENTS

4.1 Prerequisites

4.1.1 The well site shall be prepared in a manner that provides unimpeded access to the well and a level surface on which to position the wireline truck.

The site shall have sufficient space available to perform all necessary procedures, including equipment and depth checks, in a safe and efficient manner.

4.1.2 The well shall have been drilled in a manner which permits the intended measurements to be recorded and to be interpreted in a meaningful way.

The logging engineer shall have access to all information necessary to ensure that the measurements can be obtained and interpreted (see 4.3).

4.1.3 All calibration standards including but not limited to meters, oscilloscopes, and measuring tapes shall be certified and referenced to ANSI standards if such standards

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exist.

4.1.4 All logging instruments shall be calibrated at the manufacturer, in the logging operator's shop, or in an applicable calibration facility. Calibration records shall be maintained by the logging contractor.

4.1.5 All equipment which is quality affecting shall be identified uniquely, and documentation and records pertaining to that equipment shall include the identification number.

4.2 Tools, Material, Equipment

4.2.1 Calibration

All quality affecting devices that provide data to be interpreted in a quantitative manner shall be calibrated. These calibrations shall be made prior to the first use on this project of such devices, whenever a quality-affecting device is repaired for any reason, and if the Logging Engineer is concerned about the level of performance of the measurement device. Reasons for repair include but are not limited to 1) damage during operations, 2) field check or standardization failure.

The logging contractor shall maintain calibration records.

All measurement devices that require calibration shall also have standardization checks performed to verify their operation. These checks shall be made prior to and following each use of the measurement device, except if specifically detailed otherwise in the individual Technical Procedure.

4.2.2 Standardization (Validation)

All tools used for qualitative comparison of data obtained either at different times in the same well, or in different wells, or using different tools for the same measurement, shall have standardization checks performed to verify the repeatability of the measurements. Standardization shall consist either of:

4.2.2.1 Standardization using a representative borehole: When using this approach, a representative borehole shall be made available for the duration of the project. That borehole shall be drilled and completed in a representative manner. The borehole shall penetrate all rock units that are expected to be encountered in the project boreholes.

A device is considered to have met its standardization criterion if measurements made in this borehole match those made by all other devices that provide the same measurement, based on criteria spelled out in the individual Technical Procedure.

4.2.2.2 Standardization using external standards: When using this approach, standards shall be selected which cover the range of output values expected to be encountered in the logged boreholes. Standardization checks shall be made before and after logging each measurement.

4.2.2.3 The conditions for acceptance using standardizations of each wireline log measurement shall be detailed in the appropriate Technical Procedure.

4.2.3 Calibrations and standardizations shall be conducted as detailed in the Technical Procedure for each measurement.

4.3 Precautions and Limits

All geophysical measurement devices are designed for operation within a specific range of conditions. These include but are not limited to temperature, wellbore size, rock type, fluid pressure, and fluid salinity. Furthermore, many devices deliver results that are dependent on these and other conditions.

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4.3.1 The operating range of each measurement device shall be detailed in the Technical Procedure for that device.
4.3.2 Specifics of the factors affecting output results shall be detailed in the Technical Procedure for that device.
4.4 Acceptance Criteria
4.4.1 Acceptance shall be dependent on each device having met the criteria for calibration and validation.
4.4.2 Acceptance shall depend on an adequate level of repeatability for the repeat section of each log. The criteria for acceptance shall be spelled out in the TP for each log.
4.4.3 Acceptance shall require that the depth measurement be repeatable and the after survey depth error (ASDE) shall fall below a value of 0.4 ft per 100 feet of logged depth.
4.4.4 Acceptance shall require the approval of the results of each measurement by the Logging Engineer of the measurement. The criteria employed shall be detailed in the Technical Procedure for each measurement.
5.0 DETAILED PROCEDURE
It is recognized that there is no industry-approved NQA-1 standard for wireline logging measurements.
All operations shall be carried out in conformance with this procedure and with ASTM standards for the specific tool, if those standards exist.
It is strongly recommended that a general plan for all downhole measurements be established prior to drilling the first hole. This allows consideration in the drilling plan of factors affecting the measurements. Furthermore, it makes it possible to schedule operations in such a way as to prevent a situation in which one measurement damages the hole and prevents successful performance of subsequent measurements.
5.1 Prior to arrival
5.1.1 Determine hole size and mud weight, and select the optimum device for use in the hole.
5.1.2 Examine other logs (if run), noting in particular conditions that may cause tool sticking or variations in data quality.
5.1.3 Note depths of water table, surface casing, hole size changes, and hole bottom for use in calibrating depth measurements during logging.
5.1.4 Discuss hole conditions with drillers.
5.1.5 Develop a preliminary logging plan, based on all available information.
5.1.7 Prepare a list of materials requirements for completion of the logging plan.
5.1.8 Each measurement device that affects quality shall be calibrated prior to use.
5.1.9 The depth measurement system shall be calibrated by running 100 feet of wireline out of the truck (as measured using a measurement tape) and verifying that as the wireline is spooled off and back onto the drum the wireline depth counter reads the wireline length to an accuracy of 0.4 ft per 100 feet of wireline motion.
5.1.9.1 Set wireline zero.
5.1.9.2 Run out 100 feet of wireline, measured using the depth measurement system to be used while logging.
5.1.9.3 Measure length of wireline using a calibrated measurement tape.
5.1.9.4 Spool wireline back.
5.1.9.5 When the wireline is returned to the zero point it should read to within 0.4 feet of

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zero.
5.1.9.6 A log of a designated borehole may be substituted for the wireline calibration if it is determined to be appropriate by the Client Project Director. Comparison of that log to previous logs of the same hole for purposes of depth calibration shall meet the criteria for depth validation based on the expectation that depth errors shall not exceed 0.4 feet per 100 feet of measured depth.

5.2 On arrival

5.2.1 Calibration records for all equipment requiring calibration prior to arrival shall be made available to the Client Project Director or designate.
5.2.2 The truck shall be situated on relatively level ground adjacent to the well head.
5.2.3 The wireline shall be rigged for access to the wellbore in such a manner that the wireline tension can be monitored to prevent endangering the wireline, the measurement sonde, or individuals on the site.
5.2.4 The site shall be inspected to ensure safety, and any hazards shall be mitigated to the satisfaction of all personnel, and Form LOG-1 shall be completed.
5.2.5 Wellbore conditions defined previously shall be verified and Form LOG-2 shall be completed.

5.2.6 Using a reliable GPS device, collect and record the 60 second average location of the well with the device set to the NAD27 standard. A three dimensional fix is preferred, but a two dimensional fix is adequate.

5.3 During logging

All procedures detailed in the individual Technical Procedures for each measurement shall be adhered to.

5.3.1 Borehole fluid level measurements will be taken prior to the installation of any necessary testing equipment or logging. The measurement will be repeated on a regular basis throughout the duration of activity at the well. A final measurement will be taken after all equipment has been removed from the and before the well head securing device is installed (i.e. this is the last action before leaving the well).

5.3.2 When using a typical multi-conductor cable, the electrical integrity of the wireline shall be checked prior to attaching each sonde to the wireline for which variations from nominal values affect the results. Typically, the cross-conductor conductance is less than 5 mega ohms^{-1}, and the resistance along the length of any single conductor is less than 25 ohms per thousand feet. The results shall be recorded on Form LOG-3.
Wireline integrity criteria for special types of wirelines (e.g., coaxial cable or fiber optic cable) shall be detailed in the individual Technical Procedure for the measurement.
5.3.3 The Logging Engineer shall document characteristic features for depth reference using Form LOG-5.
5.3.4 All measurements shall be repeated in a characteristic interval of the wellbore as input to the acceptance criteria. Failure to meet the acceptance criteria shall require a repeat log to be run which shall include a repeat interval.
5.3.5 Wireline tension and other relevant parameters shall be monitored while running into the hole to verify continued motion of the logging sonde.
5.3.6 All measurements shall be checked prior to and following their acquisition in the

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well to ensure that they meet calibration standards established in the individual TP. The results shall be recorded on forms for each measurement detailed in the specific Technical Procedure. For measurements that are interpreted quantitatively, criteria for acceptance shall be established which utilize the results of such validations in a quantitative manner.

5.4 Prior to departure

5.4.1 If operations at the site revealed any deviation from the wellbore conditions recorded on arrival, or resulted in any change to those conditions, a new Form LOG-2 shall be completed.

5.4.2 All equipment which has been exposed to potential contamination shall be cleaned prior to departure. Cleaning procedures shall be in compliance with established site-specific Health and Safety and Sampling and Analysis Plans.

5.4.2 All quality assurance forms pertaining to all measurements obtained at the site shall be signed and dated by the Logging Engineer.

5.5 Site Operational record

A record of operations at each site shall be maintained on Form LOG-7.

5.6 Measurement record

A record of each measurement shall be maintained on Form LOG-6.

6.0 RECORDS

Although record keeping and documentation adds significantly to the time and effort required to obtain the data necessary to fulfill project objectives, the over-riding concern of all persons associated with these operations shall be to fulfill the requirement for full and complete documentation of the measurements while the measurements are acquired.

6.1 Data records

Records of the data obtained from each measurement shall be produced as follows:

6.1.1 A paper copy of the log values shall be provided as described in ASTM D5753-95. An example is shown in Appendix 7.1.

6.1.2 A digital record of the log shall be recorded for each measurement. This record shall include both the raw data and translations of that data to engineering units accomplished using conversion factors established during pre-log validations. Those conversion factors shall be recorded as stipulated in each individual Technical Procedure. A backup copy of this record shall be created and archived according to data handling procedures established for this project.

6.1.3 Forms shall be completed as specified in this and the specific technical procedures so as to document conformance.

6.2 Exceptions

All exceptions shall be documented following the procedures detailed in the QAP, and Form LOG-8 shall be completed.

6.3 Field Modifications

A field modification is considered to be an exception.

6.2.1 Field modifications of these procedures shall be permitted only if: 1) the activity cannot be performed as defined in this Procedure and the normal change process would cause unreasonable delays, and 2) the modification would either not affect or would enhance the quality of the data, or 3) the modification would result in more efficient operations and would not degrade data quality or the ability to qualify the data, or 4) the

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client's representative at the site provided instructions that the activity should be conducted in a different manner.

6.2.2 Field modifications shall be fully documented on Form LOG-8, by detailing the old procedure, the new procedure, and the reason for the modification. The name(s) of the person(s) requesting and approving the change shall be included on the documentation form along with their signatures.

6.2.3 If the modification results in an improvement in the quality of the data this Procedure shall be modified to incorporate the change.

6.2.4 If the modification was requested by the client's representative and if the modification would not affect the quality of data this Procedure may be modified to incorporate the change.

7.0 APPENDICES

7.1 Example log presentation

7.2 Form LOG-1 - site plan

7.3 Form LOG-2 - well plan

7.4 Form LOG-3 - wireline integrity check

7.5 Form LOG-4 - measurement validation

7.6 Form LOG-5 - depth record

7.7 Form LOG-6 - measurement operation

7.8 Form LOG-7 - site operations

7.9 Form LOG-8 - Exception documentation

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Appendix-1

Sample well log header (USE API STANDARD)

Shall conform to ASTM D5753-95

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Appendix-2

Form LOG-1 Actual Site Plan (Not Quality Affecting)

Date
Time
Location
Well Designation
Person Completing Form

Sketch site conditions, noting locations of truck, other equipment, well head, staging area(s), calibration area(s), and any other conditions affecting quality or safety:

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Appendix-3

Form LOG-2 Well Plan

Date
Time
Location
Well Designation
Person Completing Form
Well Sketch:

________Top of casing ___________Casing size

________Ground level

________ Bottom of casing

____ Fluid level _____ type of fluid _____ source of info

Features:
Description Depth Measured
by

________Total Depth

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Appendix-4
Form LOG-4 Wireline Integrity Check

Date
Time
Location
Well Designation
Log
Person Completing Form

Number of conductors _____

Length of wireline _____

Electrical properties: Units (e.g., ohms, mSiemens) _____

Conductance measured using: _____ (identify device used)

Cross-conductance measured using: _____ (identify device used)

□**Armor**□**1**□**2**□**3**□**4**□**5**□**6**□**7**□□**Armor**□□□□□□□□□□**1**□□□□□□□□□□**2**□□□□□□□□□□**3**□□□□□□□□□□**4**□□□□□□□□□□**5**□□□□□□□□□□**6**□□□□□□□□□□**7**□□□□□□□□□□

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Appendix 5
Form LOG-4 Measurement Validation
Date
Time
Location
Well Designation
Log
Person Completing Form
___Prelog ___Postlog

Tool designation _____ (serial #) Surface electronics _____ (serial #)
Truck _____ (serial #)

Prior to adjustment of tool settings:

Tool settings (these will be specific to the tool):
Parameter□Setting□□□□□□□□□□□□
Property
measured□True
Property□Measured
Property□Conditions
□□□□□□□□□□□□□□□□□□

Following adjustment of tool settings: (for pre-log use only)

Tool settings (these will be specific to the tool):
Parameter□Setting□□□□□□□□□□□□
Property
measured□True
Property□Measured
Property□Conditions
□□□□□□□□□□□□□□□□□□**Comments:**

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Appendix-6
Form LOG-5 Depth Record

Date
Time
Location
Well Designation
Log
Person Completing Form

CABLE DEPTHS TO TIE POINTS

DRILLER'S DEPTHS		TIE POINT COUNTER		MECHANICAL COUNTER	ELECTRONIC
IN	OUT	IN	OUT		
GROUND LEVEL					
				WATER LEVEL	
				CASING	
				TOTAL DEPTH	
OTHER(specify)					
OTHER(specify)					
OTHER(specify)					
OTHER(specify)					
OTHER(specify)					
OTHER(specify)					

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Appendix-7

Form LOG-6 Operations During A Single Logging Measurement

Date
Time
Location
Well Designation
Log
Person Completing Form

Logging Speed□Direction□Start/Stop□Depths□Repeat Sections□Tool Settings
□□
□□□□□□□□□□□□

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Appendix-8

Form LOG-7 Operations At A Single Site (Not Quality Affecting)

Date
Time
Location
Well Designation
Person Completing Form

List of Logs□Arrival Time□Departure Time□Weather□Times of Operations□□
□□□□□□□□□□□□□□□□□

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Appendix-9
Form LOG-8 Exception Documentation

Date
Time
Location
Well Designation
Log
Person Completing Form

Procedure change:

Old Procedure TP-_____
(Call Out Paragraph Numbers From Procedure)

Modified Procedure (Describe Detailed Method: Use Additional Pages As Necessary)

___Additional Pages Attached (Number Of Added Pages)

Reason for change:

___Unable To Complete Procedure Because Of The Following Condition(s)...

___Requested (If So, Complete The Following)

Reason For The Request (To Be Completed By Requesting Person)

Change In Procedures Was Requested By _____
Person Requesting Modification Shall Sign_____

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Form LOG-8 Exception Documentation (Additional Forms)

Date
Time
Location
Well Designation
Log
Person Completing Form

Modified Procedure (Continued)

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DRAFT

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Technical Procedure and Work Instructions for *Borehole Optical Imaging (BIPS)*

TP-14

Prepared by: _____ Date: Thursday, February 15, 2018
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-14
Revision History

Revision Level	Issue Date	Change Summary
0	2/15/2018	New procedure.

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing optical televiewer logging and to assure the accuracy, validity, and applicability of the methods used.

1.1.2 This procedure further describes the components of BIPS logging, the principles and limits of the methods used, the methods used for calibration and performance verification of the equipment, and the requirements for data acceptance and for documentation. Other optical logging tools are available and these technical procedures can be applied to those tools.

1.1.3 This procedure includes by reference those sections of TP-13 which are common to all measurements.

1.1.4 In applying this procedure to the BIPS measurement, the requirements of this procedure shall supersede those stipulated in TP-13.

1.2 Applicability

1.2.1 This procedure applies to video image data acquisition using the Borehole Image Processing System (RaaX Model BPR-551). Other optical or acoustic televiewer systems may use this technical procedure provided that any modifications to these procedures are documented as described in TP-13.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1 or who use data obtained from this procedure if it is deemed to potentially affect public health and safety related to a nuclear waste repository.

1.2.3 All data derived from this procedure that are presented to support the Project, and any equipment calibrations or recalibrations that may be required shall be in accordance with this technical procedure. Deviation from these procedures shall be permitted only under the conditions set forth in Section 6 of TP-13.

2.0 REFERENCES

2.1 Keys, W. Scott, and MacCary, L.M., Application of Borehole Geophysics to Water-Resources Investigations: USGS, Techniques of Water-Resources Investigations, Book 2, Chapter E1.

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2.2 Hearst, J.R., and Nelson, P.H., Well Logging for Physical Properties, McGraw Hill, 1985.

2.3 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D 5753-95, October, 1995.

2.4 SPWLA Reprint Series, BOREHOLE IMAGING, 1990

2.5 RaaX, Co., Ltd., BIP-300 Field Subsystem Operation Manual

2.6 RaaX, Co., Ltd., Analyzing Subsystem Operation Manual

3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D 5753-95. In addition, definitions common to all logging procedures are provided in TP-13.

3.1 The BIPS (Borehole Image Processing System) consists of a downhole probe containing a light source, a video camera, and focusing equipment which acquires and transmits a video image of the borehole wall to surface processing and recording equipment. **(Appendix 1)**

The RaaX Borehole Image Processing System is an oriented digital video system. It visualizes the borehole wall with an axial view camera lens on a special conical mirror and includes an light source to illuminate the well bore. The data is transmitted as a raw NTSC Video image. This image is displayed on a monitor in the logging truck. Fig. **Appendix 2** shows a typical raw image. The raw NTSC video signal (raw signal) is also stored on VHS video tape.

To produce a digital image of the well bore which is undistorted, a circular disk with a user-selected radius and centralization is extracted from the raw NTSC video image every 0.5 mm vertically along the well. This disk is sampled 250 times around its circumference to produce RGB values at each point. The resulting data is stacked vertically to produce an image of the well as if it were sliced along magnetic South and laid flat. This digital image is displayed on a second monitor, and the individual traces are also stored on magneto-optical disk.

The raw signal recorded on videotape can be played back and reprocessed where regeneration of the digital data is needed or required.

3.2 The BIPS shall be run on a coaxial logging cable.

3.3 The surface recording equipment mounted in the logging truck provides DC power to the probe, which is otherwise entirely self-contained and runs independently of the surface system. The surface electronics receives

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and displays the video signal and orienting pulses and processes them for digital data acquisition and display.

3.4 The downhole probe contains in addition to the BIPS electronics a fluxgate magnetometer that provides an orienting pulse at a known azimuth with respect to magnetic north, and a reference mark for use in magnetically active materials. A mechanical compass is mounted at the center of the conical mirror.

3.5 Raw signal

The raw signal is identical to the unprocessed video signal transmitted up the cable, with a superimposed radial line that serves as an orientation mark. The orientation mark is either the azimuth of an arbitrary reference within the downhole probe or at a fixed orientation relative to the magnetometer orientation.

3.5 Personnel

Personnel are as defined in TP-13.

4.0 REQUIREMENTS

4.1 Prerequisites

In addition to the prerequisites stipulated in TP-13:

4.1.1 The borehole shall be either dry and air-filled or filled with optically clear water. If necessary, the borehole fluid shall be replaced by optically clear water prior to logging. In addition, flushing of the borehole walls may be required to remove mud cake from both the saturated and unsatured portion of the wellbore.

4.1.2 The borehole wall shall not be obscured by mud cake or optically opaque materials.

4.1.3 The borehole shall be clear of restrictions that prevent entry of the tool (including centralizers).

4.1.4 A caliper log as described in TP-15 must be run to compliment BIPS data for a given well.

4.2 Tools, Material, Equipment

4.2.1 Recording Equipment: The raw NTSC image shall be recorded on VHS standard video tape. If desired, the processed video image may also be recorded on VHS video tape. This requires two video tape recorders.

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The digital data recorded and processed in the field with RaaX BIP Analysis Software on a personal computer and stored on magneto-optical disks. The raw NTSC video may later be replayed and redigitized using the same processing and recording unit.

4.2.2 Portable aluminum cradle or down hole tool stand to facilitate assembly and breakdown of the probe.

4.2.3 A sprayer and a clean water supply to clean drilling fluid from tool after use will be available at wellhead.

4.2.4 BIPS centralizers

4.2.5 Calibration tube **(Appendix 3)**

The calibration tube consists of a cylinder large enough for the BIPS tool to fit inside. An inner cylinder slides inside the outer cylinder in two slots cut into the outer cylinder. These slots shall be cut on opposite sides of the outer cylinder in the axis of the tool. Two black lines on the inner cylinder coincide with the two slots and are marked “N” and “S” corresponding to Magnetic North and South. Also inside the inner cylinder is a series of vertical color bars and some printing indicating “BIPS Calibration Tube”. The two black lines are used to check image orientation, the color bars to check image color and the printing to check resolution.

4.2.6 Brunton compass for orientation of calibration tank

4.2.7 Data Information and calibration sheets (BIPS Logging Forms 1.0 - 5.0) and Operating Procedures.

4.2.8 Reference calibration image, for comparison to the image recorded in the field **(Appendix 4)**. This image shall be a processed image played back on a standard printer using standard software and settings. The same system shall be used to produce the calibration check images produced for comparison to this reference.

4.2.9 The BIPS probe shall be calibrated for the following purposes:

1) To verify system operation.

2) To verify the stability of the flux-gate magnetometer used to provide image orientation.

3) To optimize the resolution of the video image.

4) To provide a color reference to aid in analysis of the wellbore image.

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4.2.10 Calibration Procedure

Calibration of the magnetometer shall be performed under controlled conditions in a laboratory when calibration checks indicate a problem or after probe repair.

During pre-log calibration, the magnetometer shall be adjusted to align with the mechanical compass to read magnetic North. After that time, and until the post-log calibration check is completed, no further adjustment of the magnetometer orientation shall be made.

Calibrations shall be performed before leaving the home office for the logging location and upon return to the home office at the completion of the project.

In the field, the probe shall be calibrated prior to logging and the calibration shall be checked following logging every borehole.

4.2.10.1 Use a Brunton compass to orient the North and South lines in the calibration tube to Magnetic North and South.

4.2.10.2 Attach the BIPS tool to the cable.

4.2.10.3 Place the tool in the calibration tube. The calibration tube shall be dry and air-filled. To eliminate any foreign lighting of the color calibration chart, place the cover, with cut out for sonde, over top of tube.

4.2.10.4 Turn tool power on and set all of the video adjustment knobs on the dual monitors to the neutral position.

4.2.10.5 Leave all tool settings at factory defaults, with the following exception:

The position of the circular disk extracted from the raw NTSC video image shall be centered at the midpoint of the raw image and its radius shall be adjusted to be as close to the midpoint of the image as practical. The radius may be offset from this point only to avoid degraded portions of the image caused by (for example) scratches on the downhole probe lens.

4.2.10.6 Set logging depth to zero.

4.2.10.7 Record the calibration.

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Generate a source of depth pulses to cause the system to begin storing data.

The data will be automatically stored to magneto-optical disk.

Slide the calibration tube past the tool measure point at a fixed rate to approximate the logging speed of 3 feet per minute.

Acquire data over the length of the calibration image.

4.2.10.8 Check proper image orientation, color, and resolution on the processed image.

4.2.10.9 Compare the processed images to the reference image 4.2.10 (App. A-2).

4.2.10.10 Adjust the probe to match the reference if necessary.

4.2.10.11 Complete Form TP-BIPS-CAL-SHOP to document the calibration.

4.2.10.12 In the field, if the hole to be logged contains fluid, repeat the calibration process after filling the calibration tube with clear water.

4.2.11 Calibration Check Procedure

A calibration check is identical to a calibration except that no adjustment of the tool shall be made. The purpose of the calibration check is to verify that no change in system performance has occurred during logging.

4.2.12 Calibration Records

Calibration data shall be recorded on the forms specified for both the pre and post logging calibrations performed for each logging run. These forms shall be maintained as described by the Client. The calibration forms shall include the instrument specifications, instrument identification number, well location, date and time calibration was performed, the standard used, its range and accuracy, responsible division subunit, person executing calibration procedure, and any pertinent observations. The calibration forms shall be signed and dated by the person performing the calibration.

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Calibration and calibration check data shall be recorded as raw data on videotape and as processed data on optical disc. Field comparisons of the repeat data will be noted by the operator in the project notebook. Checks of the calculated BIPS feature orientations by another engineer will be noted by both the processing engineer and reviewer in the project notebook.

4.3 Precautions and Limits

4.3.1 The BIPS log shall be run in an uncased hole unless the condition of casing is to be investigated. When logging in casing, steel casing may necessitate turning off the fluxgate magnetometer resulting in non-oriented images.

4.3.2 The quality of the image depends on the optical properties of the fluid in the borehole and the condition of the borehole wall.

4.3.3 The image is interpreted as if the tool is perfectly centralized. If the tool is eccentered, the geometry of the observed features will be distorted.

4.3.4 During analysis, the tool axis is assumed to be aligned with the axis of the borehole.

4.3.5 The maximum length of cable on which the tool can be run is 5000 ft.

4.3.6 The operational temperature and pressure limits for the BIPS system provided by the manufacturer should be adhered to while running the log. The maximum operating pressure is approximately 2400 PSI (165 bars). The practical operational temperature range is from 0 to 46°C (32 to 140°F).

4.3.7 The recommended minimum borehole diameter is 60 mm (2.36”). The recommended maximum diameter is 230 mm (9.0”). In ideal circumstances, BPR-551 can be run successfully in holes as large as 14”.

4.3.8 Washout zones will affect the resolution of the photographic image if the zones extend beyond 230 mm (9.0”).

4.3.9 Bridges or constrictions in the borehole diameter will make it impossible to lower the probe into the borehole and difficult to retrieve the probe.

4.3.10 The magnetometer is approximately 3 feet above the image measurement point. Thus, if the borehole is cased with

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magnetically active material, the uppermost approximately 4 feet of image immediately below casing will be more difficult to orient.

4.3.10 The log shall be recorded with the tool moving **down** the borehole.

4.4 Acceptance Criteria

This log shall be accepted for use based on the expectation that the results will be interpreted **quantitatively**.

The following acceptance criteria shall be evaluated using the digital data recorded on magneto-optical disk.

4.4.1 The orientation of the pre- and post-logging calibration images shall be within 5°.

4.4.2 The orientation of features on the repeat section shall be within 5° of their orientation recorded during the main logging run.

4.4.3 The pre-log calibration shall result in an acceptable level of color matching and resolution to the reference image.

4.4.4 The post-log calibration check shall result in an acceptable level of similarity of the color and resolution to that of the pre-log calibration.

4.4.5 The image quality of the digitized data shall be evaluated by the Logging Engineer for resolution.

4.4.6 The orientations and characteristics of features observed in the repeat log shall be similar to those observed in the main log. However, it should be kept in mind that the quality of the repeat log may be degraded due to loss of fluid clarity caused by the initial log.

4.4.7 After Survey Depth Error (ASDE) shall be within required tolerances.

5.0 DETAILED PROCEDURE

The processed BIPS image shows the borehole wall as if it were split vertically and laid flat. Vertical fractures appear as vertical straight lines, while bedding and fractures dipping between vertical and near horizontal appear as sinusoidal traces.

The vertical distance between digitized video scans is typically 0.5 mm. The angular distance subtended by each color value is (360°/number of points).

5.1 The BIPS images can be used:

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5.1.1 To evaluate the stratigraphic, structural, diagenetic, weathering, textural and mineralogical features detectable in the borehole wall.

5.1.2 To locate and orient fractures and bedding planes to aid in the analysis and interpretation of in situ physical and hydrologic properties.

5.1.3 To perform direct comparison between BIPS log and recovered core from the same well.

5.1.4 To locate and orient any stress-induced wellbore failure (breakouts) for determination of the orientation and magnitude of in-situ stresses.

5.1.5 To locate and orient any drilling induced hydraulic and other tensile fractures for determination of the orientation and magnitude of in situ stresses.

BIPS logs are typically run as one of a suite of logs during a single visit to a well site. Procedures prior to and upon arrival as described here pertain only to the specific requirements of the BIPS. Where they do not conflict with the procedures detailed here, all of the procedures specified in TP-13 shall also be adhered to.

5.1 Prior to arrival

In addition to those procedures detailed in TP-13.

5.1.1 Select the appropriate centralizers for use in the well.

5.1.2 Assure that the logging truck has a coaxial cable of sufficient length to perform the log.

5.2 On arrival

No added procedures are necessary beyond those detailed in TP-13.

5.3 While Logging

5.3.1 The BIPS shall be run centralized in the borehole. Adjust the probe centralizer for optimal centralization in the interval to be logged.

5.3.2 Visually inspect all joints on the BIPS to be sure they are tight, and check the clear lens to verify that it is free of scratches.

5.3.4 Verify the integrity of the wireline, using the following procedure.

(to be defined for the coaxial cable)

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5.3.5 Attach the probe to single conductor steel jacketed coax downhole cable and connect the cable to the surface recording equipment. Turn power on to the tool, monitoring electrical currents to the tool, signal levels, and adjustments to ensure correct operation.

5.3.6 Prepare optical disk media for data storage.

5.3.7 Perform a pre-log calibration.

5.3.8 Set the software depth counter to read zero when probe measuring point is depth referenced to the measurement datum (land surface, top of casing, etc.). The depth zero should be taken with tension on the wireline similar to that expected while logging, to prevent slack in the cable from biasing the datum.

5.3.9 Maintain a record of depth measurements according to procedures specified in TP-13.

5.3.10 Lower the probe to the top of the interval to be logged.

5.3.11 Begin logging at approximately 3 feet per minute to the bottom of the hole (or interval to logged). The raw signal shall be recorded to VHS videotape, while the digital data shall be recorded on optical disc. Tool operation is verified by observing the raw and projected video images on dual monitors.

5.3.12 Even if the logged interval extends to the bottom of magnetically active casing, no attempt shall be made to adjust the magnetometer orientation during the logging of the complete interval. If it is desired to obtain a more stable image in this section of the hole, a repeat log shall be obtained for this purpose.

5.3.12 If logging needs to be stopped for any reason a brief overlap interval shall be recorded, to ensure that no data are missed.

5.3.13 After completion of the log, a 50 ft repeat section of the hole shall be logged with the tool moving downward at a rate of 3 ft/min. Proper tool operation is verified by monitoring the video images on the dual monitor.

5.3.14 After completion of logging and acceptance of the logged data, a VHS copy of the projected image shall be recorded by playing back the digital data. This videotape shall be labeled as to well, logged interval, date, etc.

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5.3.15 Unless otherwise noted all azimuth orientation data shall be recorded on magnetic north orientation. Field plots unless otherwise noted shall be based upon magnetic north.

5.3.16 Determine after survey depth error.

5.3.17 Record a Post-log calibration check.

5.4 Prior to departure - no additional requirements beyond TP-13.

6.0 RECORDS

Records shall be provided as detailed in TP-13.

6.1 Form TP-CAL-BIPS.

6.2 Data shall be recorded on videotape and digitally on optical discs. Observer's logs (or records) shall be maintained of all pertinent information, including data, time, recording cording parameters, borehole data, water level casing information, unusual conditions, etc.

6.3 One permanent type of data generated by this logging procedure shall be a digital optical image of the borehole wall. The color level is stored as a digital number in the range of 0 to 256. The digital data can be later played back for editing and analysis.

6.4 The second form of data generated by this logging procedure shall be a hardcopy log of the digital data. The resulting color images permit the identification of sedimentological and petrographic features, fractures and other irregularities in the drill hole wall as a function of depth.

6.5 A field VHS tape of the digital data may be provided at the completion of field data collection.

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7.0 APPENDICES

7.1 Appendix 1: Diagram of BIPS device.

7.2 Appendix 2: Example raw image recorded during a BIPS log.

7.3 Appendix 3: Calibration tube.

7.4 Appendix 4: Standard reference image.

7.5 Form TP-CAL-BIPS

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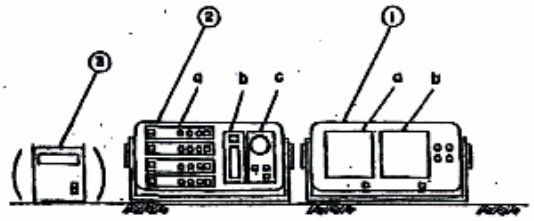
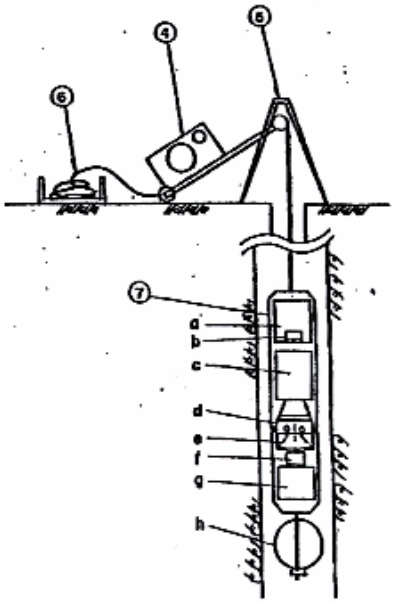
Diagram of BIPS Device Appendix 7.1





① Dual moniter
- a. Monitor for an actual image
- b. Monitor for a projection image

② Image processing units
- a. Processing boards b. MT driver
- c. Probe controller

③ Recording unit (Optical disk driver) *Optional
④ Symple winch (for descending a probe)
⑤ Tripod
⑥ Multiple cable
⑦ Standard probe
- a. Inside-controll unit b. Direction sensor
- c. TV camera unit d. Lighting unit
- e. Mirror unit f. Compass
- g. Battery h. Centralizer

Field system of BIPS-300

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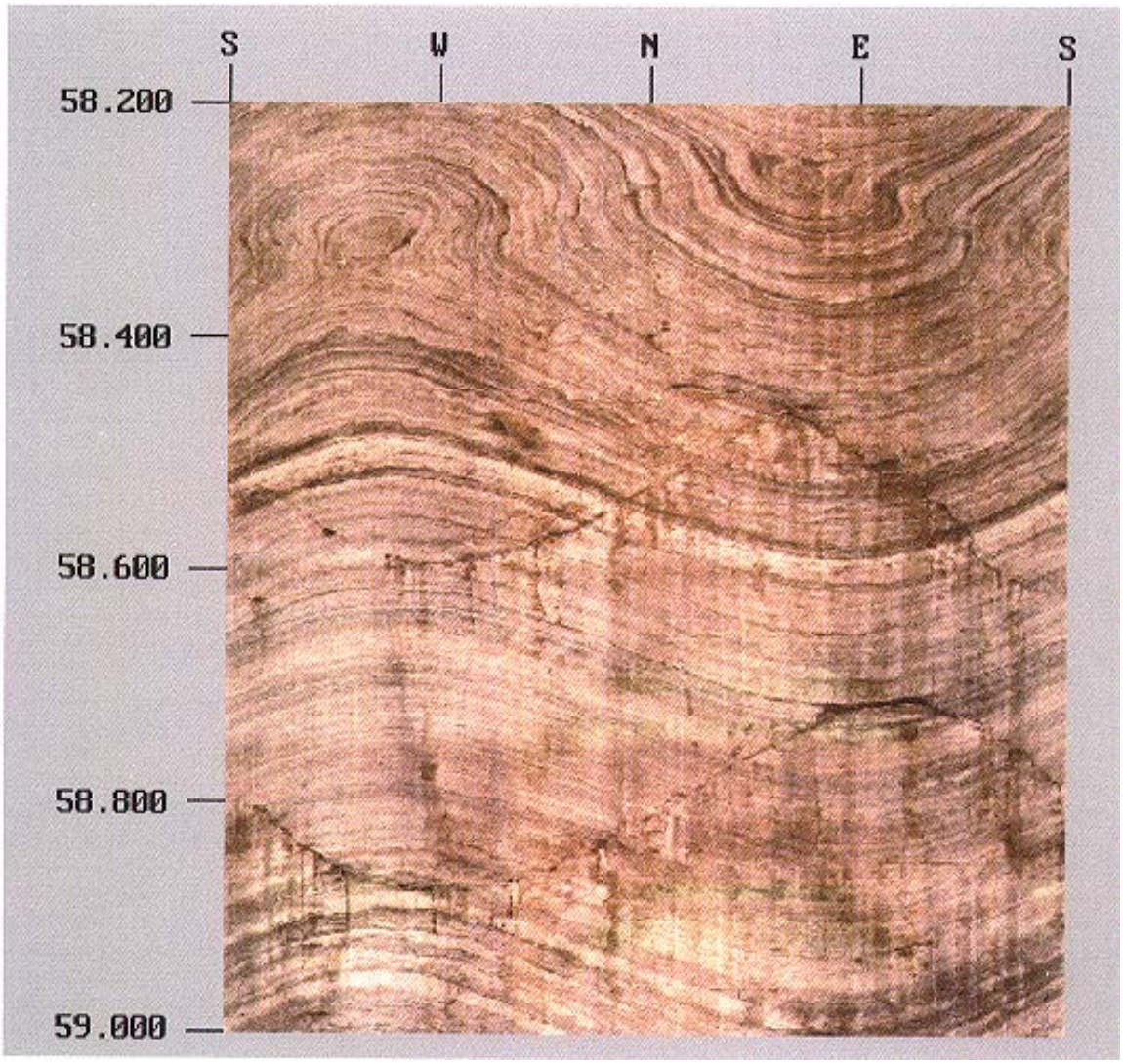
Example Raw Image Recorded During A BIPS Log Appendix 7.2



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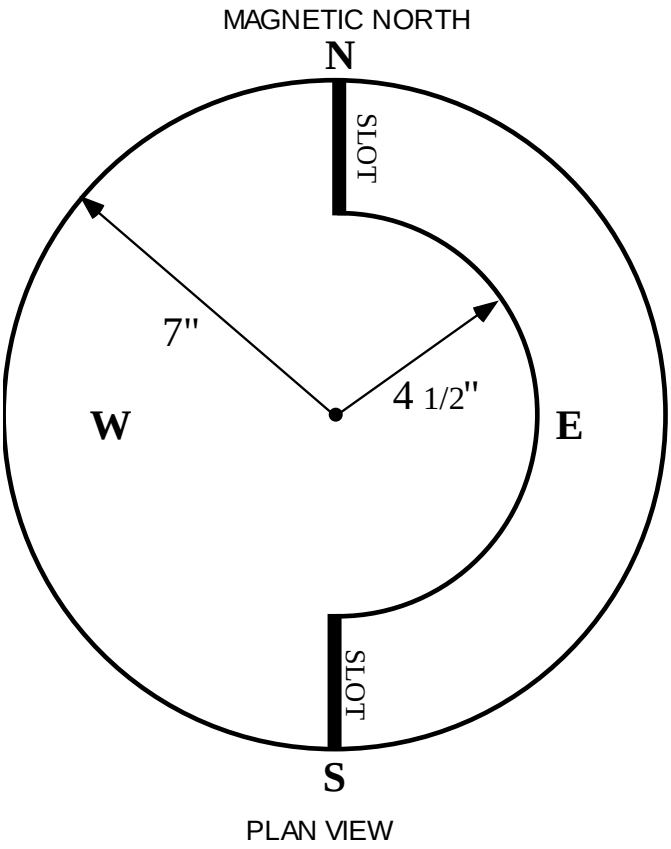
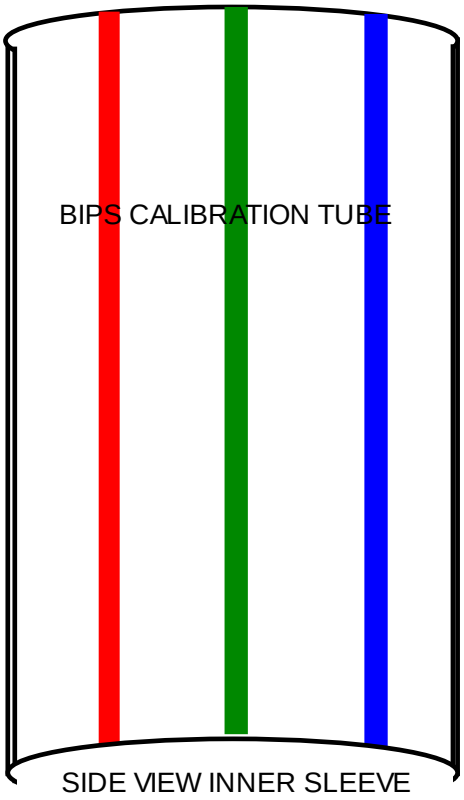

MAGNETIC NORTH
N
SLOT
7"
4 1/2"
W
E
SLOT
S
PLAN VIEW


BIPS CALIBRATION TUBE
SIDE VIEW INNER SLEEVE

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TO BE SUPPLIED BY VENDOR

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Form TP-CAL-BIPS Appendix 7.5

BIPS BPR-551
Checkout/Calibration

Engineer:_____ Location:_____ Unit No:_____

Probe Serial No:_____ Power Supply Voltage_____VDC Current_____Amps

BIPS BPR-551 Calibration Standards:

All BIPS calibrations and/or checks shall conform to the following standards:
Processing Software: BIPS ver 3.1 on Windows 95
Graphics Program: Aldus Photostyler version 2.0
RGB settings: R_____ G_____ B_____
Printer: Epson Stylus Pro Resolution: 720 DPI
Calibration Tube oriented using a Brunton compass set clear of metal objects

See attached images:

"Calibration Standard 1" (Image of Calibration Tube in air)

"Calibration Standard 2" (Image of Calibration Tube in clear fluid)

**The raw images of the attached Calibration Standards are archived on VHS format, while the digital data files are stored on CDLOG's network as well as a Magneto Optical disk for field use.*

BIPS BPR-551 Pre-Log Calibration Check:

Date:_____ Time:_____ AM or PM

Calibration tube filled with: AIR CLEAR FLUID

Calibration Filename:_____

See attached image: "Pre-Log Calibration Check"

BIPS BPR-551 Post-Log Calibration Check:

Date:_____ Time:_____ AM or PM

Calibration tube filled with: AIR CLEAR FLUID

Calibration Filename:_____

See attached image: "Post-Log Calibration Check"

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Technical Procedure and Work Instructions for *Caliper Logging*

TP-15

Prepared by: _____ Date: February 15, 2018
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-15
Revision History

Revision Level	Revision Date	Change Summary
0	2/15/2018	New procedure.

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APPENDIX A

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing borehole caliper measurements for the Project, to assure the accuracy, validity, and applicability of the methods used.

1.1.2 This procedure further describes the components of borehole caliper logging, the principles and limits of the methods used, the methods used for calibration and performance verification of the equipment, and the requirements for data acceptance and for documentation.

1.1.3 This procedure includes by reference those sections of TP-13 which are common to all measurements.

1.1.4 In applying this procedure to caliper measurement, the requirements of this procedure shall supersede those stipulated in TP-13.

1.2 Applicability

1.2.1 This procedure applies to caliper logs acquired using mechanical means.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1.

1.2.3 All data derived from this procedure are presented to support the Project, and any equipment calibrations or recalibrations that may be required shall be in accordance with this technical procedure. Deviation from these procedures shall be permitted only under the conditions set forth in Section 6.3 of TP-13.

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2.0 REFERENCES

2.1 Keys, W. Scott, and MacCary, L.M., Application of Borehole Geophysics to Water-Resources Investigations: USGS, Techniques of Water-Resources Investigations, Book 2, Chapter E1.

2.2 Hearst, J.R., and Nelson, P.H., Well Logging for Physical Properties, McGraw Hill, 1985.

2.3 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D 5753-95, October, 1995.

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3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D5753-95. In addition, definitions common to all logging procedures are provided in TP-13.

3.1 Caliper probe - a mechanical device that measures the size of a borehole.

In its simplest form, a caliper logging device consists of one or three arms, which are pressed against the wall of a hole so as to track changes in hole size. The arms are mechanically connected to each other and to a variable linear resistor so that any movement of the arms causes a change in resistance in the caliper circuit and a corresponding change in recorded voltage uphole.

3.2 Recording equipment - Data from the caliper probe is sent to the surface as electrical signals which are translated into engineering units and recorded along with depth to produce a caliper log of hole size. The log data is recorded digitally as raw counts and as engineering values and displayed while the log is being run.

3.3 Personnel

Personnel are as defined in TP-13.

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4.0 REQUIREMENTS

4.1 Prerequisites

No prerequisites are required other than as stipulated in TP-13, Standard Logging procedures.

4.2 Tools, Material, Equipment

4.2.1 Caliper measurement apparatus.

This shall be an electro-mechanical device as described in Section 3.1.

4.2.2 Calibration apparatus, or access to a standardization borehole.

4.2.2.1 Two ANSI certified standardization rings shall be provided of size sufficient to span the nominal size of the hole to be logged. These certifications shall be provided by the manufacturer. The small ring shall be slightly smaller than bit size. The large ring shall be no more than 75% larger than bit size.

4.2.2.2 A third ring at least 40% larger than the largest of the two standardization rings shall be available to check the linearity of the caliper response.

4.2.2.3 Surface casing may be substituted for the latter if the minimum size requirement is met. If casing is used for one of the standardization rings, a certified measuring device for confirming casing size shall be provided.

4.2.3 Pre-log calibration procedure

The purpose of pre-log calibration is to adjust conversion factors to achieve desired accuracy for the range of hole sizes expected in the well. A linear fit to two points is sufficient for this purpose. A third point outside of the range of the first two shall be measured to check linearity, and to provide data for a conversion during analysis of the log data of the caliper measurements to engineering units using a non-linear equation.

The pre-log calibration also provides data for comparison to a post-log calibration check.

4.2.3.1 This procedure shall be performed before logging each well. The required tolerances are specified in 4.4.4.

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4.2.3.2 Determine the nominal size of the borehole to be logged and select two caliper validation rings which will span the range of hole diameters expected in the well (For example: If the hole is 4 inches, a 3 inch ring and a 7 inch ring may be used to perform the validation).

4.2.3.3 Compress the arms and place the smaller ring over the ends of the arms and allow the arms to open with the tips inside the ring. Force the computer channel that converts the potentiometer output (in counts/sec) from the tool to inches, to read the diameter of the smaller ring.

4.2.3.4 Repeat this procedure with the larger ring thus establishing the linear coefficients for the caliper response.

4.2.3.5 Confirm and record the now calibrated response of the tool for the two ring sizes as follows:

Place the smaller ring back on the caliper arms and confirm the output is within 0.05 inches. Record the output (both in counts/second and inches) using time sampling at 1 second for a minimum of 30 seconds. The filename for this data should include the tool type and serial number, while the extension should be incremented for the various rings.

Repeat this procedure for the larger ring and confirm that the caliper value is within 0.05 inches of the true size of the ring. The filename should be identical to that used for the smaller ring with the extension incremented.

4.2.3.6 Check caliper linearity using a ring that is at least 40% larger than the larger ring above. Record a third data file as previously described. Surface casing may be substituted for the third ring provided it also is at least 40% larger than the larger of the two rings.

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4.2.3.7 Save the calibration values (that is, the raw output and the engineering value for each ring size) and the scale factors selected during the above procedure using Form TP-CAL-CAL. Also enter the name(s) of the calibration file(s) on Form TP-CAL-CAL.

4.2.3 Post-log calibration check procedure

The purpose of post-log calibration check is to document that the probe measurements are accurate following logging, by comparing the results to the pre-log calibration.

In performing the post-log calibration check, the procedures for pre-log calibration shall be followed, with the exception that no adjustments to the data as described in Section 4.2.3.3 shall be allowed.

4.3 Precautions and Limits

4.3.1 Temperature and pressure limits shall be adhered to as specified in the operating manual for the specific probe. Caliper readings may drift slightly with temperature due to temperature induced changes in the electrical properties of the device.

4.3.2 Caliper probes typically allow selection of arm lengths appropriate for the hole to be logged. If long arms are selected so as to accurately portray the shape of large holes, this may result in a loss of resolution of small changes in hole size. If the arms are too short to extend the full width of enlarged sections, these will not be accurately measured.

4.3.2 Since the caliper probe is an electro-mechanical device. Errors are due to: 1) averaging hole diameter using three arms, 2) non-linearity of the measurement resistor, and 3) tolerance in the mechanical movement of the caliper arms (mechanical hysteresis).

4.3.3 The sensitivity to small features is limited by the width of the contact point at the end of the caliper arm(s), and by the logging speed and the vertical sampling rate.

4.3.4 The log shall be recorded with the tool moving up the borehole.

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4.4 Acceptance Criteria

This log shall be accepted for use based on the expectation that the results will be interpreted quantitatively.

4.4.1 Repeat section shall be similar to the main log, such that features visible in each match in depth (see depth error criterion for re-zero) and size (see validation criterion).

4.4.2 Depths of features in the log agree with other logs, if run.

4.4.3 Rezero is within required tolerances.

4.4.4 Calibration(s) and calibration check(s) are within 0.2 inches or 5% of the actual value, and span the logged hole size.

4.4.5 Log shows reasonable values consistent with experience (i.e., there is no drift, and reasonable variations in hole size are recorded).

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5.0 DETAILED PROCEDURE

Caliper logs are run as standard tools in the three-arm configuration. One-arm caliper logs are usually run in combination with another log such as gamma-gamma density.

Caliper logs are typically recorded with a 0.1 foot sample interval, while the tool is moving up the borehole.

A caliper log as described here will be used to determine detailed borehole size for analysis of BIPS data (or other optical imaging tools).

Caliper logs are typically run as one of a suite of logs during a single visit to a well site. Procedures prior to and upon arrival as described here pertain only to the specific requirements of this procedure. In addition, procedures as specified in TP-13, General Logging Procedures, shall be adhered to where they do not conflict with the specific requirements of this procedure.

5.1 Prior to arrival

No added procedures are necessary beyond those detailed in TP-13.

5.2 On arrival

No added procedures are necessary beyond those detailed in TP-13.

5.3 While Logging

5.3.1 Verify the integrity of the wireline following procedures specified in TP-13.

5.3.2 Attach the caliper probe to the logging cable.

5.3.3 Open caliper arms and verify free motion.

5.3.4 Perform a pre-log calibration of the caliper measurement, following the procedure detailed in 4.2.3. The log shall be run only if this calibration meets the acceptance criteria (see 4.4.4).

5.3.5 Close the caliper arm(s).

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5.3.6 Set wireline depth zero at the tip of the caliper arm(s). If multiple measurements are taken on a single lowering, select an appropriate depth zero point and record on the Tool Description Form the location of that point and of the caliper measurement point. The depth zero should be taken with tension on the wireline similar to that expected while logging, to prevent slack in the cable from biasing the datum.

5.3.7 Lower caliper probe to bottom of interval to be logged.

5.3.8 Open caliper arm(s).

5.3.9 Perform repeat log of a minimum of 50 feet of hole. Tool operation is verified by movement of the caliper trace as the probe is pulled up the well at a rate of approximately 15 feet per minute.

5.3.10 Close arms. Lower caliper probe to bottom of interval to be logged.

5.3.11 Record a log of the complete hole. Tool operation is verified by movement of the caliper trace as the probe is pulled up the well at a rate of 15 feet per minute. Casing size provides an additional caliper validation which may be substituted for the post-log validation. Record depths of “tie points” on Form TP-13-DEPTH.

5.3.12 Close arm(s).

5.3.13 Return caliper probe to surface.

5.3.14 Determine after survey depth error.

5.3.15 The logging sonde may be cleaned at this time.

5.3.15 Perform a post-log calibration check, following the procedure detailed in 4.2.3.

If the calibration check does not meet the acceptance criteria (see 4.4.4), repeat this procedure from 5.3.3.

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5.3.16 If sections of the hole measure larger than the full extension of the caliper arms, a new set of arms shall be selected to increase the range and those sections shall be relogged following these procedures from 5.3.3. If this occurs, use a ring as close to the anticipated diameter of the enlarged interval as possible when performing the calibrations and calibration checks.

5.4 Prior to departure - No additional requirements beyond TP-13.

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6.0 RECORDS

Records shall be provided as detailed in TP-13.

6.1 Form TP-CAL-CAL.

6.2 Data Deliverables

Data deliverables shall be as described in TP-13.

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APPENDIX A
(1 page)

FIGURE A.1

Three Arm Caliper Probe
Checkout/Calibration

Engineer:_____ Location or Well Name:_____ Unit No:_____

Probe Serial No:_____

Pre-Log Calibration:

Date:_____ Time:_____ AM or PM

Ring Diameter	Avg. Measured Diameter	Avg. Counts/Sec	Recorded Filename
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Post-Log Check:

Date:_____ Time:_____ AM or PM

Ring Diameter	Avg. Measured Diameter	Avg. Counts/Sec	Recorded Filename
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Calibration files are recorded at a 1 second time digitize interval for approximately 30 seconds. Average values will be reported.

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Technical Procedure and Work Instructions for *Electrical Properties* Logging

TP-16

Prepared by: _____ Date: 7-6-2002
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-16
Revision History

Revision Level	Issue Date	Change Summary
0	July 7, 2002	New procedure.

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing electrical logging for the Project and to assure the accuracy, validity, and applicability of the methods used.

1.1.2 This procedure further describes the components of electrical logging sondes, the principles and limits of the methods used, the methods used for calibration and performance verification of the equipment, and the requirements for data acceptance and for documentation.

1.1.3 This procedure includes by reference those sections of TP-13 which are common to all measurements.

1.1.4 In applying this procedure to electrical logging measurement, the requirements of this procedure shall supersede those stipulated in TP-13.

1.2 Applicability

1.2.1 This procedure applies to electrical properties measured using either normal resistivity probes or induction probes.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1 or who use data obtained from this procedure if it is deemed to potentially affect public health and safety related to a nuclear waste repository.

1.2.3 All data derived from this procedure that are presented to support the Project, and any equipment calibrations or recalibrations that may be required shall be in accordance with this technical procedure. Deviation from these procedures shall be permitted only under the conditions set forth in Section 6 of TP-13.

2.0 REFERENCES

2.1 Keys, W. Scott, and MacCary, L.M., Application of Borehole Geophysics to Water-Resources Investigations: USGS, Techniques of Water-Resources Investigations, Book 2, Chapter E1.

2.2 Hearst, J.R., and Nelson, P.H., Well Logging for Physical Properties, McGraw Hill, 1985.

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2.3 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D 5753-95, October, 1995.

3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D 5753-95. In addition, definitions common to all logging procedures are provided in TP-13.

3.1 Electrical properties logging involves measurements of the resistivity (or conductivity) of the formation surrounding a borehole, and of the SP or spontaneous potential difference as a function of depth in the hole.

3.2 Resistivity is defined as the ratio of voltage to current per unit distance per unit area. The units are typically ohm-meters. Conductivity is the inverse of resistivity.

3.3 Single point resistance is the ratio of voltage to current in ohms.

3.4 Spontaneous potential (SP) is the voltage difference between a point on a logging probe and a surface reference electrode. The source of this voltage difference is the sum of a number of effects.

3.5 Induction logging is a technique whereby formation resistivity is measured by inducing an oscillating field in the formation and measuring its effect on coils inside the logging tool. Because this does not require a direct electrical connection between the probe and the formation, induction logs can be run in non-conductive fluids (including air), and in boreholes cased with fiberglass or other insulating material.

3.6 Normal resistivity is a technique whereby formation resistivity is measured by delivering current to the formation directly and measuring the voltage difference between pairs of electrodes. This technique requires a direct electrical connection between the formation and the electrodes.

3.7 Recording equipment - Data from the electrical properties probe is sent to the surface as electrical signals which are translated into engineering units and recorded along with depth to produce an electrical log of the hole. The log data is recorded digitally as engineering values and displayed while the log is being run.

3.3 Personnel

Personnel are as defined in TP-13.

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4.0 REQUIREMENTS

4.1 Prerequisites

4.1.1 No prerequisites are required for induction logging other than as stipulated in TP-13.

4.1.2 SP and normal resistivity logs require conductive fluids in the borehole.

4.1.3 A section of insulated wireline is typically required above the logging sonde in order to obtain accurate measurements.

4.2 Tools, Material, Equipment

4.2.1 Measurement apparatus

4.2.2 Standardization apparatus, or access to a standardization borehole

4.2.3 Calibration

4.2.4 Field validation/calibration

4.3 Precautions and Limits

4.3.1 Temperature and pressure limits are specified in the operations manuals of the specific logging sondes. Within those limits, temperature (in particular) can affect the measured response. This effect should be quantified for each tool so that temperature corrections can be applied to the data as necessary.

4.3.2 The range within which a given device is accurate is different for the different measurement techniques. This range shall be specified for each device, and the appropriate device shall be selected for the borehole under investigation.

4.3.3 The properties of the borehole fluid influence the response of electrical resistivity logs in what is commonly known as “Borehole Effects”. As the hole diameter increases, these effects become more pronounced. These effects have been quantified, and log data shall be corrected based on standard techniques.

Because SP and single-point resistance are point measurements, they are typically not affected.

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4.3.4 The geometry of the logging probe (for example, the positions of the source and measurement electrodes of resistivity type probes or the excitation frequency and coil spacing of induction type probes) affects the measurement values.

4.3.4.1 The ability of a given measurement to accurately measure resistivity across a thin bed is a function of the geometry and of the resistivity contrast and bed thickness.

4.3.4.2 The distance away from the borehole which influences a given measurement is a function of the geometry and the radial distribution of electrical properties.

Because SP and single-point resistance are point measurements, they are typically not affected.

4.3.5 Sources of error.

4.3.6 The log shall be recorded with the tool moving **up** the borehole.

4.4 Acceptance Criteria

Electrical resistivity and single-point resistance values shall be accepted for use based on the expectation that the results will be interpreted quantitatively.

SP shall be accepted based on the expectation that the results will be used qualitatively.

4.4.1 Repeat sections for all measurements shall be similar to the main log, such that features visible in each match in depth (see depth error criterion for re-zero) and in the value of the measured data (see validation criterion).

4.4.2 Depths of features in the log shall agree with other logs, if run.

4.4.3 Rezero shall be within required tolerances.

4.4.4 Calibration of resistivity and resistance shall be within required tolerances for repeatability and the span of the logged values measured in the borehole.

4.4.5 Log shall have reasonable values consistent with experience.

5.0 DETAILED PROCEDURE

Electric logs are typically recorded with a 0.1 foot sample interval.

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Electric logs are used to obtain information on the electrical properties of the hydrogeologic section including the soil, rock and groundwater.

Electric logs are typically run as one of a suite of logs during a single visit to a well site. Procedures prior to and upon arrival as described here pertain only to the specific requirements of Electric logs. Where they do not conflict with the procedures detailed here, all of the procedures specified in TP-13 shall also be adhered to.

5.1 SP/normal resistivity/Single-point resistance

This type of electric probe is a simple Werner Array comprised of a current electrode, two measure electrodes spaced at 16 and 64 inches from the current electrode, and a surface electrode. The single point resistance (SPR) is derived from Ohm's law based on voltage changes between the current electrode and the surface electrode while maintaining a constant current. Spontaneous potential (SP) is a passive voltage potential between the current electrode and the surface electrode. The normal resistivities reflect the voltage drop from the current electrode to the respective measure electrodes spaced at 16 and 64 inches from the current electrode. This voltage drop is converted to resistivity based on Ohm's law that assumes a spherically shaped electrical field between the current electrode and the measure electrodes.

5.2 Induction logs

Induction logs contain one or more coils through which a high frequency alternating current is passed to induce a magnetic field surrounding the tool. The positions of these coils and the frequency of the excitation signal determine the geometry of the induced field. This field then induces a current flow in the formation that can be detected at the tool and analyzed to determine the electrical resistivity of the formation.

5.1 Prior to arrival

No added procedures are necessary beyond those detailed in TP-13.

5.2 On arrival

No added procedures are necessary beyond those detailed in TP-13.

5.3 While Logging

5.3.1 Verify the integrity of the wireline.

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5.3.2 Attach electric logging probe to the logging cable. If necessary, separate the tool from the end of the wireline with a length of insulated cable.

5.3.3 Perform a pre-log calibration.

The purpose of pre-log validation is to adjust conversion factors to achieve desired accuracy for the range of

The pre-log validation also provides data for comparison to a post-log validation check.

5.3.4 Set wireline depth zero at the measurement point. Since multiple measurements are taken on a single lowering of the electrical logging sonde, select an appropriate depth zero point and record on the Tool Description Form the location of that point and of all of the points at which electrical measurements are made. The depth zero should be taken with tension on the wireline similar to that expected while logging, to prevent slack in the cable from biasing the datum.

5.3.5 Lower electrical logging sonde to bottom of interval to be logged.

5.3.6 Stipulate a maximum logging speed.

5.3.7 Perform repeat log of a minimum of 50 feet of hole. Tool operation is verified by observing slow variations in the values of the logged data.

5.3.8 Record log of complete hole. Tool operation shall be verified as above.

5.3.9 Return sonde to surface.

5.3.14 Check tool zero.

5.3.15 Perform a post-log validation.

5.4 Prior to departure - no additional requirements beyond TP-13.

6.0 RECORDS

Records shall be provided as detailed in TP-13.

6.1 Form TP-CAL-ELEC.

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7.0 APPENDICES

7.1 Form TP-CAL- ELEC.

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Form TP-CAL- ELEC. Appendix 7.1

Resistivity Logging Probe Checkout/Calibration

Tool Model:_____

Engineer_____ Location_____Unit No. _____
Date_____

Model S/N_____ Module S/N_____Acquire Int.S/N:_____

Cable Resistance (1) _____ (2) _____ (3) _____ (4) _____ (A) _____

File Name_____

Caliper Calibration:

16” Resistivity	Measured w/Meter	Ohm-M
Shorted	_____	_____
2 Ohm Resister	_____	_____
20 Ohm Resister	_____	_____
100 Ohm Resister	_____	_____

64” Resistivity	Measured w/Meter	Ohm-M
Shorted	_____	_____
2 Ohm Resister	_____	_____
20 Ohm Resister	_____	_____
100 Ohm Resister	_____	_____

SP(Spontaneous Potential)

Shorted(Module on)	_____	_____
+100 mV	_____	_____
-100 mV	_____	_____

Comments:

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Technical Procedure and Work Instructions for *Natural Gamma* Logging

TP-18

Prepared by: _____ Date: Thursday, February 15, 2018
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-18
Revision History

Revision Level	Issue Date	Change Summary
0	2/15/18	New procedure.

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing natural gamma measurements for the Project and to assure the accuracy, validity, and applicability of the methods used.

1.1.2 This procedure further describes the components of natural gamma logging, the principles and limits of the methods used, the methods used for calibration and performance verification of the equipment, and the requirements for data acceptance and for documentation.

1.1.3 This procedure also provides standards for data traceability.

1.1.4 This procedure includes by reference those sections of TP-13 measurements which are common to all measurements.

1.1.5 In applying this procedure to natural gamma measurement, the requirements of this procedure shall supersede those stipulated in TP-13.

1.2 Applicability

1.2.1 This procedure applies to natural gamma acquired using scintillation detectors.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1 or who use data obtained from this procedure.

1.2.3 All data derived from this procedure that are presented to support the Project, and any equipment calibrations or recalibrations that may be required shall be in accordance with this technical procedure. Deviation from these procedures shall be permitted only under the conditions set forth in Section 6.3.

2.0 REFERENCES

2.1 Keys, W. Scott, and MacCary, L.M., Application of Borehole Geophysics to Water-Resources Investigations: USGS, Techniques of Water-Resources Investigations, Book 2, Chapter E1.

2.2 Hearst, J.R., and Nelson, P.H., Well Logging for Physical Properties, McGraw Hill, 1985.

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2.3 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D 5753-95, October, 1995.

3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D 5753-95. In addition, definitions common to all logging procedures are provided in TP-13.

3.1 Natural gamma probe

Natural gamma ray logs (also known as gamma ray or gamma logs and hereafter called gamma logs) measure gamma ray radiation naturally emitted from the nucleus of some atoms. Specifically these atoms consist of isotopes of potassium (potassium 40), uranium 238 daughter products and thorium 232 daughter products.

3.2 Recording equipment - Data from the natural gamma probe is sent to the surface as electrical signals which are translated into engineering units and recorded along with depth to produce a natural gamma log of hole size. The log data is recorded digitally as raw counts and as engineering values and displayed while the log is being run.

3.3 Personnel

Personnel are as defined in TP-13.

4.0 REQUIREMENTS

4.1 Prerequisites

No prerequisites are required other than as stipulated in TP-13, Standard logging procedures.

4.2 Tools, Material, Equipment

4.2.1 Natural gamma measurement apparatus.

4.2.2 Standardization apparatus, and/or access to a standardization borehole. Calibration of the gamma tool in a standardized borehole is typically conducted by the geophysical tool manufacturer and considered optional in these TP's.

4.3 Precautions and Limits

The natural gamma ray log may be recorded in either cased or open holes that are fluid or air filled. The gamma measurement can be run in holes

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with temperatures ranging from x to y, and pressures below z. Even within this range, the performance of the gamma ray measurement may be affected by temperature and pressure.

4.3.1 Casing may attenuate the gamma values.

4.3.2 Borehole fluid properties may result in attenuation of the gamma signal or, if the fluid is radioactive, may cause an increase in the measured value.

4.3.3 Excessive borehole size, often caused by air drilling, may degrade natural gamma ray log results because the formation will be further from the probe in areas of hole enlargement.

4.3.4 Natural gamma logging is a statistical measurement. The uncertainty is a function of the number of naturally emitted gamma rays striking the detector.

4.3.5 The sensitivity of a gamma log is a function of logging speed - faster logs result in poorer vertical resolution, and degrade precision and accuracy.

4.3.6 The log shall be recorded with the tool moving up the borehole.

4.4 Acceptance Criteria

This log shall be accepted for use based on the expectation that the results will be interpreted quantitatively.

4.4.1 Repeat section shall be similar to the main log, such that features visible in each match in depth (see depth error criterion for re-zero) and in gamma ray log value (see validation criterion).

4.4.2 Depths of features in the log agree with other logs, if run.

4.4.3 Rezero is within required tolerances.

4.4.4 Calibration check is within required tolerances for linearity, repeatability, and span of logged hole size.

4.4.5 Log shows reasonable values consistent with experience.

5.0 DETAILED PROCEDURE

Natural gamma ray logs (also known as gamma ray or gamma logs and hereafter called gamma logs) measure gamma ray radiation naturally emitted from the nucleus of some atoms. Specifically these atoms consist of isotopes of potassium

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(potassium 40), uranium 238 daughter products and thorium 232 daughter products.

Natural gamma logs are typically recorded with a 0.1 foot sample interval.

Gamma logs provide formation clay and shale content and general stratigraphic correlation in sedimentary formations. In general, the natural gamma ray activity of clay-bearing sediments is much higher than that of quartz sands and carbonates. Gamma logs are also used in hard rock environments to differentiate between different rock types and in mining applications for assessment of radioactive mineralization such as uranium, potash, etc.

Gamma logs are also used as one of a group of measurements run on a single sonde, to allow depth matching of logs between logging runs.

Natural gamma logs are typically run as one of a suite of logs during a single visit to a well site. Procedures prior to and upon arrival as described here pertain only to the specific requirements of gamma-ray logging. Where they do not conflict with the procedures detailed here, all of the procedures specified in TP-13 shall also be adhered to.

5.1 Prior to arrival

In addition to the procedures detailed in TP-13, the following specific calibration procedure are typically performed by the geophysical tool manufactured and presented here only for optional consideration.

OPTIONAL

5.1.1 Calibrations shall be performed at regular intervals in established test pits at various locations in the United States (e.g. Denver Federal Center calibration pits, DOE uranium calibration pits located in Grand Junction or Casper, Wyoming or the API test pits in Houston, Texas). The calibration procedure shall be qualified for this project prior to acceptance of the log data. This requirement will be at the option of the client. For most applications, standardized calibration at the manufacturer will be sufficient.

5.1.2 Calibration checks using calibration check sleeves shall be performed before leaving for the survey location, before entering every borehole, after exiting every borehole, and upon return to the logging operator's home base at the completion of the project.

The purpose of a calibration check is to insure the sensitivity of the gamma probes. The calibration check is performed by placing a

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small radioactive calibration sleeve over the scintillation detector and recording the resulting gamma rays in counts per second.

5.1.2.1 With the probe turned on and stabilized, record the background level of gamma activity.

5.1.2.2 Place the calibration check sleeve over the scintillation detector and record the level of gamma ray activity. This level shall be the sum of the background plus the known contribution of the calibration sleeve.

5.1.2.3 Record the results of the calibration check on Form-??.

5.2 On arrival

No added procedures are necessary beyond those detailed in TP-13.

5.3 While Logging

5.3.1 Verify the integrity of the wireline following procedures detailed in TP-13.

5.3.2 Attach gamma probe to the logging cable

5.3.4 Perform a pre-log calibration check (see 5.1.2).

The purpose of a pre-log calibration check is to compare the measured value to a known standard.

The pre-log calibration check also provides data for comparison to a post-log validation.

5.3.6 Set wireline depth zero at the midpoint of the scintillation detector**.** If multiple measurements are taken on a single lowering, select an appropriate depth zero point and record on the Tool Description Form the location of that point and of the caliper measurement point. The depth zero should be taken with tension on the wireline similar to that expected while logging, to prevent slack in the cable from biasing the datum.

5.3.7 Lower sonde to bottom of interval to be logged.

5.3.9 Perform a repeat log of a minimum of 50 feet of hole. Tool operation is verified by observing variations in the gamma signal with depth.

5.3.11 Record log of complete hole. Tool operation is verified by observing variations in the gamma signal with depth.

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5.3.13 Return sonde to surface.

5.3.14 Check tool zero.

5.3.15 Perform a post-log validation, as detailed above.

5.4 Prior to departure - no additional requirements beyond TP-13.

6.0 RECORDS

Records shall be provided as detailed in TP-13.

6.1 Gamma Calibration Form TP-GAM-1.

7.0 APPENDICES

7.1 Gamma Calibration Form TP-GAM-1.

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Form TP-GAM-1 Appendix 7.1

Engineer_____ Location_____Unit No. _____
Date_____

Probe Type S/N_____ Module S/N_____Acquire Int.S/N:_____

Cable Resistance (1) _____ (2) _____ (3) _____ (4) _____ (A) _____

Multimeter Model:_____ S/N:_____

File Name: :_____

Denver Federal Center Test Pit Information

Test pit B1 Natural Gamma CPS_____File Name_____

Test pit B2 Natural Gamma CPS_____File Name_____

Test pit B3 Natural Gamma CPS_____File Name_____

Medium Density Test Pit Information

3” well Natural Gamma CPS_____File Name_____

5” Well Natural Gamma CPS_____File Name_____

8” Well Natural Gamma CPS_____File Name_____

12” Well Natural Gamma CPS_____File Name_____

High Density Test Pit Information

3” well Natural Gamma CPS_____File Name_____

Comments:

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Technical Procedure and Work Instructions for *HPEM Flow Meter Logging (EM Flowmeter with Upgraded HPL FEC/T sensor)*

TP-32-PCS

Originally Prepared by: _____ Date: 1-11-2001
William H. Pedler

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

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TP-32-PCS
Revision History

Revision Level	Issue Date	Change Summary
0	1/11/2001	New procedure
1	1/04/2006	Revisions and updates
2	2/2011	Revisions and updates
3	12/10/2015	Specifics related to PCS Lanigan Wells
4	8/2016	Specifics related to EM tool with HPL FEC/T Sensor (HPEM)

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1.0 SCOPE

1.1 Purpose

1.1.1 This procedure provides instructions for performing electromagnetic (EM) flowmeter (HPEM) logging with upgraded HPL FEC/T sensor (HPEM flowmeter) and to assure the accuracy, validity, and applicability of the methods used.

2. This procedure further describes the components of HPEM logging, the principles and limits of the methods used, the methods used for calibration and performance verification of the equipment, and the requirements for data acceptance and for documentation.

3. This procedure includes by reference those sections of TP-13 which are common to all measurements.

1.1.4 In applying this procedure to the HPEM measurement, the requirements of this procedure shall supersede those stipulated in TP-13.

1.2 Applicability

1.2.1 This procedure applies to borehole flow data acquisition using the EM flowmeter as originally developed by the USDOE. Other similar flowmeter systems may use this technical procedure provided that any modifications to these procedures are documented as described in TP-13.

1.2.2 This procedure applies to all Client and contractor personnel who perform work referred to in paragraph 1.1 or who use data obtained from this procedure if it is deemed to potentially affect public health and safety as related to a contaminated site.

1.2.3 All data derived from this procedure that are presented to support the Project, and any equipment calibrations or recalibrations that may be required shall be in accordance with this technical procedure. Deviation from these procedures shall be permitted only under the conditions set forth in Section 6 of TP-13.

2.0 REFERENCES

2.1 Keys, W. Scott, and MacCary, L.M., Application of Borehole Geophysics to Water-Resources Investigations: USGS, Techniques of Water-Resources Investigations, Book 2, Chapter E1.

2.2 Hearst, J.R., and Nelson, P.H., Well Logging for Physical Properties, McGraw Hill, 1985.

2.3 Standard Guide for Planning and Conducting Borehole Geophysical Logging, ASTM Designation D 5753-95, October, 1995.

2.4 Young, Steven, et.al 2000

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3.0 DEFINITIONS

Definitions shall be in accordance with ASTM D 5753-95. In addition, definitions common to all logging procedures are provided in TP-13.

3.1 The HPEM (ElectroMagnetic Flow Meter with HPL FEC/T sensor upgrade) consists of two magnentic coils placed around a flow cell which acquires and transmits differential current data to surface processing and recording equipment. High resolution fluid electrical conductivity and temperature (FEC/T) are simultaneously measured **(Appendix 1)**

The HPEM is a downhole tool which measures only vertical flow in a wellbore. The sonde consists of a cylindrical chamber with two copper wire coils which when power by an external source generate a current which is directly proporational to the velocity of the medium passing through the magnetic field. The polarity of the recorded voltage indicates either upflow or downflow. The in-sensor velocity and conversions to flow in gpm and lpm units are displayed versus depth on a monitor in the logging truck. Fig. **Appendix 2** shows a typical log, The data is on the up hole computers hard drive. The six pole FEC sensor and thermistor are located at the top of the tool.

The location of water bearing intervals is accomplished independently by the HPEM. When used in conjunction with traditional geophysical logs, namely 3-arm caliper, in-sensor velocities can be converted to interval specific volumetric flow rates. The HPEM is a principally a trolling, or dynamic, measurement device, without using flow divertors or "skirts". By employing the HPEM during ambient (non-stress/non-pumping) conditions and during stressed conditions, and in conjunction with observed drawdown data, estimates of interval specific transmissivity/hydraulic conductivity can be estimated.

The in-sensor velocity range for the HPFM is approximately 0 to 150 fpm. Resolution and accuracy are approximately 5 fpm and 5 fpm, respectively.

The depth, raw counts, in sensor velocity and converted flow rates are presented on the computer monitor and simultaneously recorded on the harddrive.

3.2 The HPEM shall be run on multi-conductor logging cable.

3. The surface recording equipment mounted in the logging truck provides DC power to the probe, which is otherwise entirely self-contained and runs independently of the surface system. The surface electronics receives and displays depth and flow data and processes them for digital data acquisition and display.

4. Personnel

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Personnel are as defined in TP-13.

4.0 REQUIREMENTS

4.1 Prerequisites

In addition to the prerequisites stipulated in TP-13:

1. The borehole shall be either completed either open hole or completed with screen and casing. A sufficient period of time after drilling and well completion to allow the well and surrounding aquifer to stabilize prior to HPEM logging. Water level measurements after drilling will be conducted to insure reasonably stable aquifer condition.

4.1.2 The borehole shall be clear of restrictions that prevent entry of the tool (including centralizers).

3. In order to properly evaluate HPEM data, a minimum suite of geophysical logs must be conducted and interpreted prior to HPEM logging.

   For open bedrock wells, the minimum suite is:

   1) 3-arm caliper log
   2) Borehole imaging log (either ATV, FMI or Digital Optical Imaging tool).

   For wells completed with screen and casing, the minimum suite is:

   1) 3-arm caliper log

4. The previously described geophysical logs are printed up, reviewed and HPEM logging conducted.

4.2 Tools, Material, Equipment

1. The digital data will be recorded and processed in the field on a personal computer and stored on hard drive. The raw data may later be reanalyzed using the same processing software.

4.2.2 Portable aluminum cradle or tool stand to facilitate assembly and breakdown of the probe.

4.2.3 A sprayer and a clean water supply to clean drilling fluid from tool after use will be available at wellhead.

4.2.4 HPEM centralizers

4.2.5 Calibration jig **(Appendix 3)**

The calibration tube consists of a cylinder large enough for the HPEM tool to fit inside. The diameter of the tube should be similar to that of the HPEM and about seven feet tall. A storage

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tank for potable of about 30 gallons, a small electric pump (1.0 to 7.0 gpm) a flow meter, valve, cam lock fittings and two lengths of flexible hose, about four feet long, will be configured as presented in Appendix 3. The calibration chamber can be configured for either upflow or downflow. This calibration can be done either by the manufacturer of operator.

6. Data Information and calibration sheets (HPEM Logging Forms 1.0 - 5.0) and Operating Procedures.

7. The HPEM probe shall be checked for proper calibration for the following purposes:

   1) To verify system operation.

   2) To verify the repeatability of the flow measurement under controlled conditions.

   3) To estimate a constant multiplier of measured velocity to actual flow.

8. Proper Calibration Check Procedure

   Recalibration of the HPEM in the field is an elaborate undertaking and rarely required. However, confirmation of proper calibration can be performed in the field to confirm proper calibration and to confirm accurate tool response if a fluid of significantly different FEC to that which was used to calibrate the tool in laboratory. Formal calibration is to be conducted under controlled conditions in a laboratory when pre-logging calibration checks indicate a problem or after probe repair.

   Calibrations shall be performed before leaving the home office for the logging location and upon return to the home office at the completion of the project. This additional calibration check is considered optional and at the Clients request. However, if fluids to be encounter during testing, either native formation fluids or injection fluids, are dramatically different than those fluid used during laboratory calibration, field calibration will be at the discretion of the PI.

   In the field, the probe shall be calibrated prior to logging and the calibration shall be checked following logging every borehole.

   4.2.10.1 Fill the storage tank with potable water and allow to thermally equilibrate to ambient temperature.

   4.2.10.2 Attach the HPEM tool to the cable.

   4.2.10.3 Place the tool in the calibration tube. A wood clamp will be used to secure the tool in such a position that the sensor section is located equidistant from the two inlets/outlets.

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4. Fill the chamber such that the water level is at or above the upper inlet.
5. Set logging depth to 1000 feet..
6. With the chamber in a stagnant (no flow) condition, take several flow readings. Allow at least five minutes of data acquisition period. Record all readings to the computer hard drive.
7. Configure the hoses from the pump unit and the tank such that upflow occurs in the flow chamber.
8. Open valve for low flow conditions.
9. Initiate pumping. Using the in-line flow meter, adjust the valve such that a stable through sensor velocity of 25-30 fpm is observed. This velocity should correspond to about 0.9-1.1 gpm upflow when tool is place in 2 inch ID PVC pipe and the tool is snug against inside the pipe. In this condition, all flow should be passing through the sensor.
10. With the flow chamber in the low flow condition, initiate data collection. Using time drive at 6 fpm and sample interval of 0.1 feet, collect continuous flow data. Collect data for a minimum of 5 minutes or 30 feet. Record all readings to the computer hard drive. Stop pumping. Reverse hoses such that down flow conditions are created. Perform same procedures as for low rate upflow conditions. At the conclusion of low rate calibration, terminate pumping.
11. Configure hose for up flow testing.
12. Open valve for high flow conditions.
13. Initiate pumping. Using the in-line flow meter, adjust the valve such that a stable velocity of about 150 fpm (or 6.8-7.2 gpm) upflow is achieved in the flow chamber.
14. With the flow chamber in the high flow condition, initiate data collection. Using time drive at 6 fpm and sample interval of 0.1 feet, collect continuous flow data. Collect data for a minimum of 5 minutes or 30 feet. . Record all readings to the computer hard drive. Stop pumping. Reverse hoses such that down flow conditions are created. Perform same procedures as for high rate upflow conditions. At the conclusion of high rate calibration, terminate pumping.
7. Record all calibration data to hard disk.

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8. Complete Form TP-HPEM-CAL-SHOP to document the calibration.

4.2.11 Field Calibration Check Procedure

A field calibration check may be conducted as described above. Alternatively, during lowering of the flow meter in the cased portion of the well if saturated. If possible, flow velocity measurements in the cased portion of the well are conducted to confirm proper tool operation. Up and down tests at different logging speeds can be conducted to verify proper tool response.

4.2.12 Calibration Records

Calibration data shall be recorded on the forms specified for both the pre and post logging calibrations performed for each logging run. These forms shall be maintained as described by the Client. The calibration forms shall include the instrument specifications, instrument identification number, well location, date and time calibration was performed, the standard used, its range and accuracy, responsible division subunit, person executing calibration procedure, and any pertinent observations. The calibration forms shall be signed and dated by the person performing the calibration.

Calibration and calibration check data shall be recorded as raw data on the field computer hard drive.

4.3 Precautions and Limits

1. The HPEM shall be run in an uncased hole open bedrock wells. The HPEM shall also be run in wells completed with multiple screened intervals or long screened intervals.
2. Prior to logging in a newly drilled well bore, sufficient development of the well will be conducted to remove cuttings and drill mud from the conductive intervals. This can be accomplished by surging, air lift (with N2 or compressed atmospheric gas), development pumping, etc.
3. At the conclusion of well development, a water level value will be collected and monitored to insure a water level representative of true native conditions is observed. This may take several hours depending on the overall trasmissivity of the subject formation.
4. Flow measurements should be made during continuous logging at low speeds (5-10 fpm). Effects to the collected data caused by borehole wall rugosity will be determined by interpretation of the 3-arm caliper and ATV logs.

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5. Measure water level in the well before, during, and after flow logs during the measurement period.

6. The centralizers used with the HPEM allow abundant opportunity for "catching" of the probe as it is lowered into the well, causing a momentarily slack cable. This, in turn, can cause depth errors and noise in flow velocity data. As such, measurements should be made with a sinker bar, or weighted section, added to the logging string.

7. When trolling with the tool and collecting data, the operator must pay very close attention and maintain a constant logging rate, typically 5-10 fpm.

4.4 Acceptance Criteria

This log shall be accepted for use based on the expectation that the results will be interpreted **quantitatively**.

1. The pre-log calibration shall result in an acceptable level of repeatability (less than 5%) and accuracy (within 5% of independent flow meter).

2. The post-log calibration check shall result in an acceptable level of reproducibility and accuracy to that of the pre-log calibration.

3. After Survey Depth Error (ASDE) shall be within required tolerances.

5.0 DETAILED PROCEDURE

These procedures apply to the HPEM, where measurements are given by the calibrated discharge through a cylindrical measurement section. Flow measurement procedures are governed by the general application for which the flow data is being used:

5.1 The HPEM data can be used to:

1. Identify aquifer zones to determine how many water producing zones are present, if cross-flow between zones is occurring, and the geologic horizons that correspond with those water producing zones.

2. Identify zones and assign *relative* transmissivity values for each zone, such that the relative proportion of water contributed from each zone can be used to identify the source of constituents in sampled waters.

3. Identify producing zones and obtain *quantitative* estimates of the transmissivity and hydraulic head of those zones to be used in predicting the rate of production and drawdown from each zone under any imposed conditions.

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HPEM logs are typically run as one of a suite of logs during a single visit to a well site. Procedures prior to and upon arrival as described here pertain only to the specific requirements of the HPFM. Where they do not conflict with the procedures detailed here, all of the procedures specified in TP-13 shall also be adhered to.

5.1 Prior to arrival

In addition to those procedures detailed in TP-13.

5.1.1 Select the appropriate centralizers for use in the well.

5.1.2 Assure that the logging truck has a logging cable of sufficient length to perform the log.

5.2 On arrival

5.2.1 Make up tool with sinker bar assembly and centralizers.

5.2.2 Install and initiate water level (pressure) monitoring equipment. If any observation wells are to be monitored during HPEM testing, initiate and synchronize all chronometers.

5.2.3 Review ancillary geophysical data for potential issues that may effect HPEM results.

5.3 While Logging

5.3.1 The HPEM shall be run centralized in the borehole where test logistics allow. Adjust the probe centralizer for optimal centralization in the interval to be logged.

5.3.2 Visually inspect all joints on the HPEM to be sure they are tight.

5.3.4 Verify the integrity of the wireline, using the procedures described in TP-13.

5.3.5 Attach the probe to logging cable and connect the cable to the surface recording equipment. Turn power on to the logging system and allow sufficient warm up time. Power tool only when submerged.

5.3.6 Prepare computer for data storage to hard drive.

5.3.7 Conduct a pre-log tool operational check.

5.3.8 Set the software depth counter to read zero when probe measuring point is depth referenced to the measurement datum (land surface, top of casing, etc.). The depth zero should be taken with tension on the wireline similar to that expected while logging, to prevent slack in the cable from biasing the datum.

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5.3.9 Maintain a record of depth measurements according to procedures specified in TP-13.

10. Measure and record ambient water level. Water level measurements should be recorded periodically during the HPFM logging. The frequency of these recordings is based on the type of testing performed. If HPEM is conducted during ambient (non-pumping conditions, water level measurements should be recorded at the beginning and end of each sampling location. During pumping, water level measurements should be taken at a minimum of every five minutes throughout the period of pumping.

11. Lower the probe to the deepest sampling depth. Flow analysis with the HPFM will occur from the bottom up, minimizing any up-down movement so as to reduce possible depth errors.

12.

13. Determine after survey depth error.

5.3.17 Record a Post-log calibration check.

5.4 Prior to departure - no additional requirements beyond TP-13.

6.0 RECORDS

Records shall be provided as detailed in TP-13.

6.1 Form TP-CAL-HPFM.

2. Data shall be recorded on hard drive and backed up to either a well specific CR-R of floppy disk. Observer's logs (or records) shall be maintained of all pertinent information, including data, time, recording cording parameters, borehole data, water level casing information, unusual conditions, etc.

3.

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7.0 APPENDICES

7.1 Appendix 1: Diagram of HPFM device.

7.2 Appendix 2: Example data recorded during a HPFM log.

3. Appendix 3: Calibration tube.

4. Form TP-CAL-HPFM

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Diagram of HPEM Device Appendix 7.1

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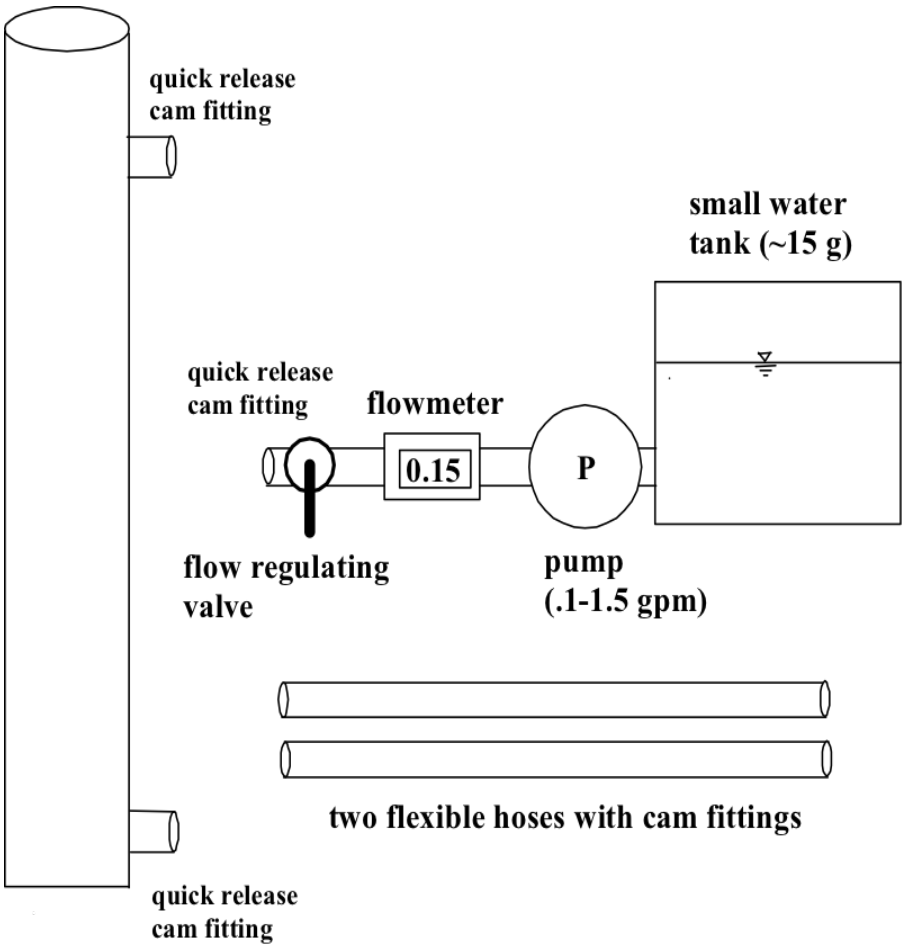
HPEM Calibration tube Appendix 7.2



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Appendix D

Montages

RAS

REALtime Aquifer Services

Geophysical log of SG3-MW17-BR1

CSM Investigation   Bennington, VT

Saint-Gobain Performance Plastics

COMPANY:	BARR ENGINEERING CO.	LOG MEASURED FROM:	GL	DRILL COMPANY:	CASCADE DRILLING	SERVICE COMP.:	RAS
PROJECT:	45021004.00	LATITUDE (DEG)	42.91747841	DRILL START DATE:	09/26/2017	WELL AZIM (deg):	VERTICAL
FIELD:	N/A	LONGITUDE (DEG)	-73.20233543	DRILL END DATE:	11/20/2017	WELL INCL (deg):	VERTICAL
STATE	VERMONT	ELEVATION (FT):	945.9	RIG NUMBER:	N/A		

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
10.00	0.00	310.00	WATER
6.00	310.00	380.00	

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
STEEL	6.00	-3.00	310.00
	4.00	-3.00	369.00

REMARKS

MAGNETIC DECLINATION: N/A
RECORDED BY:
LOGGER TD: 368 FT
DRILLER TD: 380 FT

Geophysical Log of SG3-MW17-BR2

CSM Investigation **Bennington, VT**

Saint-Gobain Performance Plastics

REALtime Aquifer Services

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**CASCADE DRILLING**	SERVICE COMP:	**RAS**
PROJECT:	**45023304.00**	LATITUDE (DEG)	**42.91937741**	DRILL START DATE:	**10/11/2017**	WELL AZM (deg):	**VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**-73.18991411**	DRILL END DATE:	**12/09/2017**	WELL INCL (deg):	**VERTICAL**
STATE:	**VERMONT**	ELEVATION (FT)	**894.3**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
10.00	**0.00**	**147.00**	**WATER**
6.00	**147.00**	**263.00**	

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
STEEL	**6.00**	**-3.00**	**147.00**

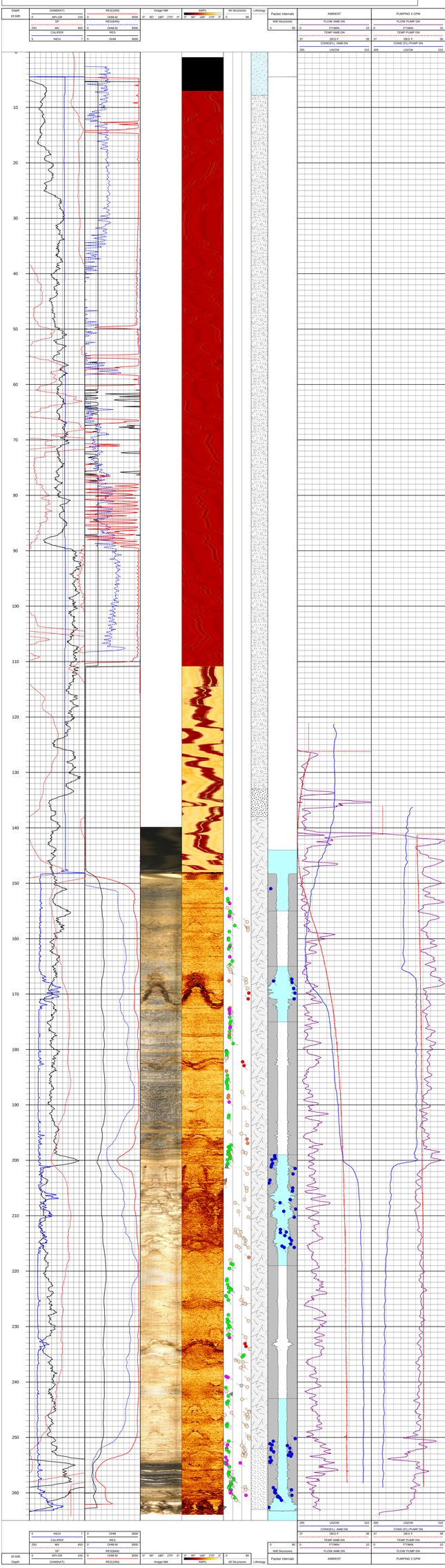
REMARKS

MAGNETIC DECLINATION:
RECORDED BY:
LOGGER TD: 263 FT
DRILLER TD: 263 FT

LEGEND

GEOLOGICAL STRUCTURE

Weak Zone / Undifferentiated; Major Open Joint / Fracture; Intermediate Open Joint/Fracture; Minor Open Joint / Fracture; Partially Open Joint / Fracture; Filled Fracture / Joint; Bedding / Banding / Foliation; Induced Fracture; Water Bearing Fracture/Joint



Geophysical log of SG3-MW17-BR3

CSM Investigation **Bennington, VT**

Saint-Gobain Performance Plastics

REALtime Aquifer Services

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**CASCADE DRILLING**	SERVICE COMP:	**RAS**
PROJECT:	**45021004.00**	LATITUDE (DEG)	**42.920706651**	DRILL START DATE:	**10/23/2017**	WELL AZM (deg):	**VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**-73.199017737**	DRILL END DATE:	**11/11/2017**	WELL INCL (deg):	**VERTICAL**
STATE	**VERMONT**	ELEVATION (FT)	**956.8**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
10.00	**0.00**	**115.00**	**WATER**
6.00	**115.00**	**273.50**	

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
STEEL	**6.00**	**-3.00**	**115.00**
PVC	**4.00**	**-3.00**	**272.00**

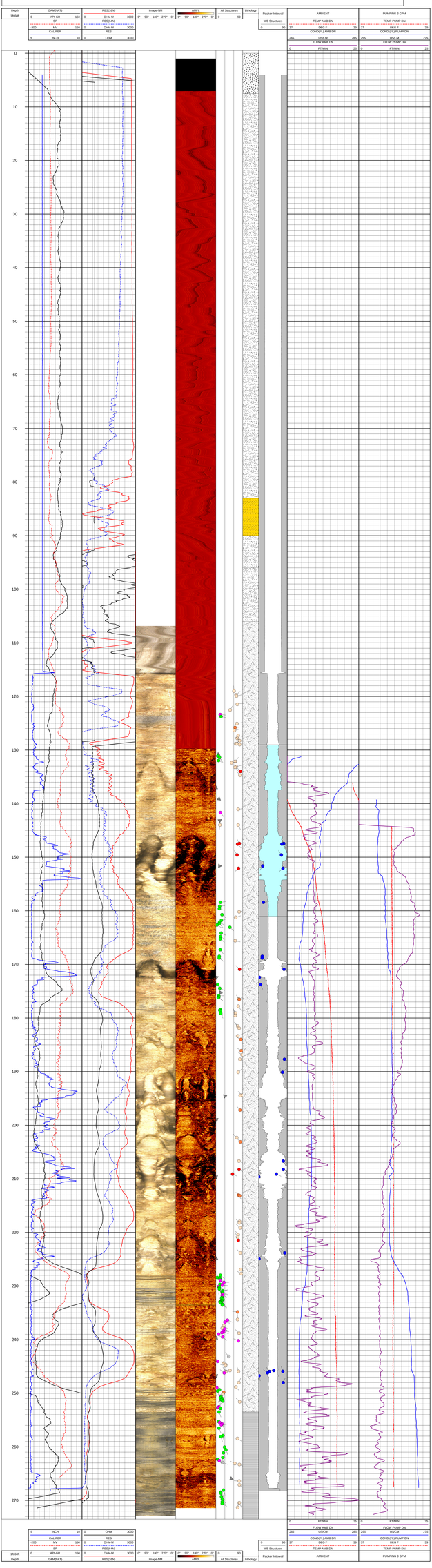
REMARKS

MAGNETIC DECLINATION: N/A
RECORDED BY:
LOGGER TO: 272.00 FT
DRILLER TO: 273.50 FT

LEGEND

GEOLOGICAL STRUCTURE

Weak Zone / Unidifferentiated · Major Open Joint / Fracture · Intermediate Open Joint/Fracture · Minor Open Joint / Fracture · Partially Open Joint / Fracture · Filled Fracture / Joint · Bedding / Banding / Foliation · Induced Fracture · Water Bearing Fracture/Joint



Geophysical log of SG3-MW17-BR4

CSM Investigation

Bennington, VT

Saint-Gobain Performance Plastics

REALtime Aquifer Services

COMPANY	SAINT-GOBAIN/CSM	LOG MEASURED FROM	0	DRILL COMPANY	CASCADE DRILLING
PROJECT	BENNINGTON	LATITUDE (DEG)	42.920439E	DRILL METHOD	ROTARY
FIELD	NA	LONGITUDE (DEG)	-73.196251W	DRILL END DATE	10/14/2017
STATE	VERMONT	ELEVATION (FT)	617.8	RIG NUMBER	N/A

SERVICE COMP.	RAS
WELL ACTIV (Mag)	VERTICAL
WELL INCL (Mag)	VERTICAL

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
8.00	0.00	440.00
6.00	423.00	450.00

FLUID TYPE

WATER

CASING RECORD

TYPE	O. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
HOLE	8.00	0.00	440.00
PVC	6.00	0.00	447.00

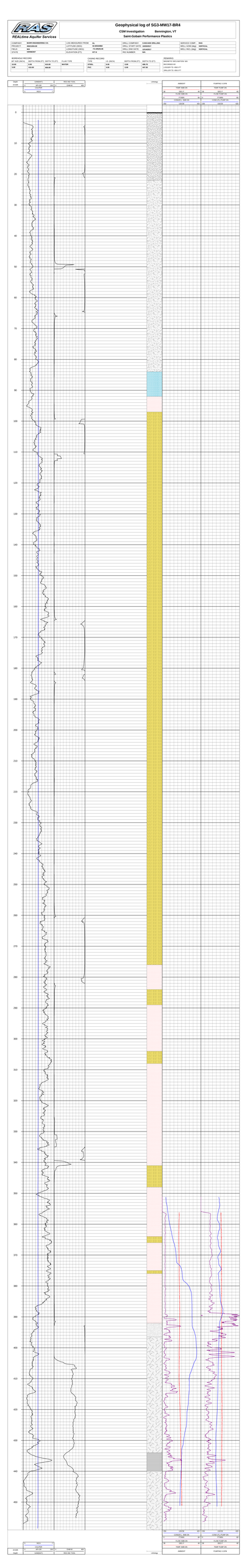
REMARKS

MAGNETIC DECLINATION: NA

LOGGER TD 450.0 FT

LOGGER TD 450.0 FT

DRILLER TD 450.0 FT



REALtime Aquifer Services

Geophysical log of Monitor Well B-2-3

CSM Investigation Bennington, VT

Saint-Gobain Performance Plastics

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**D.L. Maher**	SERVICE COMP.:	**RAS**
PROJECT:	**45021004.00**	LATITUDE (DEG)	**42.920937**	DRILL START DATE:	**10/19/1992**	WELL AZIM (deg):	**VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**-73.195217**	DRILL END DATE:	**3/3/1993**	WELL INCL (deg):	**VERTICAL**
STATE	**VERMONT**	ELEVATION (FT):	**915.2**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

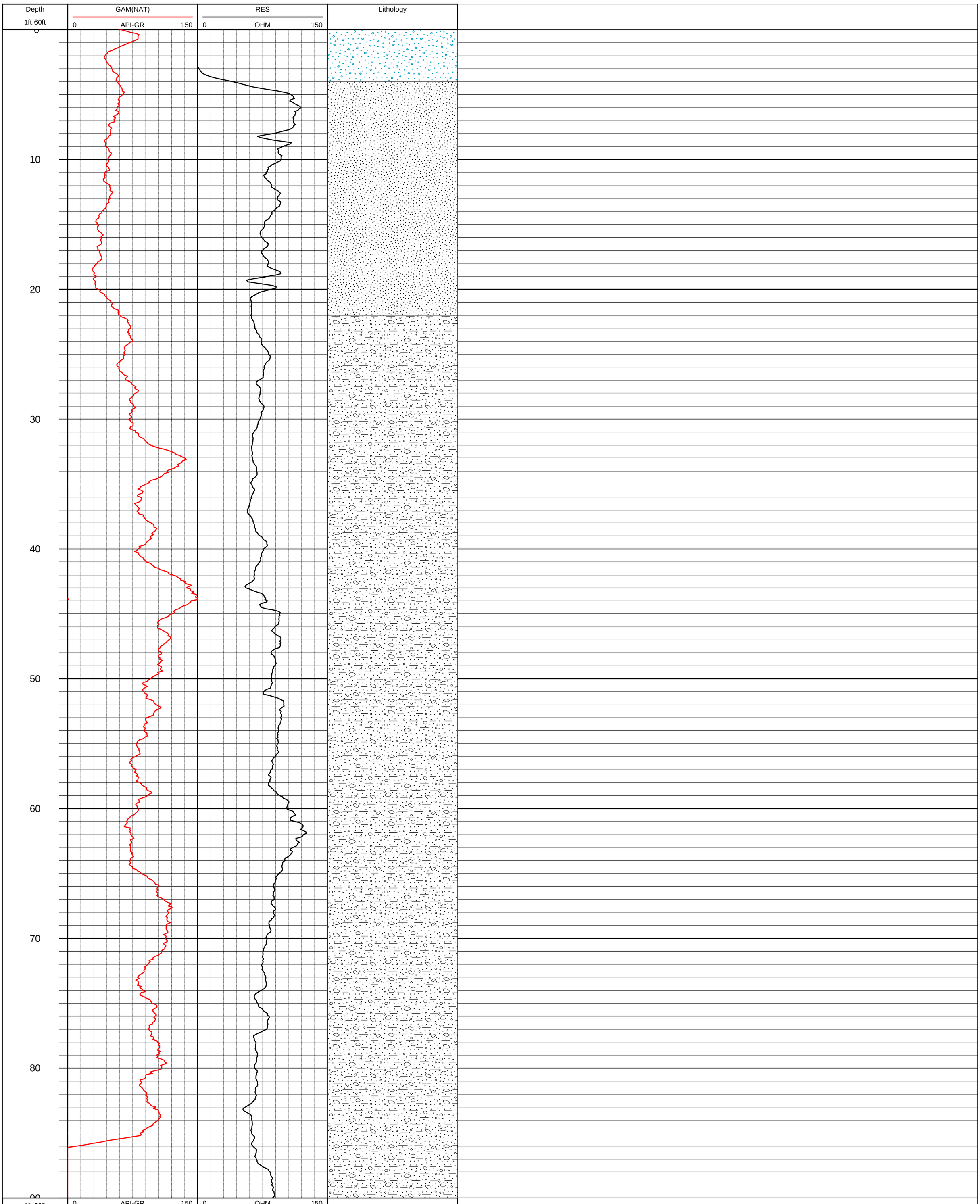
BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
6	**0**	**550**	**NA/Mud**
4	**550**	**555**	**Mud**
3.5	**555**	**575.9**	**Water**

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
PVC	**2**	**+3**	**575.9**
Steel	**4**	**265**	**550**

REMARKS

MAGNETIC DECLINATION: N/A
RECORDED BY:
LOGGER TD:
DRILLER TD:



REALtime Aquifer Services

Geophysical log of Monitor Well B-4-3

CSM Investigation **Bennington, VT**

Saint-Gobain Performance Plastics

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**D.L. Maher**	SERVICE COMP.:	**RAS**
PROJECT:	**450/21004.00**	LATITUDE (DEG):	**42.923309**	DRILL START DATE:	**10/26/1992**	WELL AZIM (deg):	**VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**-73.201318**	DRILL END DATE:	**2/3/1993**	WELL INCL (deg):	**VERTICAL**
STATE	**VERMONT**	ELEVATION (FT):	**990**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
6	**0**	**9.5**	**NA**
6 nominal	**9.5**	**218**	**Air**

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
PVC	**2**	**+3**	**218**

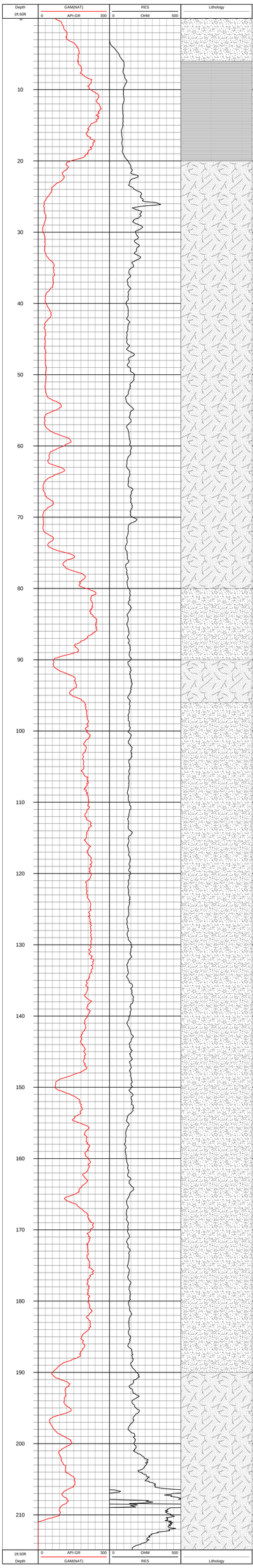
REMARKS

MAGNETIC DECLINATION: N/A

RECORDED BY:

LOGGER TD:

DRILLER TD:



REALtime Aquifer Services

Geophysical log of Monitor Well B-6-3

CSM Investigation **Bennington, VT**

Saint-Gobain Performance Plastics

COMPANY:	**BARR ENGINEERING CO.**	LOG MEASURED FROM:	**GL**	DRILL COMPANY:	**D.L. Maher**	SERVICE COMP.:	**RAS**
PROJECT:	**45021004.00**	LATITUDE (DEG)	**42.920651**	DRILL START DATE:	**1/5/1993**	WELL AZIM (deg):	**VERTICAL**
FIELD:	**N/A**	LONGITUDE (DEG)	**-73.197685**	DRILL END DATE:	**1/26/1993**	WELL INCL (deg):	**VERTICAL**
STATE	**VERMONT**	ELEVATION (FT):	**953.45**	RIG NUMBER:	**N/A**		

BOREHOLE RECORD

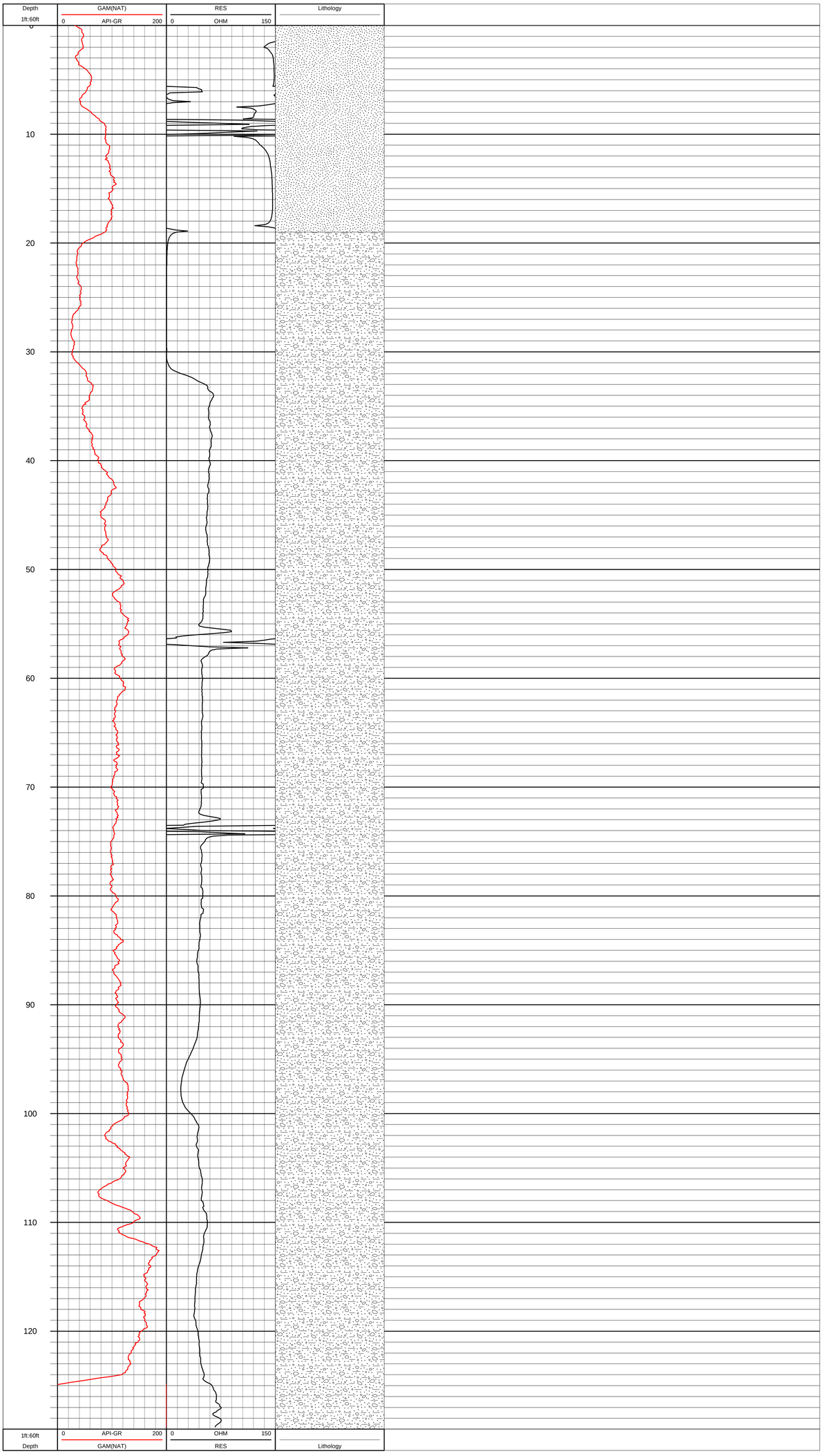
BIT SIZE (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)	FLUID TYPE
6	**0**	**142**	**NA**
3.5	**142**	**163.5**	**Water**

CASING RECORD

TYPE	I.D. (INCH)	DEPTH FROM (FT)	DEPTH TO (FT)
PVC	**2**	**+3**	**161.6**

REMARKS

MAGNETIC DECLINATION: N/A
RECORDED BY:
LOGGER TD:
DRILLER TD:



Appendix E

Hydrostratigraphy
&
Packer Testing

Integrated Subsurface Evaluation

Well SG3-MW17-BR-2
Summary Hydrostratigraphy Table

Flow Zone No.	Depth of Flow Zone (ft)	Ambient Interval Flow Rate (gpm)	During Pumping Interval Specific Flow (gpm)	Comments
1	148-151	<0.1	<0.1gpm	1 minor open joint; low gamma, resistivity and SP impacted by adjacent steel casing, nominal caliper; quartzite; saturated and sampled by straddle packer attempted (SP interval 1), extreme low inflow rate precludes sampling
2	167-172	<0.1	0.9	2 major open, 1 minor open, 3 partially open fractures; quartzite; decreased gamma, caliper excursions, slight decrease in resistivity, increase SP; saturated and sampled by straddle packer attempted (SP interval 2).
3	199-217	<0.1	1.7	2 intermediate open, 19 partially open fractures, 2 weak zones, 5 bedding plane; quartzite; generally low gamma with spike a top of interval, slight decrease resistivity, increase in SP, minor caliper excursions; saturated and sampled by straddle packer attempted (SP interval 3).
4	250-254.5	<0.1	0.8	5 minor open, 9 partially open fractures and 3 bedding planes; quartzite; sl. increase gamma, increase SP, nominal caliper, decreasing resistivity; saturated and sampled by straddle packer attempted (SP interval 4)
5	259-264	<0.1	0.9	3 minor open, 4 partially open, 1 weak/ undifferentiated zones, 4 bedding planes; quartzite; shoulder of increasing gamma, dramatic decreasing SP, low resistivity, excursions in caliper; ; saturated and sampled by straddle packer (SP interval 4, combined with flow zone 4, above).

Well BR-2. This table summarizes the hydraulically conductive intervals identified by EMFM (ambient/pumping conditions), geology and the associated geophysical response. Straddle packer intervals can be cross-referenced to well BR- 2 Summary Packer Table.

Well SG3-MW17-BR-2
Packer Summary Tables

Straddle Packer Interval No.	Depth of Straddle Packer Interval (ft)	Average Flow Rate During Sampling (gpm)	Maximum Drawdown During Sampling (ft)	Estimated Interval Specific Depth to Ambient Water Level (ftbgs)
1	144-154	<0.01	> 31.1	NA (insufficient stabilization period)
2	165-175	0.13	NA	110.8
3	199-219	0.2	NA	110.6
4	243-265(TD)	1.7	11.0	111.3

Well SG3-MW17-BR-2. This table presents Pumping Flow Rates, Drawdown, and Estimated Depth to Ambient Water Level observed during Straddle Packer testing and Sampling. (Slug type pressure response associated with bladder pumps not applicable for determining maximum drawdown). Interval specific depth to water based on pre versus post inflation pressures and pre-inflation static water level. Open hole depth to water level measurements varied from 110.5 to 111.6 ftbgs during the period of sampling (January 15-20, 2018).

Straddle Packer Interval No.	Depth of Straddle Packer Interval (ft)	Average Flow Rate During Sampling (gpm)	Maximum Drawdown During Sampling (ft)	Maximum Differential Head Observed During Pumping for Sample (ft)	
				Upper Pressure Transducer	Lower Pressure Transducer
1	144-154	<0.01	>31.1	<0.1	<0.1
2	165-175	0.13	NA	0.2	0.3
3	199-219	0.2	NA	0.25	<0.1
4	243-265(TD)	1.7	11.0	0.3	NA – single packer set

Well SG3-MW17-BR-2 Packer Summary Table of Observed Maximum Differential Pressures. Differential pressures recorded by the pressure transducers located above (Upper), and below (Lower) the packed off sample interval. Differential pressure is pre-pumping pressure versus maximum pressure recorded during pumping. Complete pressure history for all packer tests can be found in Appendix F. Manual measurements used when available.

Well SG3-MW17-BR-3
Summary Hydrostratigraphy Table

Flow Zone No.	Depth of Flow Zone (ft)	Ambient Interval Flow Rate (gpm)	During Pumping Interval Specific Flow (gpm)	Comments
1	147.4-158.5	<0.2	5.4	Upper depth of interval unknown, assumed to top of immediate dominant feature (147.5ft) 4 major open, 1weak zones and 1 bedding plane; quartzite formation; low gamma, decreased resistivity; saturated and sampled by straddle packer (SP interval 1), likely dominant conductive interval.
2	167.8-174.0	<0.2	4.0	3 bedding planes, 1 major open joint and 1 weak zone open fracture; quartzite; decreased gamma, caliper excursion, decrease resistivity, increase SP; saturated not sampled.
3	188.2-192.7	<0.2	3.3	2 partially open fracture; quartzite; low gamma, high resistivity, variable caliper; saturated not sampled.
4	205.0-210.0	<0.2	6.0	2 major open, 1 partially open, and 1 week zone; quartzite; sl. increase gamma, increase SP, large excursions in caliper, high resistivity; saturated, not sampled, likely major conductive interval
5	223.5-226.0	<0.2	2.0	1 partially open, 1 weak/undifferentiated zones; quartzite; shoulder of increasing gamma, increasing SP, shoulder of decreasing resistivity, moderate excursions in caliper; saturated not sampled.
6	246.0-248.0	<0.2	2.3	1 minor open fracture, 1 weak/undifferentiated zone and 4 partially open fractures; quartzite and phyllite; increasing gamma, decreasing resistivity, nominal caliper; saturated but not sampled.

Well BR-3. This table summarizes the hydraulically conductive intervals identified by EMFM (ambient/pumping conditions), geology and the associated geophysical response. Straddle packer intervals can be cross-referenced against well BR-3 Summary Packer Table.

Well SG3-MW17-BR-3
Packer Summary Table

Straddle Packer Interval No.	Depth of Straddle Packer Interval (ft)	Average Flow Rate During Sampling (gpm)	Maximum Drawdown During Sampling (ft)	Estimated Interval Specific Depth to Water (ftbgs)
1	128(WL)-161	1.6	0.3	127.8

Well SG3-MW17-BR-3. This table presents Pumping Flow Rates, Drawdown, and Estimated Depth to Ambient Water Level observed during Straddle Packer Testing and Sampling. Open hole depth to water was recorded at 127.8 ftbgs on day of packer sampling (January 22, 2018)

Straddle Packer Interval No.	Depth of Straddle Packer Interval (ft)	Average Flow Rate During Sampling (gpm)	Maximum Drawdown During Sampling (ft)	Maximum Differential Head Observed During Pumping for Sample (ft)	
				Upper Pressure Transducer	Lower Pressure Transducer
1	128(WL)-161	1.6	0.3	NA – single packer set	<0.1

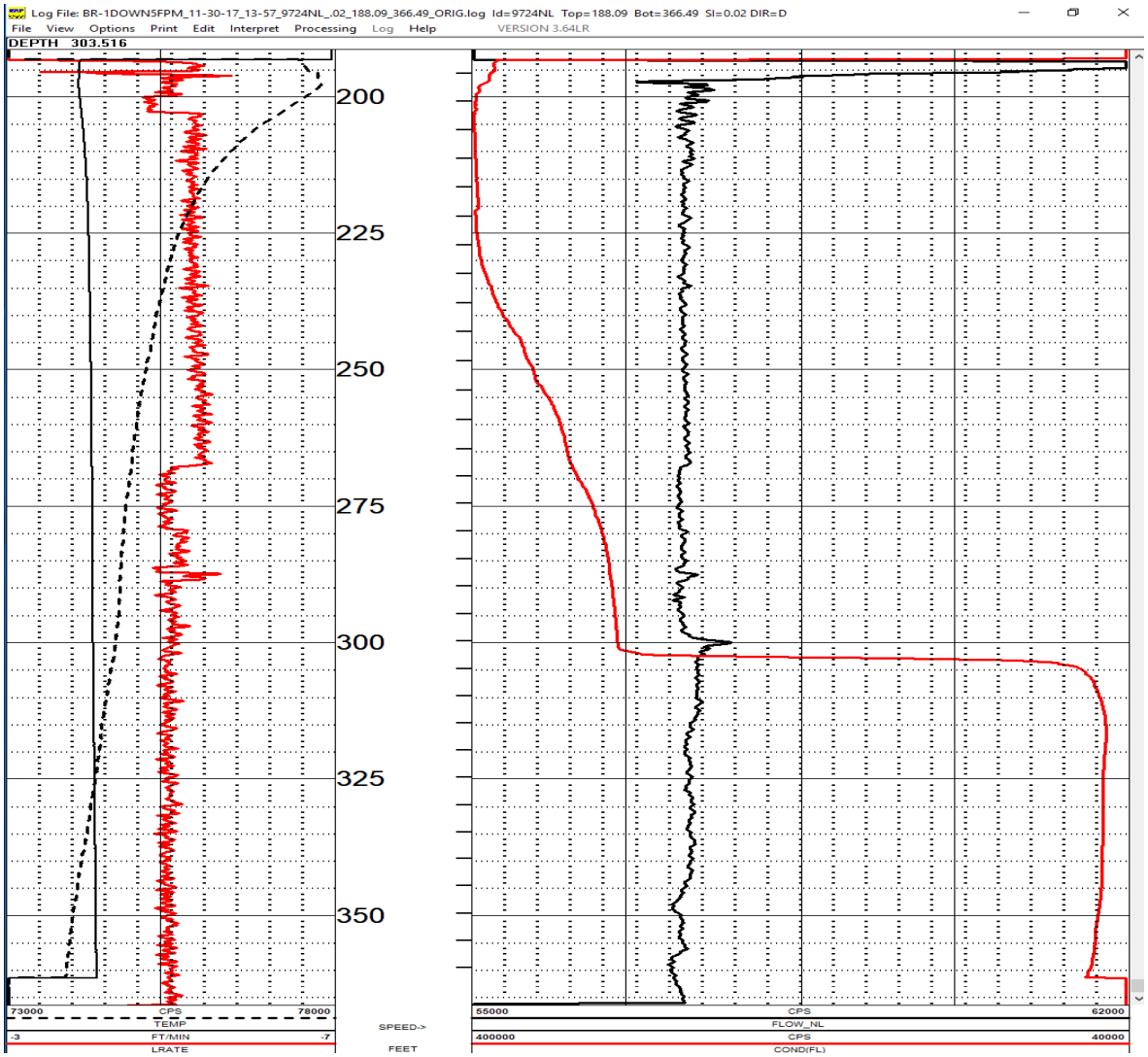
Well SG3-MW17-BR-3 Packer Summary Table of Observed Maximum Differential Pressures. Differential pressures recorded by the pressure transducers located above (Upper), and below (Lower) the packed off sample interval. Differential pressure is pre pumping pressure versus maximum pressure recorded during pumping. Complete pressure history for all packer tests can be found in Appendix F. Manual measurements used when available.

Appendix F

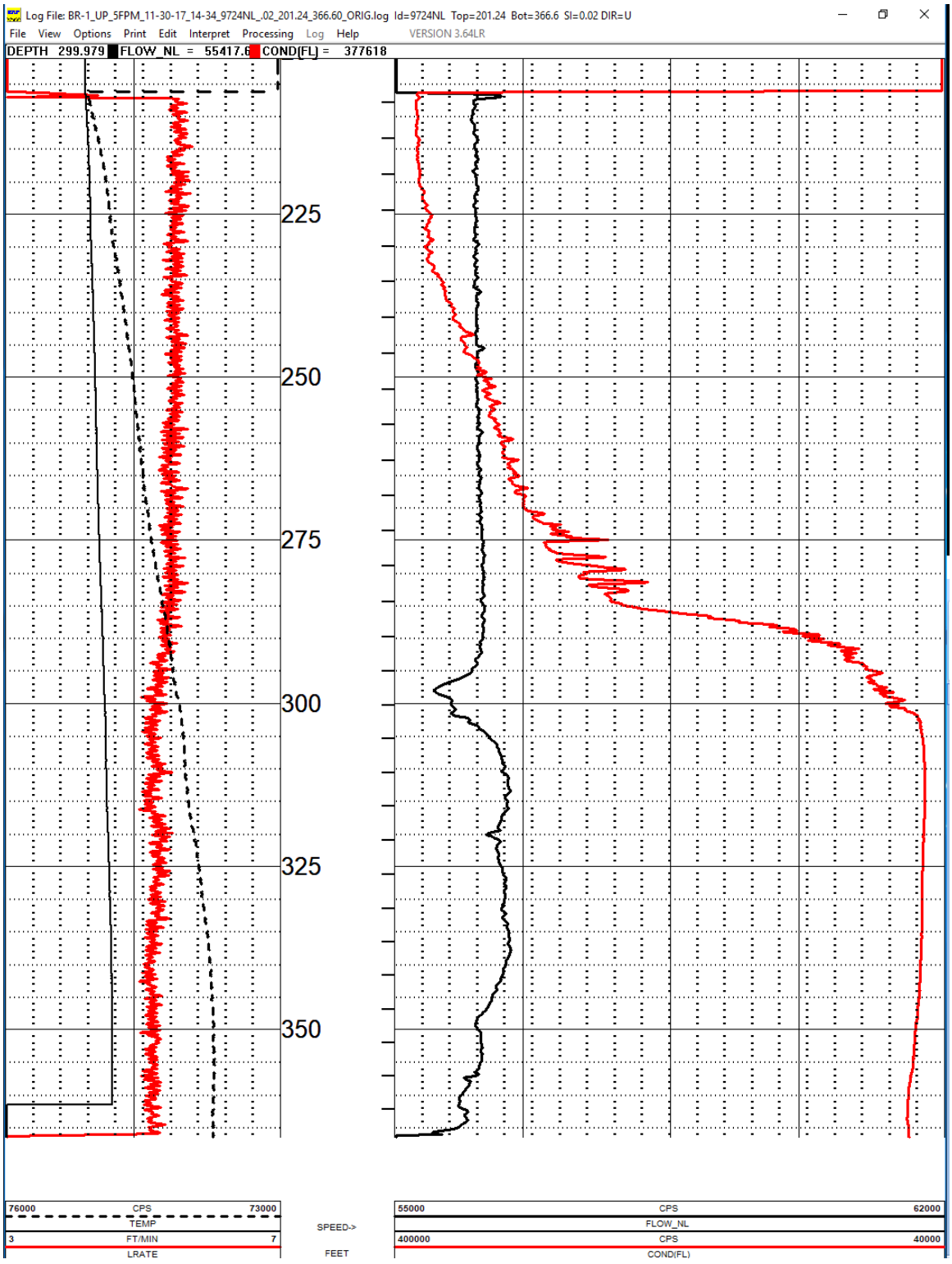
Pumping, Injection
&
Drawdown Figures

SG3-MW17-BR-1 DISCUSSION OF EM FLOWMETER RESULTS

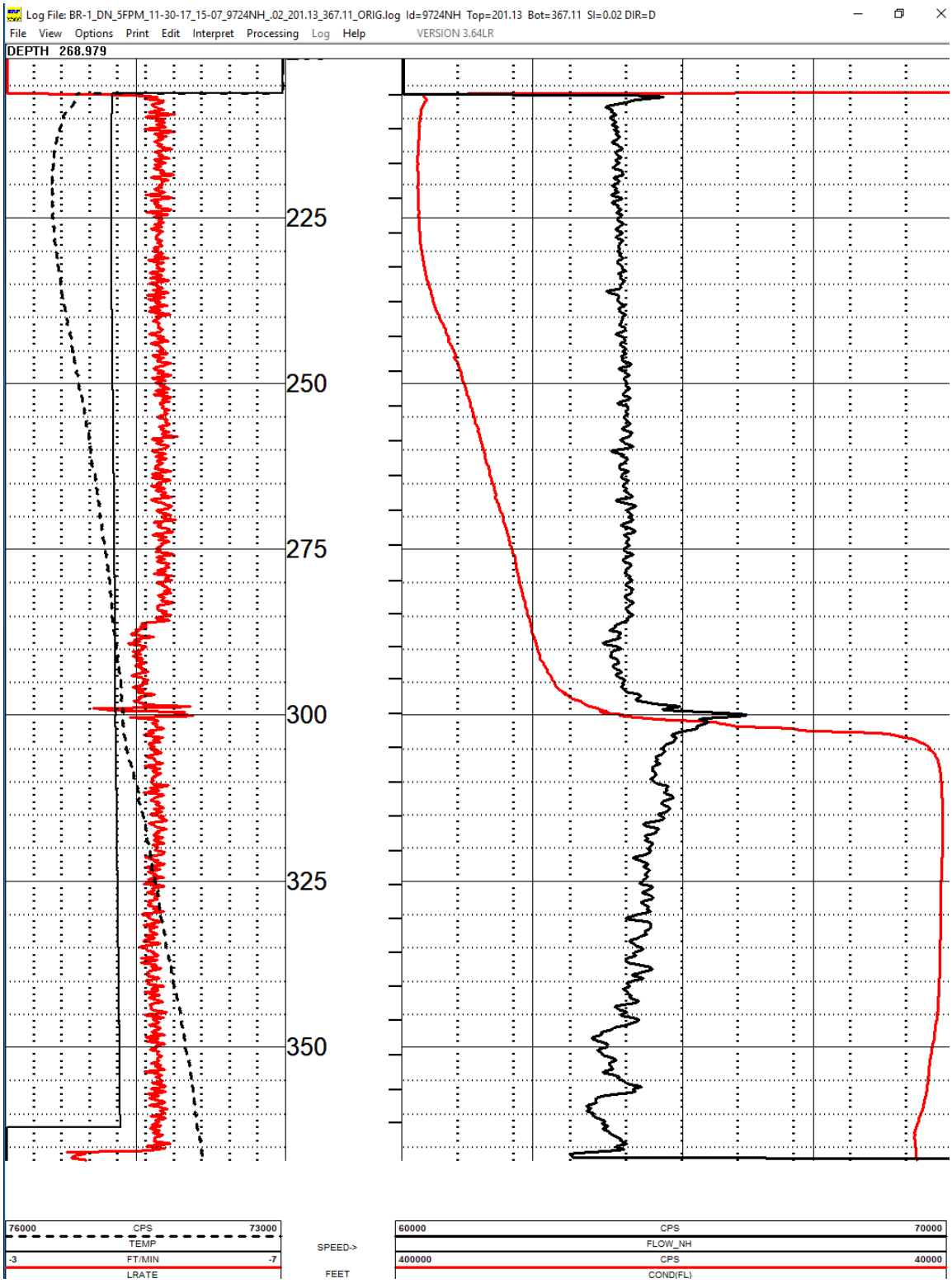
The following figures and text are supplemental marterial and discussions in support of the summary interpretation presented in the main body of report and log montages. These logs are interpreted in counts per second (CPS) for flow, FEC and temperature. At the conclusion of interpretation, selected logs are then coverted to engineering units (Eu), employing propritary analytical methods and techniques, and presented in the log montage. As such, logs in CPS units are not converted to Eu in this section, the final converted Eu values are presented in the Log Montages of Appendix D.



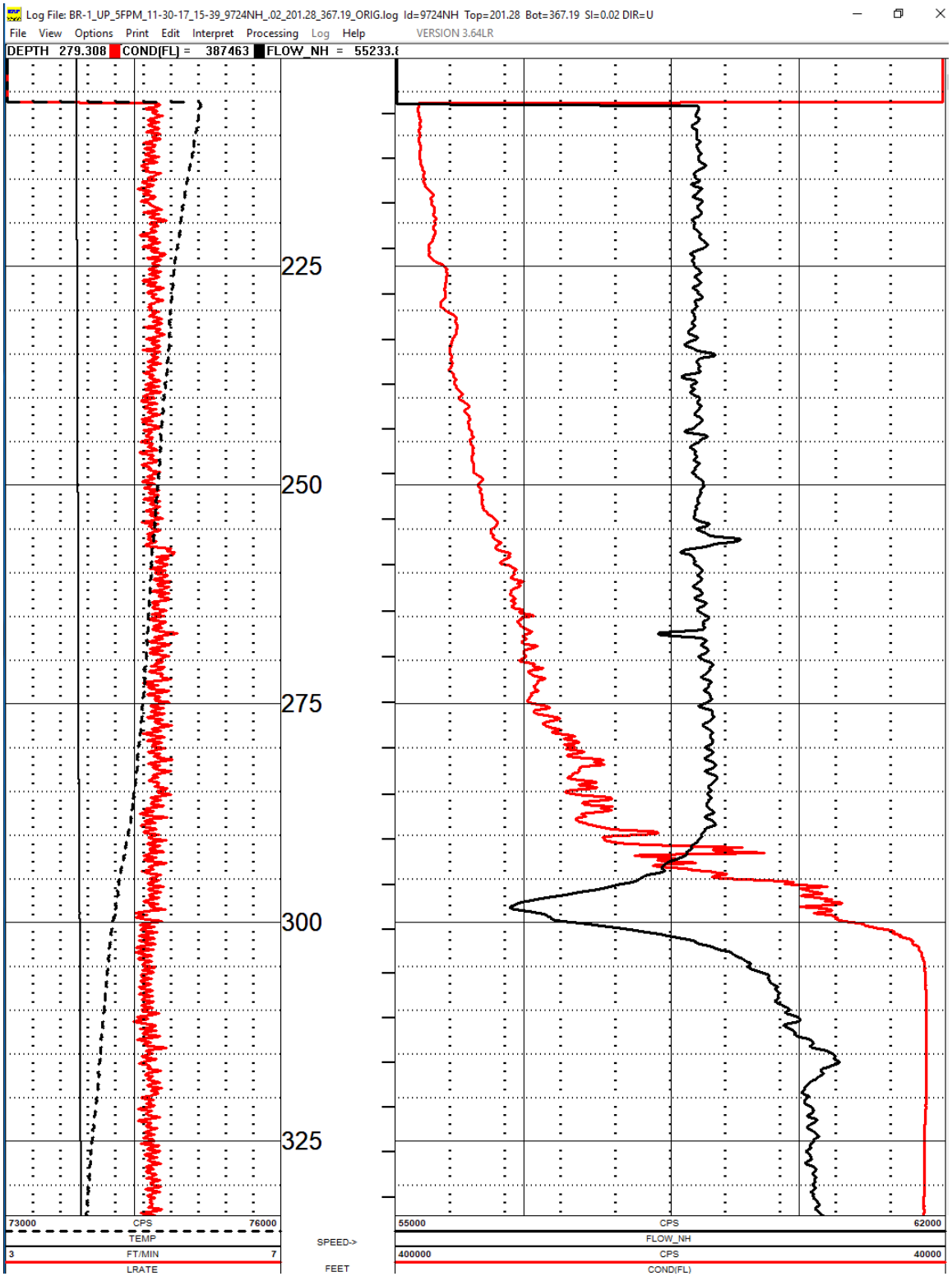
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, down log collected 11-30-2017 @ 13:57. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore. However, the results, in both the up and down logging direction, suggest the flow velocity is below the lower detection limit of EM flowmeter (0.1gpm). Only by comparing the pumping and static FEC logs does the flow direction become apparent. These logs also suggest inflow from 295-303 feet had in intervals specific FEC of approximately 2,930 µS/cm µS/cmThis is significantly elevated compared to the other wells tested.



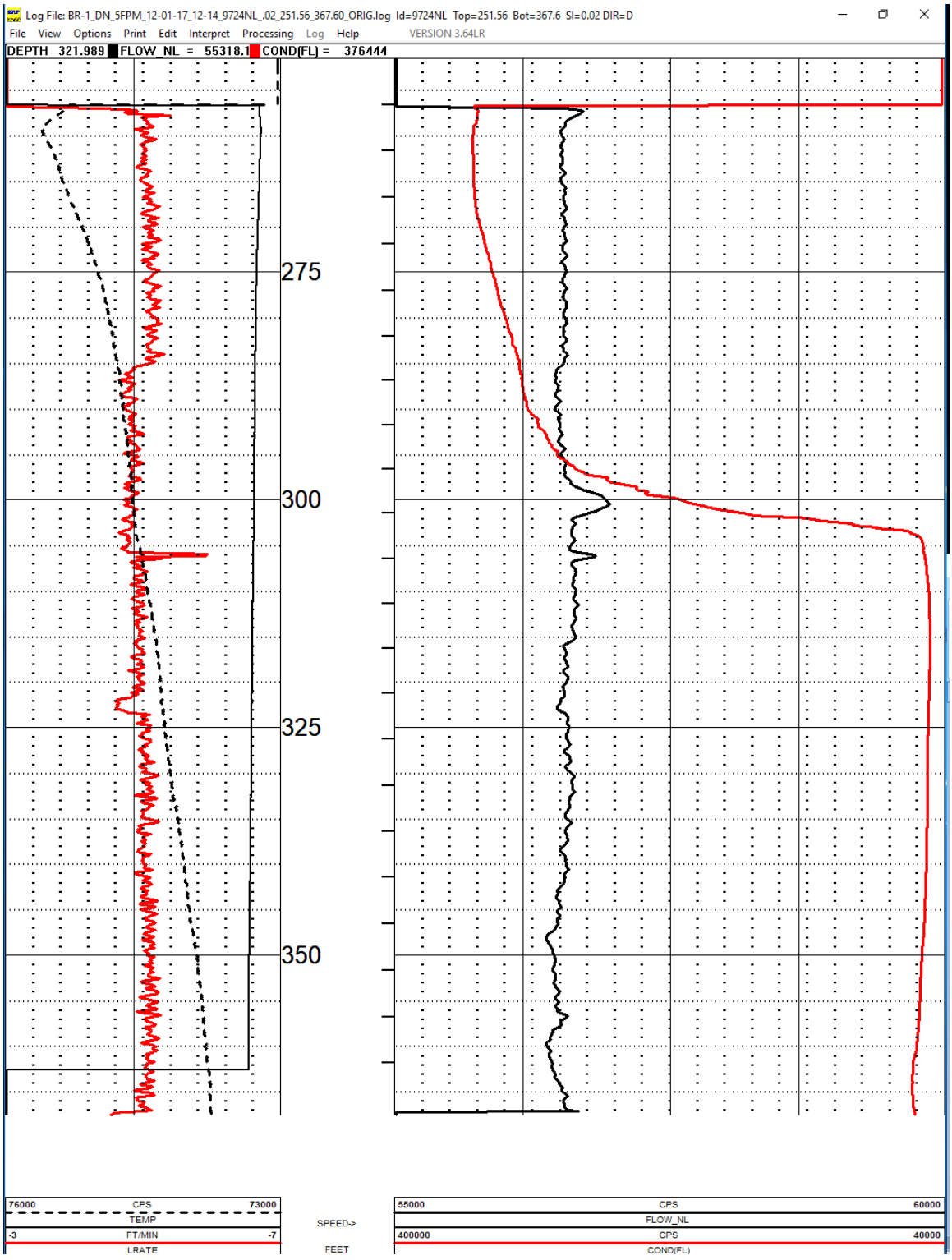
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, up log collected 11-30-2017 @ 14:34. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore.



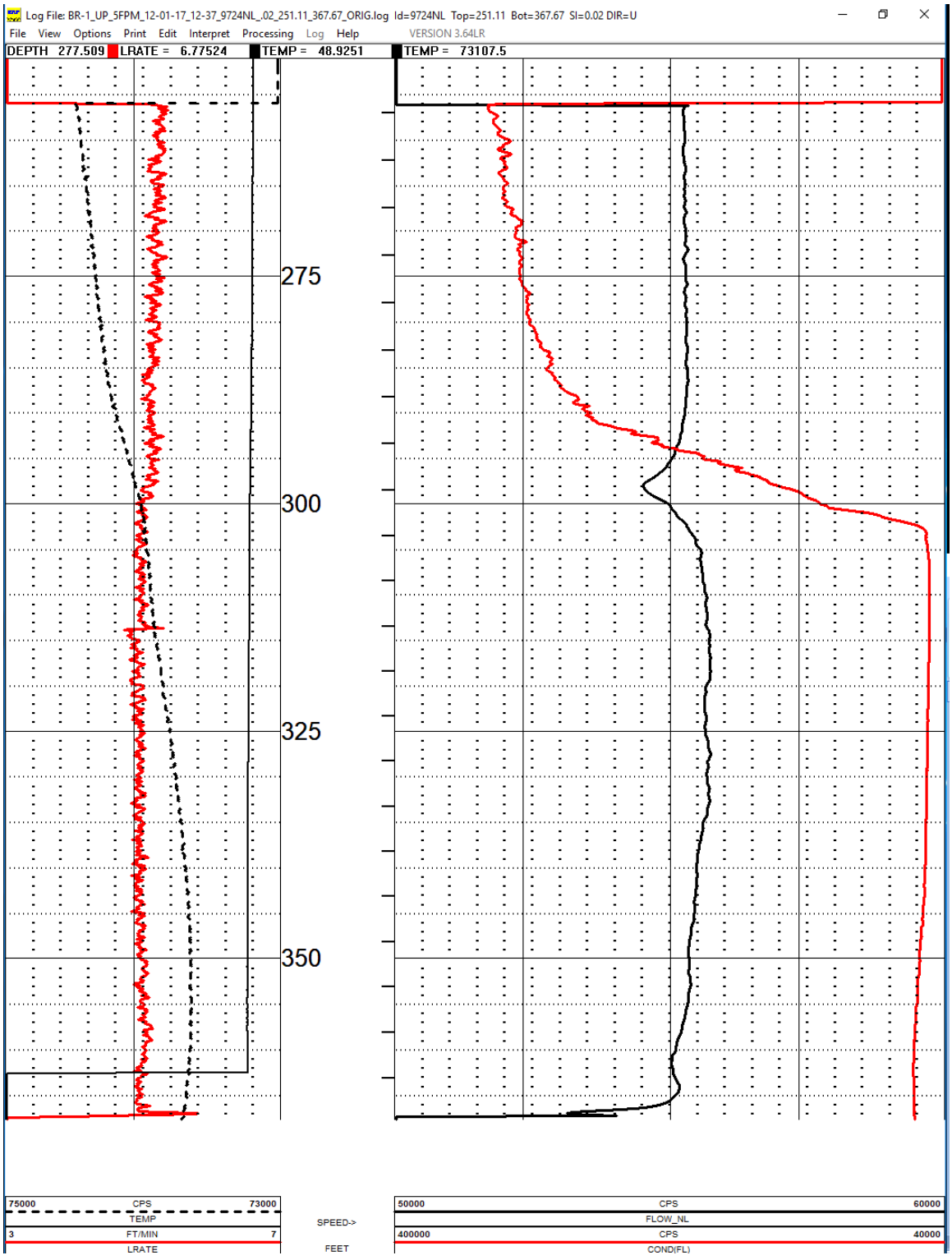
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, down log collected 11-30-2017 @ 15:07. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore.



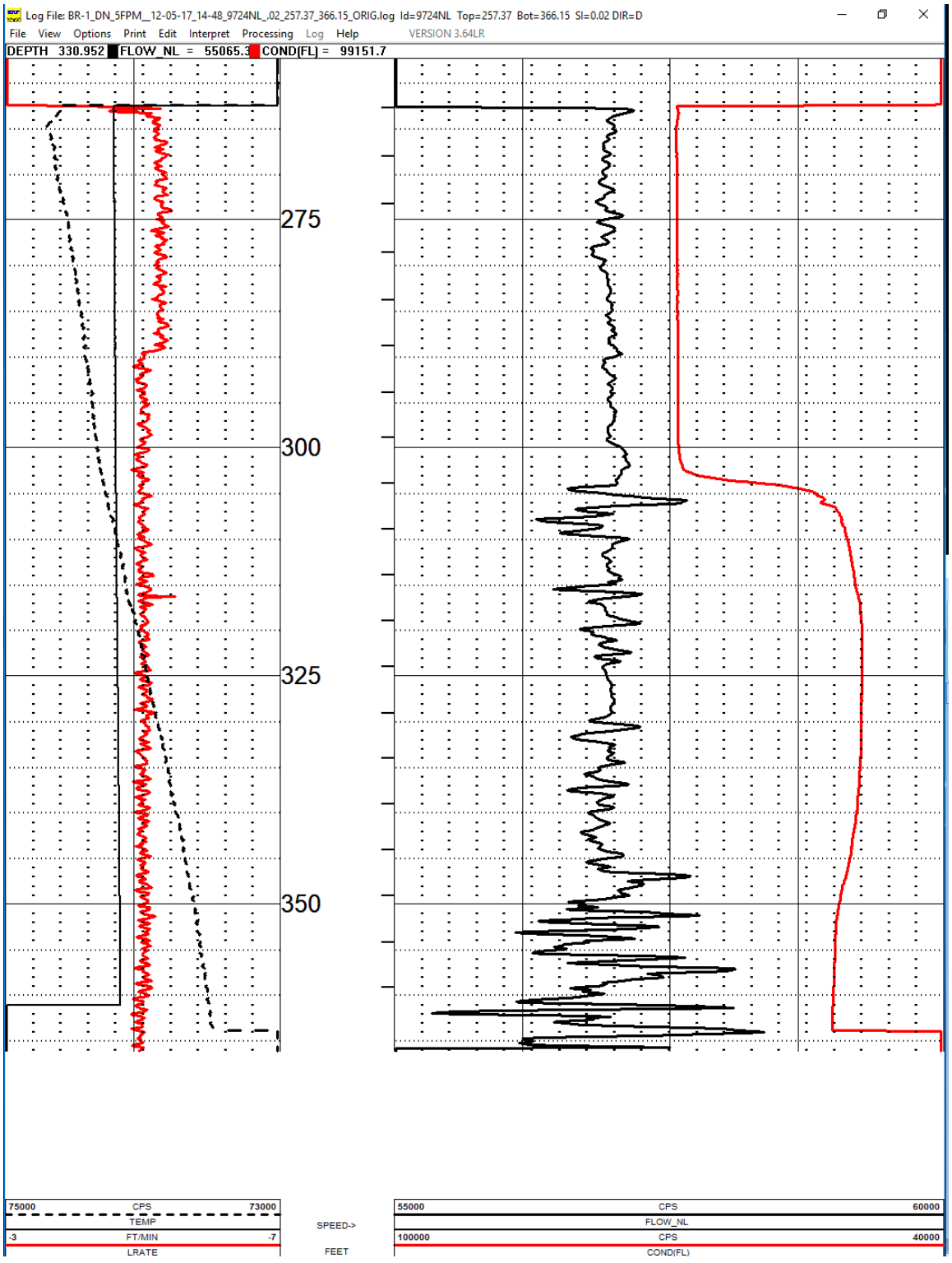
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, up log collected 11-30-2017 @ 15:39. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore.



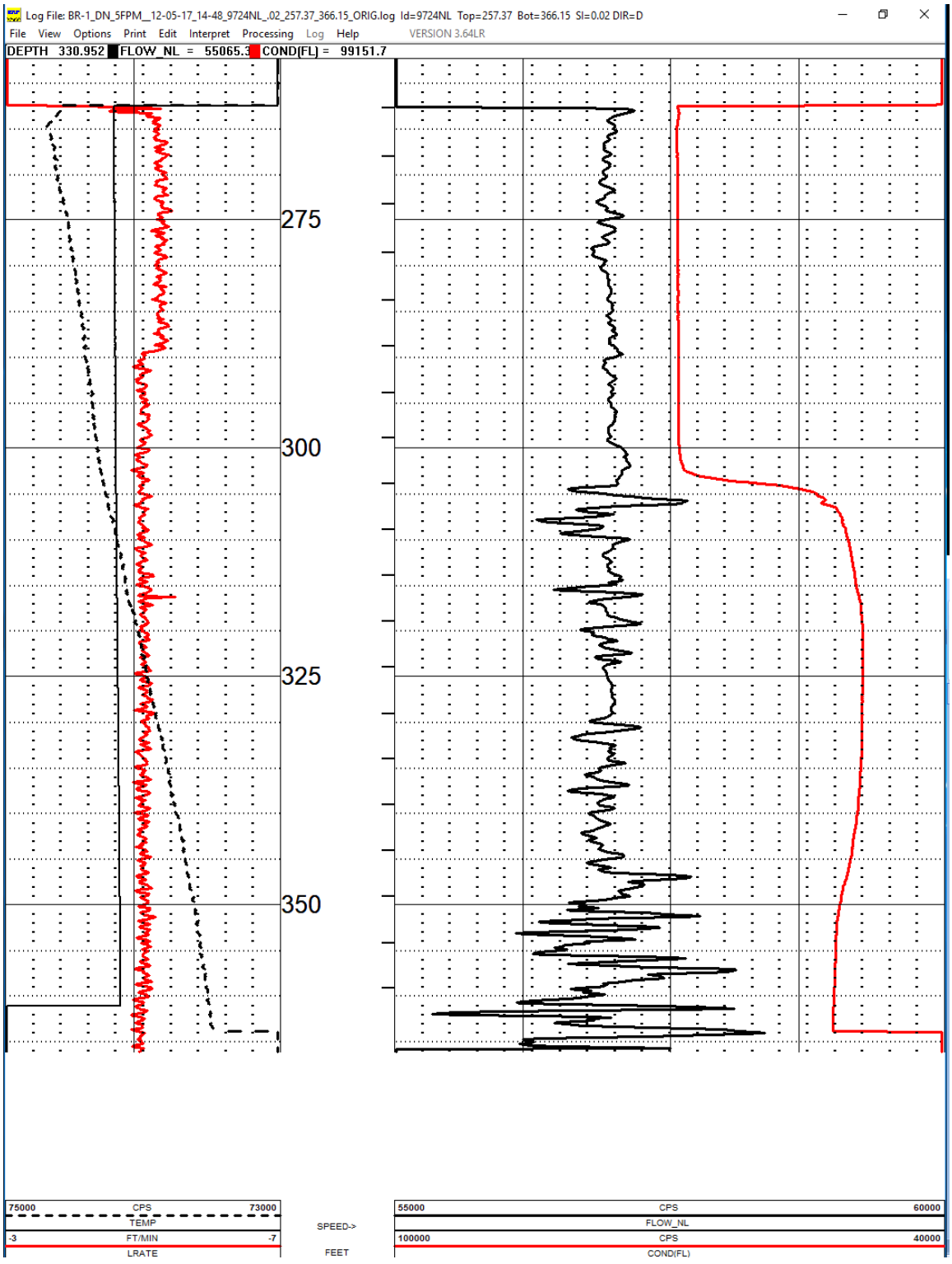
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, down log collected 12-1-2017 @ 12:14. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore.



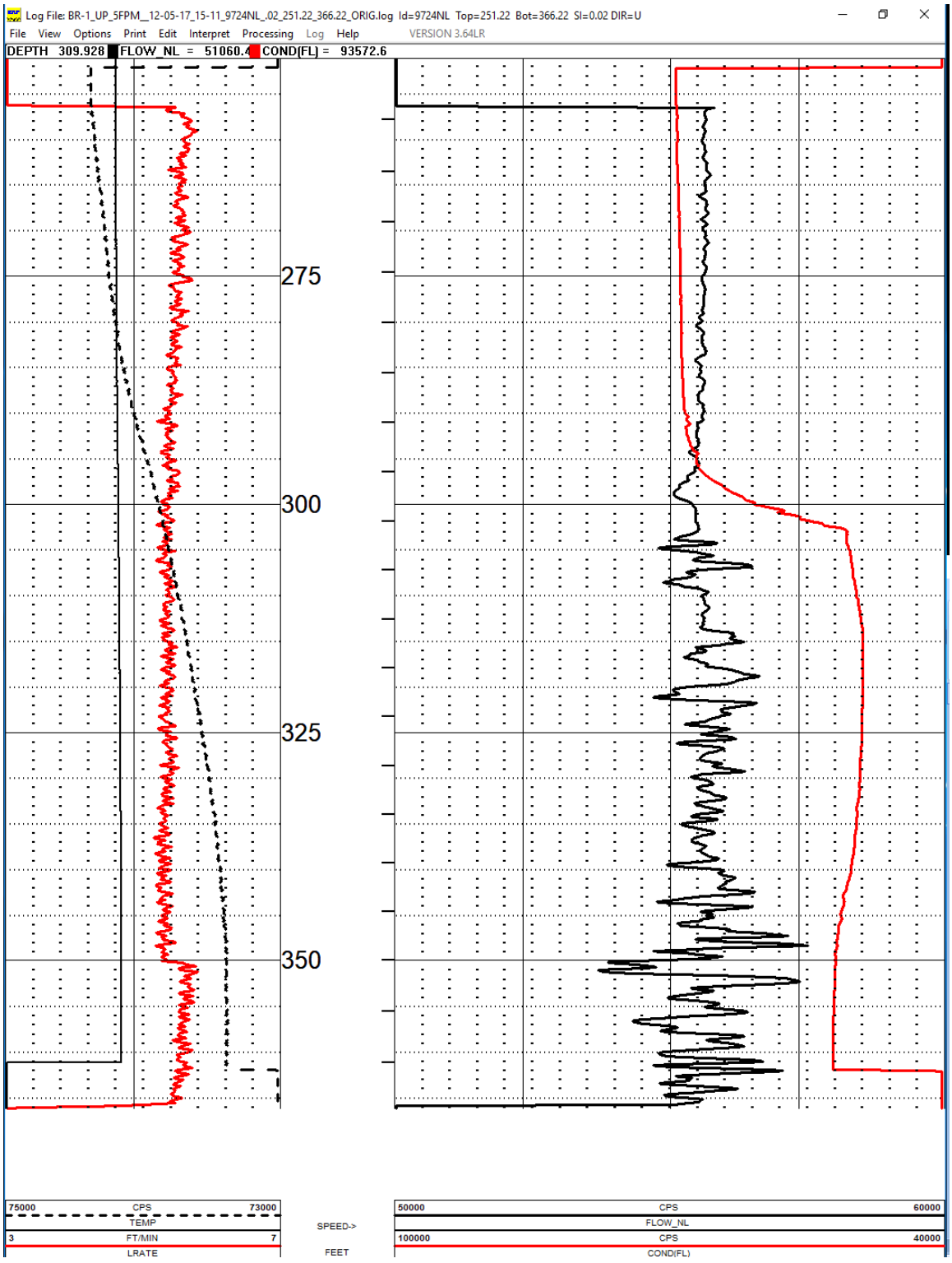
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, up log collected 12-1-2017 @ 12:37. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore.



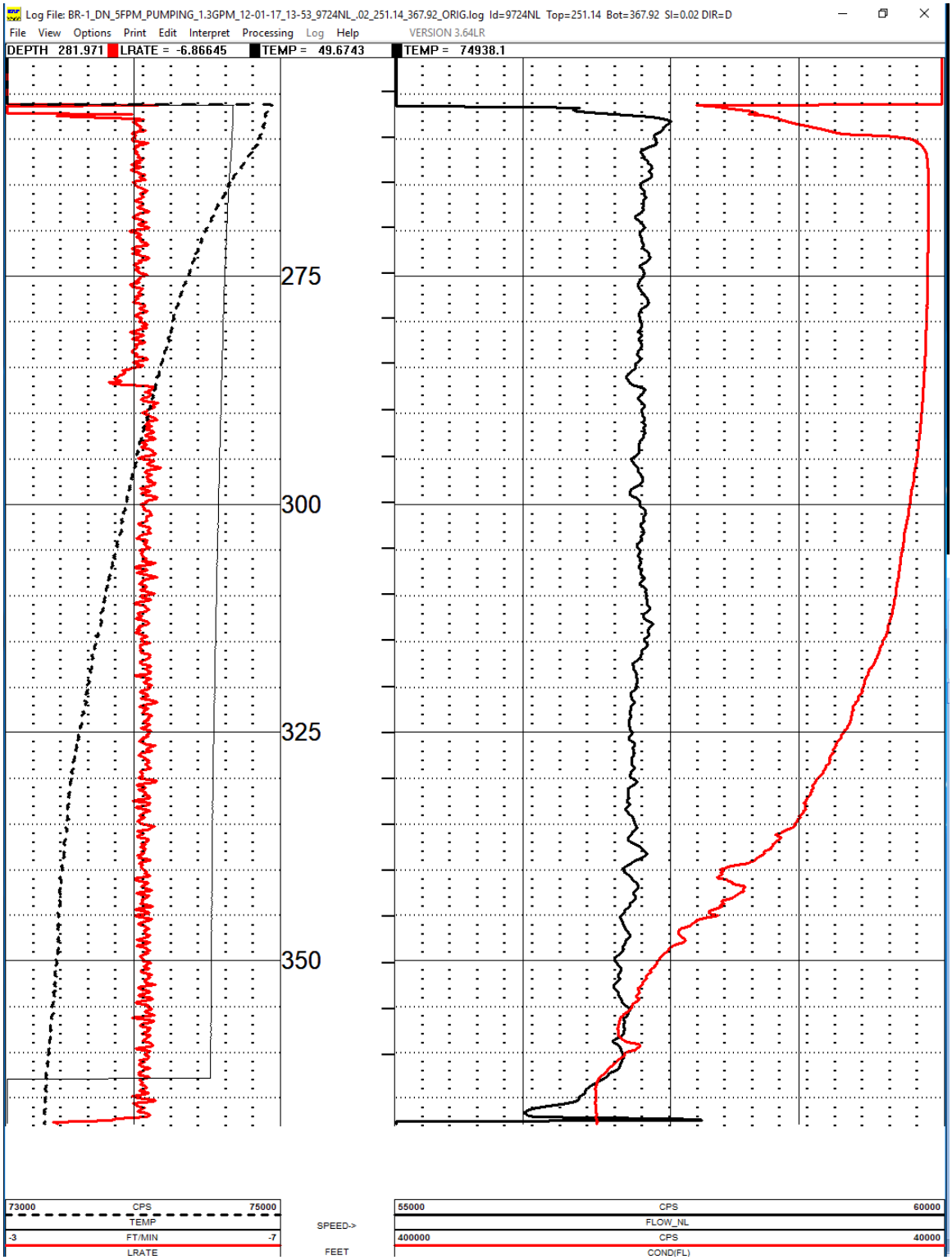
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, down log collected 12-5-2017 @ 14:48. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore



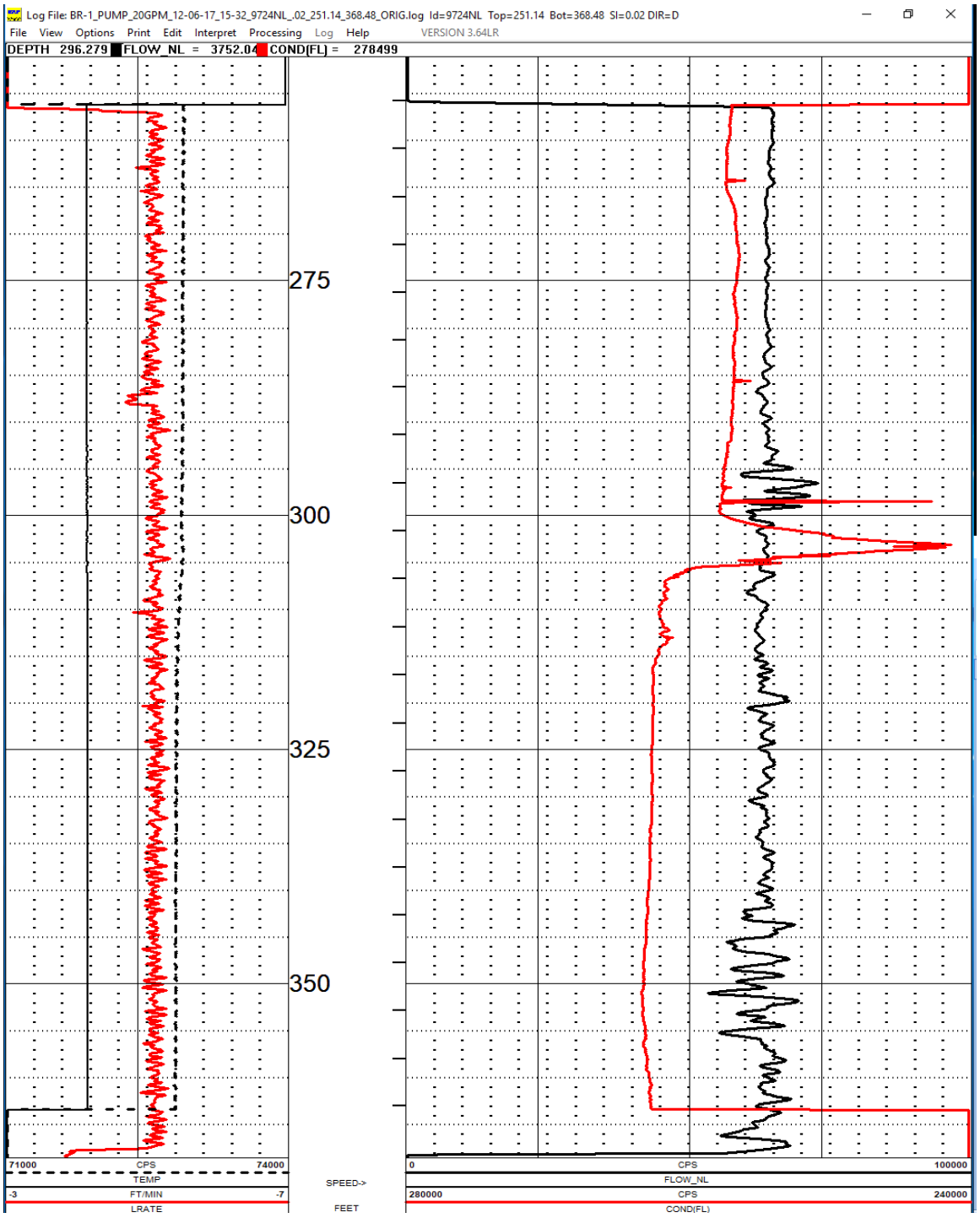
MWBR-1 EM STATIC Conditions; Flowmeter with FEC/T, up log collected 12-5-2017 @ 14:48. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore



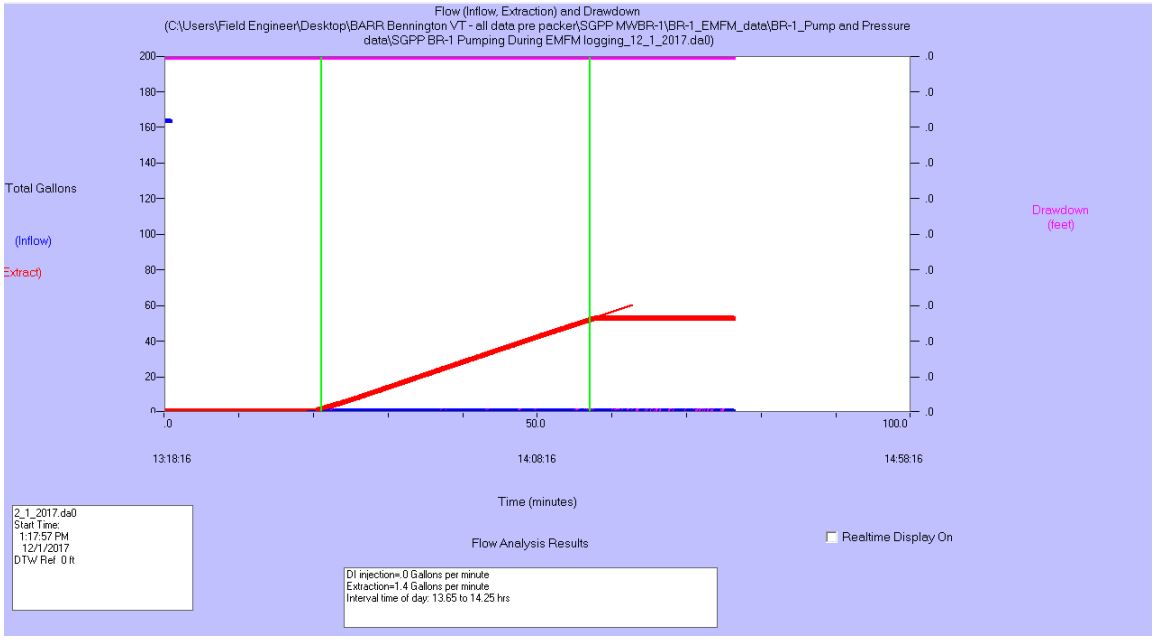
MWBR-1 STATIC Conditions; EM Flowmeter with FEC/T, up log collected 12-5-2017 @ 15:11. Elevated FEC water inflowing from 295 to 303, downflowing and exiting at bottom of wellbore



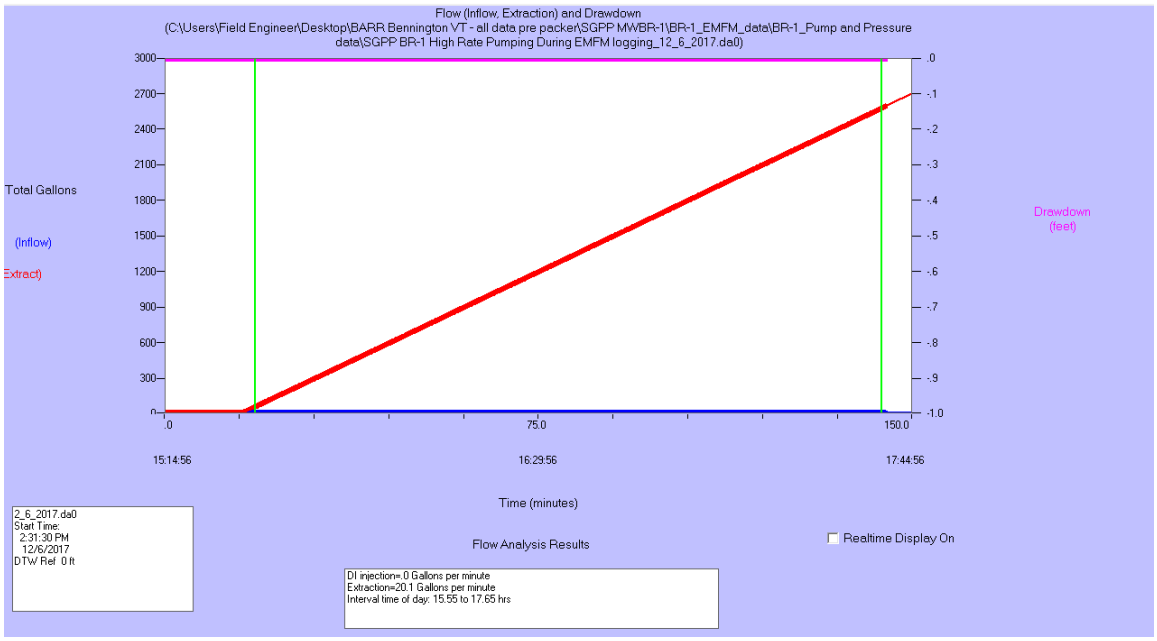
MWBR-1 PUMPING Conditions; EMFM and FEC/T log collect 12-1-2017 @ 13:53 after pumping for 33 minutes before pump failure. Incomplete pumping log, however, when compared to the previous static condition, does suggest lower FEC water being developed from the bottom of wellbore and elevated FEC water inflowing from 295-303 feet.



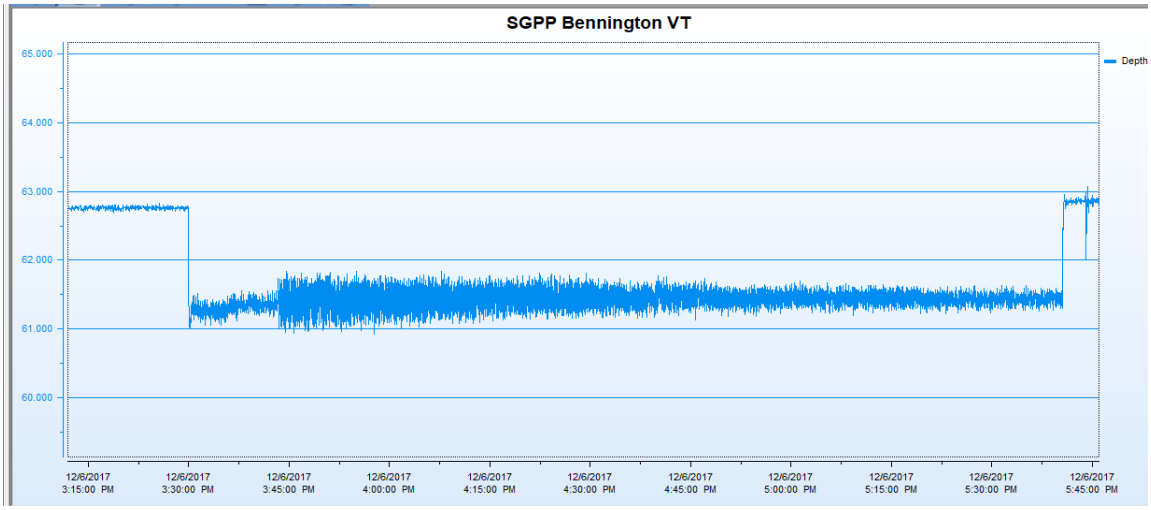
Pumping 20 Gpm, Low FEC water from bottom of well, upflow, inflowing high FEC water from 300-305 ft interval inflowing, increasing FEC and moving up hole. Dominant flow from bottom of well. FEC of water from dominant interval = 252 µS/cm



BR-1 Pump Test at 1.4 gpm (pump failed during test). Pumping of 12/1/2017 was initiated at 13:42 with maximum drawdown of 0.3 feet observed. Pump failed after 33 minutes of pumping, flow log collected immediately after pump failure.



BR-1 Pumping data during EMFM logging, average flow rate of 20.1 gpm observed during test.



BR-1 62.75-61.40= Approximately 1.4 feet of drawdown from PT data (1.44 from manual water level readings) during pumping at 20.1 gpm.

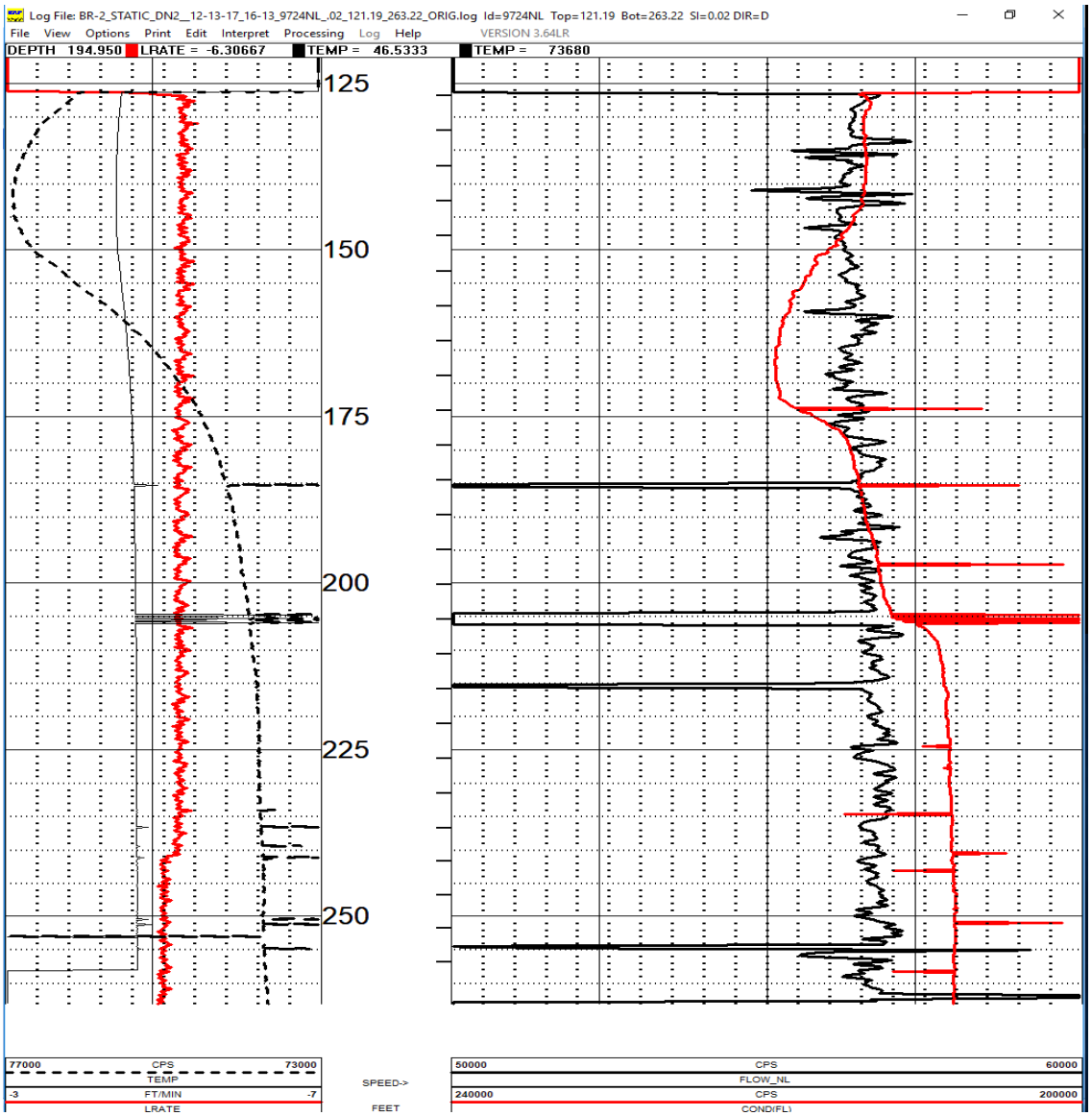
BR-1 INFLOW SUMMARY TABLE

Inflow No.	Depth of Inflow (ft)	Interval Specific Flow rate (gpm)		Interval Specific Fluid Electrical Conductivity(µS/cm)	Comments
		Static	Pumping		
1	295-303	<0.1	0.2	2,928	
2	370-TD	<0.1	19.8	252	Flow interval below bottom of casing

SG3-MW17-BR-2 DISCUSSION OF EM FLOWMETER RESULTS

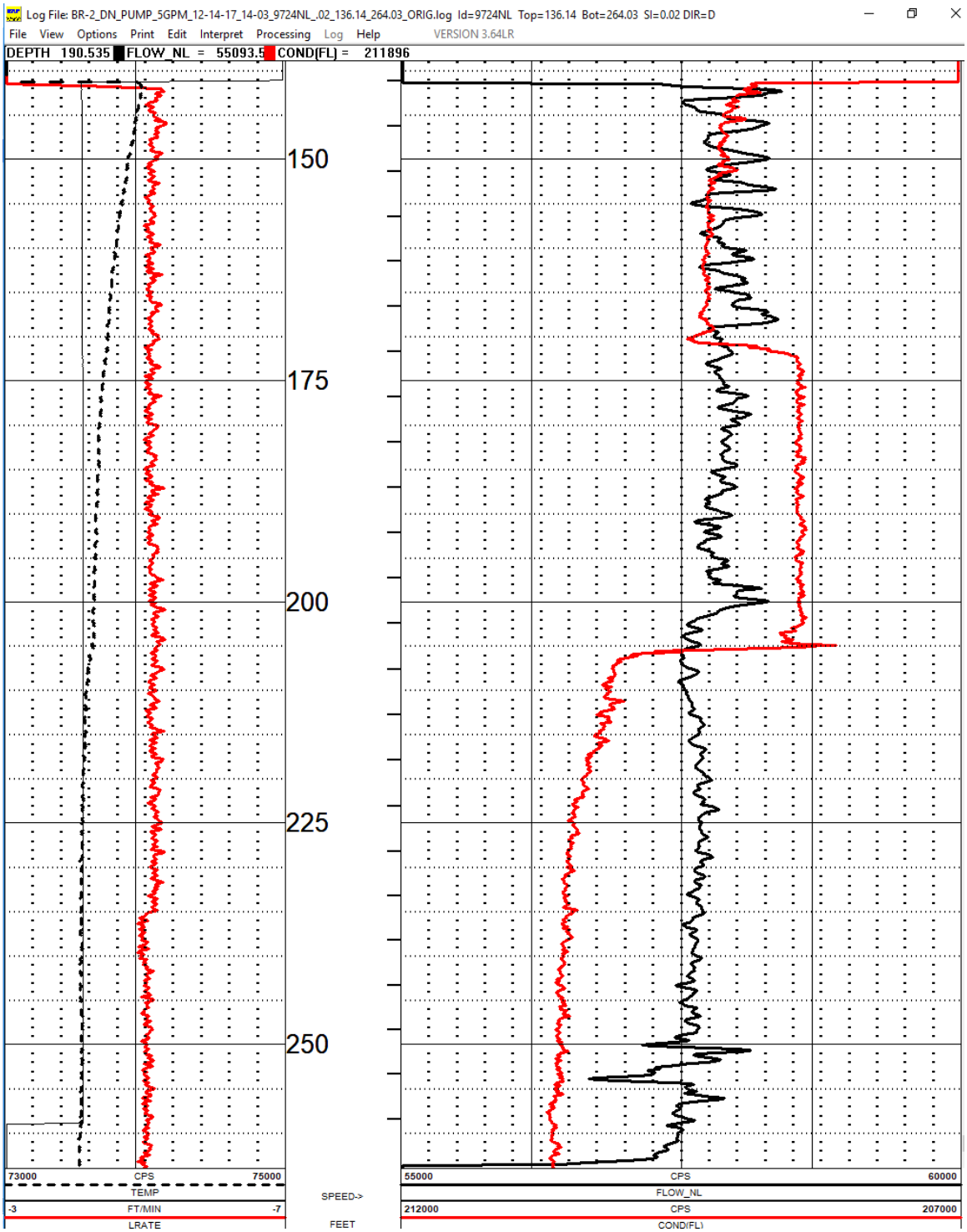
The following figures and text are supplemental marterial and discussions in support of the summary interpretation presented in the main body of report and log montages. These logs are interpreted in counts per second (CPS) for flow, FEC and temperature. At the conclusion of interpretation, selected logs are then coverted to engineering units (Eu), employing propritary analytical methods and techniques, and presented in the log montage. As such, logs in CPS units are not converted to Eu in this section, the final converted Eu values are presented in the Log Montages of Appendix D.

AMBIENT FLOW LOGS BR-2

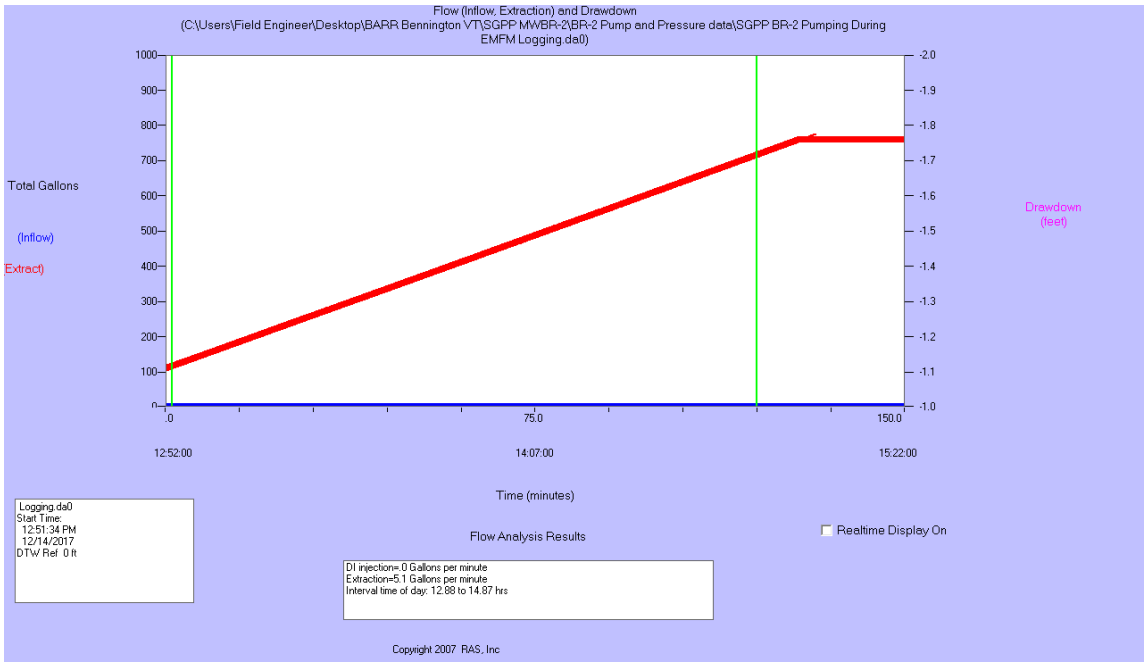


BR-2 STATIC Conditions; Very low flow conditions during ambient pressure conditions, inflow locations suggested at 148-151, 167-172, 204-217 and 243-264. Dominant flow intervals are suggested at 204.5-206.5 and 243-264(TD). Water types are reasonably similar varying only from 260-290 µS/cm

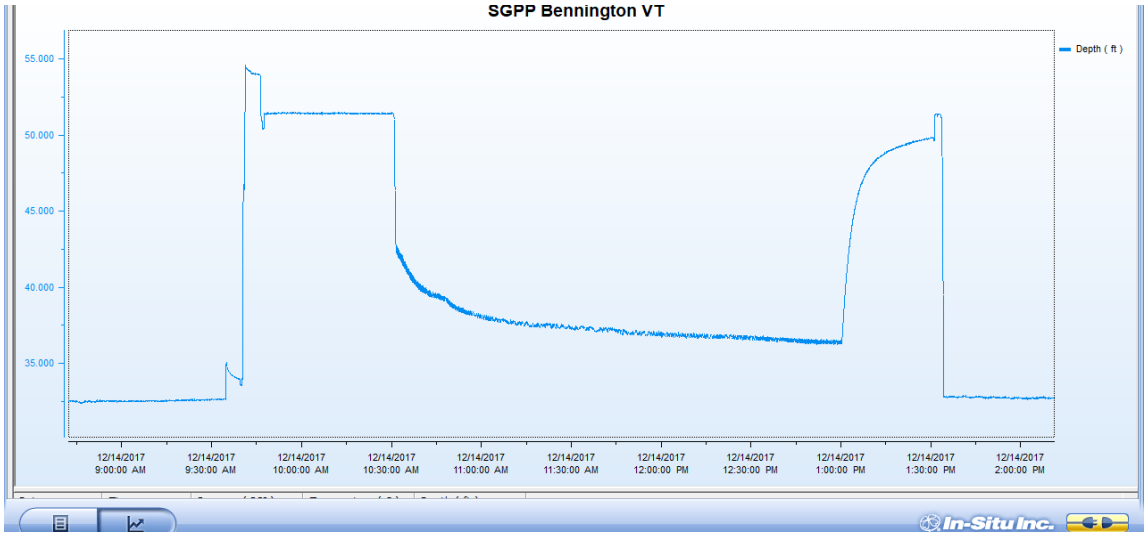
PUMPING FLOW LOGS BR-2



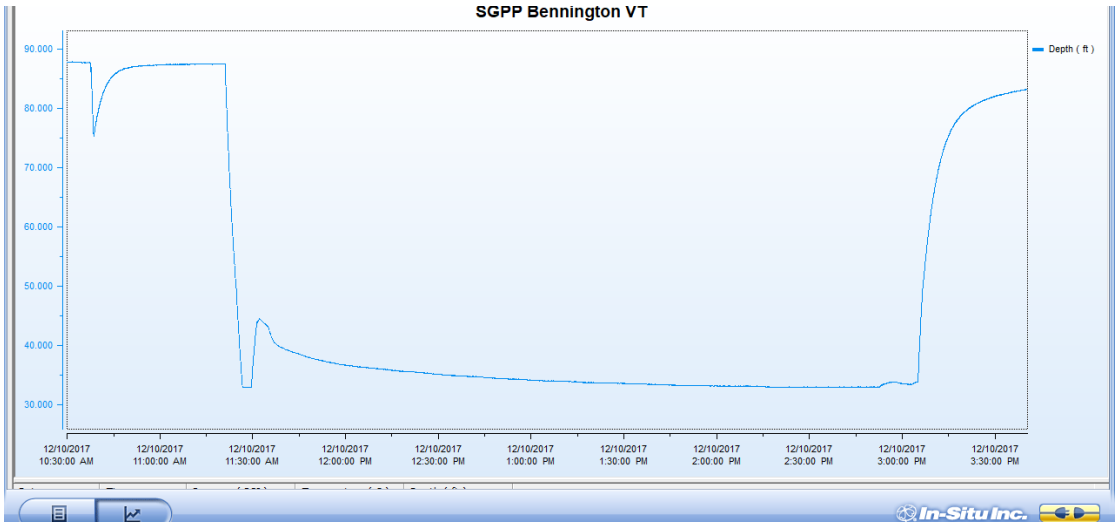
BR-2 During pumping condition, 5 gpm discharge rate with maximum drawdown of 15.1 feet. FEC and FLOW logs suggest inflow locations at 148-151, 167-172, 204-217 and 243-264(TD) feet. Dominant flow intervals are suggested at 204.5-206.5 and 243-264(TD). Water types for all intervals are reasonably similar varying only from 280-300 µS/cm.



BR-2 Pumping during EMFM flow logging. Average of 5.1 gpm with a maximum drawdown of 15.1 feet.



BR-2 Pressure history during pumping for EMFM flow logging. Feet of fluid column above pressure transducer, pre-pump condition (51.50 feet) and drawn down during pumping to 36.4 feet of fluid column above transducer, resulting in a maximum drawdown of 15.1 feet during average pumping rate of 5.1 gpm.



BR-2 Pressure history during development pumping. Development pumping was conducted at approximately 20 gpm by others (flow rate reported by timed bucket method). Pressure history reported as feet of fluid column above pressure transducer, re-pump condition (87.56 feet) and 33.0 feet during pumping, resulting in a maximum of 54.6 feet of drawdown during average pumping rate of ~20 gpm.

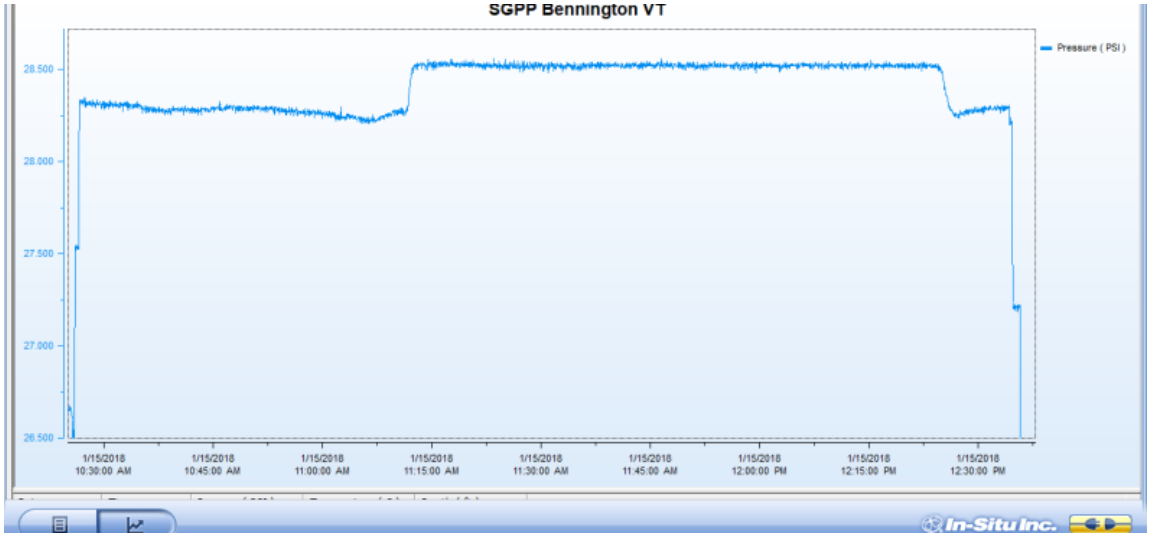
BR-2 INFLOW SUMMARY TABLE

Interval No.	Depth (ft)	Interval Specific Flow rate (gpm)		Fluid Electrical conductivity (µS/cm)	Comments
		Static	Pumping		
1	148-151	<0.1	<0.1gpm	280-300	
2	167-172	<0.1	0.9	280-300	
3	199.5-216	<0.1	1.7	280-300	
4	250-254.5	<0.1	0.8	280-300	
5	259-264	<0.1	0.9	280-300	

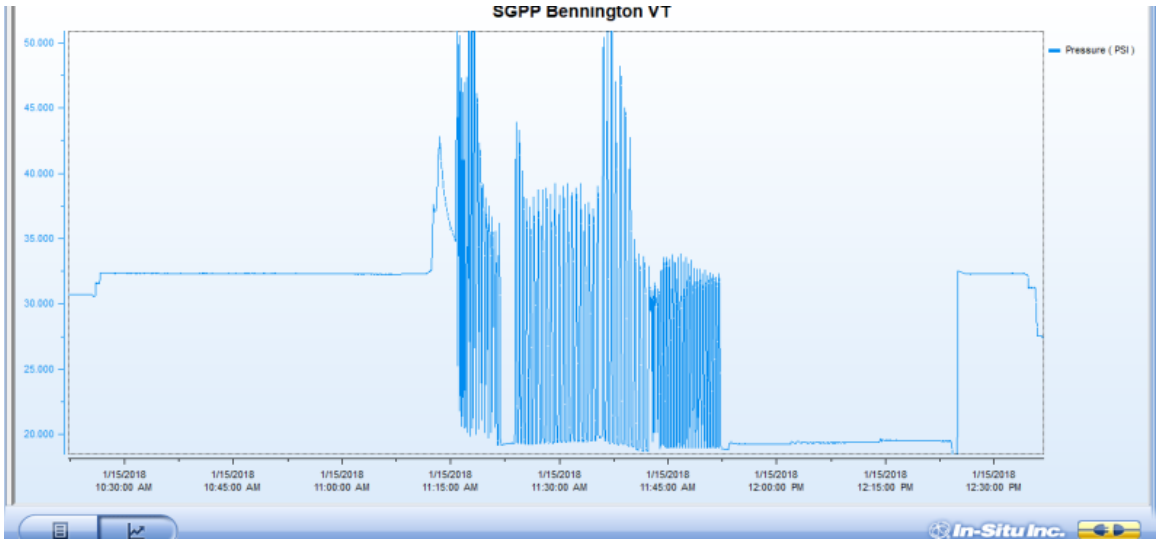
SG3-MW17-BR-2 DISCUSSION OF PACKER SAMPLING RESULTS

No.	Depth of Packer Interval	Length of Packer Interval	Single packer interval volume (est. 1.3g/ft)	Estimated Volume pumped before sampling (3X)
1	144-154	10	13	39
2	165-175	10	13	39
3	199-219	20	26	78
4	243	21	27.3	82

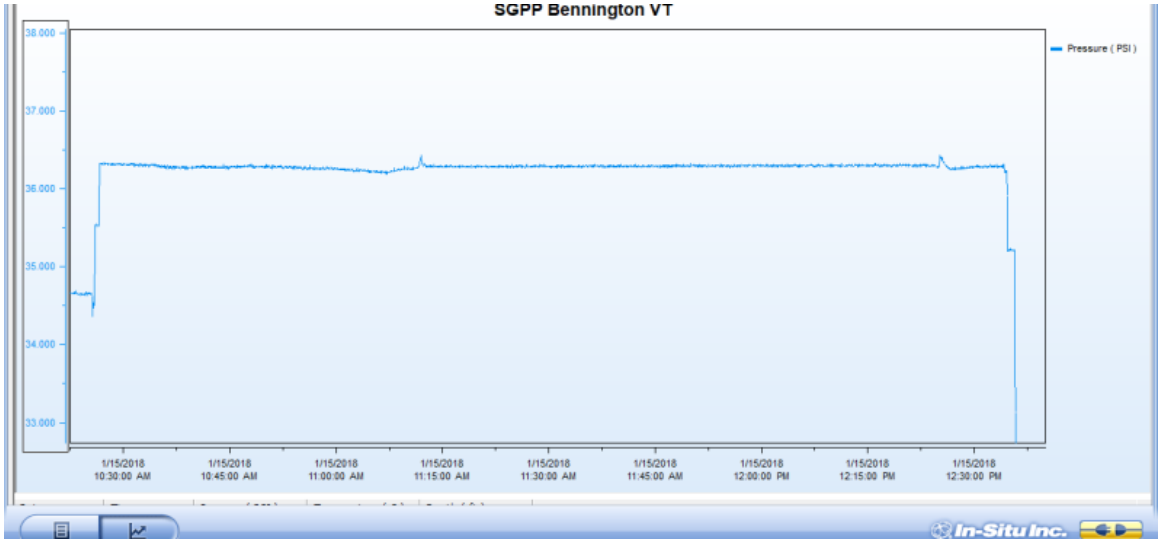
SG3-MW17-BR2 SELECTED PACKER SAMPLING INTERVALS AND RELATED VOLUMES.



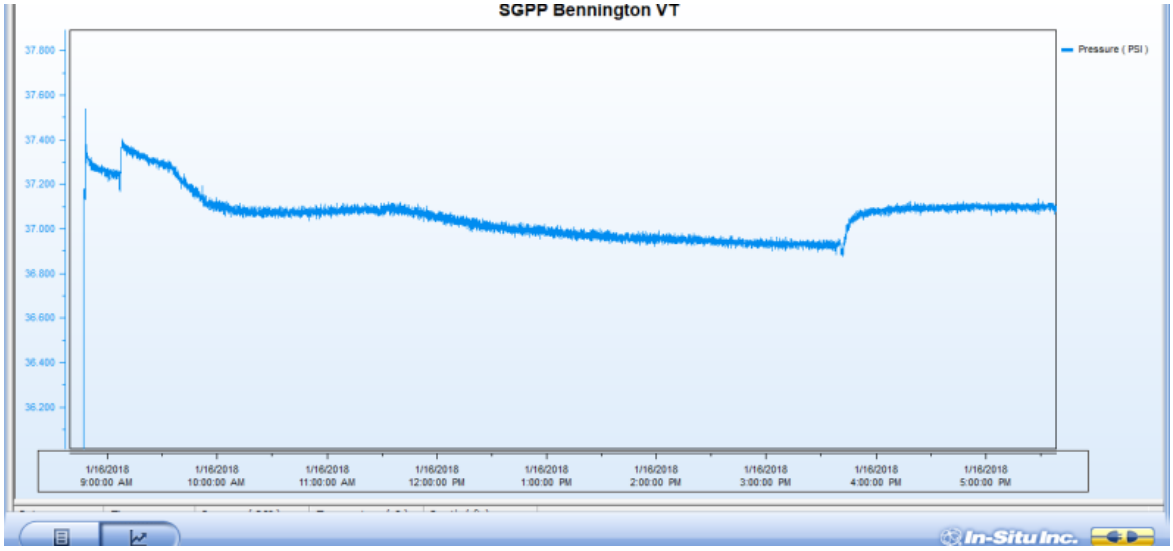
MWBR-2 Packer sample interval 1 144-154 Upper pressure transducer (above test zone) pressure history.



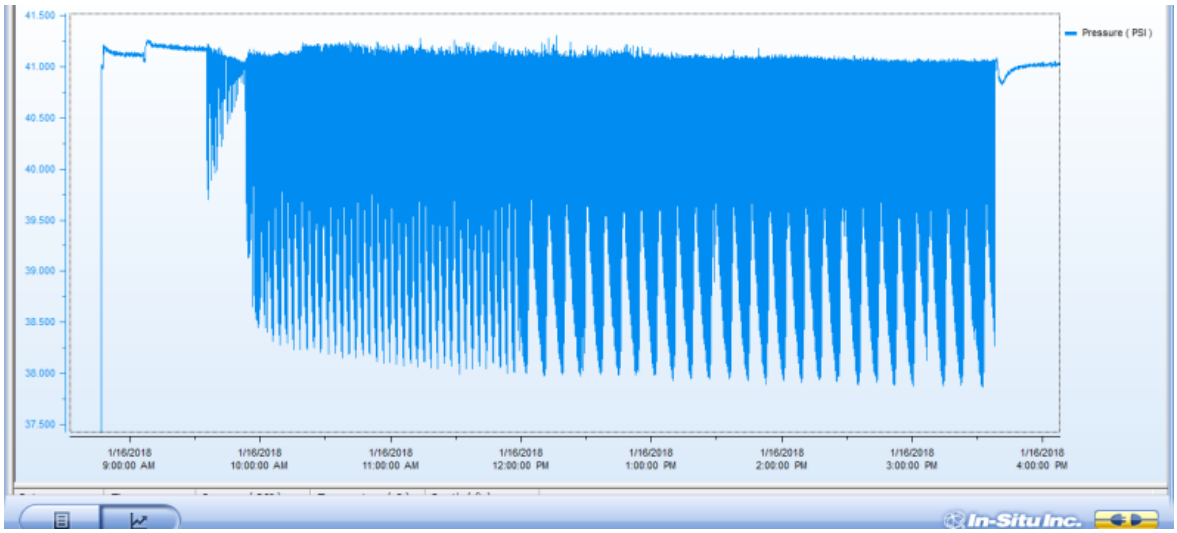
MWBR-2 Packer sample interval 1 144-154 Middle (test zon Pressure history.



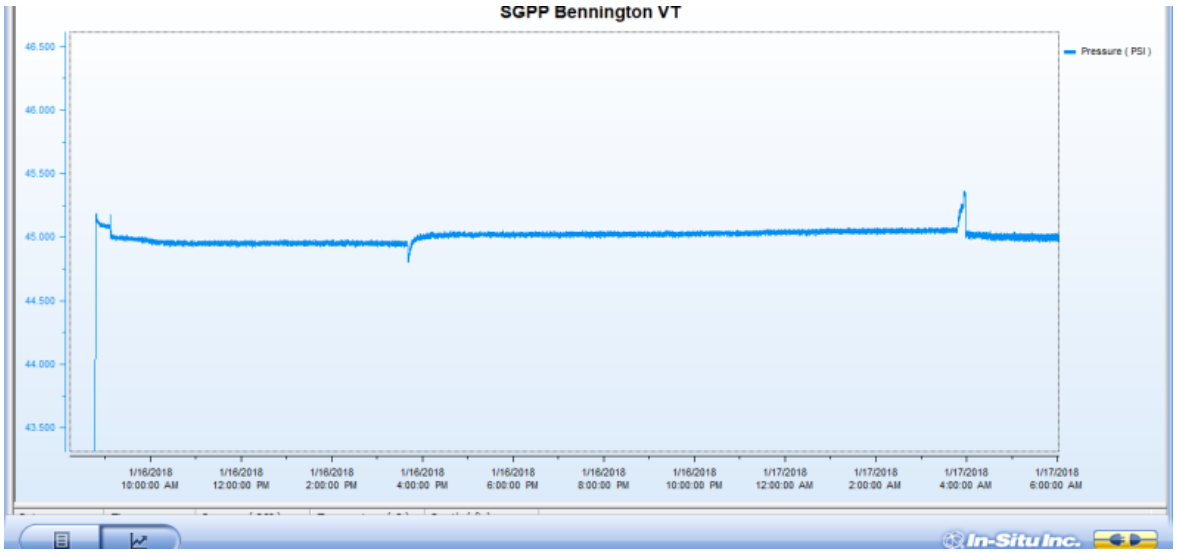
MWBR-2 Packer sample interval 1 144-154 Lower (below test zone) Pressure history.



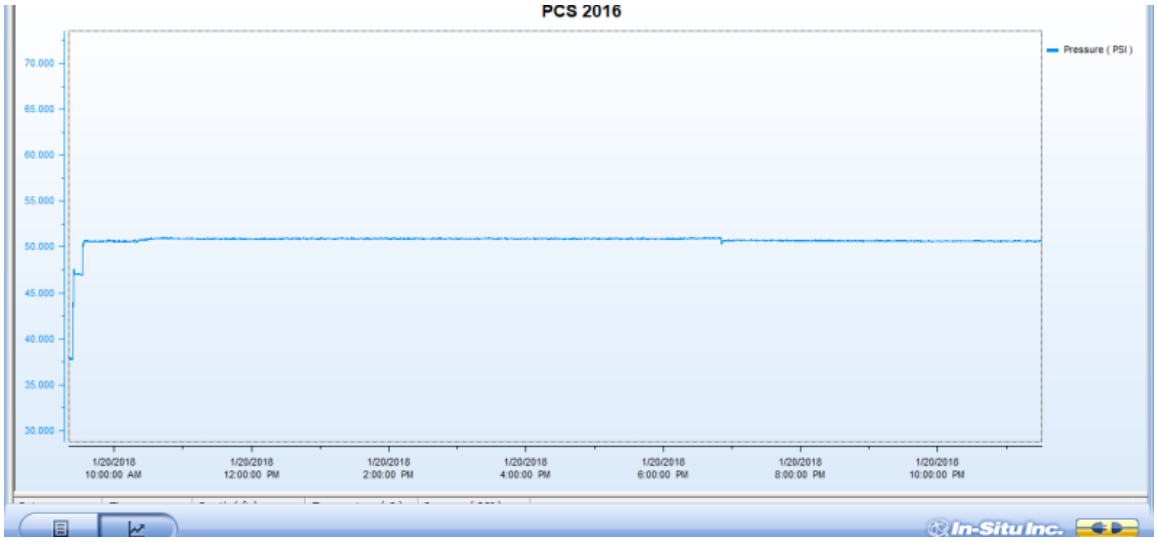
MWBR-2 Packer sample interval 2 165-175 Upper Pressure history.



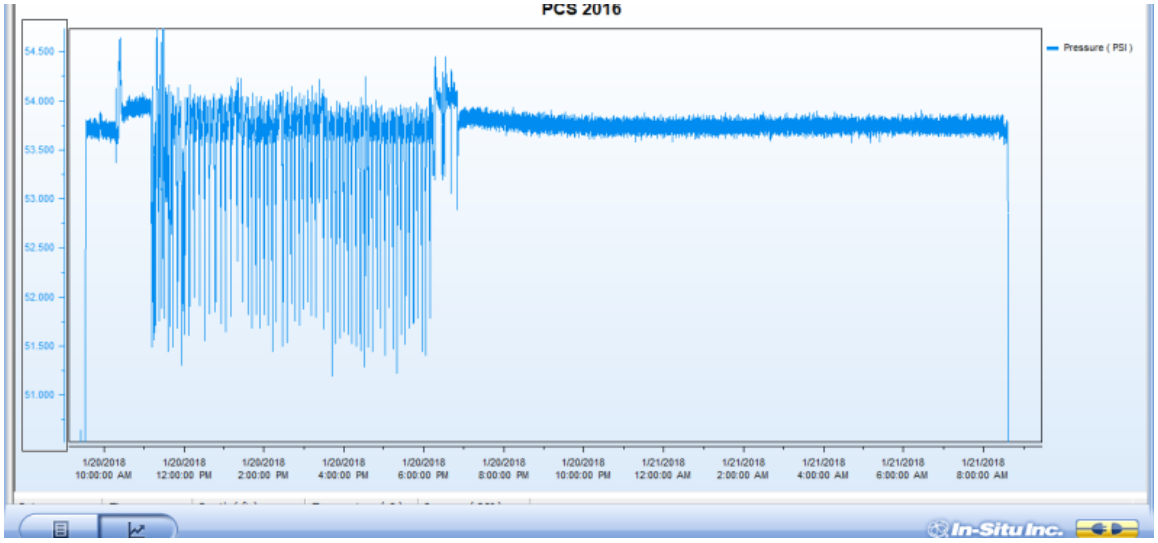
MWBR-2 Packer sample interval 2 165-175 Middle Pressure history.



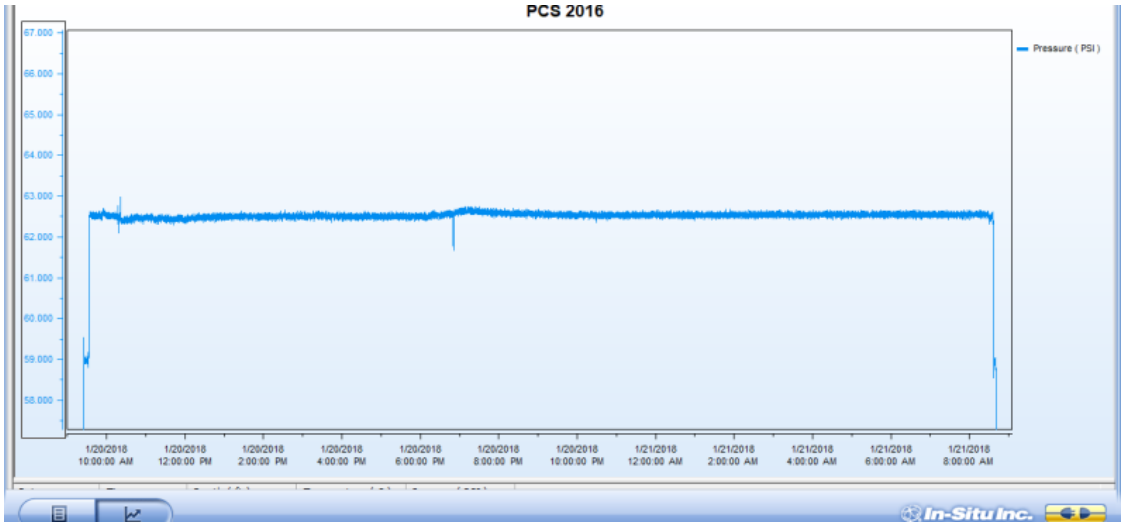
MWBR-2 Packer sample interval 2 165-175 Lower Pressure history.



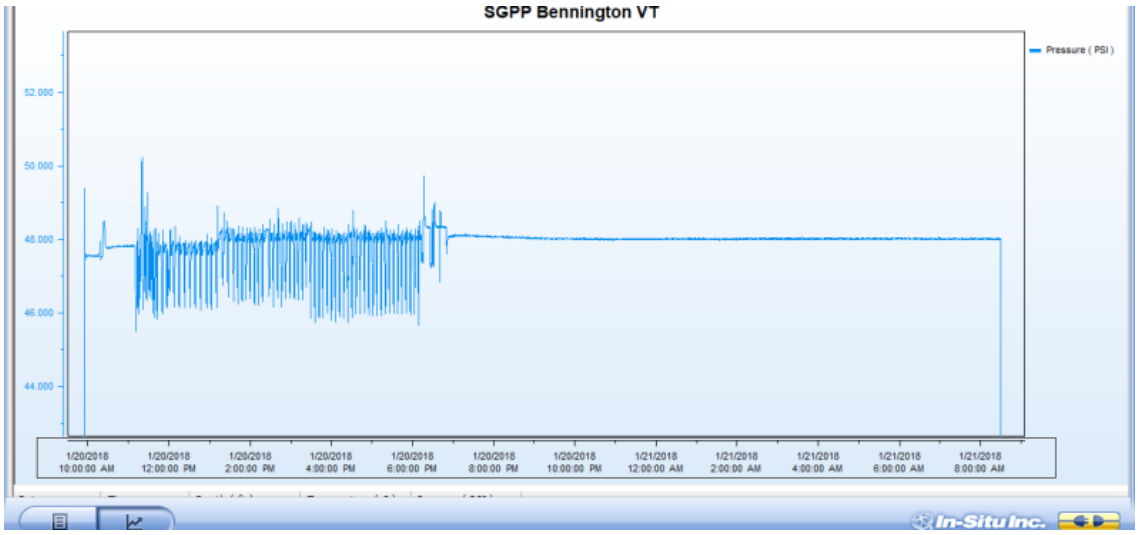
MWBR-2 Packer sample interval 3 199-219 Upper Pressure history.



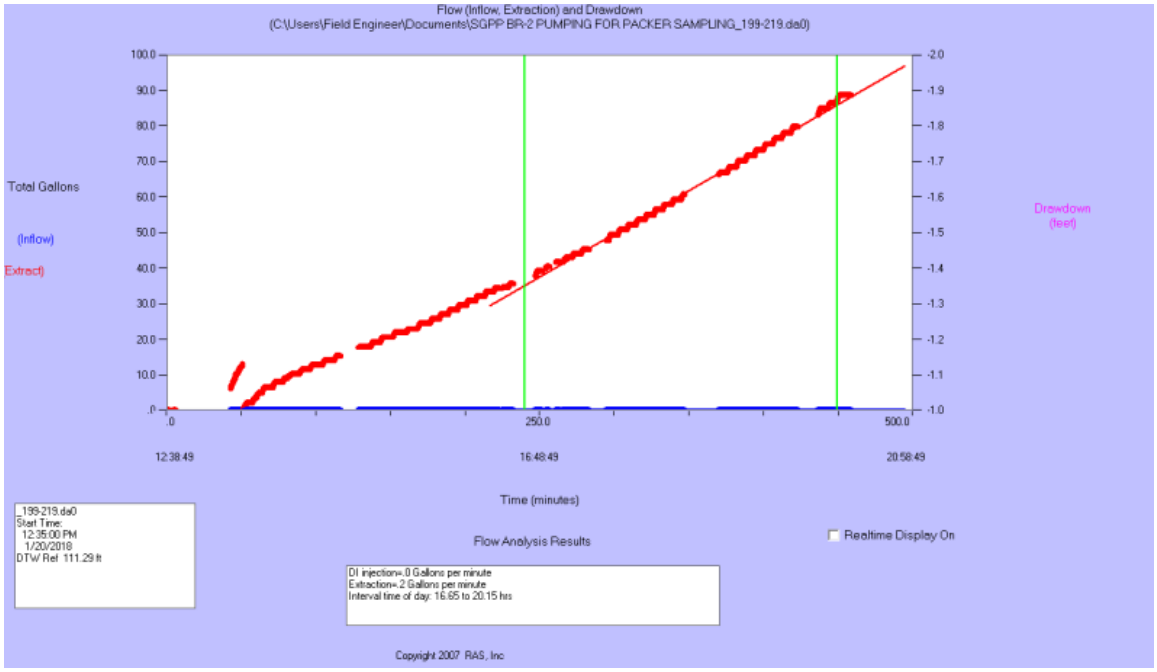
MWBR-2 Packer sample interval 3 199-219 Middle Pressure history.



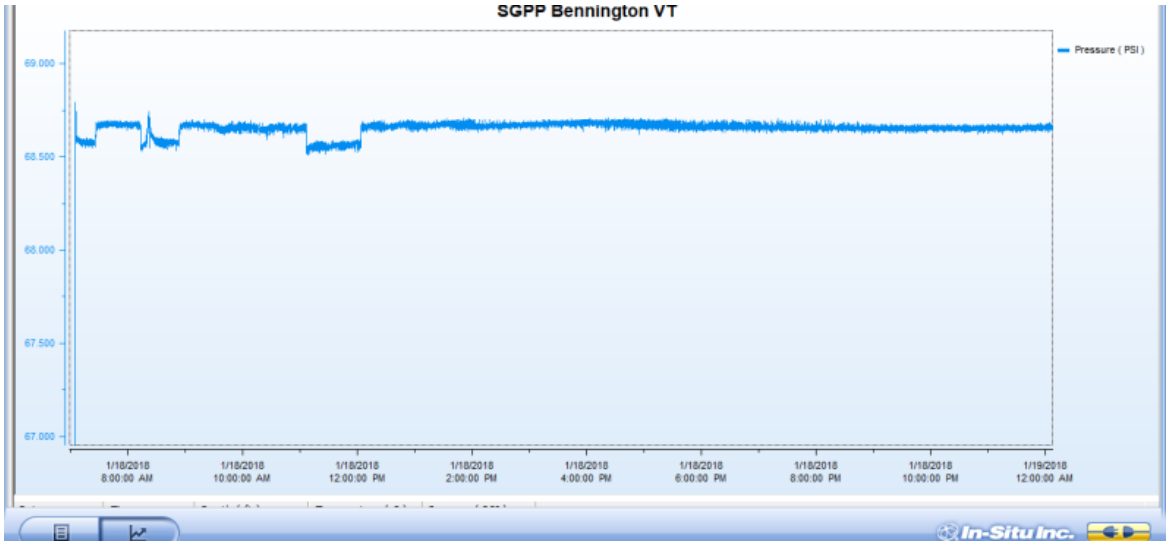
MWBR-2 Packer sample interval 3 199-219 Lower Pressure history.



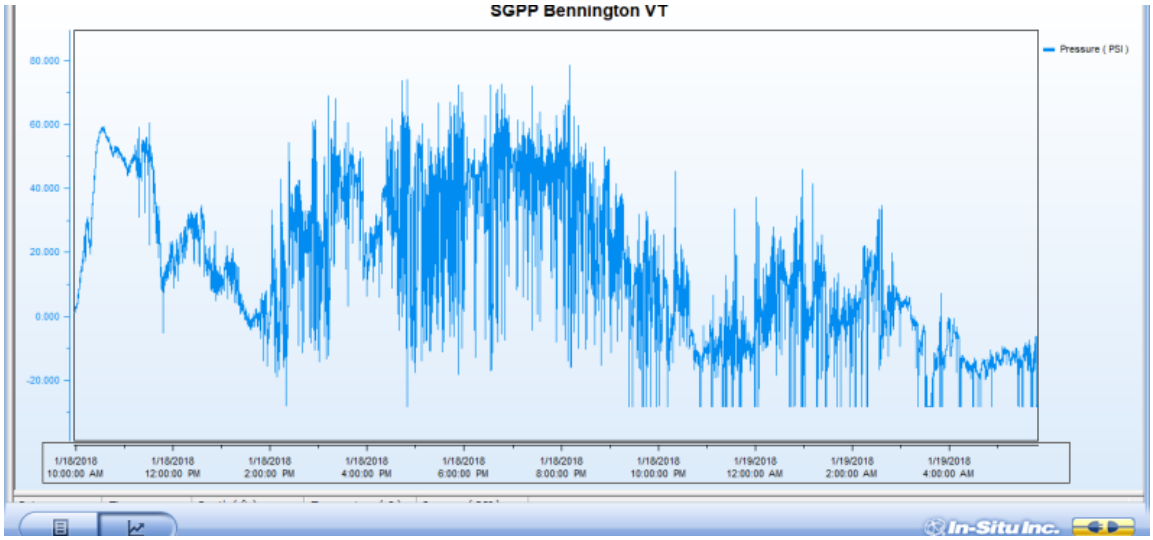
MWBR-2 Packer sample interval 3 199-219 On Pump Pressure history.



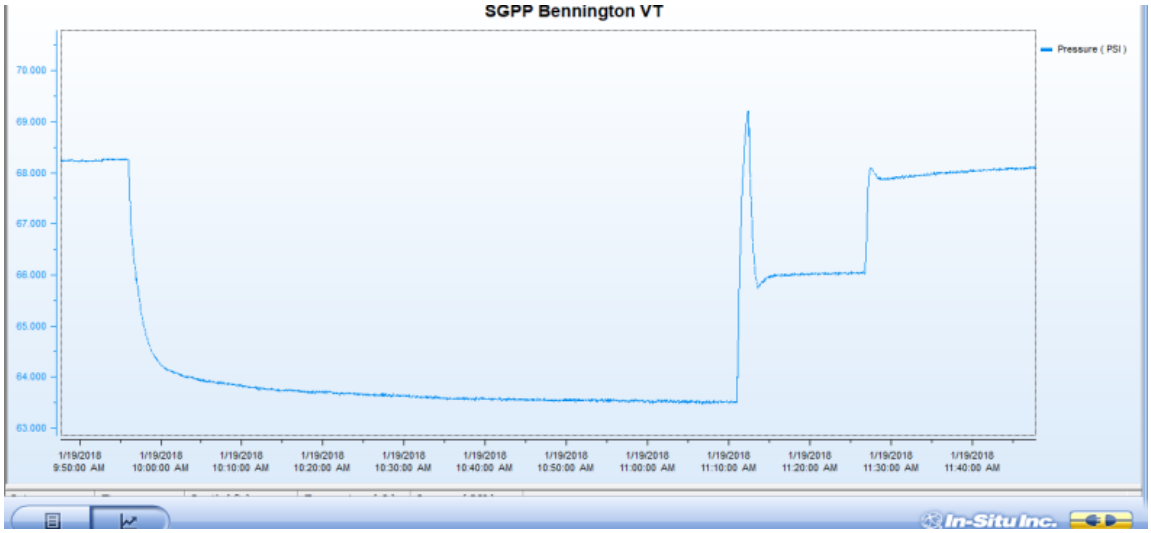
MWBR-2 Packer Sample interval 3, 199-219 feet. Discharge volume during cyclic purging caused by bladder style pump. Overall average discharge rate of 0.2 gpm observed.



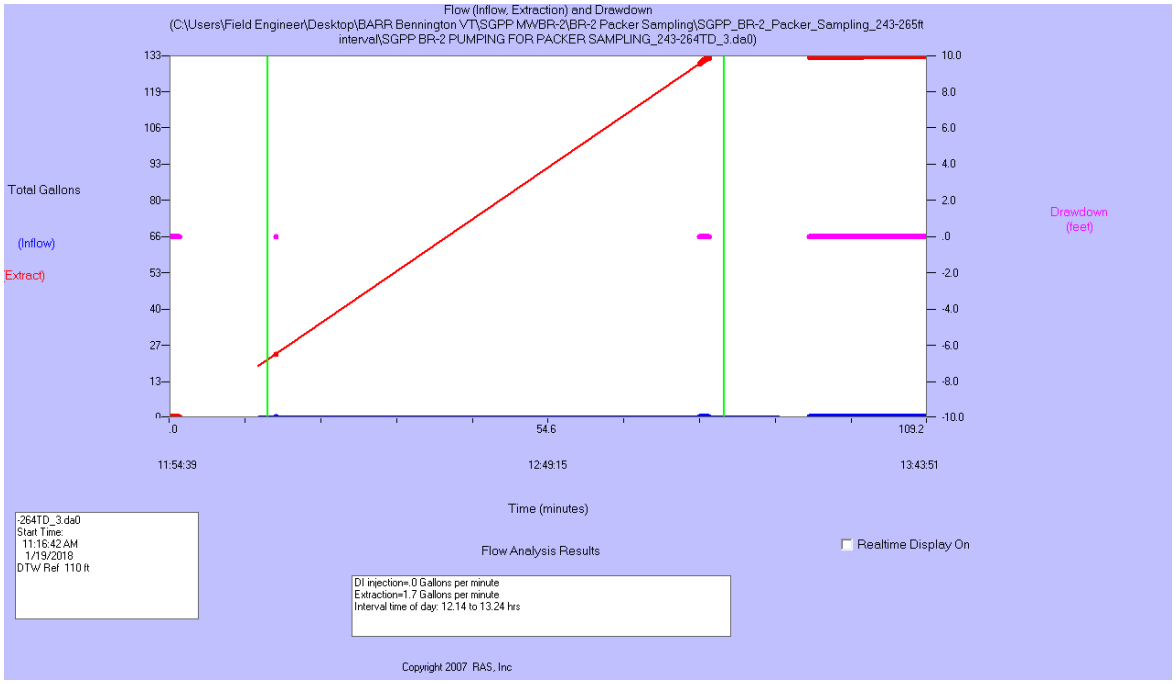
MWBR-2 Packer sample interval 4 243-265(TD) Upper Pressure history.



MWBR-2 Packer sample interval 4 243-265(TD) Lower Pressure history. Sensor failure noted.



MWBR-2 Packer sample interval 4, 243-265(TD). On Pump pressure 146.6-157.6 = 11.1 feet. 157.5-157.6= differential pressure after packer inflation = 0.1 feet. Differential pressure is the pressure difference between the pre-inflation and post-inflation pressure for the sampled interval. This value would represent the head in feet of the formation pressure above (+) the pre-inflation, open hole water level.

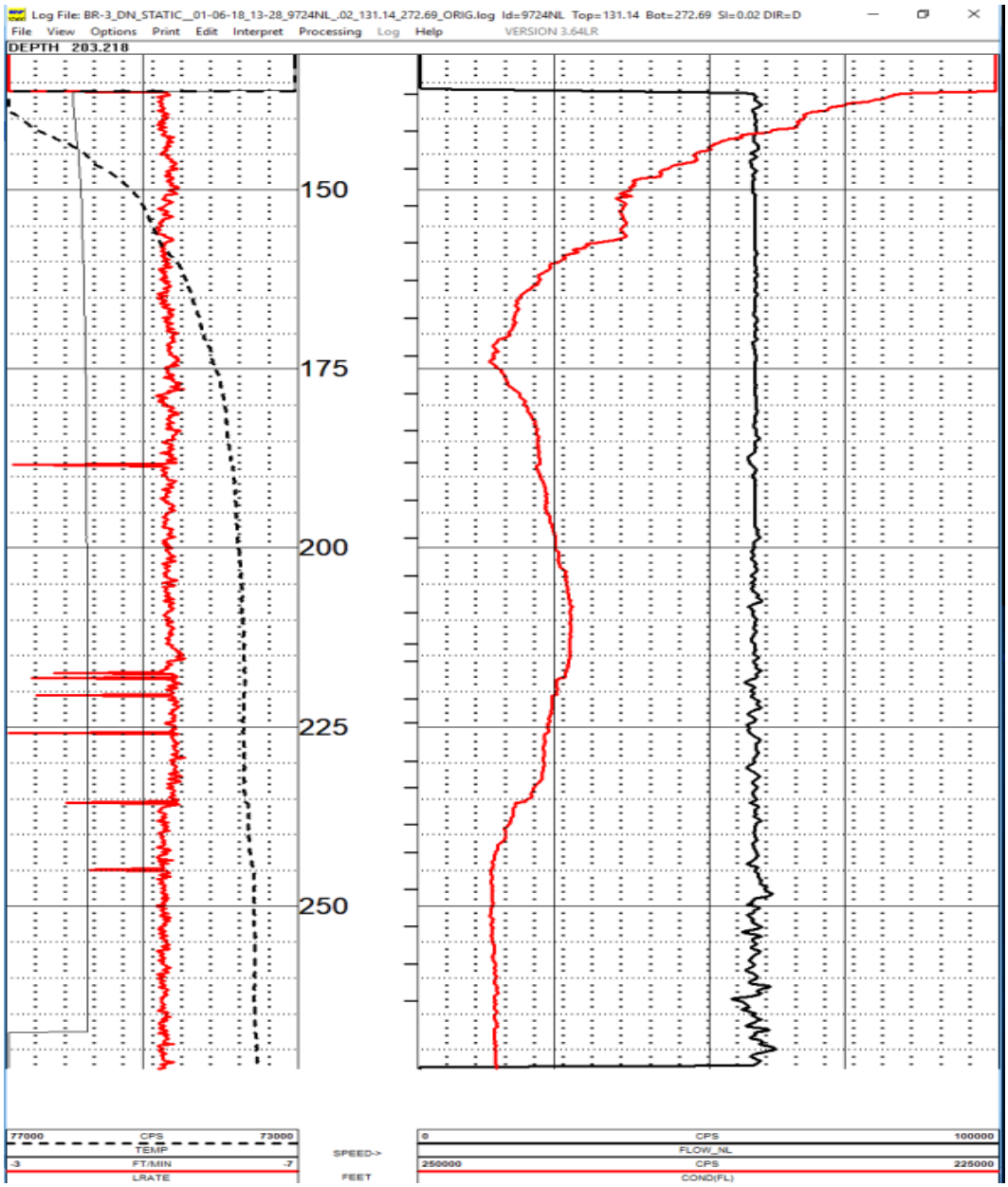


MWBR-2 Packer sample interval 4, 243-265(TD). Flow data from digital flow meter experience electrical interference during pumping for sample. Manual readings taken confirm 1.7gpm during sampling period.

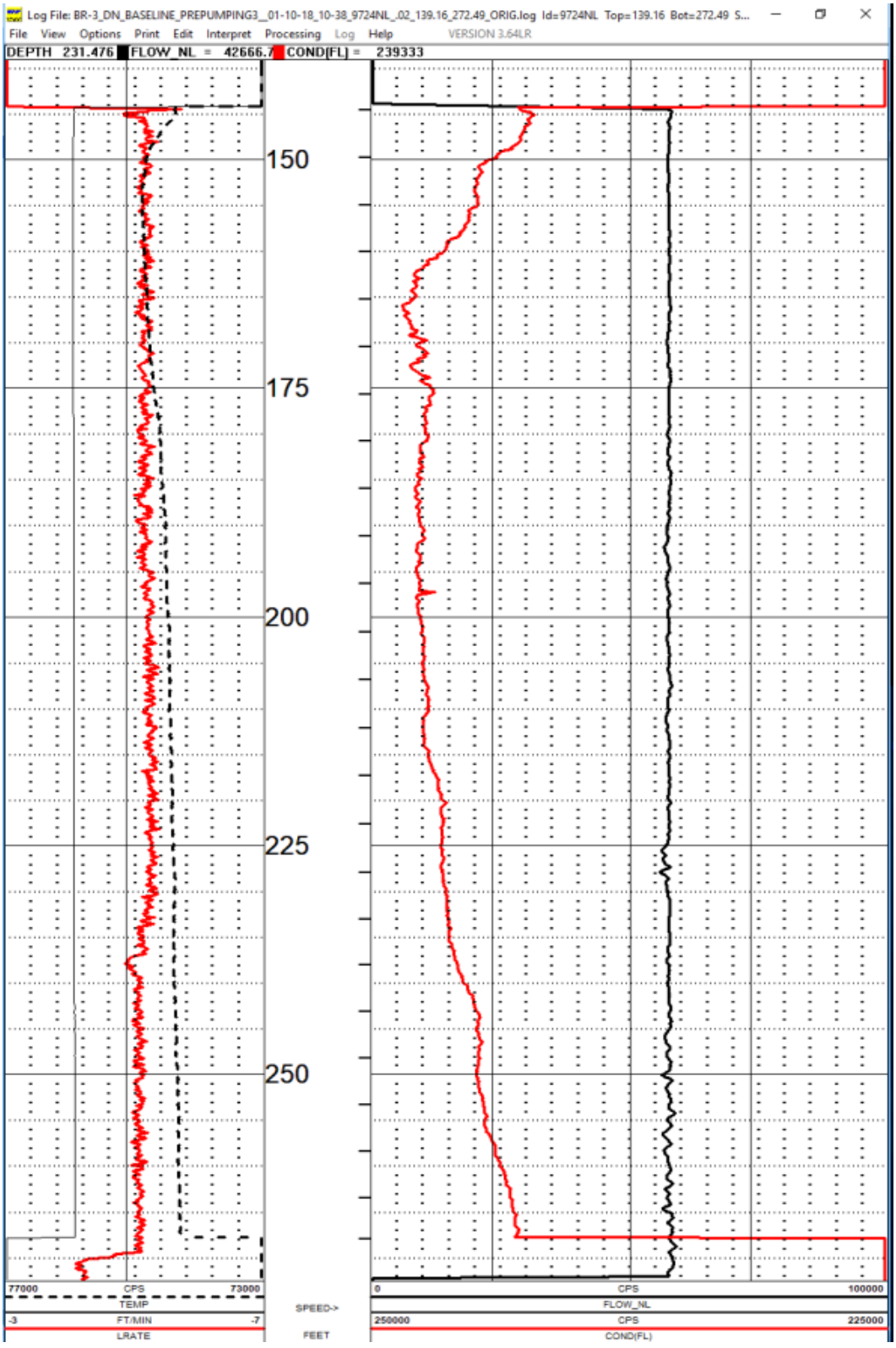
SG3-MW17-BR-3 DISCUSSION OF EM FLOWMETER RESULTS

The following figures and text are supplemental marterial and discussions in support of the summary interpretation presented in the main body of report and log montages. These logs are interpreted in counts per second (CPS) for flow, FEC and temperature. At the conclusion of interpretation, selected logs are then coverted to engineering units (Eu), employing propritary analytical methods and techniques, and presented in the log montage. As such, logs in CPS units are not converted to Eu in this section, the final converted Eu values are presented in the Log Montages of Appendix D.

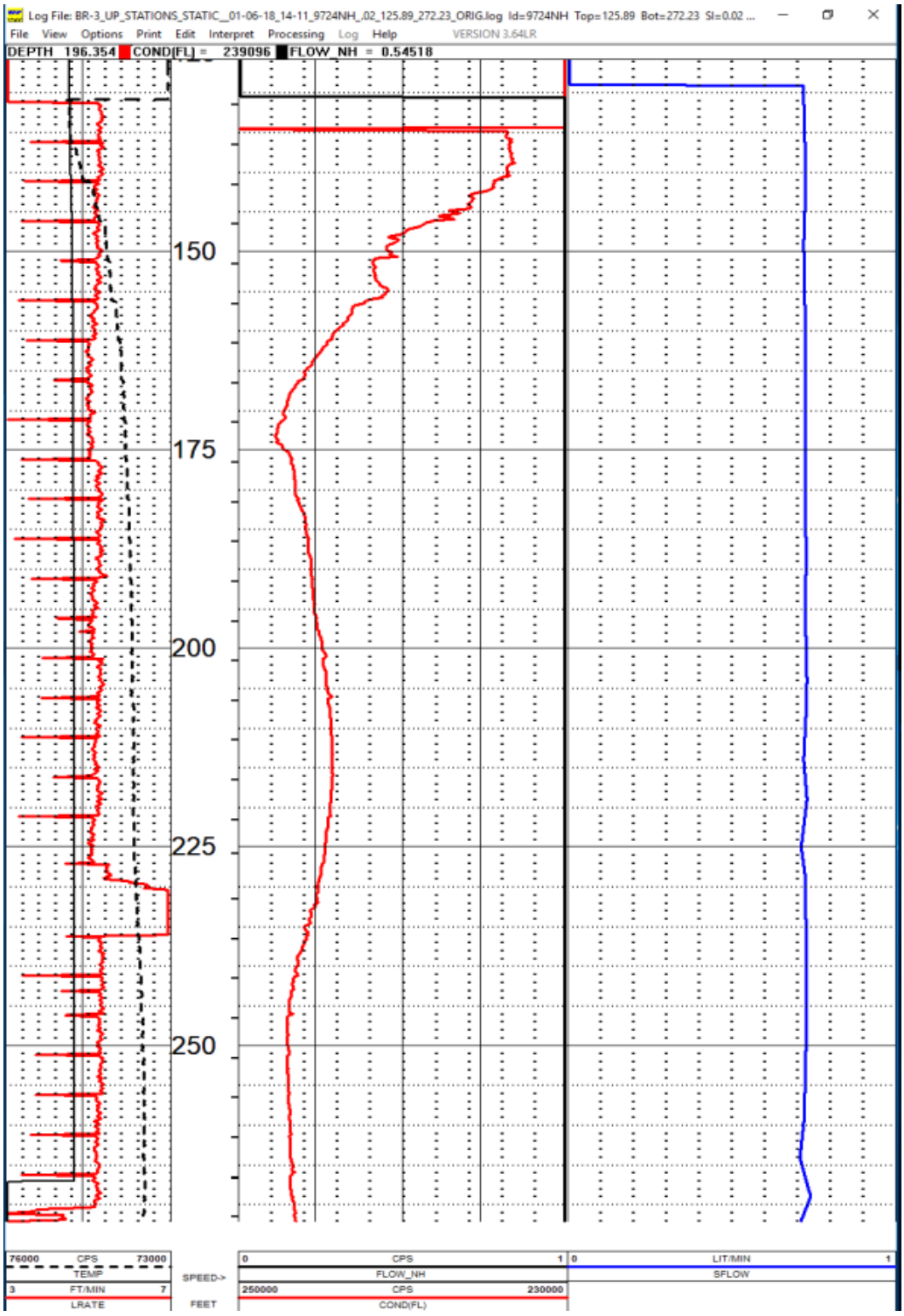
MWBR-3 Ambient Flow Conditions



BR-3 Ambient Flow, trolling down log. No strong apparent flow observed under trolling conditions at 5 feet per minute (fpm).

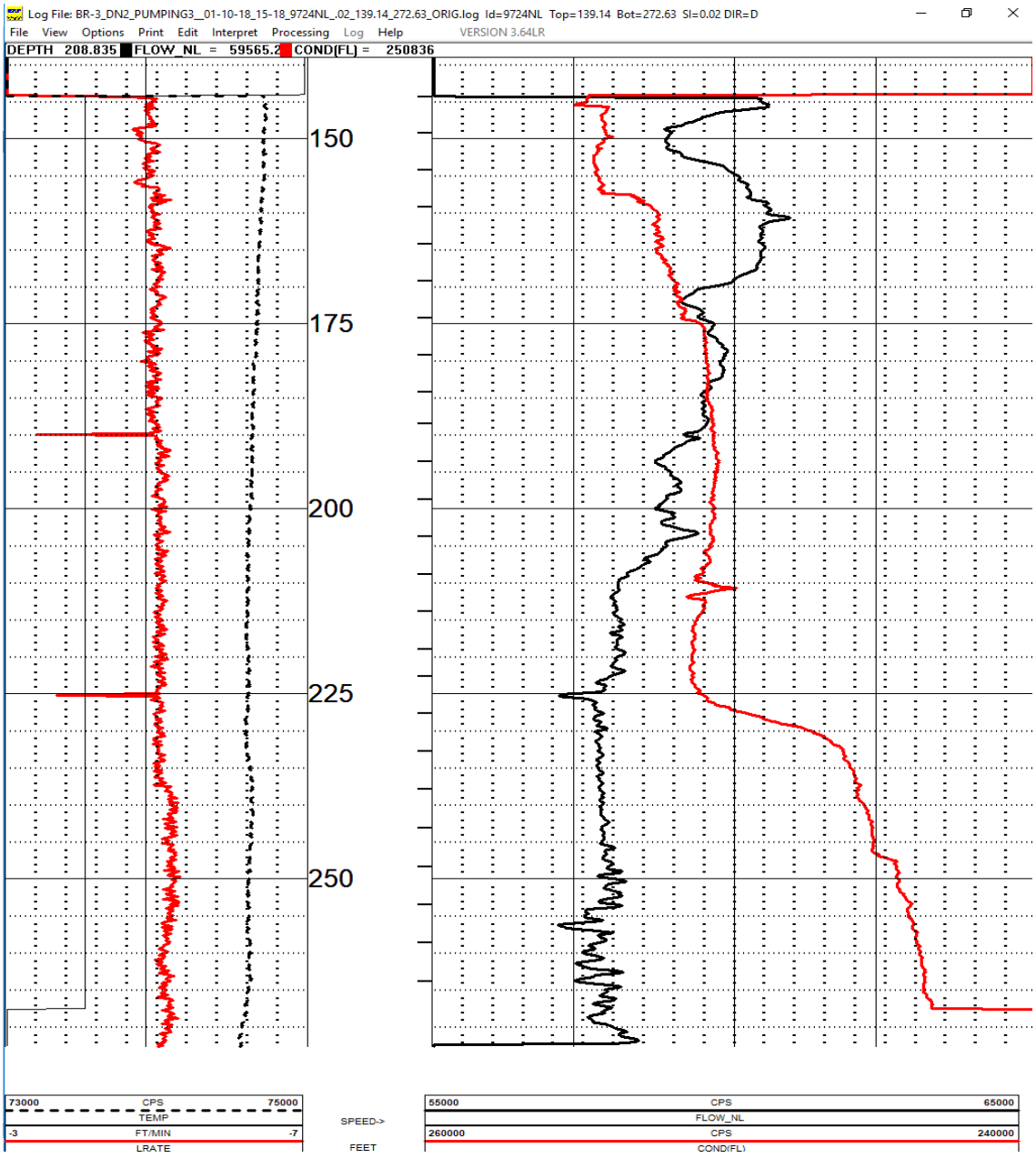


BR-3 Ambient Flow, trolling down log. No strong apparent flow observed under trolling conditions at 5 fpm

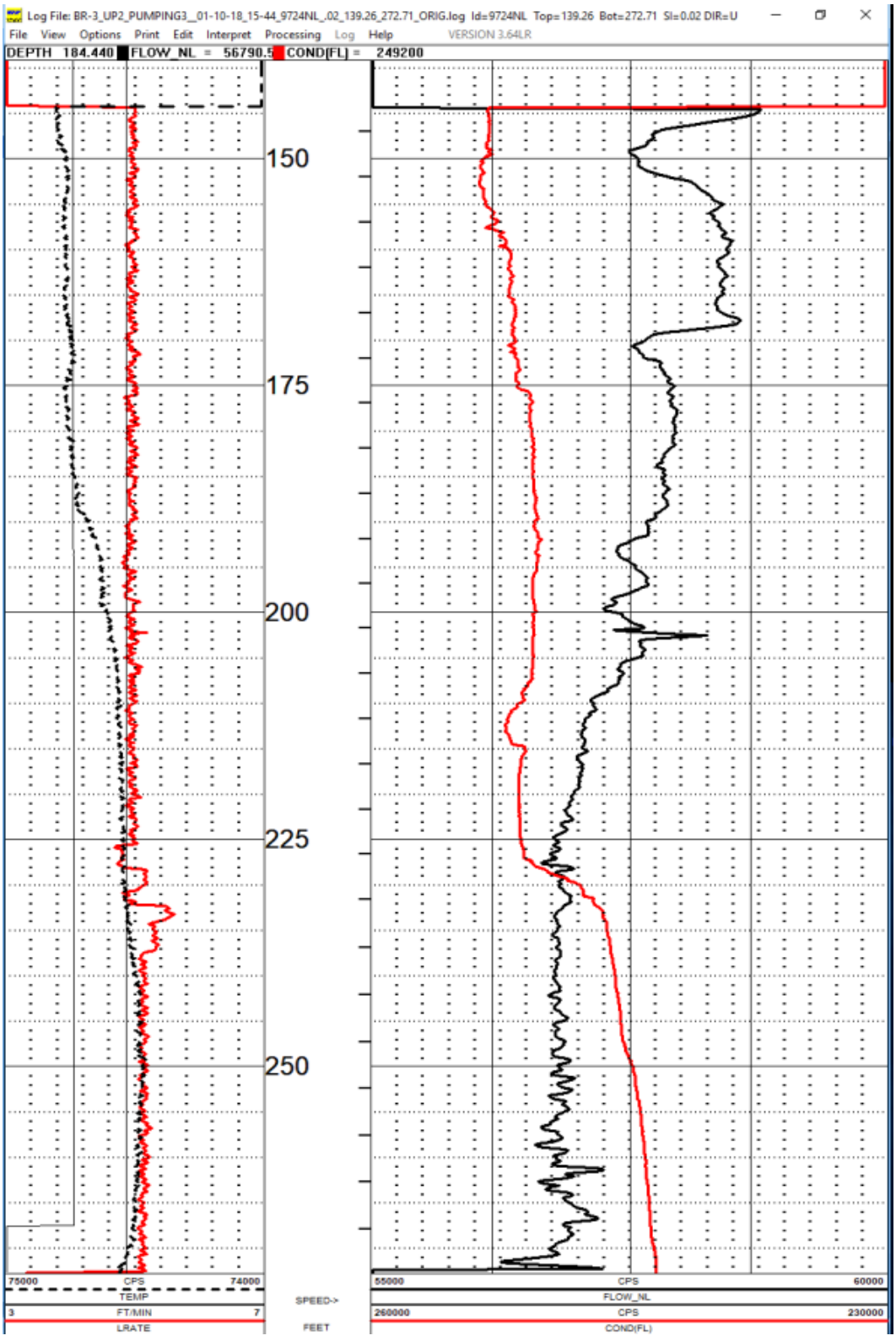


BR-3 Stationary measurements taken during static conditions. Thirty stations conducted at 5 foot intervals. No significant vertical flow observed (<0.1 gpm)

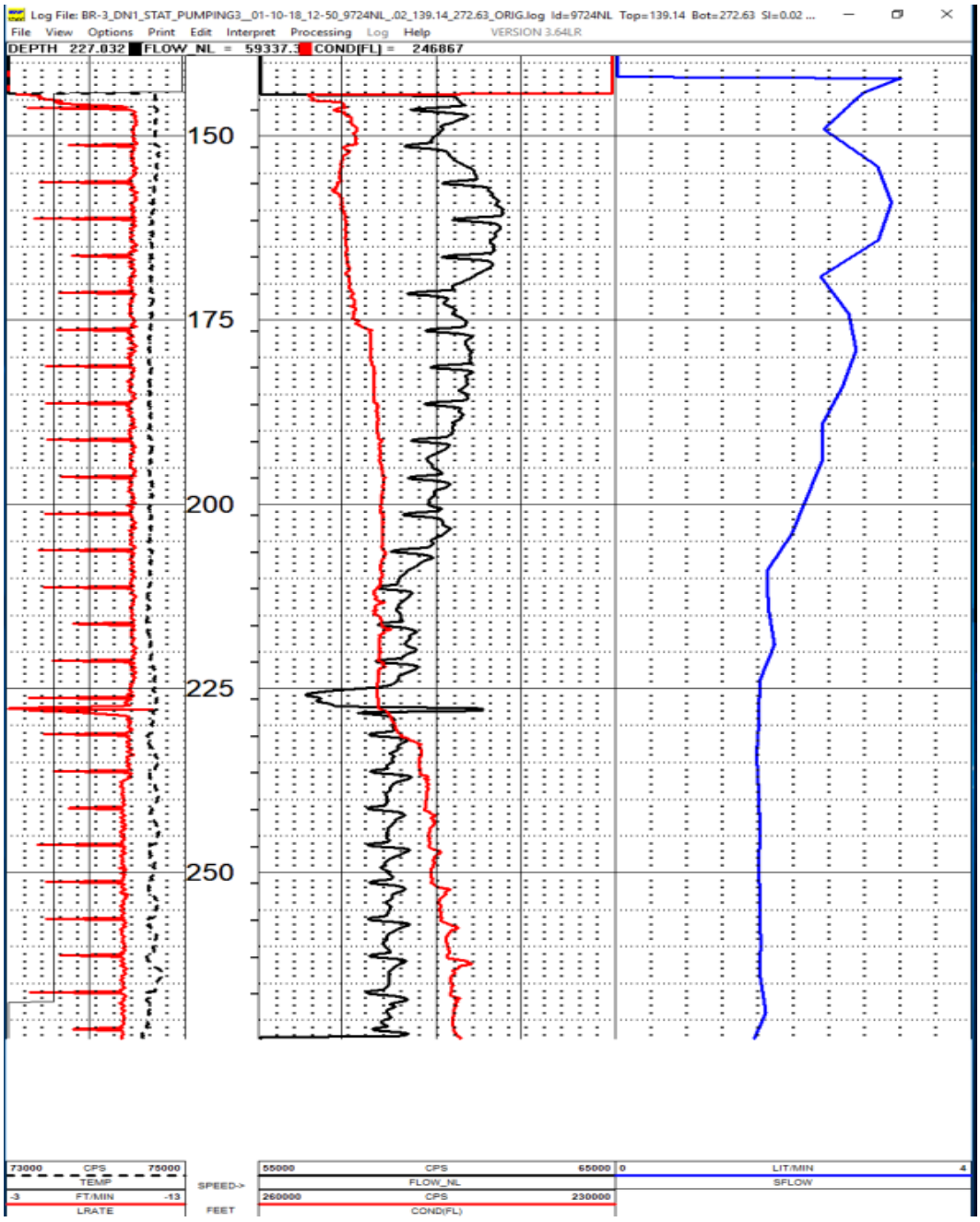
PUMPING CONDITIONS



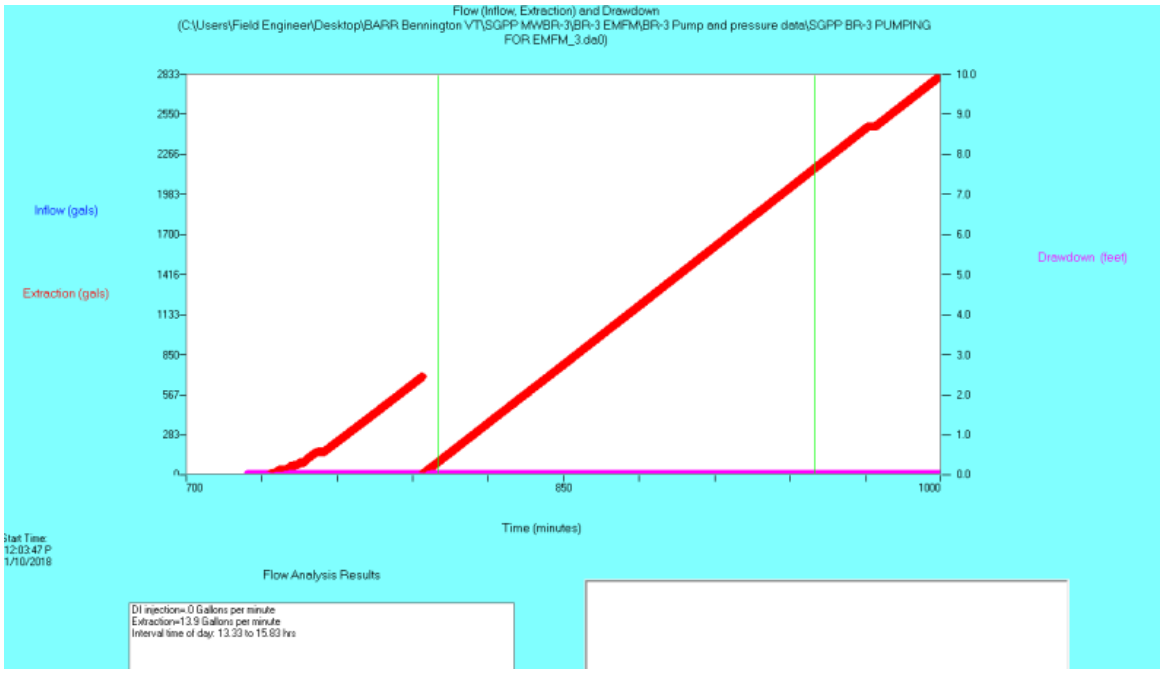
BR-3 Trolling tool (down) during pumping conditions. Pumping conducted at 13.7 gpm with 1.3 feet maximum drawdown. FEC and Temperature depth shifted. Multiple producing intervals identified. See BR-3 EM Flowmeter Summary Table below.



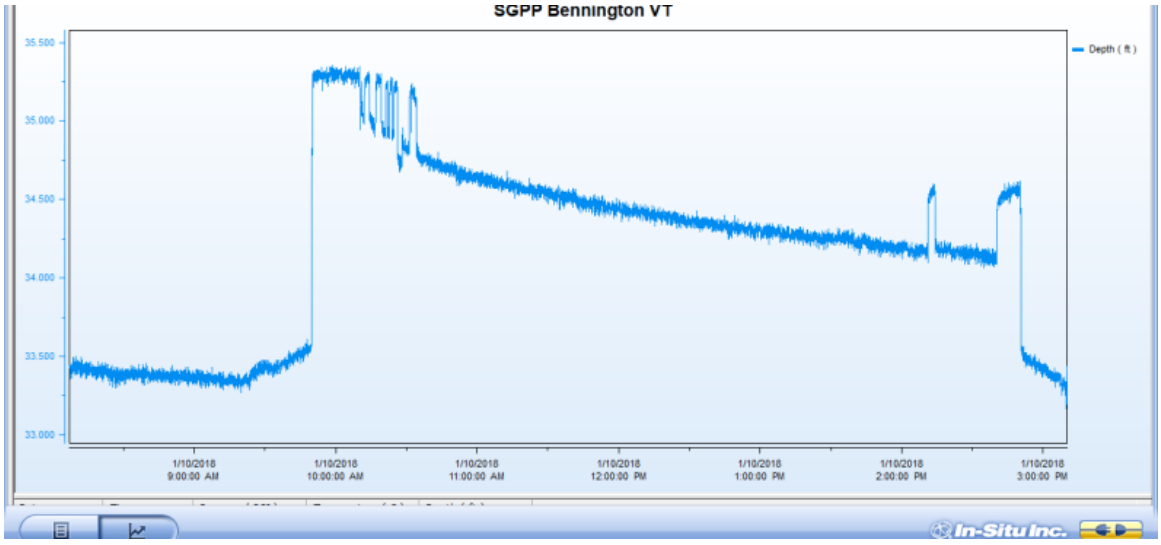
BR-3 Trolling tool (up) during pumping conditions. FEC and Temperature shifted. Multiple producing intervals identified. See BR-3 EM Flowmeter Summary Table below.



BR-3 Stationary measurements during pumping conditions. Twenty-six stations conducted at 5 foot spacing. Results of stationary measurements support trolling interpretation. Very low inflow occurring below 220 feet. See summary table below.



BR-3 Pumping during EMFM flow logging, average discharge rate during flow logging was 13.7 gpm. Manual water level measurements support pressure transducer data, below, and suggested a maximum drawdown of 132.36-131.1 = 1.26 feet.

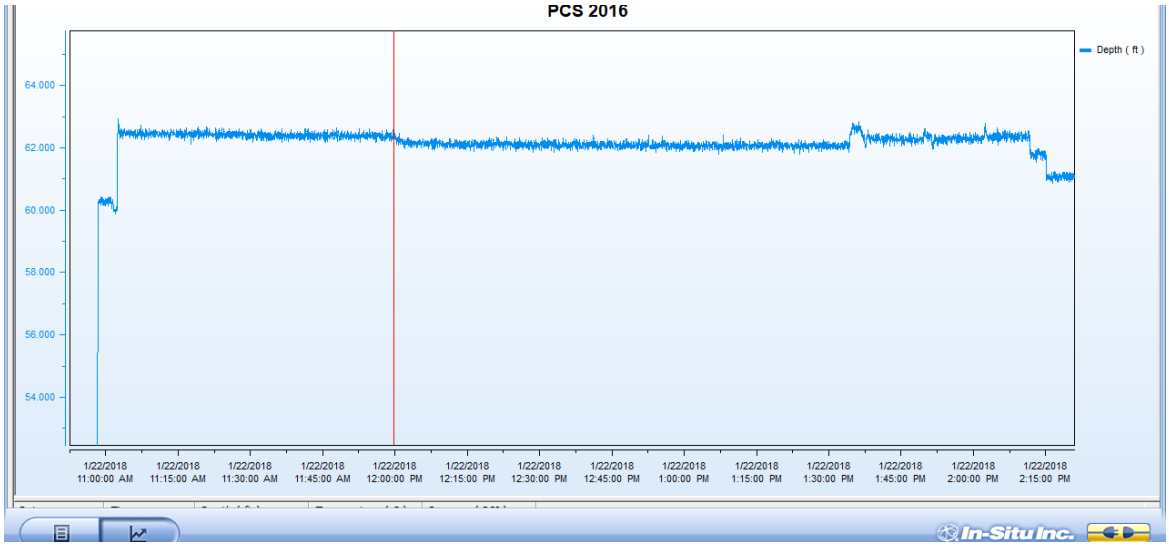


BR-3 On Pump pressure transducer data during EMFM flow log.

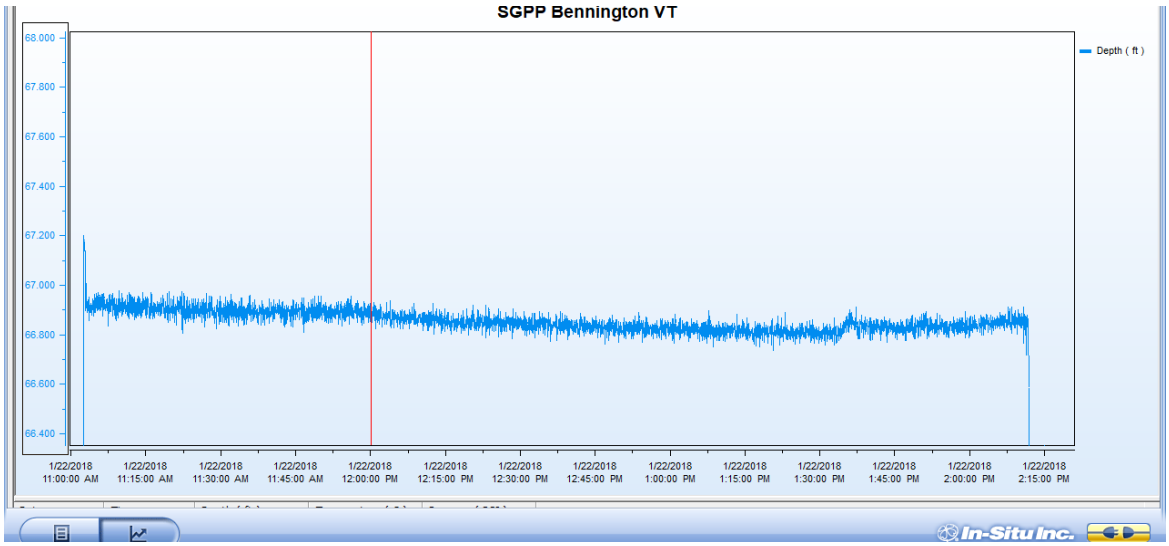
Interval No.	Depth (ft)	Interval Specific Flow rate (gpm)		Fluid Electrical conductivity (µS/cm)	Comments
		Static (gpm)	Pumping fpm (gpm)		
1	WL--158.5	<0.2	3.64 (5.4)	260-270	
2	167.8-174.0	<0.2	2.69 (4.0)	260-270	
3	188.2-192.7	<0.2	2.25 (3.3)	260-270	
4	205.0-210.0	<0.2	4.00 (6.0)	260-270	
5	223.5-226.0	<0.2	1.36 (2.0)	260-270	
6	246.0-248.0	<0.2	1.59 (2.3)	260-270	

BR-3 Summary Table of EM Flowmeter results

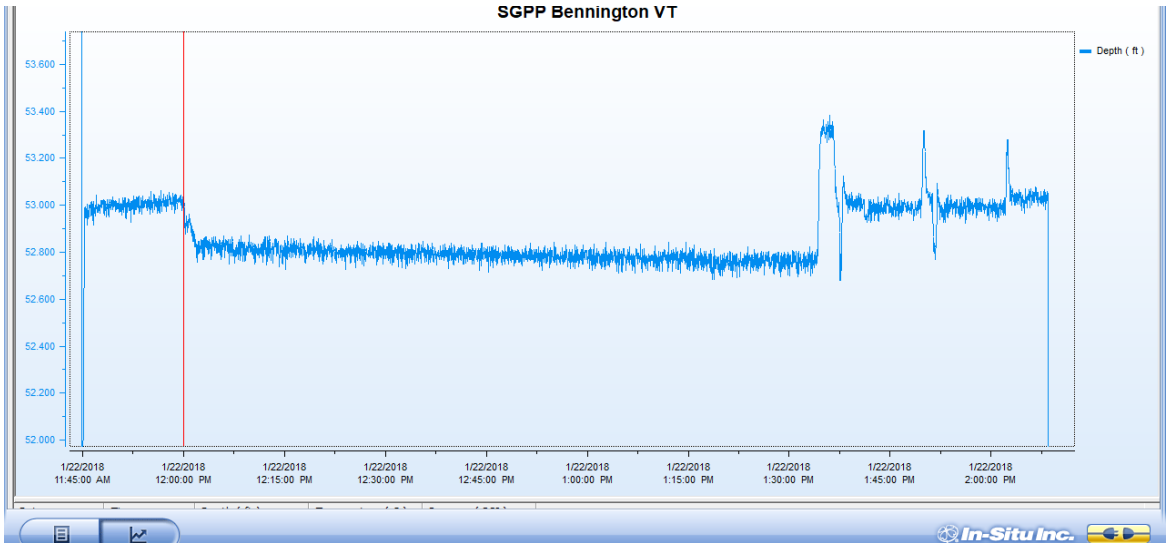
SG3-MW17-BR-3 DISCUSSION OF PACKER SAMPLING RESULTS



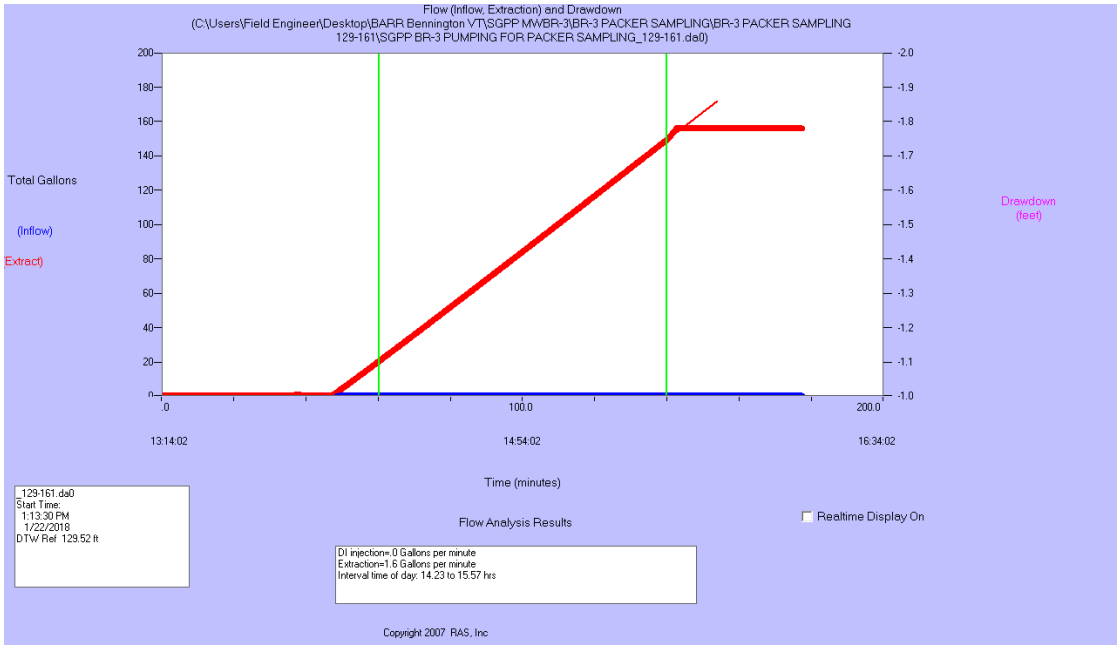
BR-3 Packer sampling , upper pressure transducer for interval 129-161 feet. Differential pressure (pre-inflation minus post-inflation is <0.1 feet



BR-3 Packer sampling , bottom pressure transducer for interval 129-161 feet. Mark set at 1400, actual pump start time after time shift correction. Differential pressure (pre-inflation minus post-inflation) is <0.1 feet.)



BR-3 On Pump PT 129-161 Mark set at 1400, actual pump start time after time shift correction (exactly 2.0 hour offset to digital file start file occurred at 10:57, recorded at 08:57). Same with Upper and Bottom PTs, add (+) 2.0 hours

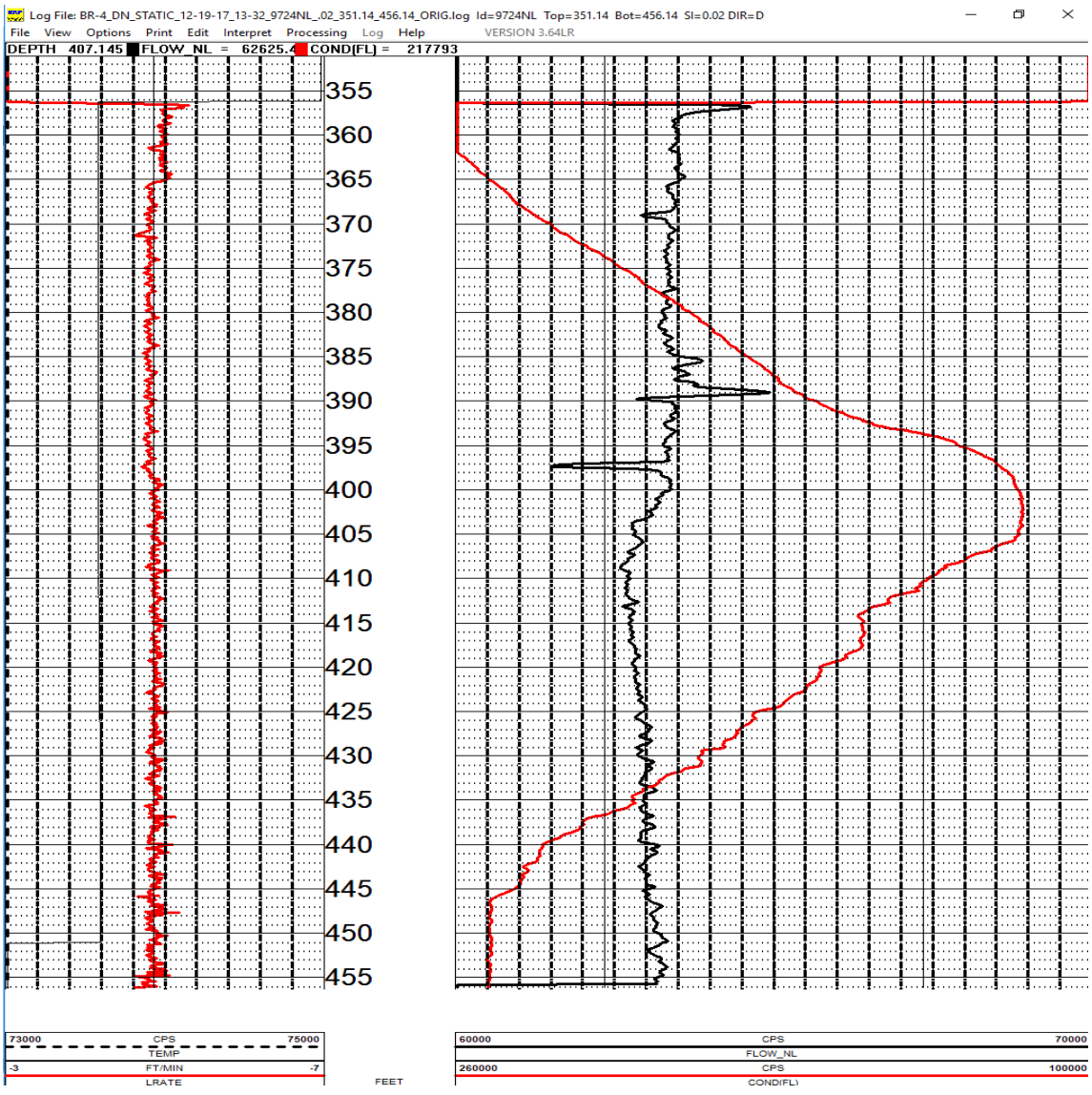


BR-3 Pumping results during packer sampling at interval 129 (water level) to 161. Single packer set to sample interval from water level (129 feet) to 161 feet.

SG3-MW17-BR-4 DISCUSSION OF EM FLOWMETER RESULTS

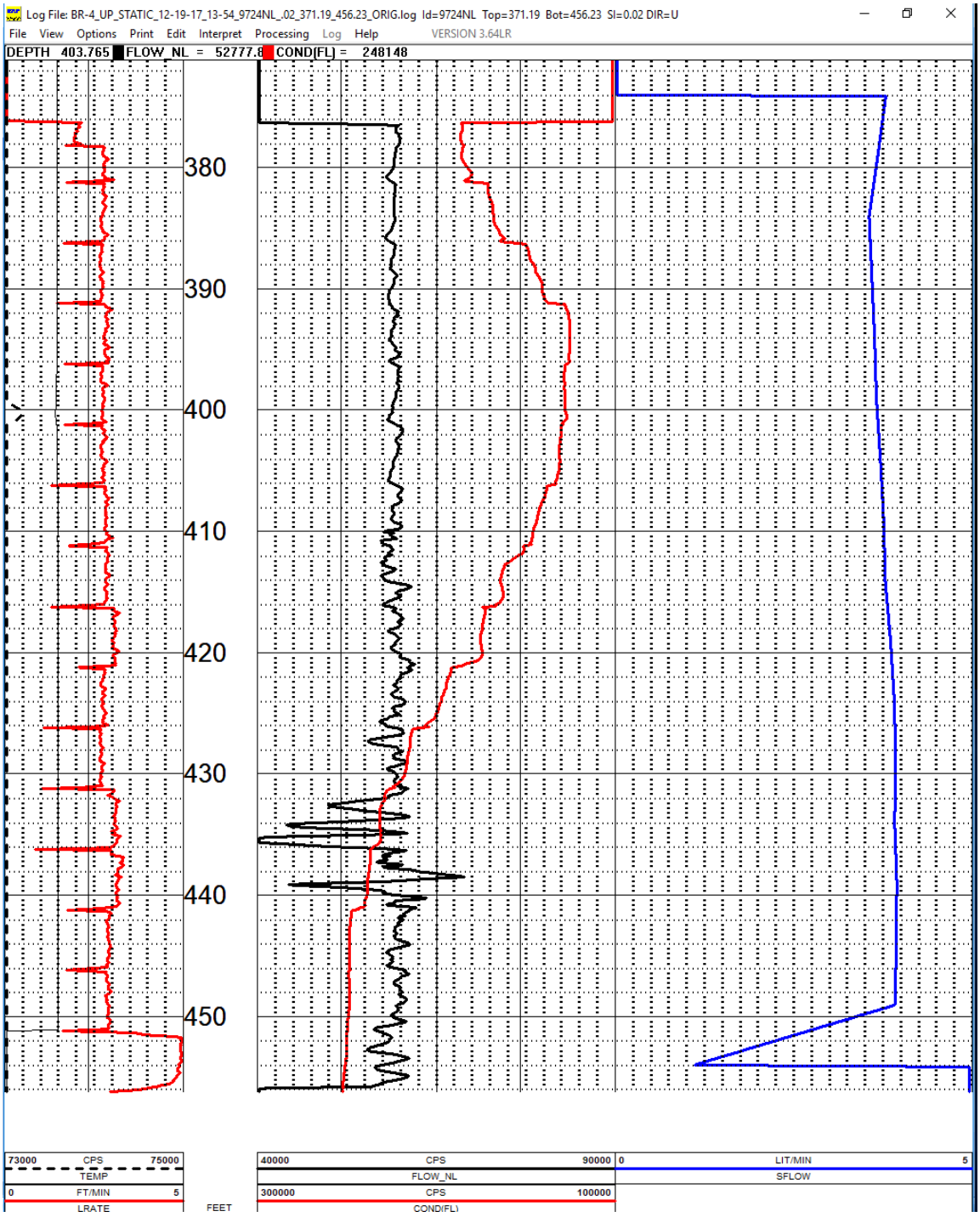
The following figures and text are supplemental marterial and discussions in support of the summary interpretation presented in the main body of report and log montages. These logs are interpreted in counts per second (CPS) for flow, FEC and temperature. At the conclusion of interpretation, selected logs are then coverted to engineering units (Eu), employing propritary analytical methods and techniques, and presented in the log montage. As such, logs in CPS units are not converted to Eu in this section, the final converted Eu values are presented in the Log Montages of Appendix D.

Static Flow Logs



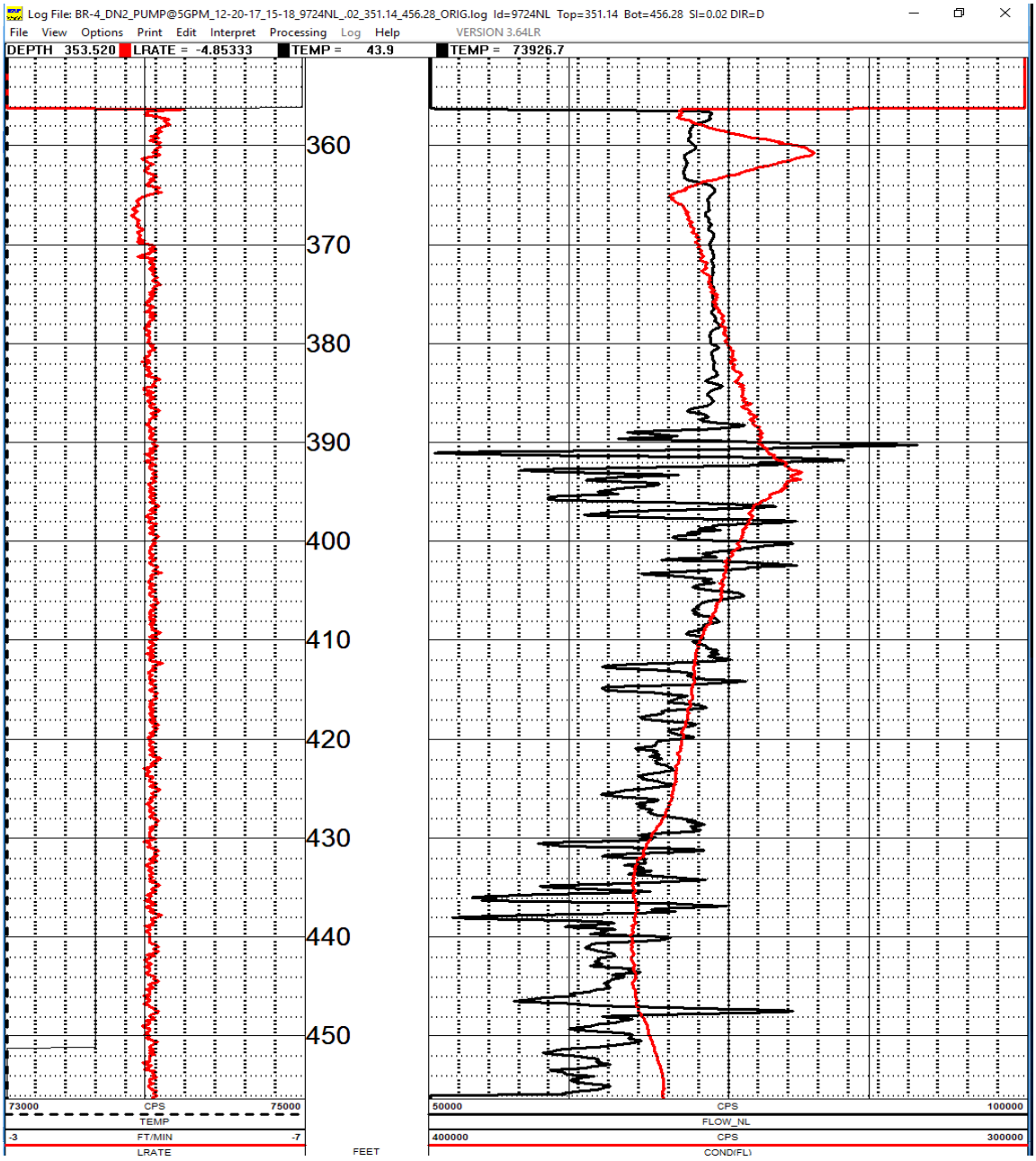
BR-4 Static flow characterization by trolling method. 4 inch PVC screen installed to from 389 to 456 feet and 6 inch steel casing to 406 feet. Trolling flow results suggest no significant vertical flow, FEC range from 260 to 400 µS/cm, decreasing with depth.

Trolling Static 12-19-18

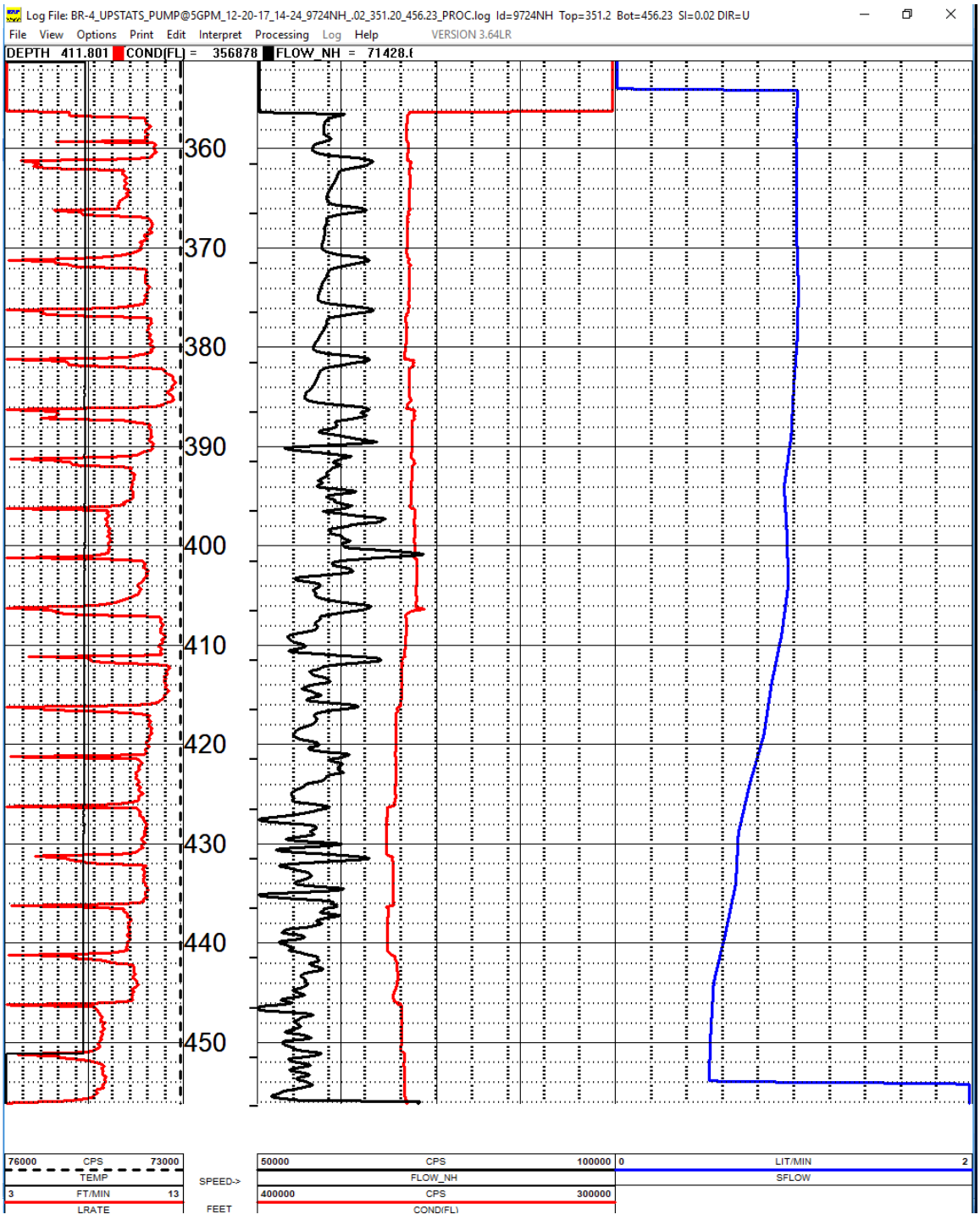


BR-4. Results from stationary flow measurements collected during static/ambient pressure (non-pumping conditions). Flow measurements from 16 stations at 5 foot spacing were collected. Stationary results suggest very low upflow. Stationary measurements flow values are flow through sensor and not actual total flow.

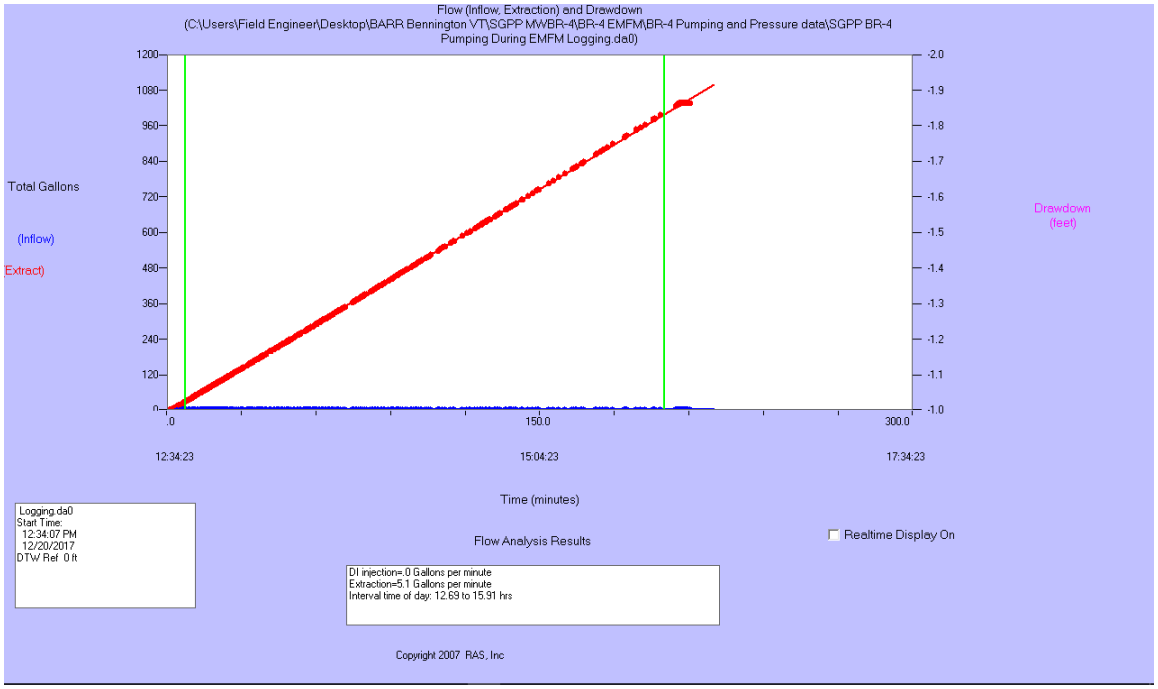
BR-4 Pumping Conditions



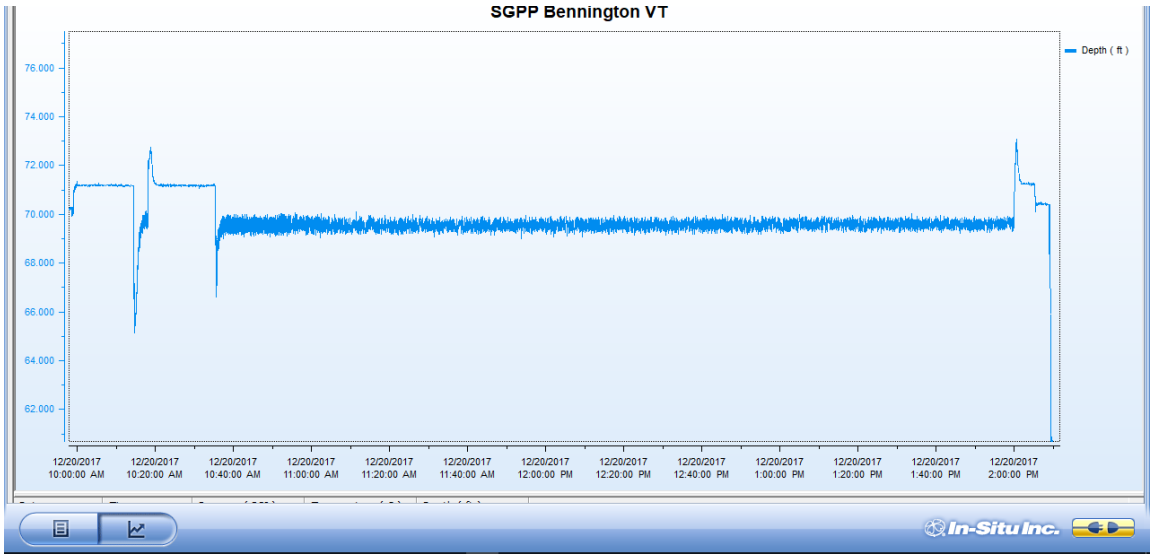
BR-4 Pumping at 5.1 gpm, trolling EMFM log. Data suggest variable and inconsistent flow within the screened interval during pumping conditions. The data suggests no dominant or preferential flow intervals. Trolling flow measurements are variable and challenging to directly interpret. However, general flow trend is decreasing with depth from maximum flow (5.1 gpm) over the screened interval from 398 ft (top screen) to 444 feet, estimated at 80%, or 4.1. Minimum inflow noted from 444 to 456 feet (total depth), estimated at 20% or 10gpm.



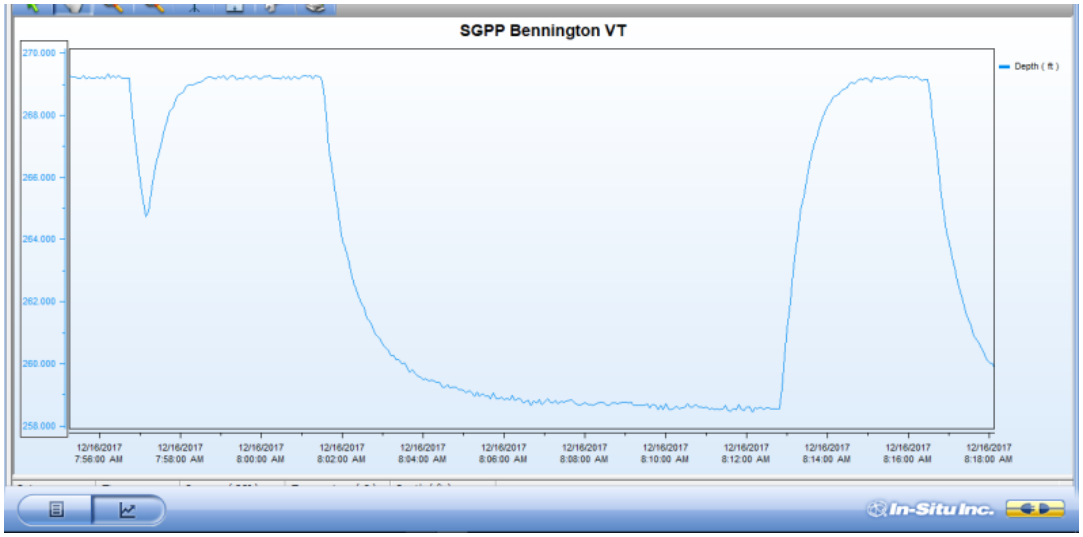
BR-4 Pumping at 5.1 gpm, 20 stationary measurements collected. FEC was reasonable consistent at 153 µS/cm. However, these results suggest decreasing flow from with depth from 389 feet (top of PVC screen) to 444 feet. Very low or no flow from 444 to 456 feet (TD). These results are similar to those suggested by trolling.



BR-4 Total gallons extracted during pumping for EM Flow logging. Average pumping rate = 5.1 gpm



BR-4 Pressure history during pumping for EMFM flow log. During pumping at 5.1 gpm a maximum drawdown of 1.5 feet was observed.



BR-4 Pressure history during Development pumping (estimated at 20 gpm).

Inflow No.	Depth of Inflow (ft)	Interval Specific Flow rate (gpm)		Interval Specific Fluid Electrical Conductivity(µS/cm)	Comments
		Static	Pumping		
1	398ft (top screen) – 444	<0.1	4.1	150-200	
2	444 - 456(TD)	<0.1	1.0	150-200	

SG3-MW17-BR4 Summary Table of EMFM results.

Appendix E.4

Borehole Structure Interpretation

Well SG3-MW17-BR2
Structure Data
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
151	218.56	9.29	129	9	Minor Open Joint / Fracture	J2
152.8	142.49	14.18	52	0	Bedding / Banding / Foliation	--
153.3	139.62	14.91	50	0	Bedding / Banding / Foliation	--
153.7	162.34	20.45	72	12	Minor Open Joint / Fracture	J1
154.4	132.2	13.14	42	18	Partially Open Joint / Fracture	J1
155.1	128.59	21.2	39	0	Bedding / Banding / Foliation	--
155.3	118.99	22.73	29	0	Bedding / Banding / Foliation	--
155.6	136.31	20.43	46	0	Bedding / Banding / Foliation	--
155.9	130.16	19.68	40	4	Partially Open Joint / Fracture	J1
156	143.39	19.04	53	6	Minor Open Joint / Fracture	J1
157	311.06	77.27	221	4	Partially Open Joint / Fracture	J1
157.6	125.54	36.74	36	0	Bedding / Banding / Foliation	--
158	312.42	79.28	222	3	Partially Open Joint / Fracture	J1
158.2	311.87	79.82	222	4	Partially Open Joint / Fracture	J1
158.5	322.27	79.97	232	3	Partially Open Joint / Fracture	J1
158.7	144.86	19.29	55	0	Bedding / Banding / Foliation	--
159.9	153.5	16.69	64	0	Bedding / Banding / Foliation	--
160.2	136.26	16.23	46	0	Bedding / Banding / Foliation	--
161.2	142.39	21.81	52	0	Bedding / Banding / Foliation	--
161.5	148.57	19.89	59	9	Minor Open Joint / Fracture	J1
161.8	153.37	16.53	63	0	Bedding / Banding / Foliation	--
163.3	138.62	20.6	49	9	Minor Open Joint / Fracture	J1
164.1	341.33	28.62	251	0	Bedding / Banding / Foliation	--
164.7	122.74	20.85	33	0	Bedding / Banding / Foliation	--
165	144.4	15.46	54	7	Partially Open Joint / Fracture	J1
165.4	145.04	19.32	55	6	Partially Open Joint / Fracture	J1
165.6	154.11	22.79	64	10	Partially Open Joint / Fracture	J1
166	123.38	23.27	33	13	Partially Open Joint / Fracture	J1
167.3	310.44	73.33	220	15	Partially Open Joint / Fracture	J1
167.6	148.64	17.91	59	15	Intermediate Open Joint/Fracture	J1
167.9	310.08	74.02	220	9	Partially Open Joint / Fracture	J1
169	315.45	79.06	225	6	Partially Open Joint / Fracture	J1
169.8	321.11	82.63	231	14	Major Open Joint / Fracture	J1
170.9	315.52	80.48	226	15	Major Open Joint / Fracture	J1
172.5	142.72	21.63	53	15	Intermediate Open Joint/Fracture	J1
172.7	128.29	18.76	38	11	Minor Open Joint / Fracture	J1
173	129.95	19.87	40	6	Minor Open Joint / Fracture	J1
173.5	130.41	20.6	40	6	Minor Open Joint / Fracture	J1
174.2	132.76	20.46	43	0	Bedding / Banding / Foliation	--

Well SG3-MW17-BR2
Structure Data
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
174.9	127.51	23.61	38	0	Bedding / Banding / Foliation	--
175.3	124.33	21.39	34	0	Bedding / Banding / Foliation	--
175.9	141.15	22.43	51	5	Minor Open Joint / Fracture	J1
176.1	142.8	21.38	53	5	Minor Open Joint / Fracture	J1
176.7	142.1	20.24	52	0	Bedding / Banding / Foliation	--
177.3	142.98	19.11	53	17	Intermediate Open Joint/Fracture	J1
177.6	162.51	18.78	73	15	Intermediate Open Joint/Fracture	J1
177.8	141.82	19.62	52	0	Bedding / Banding / Foliation	--
178.9	106.03	31.36	16	0	Bedding / Banding / Foliation	--
180.2	168.17	9.43	78	0	Bedding / Banding / Foliation	--
180.4	158.5	9.38	69	18	Intermediate Open Joint/Fracture	J1
180.5	155.38	9.18	65	0	Bedding / Banding / Foliation	--
180.6	165.91	12.57	76	0	Bedding / Banding / Foliation	--
181	165.2	10.76	75	0	Bedding / Banding / Foliation	--
181.4	186.45	11.13	96	8	Partially Open Joint / Fracture	--
181.5	196.03	8.52	106	7	Partially Open Joint / Fracture	--
182.2	126.11	62.44	36	19	Major Open Joint / Fracture	J1
182.9	142.5	66.84	53	15	Major Open Joint / Fracture	J1
183.9	175.84	9.78	86	15	Intermediate Open Joint/Fracture	--
184.7	150.29	12.68	60	0	Bedding / Banding / Foliation	--
185.2	140.17	12.42	50	12	Partially Open Joint / Fracture	J1
185.3	141.08	13.86	51	0	Bedding / Banding / Foliation	--
185.8	169.78	10.27	80	0	Bedding / Banding / Foliation	--
186	164.95	9.81	75	0	Bedding / Banding / Foliation	--
186.5	173.6	12.98	84	0	Bedding / Banding / Foliation	--
187	109.42	13.27	19	0	Bedding / Banding / Foliation	--
187.6	147.44	60.54	57	6	Partially Open Joint / Fracture	J1
188.3	143.11	16.55	53	11	Intermediate Open Joint/Fracture	J1
188.7	158.24	15.09	68	11	Intermediate Open Joint/Fracture	J1
189.5	137.96	18.64	48	7	Minor Open Joint / Fracture	J1
190.5	109.83	66.87	20	11	Partially Open Joint / Fracture	J1
191.9	156.73	18.05	67	0	Bedding / Banding / Foliation	--
192.3	152.43	16.19	62	0	Bedding / Banding / Foliation	--
193.7	339.54	77.39	250	10	Partially Open Joint / Fracture	J1
194.8	144.58	18.72	55	12	Partially Open Joint / Fracture	J1
195.2	107.65	57.96	18	6	Partially Open Joint / Fracture	J1
196.2	343.51	76.57	254	8	Intermediate Open Joint/Fracture	J1
196.9	347.7	78.53	258	8	Intermediate Open Joint/Fracture	--
197.3	123.53	24.48	34	0	Bedding / Banding / Foliation	--

Well SG3-MW17-BR2
Structure Data
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
197.6	127.56	16.25	38	0	Bedding / Banding / Foliation	--
197.7	136.54	20.12	47	0	Bedding / Banding / Foliation	--
198.1	136.98	22.33	47	0	Bedding / Banding / Foliation	--
198.3	140.38	15.39	50	0	Bedding / Banding / Foliation	--
198.5	127.88	62.53	38	3	Partially Open Joint / Fracture	J1
198.7	322.36	73.09	232	1	Partially Open Joint / Fracture	J1
198.7	142.05	18.26	52	0	Bedding / Banding / Foliation	--
198.9	154.1	14.38	64	0	Bedding / Banding / Foliation	--
199.2	137.25	21.3	47	11	Intermediate Open Joint/Fracture	J1
199.4	140.47	21.42	50	0	Bedding / Banding / Foliation	--
199.7	138.57	21.94	49	0	Bedding / Banding / Foliation	--
199.9	128.12	12.73	38	0	Bedding / Banding / Foliation	--
200.5	129.16	14.59	39	0	Bedding / Banding / Foliation	--
200.8	148.36	11.8	58	0	Bedding / Banding / Foliation	--
201.2	126.15	10.18	36	123	Weak Zone / Undifferentiated	--
201.5	305.63	83.41	216	5	Partially Open Joint / Fracture	J1
202.5	312.12	76.94	222	8	Partially Open Joint / Fracture	J1
203.6	150.18	7.05	60	182	Weak Zone / Undifferentiated	--
204.1	159.48	3.92	69	36	Intermediate Open Joint/Fracture	J1
205	318.51	76.09	229	9	Partially Open Joint / Fracture	J1
205.6	331.51	75.47	242	9	Partially Open Joint / Fracture	J1
207.1	8.34	68.48	278	10	Partially Open Joint / Fracture	--
207.7	119.33	37.45	29	6	Partially Open Joint / Fracture	J1
208.8	309.58	85.05	220	4	Partially Open Joint / Fracture	J1
209.2	169.78	48.95	80	16	Partially Open Joint / Fracture	--
210.3	127.77	80.72	38	4	Partially Open Joint / Fracture	J1
212.5	100.57	38.56	11	9	Partially Open Joint / Fracture	J1
213	327.52	56.52	238	5	Partially Open Joint / Fracture	J1
213	139.76	38.47	50	7	Partially Open Joint / Fracture	J1
213.6	314.46	52.03	224	6	Partially Open Joint / Fracture	J1
214.1	306.04	66.62	216	14	Partially Open Joint / Fracture	J1
214.5	329.73	72.55	240	5	Partially Open Joint / Fracture	J1
215.1	4.8	70.01	275	10	Partially Open Joint / Fracture	--
215.5	113.15	43.6	23	9	Partially Open Joint / Fracture	J1
215.7	311.32	80.78	221	4	Partially Open Joint / Fracture	J1
215.7	161.93	50.21	72	17	Partially Open Joint / Fracture	--
217.5	307.11	82.74	217	6	Intermediate Open Joint/Fracture	J1
218	155.31	22.69	65	10	Partially Open Joint / Fracture	J1
218.7	146.4	24.72	56	0	Bedding / Banding / Foliation	--

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
218.8	143.48	30.48	53	0	Bedding / Banding / Foliation	--
219.5	117.23	19.47	27	0	Bedding / Banding / Foliation	--
221.5	133.57	11.58	44	0	Bedding / Banding / Foliation	--
221.7	129.34	10.78	39	0	Bedding / Banding / Foliation	--
222.4	138.99	13.35	49	0	Bedding / Banding / Foliation	--
222.9	133.13	17.65	43	0	Bedding / Banding / Foliation	--
223	129.51	16.36	40	0	Bedding / Banding / Foliation	--
223.2	306.54	78.46	217	3	Partially Open Joint / Fracture	J1
223.2	130.2	24.6	40	0	Bedding / Banding / Foliation	--
223.4	134.64	24.49	45	0	Bedding / Banding / Foliation	--
223.8	134.37	17.85	44	0	Bedding / Banding / Foliation	--
224.5	140.23	7.82	50	0	Bedding / Banding / Foliation	--
224.6	128.29	10.06	38	0	Bedding / Banding / Foliation	--
225.2	146.16	15.85	56	0	Bedding / Banding / Foliation	--
225.2	1.17	57.48	271	4	Partially Open Joint / Fracture	--
225.8	2.32	64.76	272	4	Partially Open Joint / Fracture	--
225.9	86.57	71.49	357	4	Partially Open Joint / Fracture	--
226	258.07	70.21	168	6	Partially Open Joint / Fracture	--
227.9	141.93	16.04	52	0	Bedding / Banding / Foliation	--
228.7	128.07	12.7	38	0	Bedding / Banding / Foliation	--
229	317.17	81.35	227	4	Partially Open Joint / Fracture	J1
229	103.28	16.25	13	0	Bedding / Banding / Foliation	--
229.2	136.21	12.68	46	0	Bedding / Banding / Foliation	--
229.7	131.27	16.84	41	0	Bedding / Banding / Foliation	--
230	129.97	21.39	40	0	Bedding / Banding / Foliation	--
230.4	126.7	14.68	37	0	Bedding / Banding / Foliation	--
230.7	174.84	15.25	85	6	Partially Open Joint / Fracture	J1
231.4	110.21	18.61	20	0	Bedding / Banding / Foliation	--
231.5	119.33	14.07	29	0	Bedding / Banding / Foliation	--
231.9	316.3	72.04	226	2	Partially Open Joint / Fracture	J1
232	130.69	19.45	41	4	Minor Open Joint / Fracture	J1
233.1	20.79	70.08	291	20	Major Open Joint / Fracture	J2
233.6	3.04	73.28	273	16	Major Open Joint / Fracture	--
234	309.63	85.66	220	5	Partially Open Joint / Fracture	J1
235.2	292	66.54	202	0	Bedding / Banding / Foliation	--
235.5	298.09	61.17	208	0	Bedding / Banding / Foliation	--
236.1	132.72	40.49	43	5	Partially Open Joint / Fracture	J1
236.3	303.86	49.44	214	5	Partially Open Joint / Fracture	J1
236.4	96.27	63.45	6	4	Partially Open Joint / Fracture	--

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
237.2	125.3	65.53	35	4	Partially Open Joint / Fracture	J1
237.4	135.5	55.82	46	6	Partially Open Joint / Fracture	J1
239	175.76	8.39	86	9	Minor Open Joint / Fracture	--
239.2	116.97	14.88	27	6	Minor Open Joint / Fracture	J1
239.5	310.16	81.58	220	6	Partially Open Joint / Fracture	J1
240.7	293.48	58.06	203	7	Filled Fracture / Joint	J1
240.9	301.16	77.52	211	5	Partially Open Joint / Fracture	J1
241	139.97	7.87	50	0	Bedding / Banding / Foliation	--
241.7	161.16	9.22	71	8	Partially Open Joint / Fracture	J1
242.2	151.92	25.52	62	66	Weak Zone / Undifferentiated	--
242.5	143.96	16	54	0	Bedding / Banding / Foliation	--
243.2	81.68	60.38	352	9	Partially Open Joint / Fracture	--
243.5	146.44	15.72	56	0	Bedding / Banding / Foliation	--
243.7	153.7	11.34	64	0	Bedding / Banding / Foliation	--
244	151.9	11.88	62	0	Bedding / Banding / Foliation	--
245.3	311.49	84.51	221	5	Partially Open Joint / Fracture	J1
245.5	310.95	83.1	221	6	Partially Open Joint / Fracture	J1
245.5	144.59	26.05	55	7	Partially Open Joint / Fracture	J1
245.9	307.63	76.95	218	8	Partially Open Joint / Fracture	J1
246	188.6	5.14	99	8	Partially Open Joint / Fracture	--
246.3	310.43	80.13	220	5	Partially Open Joint / Fracture	J1
246.6	311.27	78.54	221	7	Partially Open Joint / Fracture	J1
247.6	120.55	12.65	31	0	Bedding / Banding / Foliation	--
247.7	118.07	10.16	28	0	Bedding / Banding / Foliation	--
247.8	306.19	74.5	216	5	Partially Open Joint / Fracture	J1
248	307.55	76.63	218	4	Partially Open Joint / Fracture	J1
248	127.34	11.32	37	0	Bedding / Banding / Foliation	--
249.8	316.87	82.33	227	4	Partially Open Joint / Fracture	J1
250.2	309.82	83.53	220	3	Partially Open Joint / Fracture	J1
250.7	98.68	16.93	9	0	Bedding / Banding / Foliation	--
251.1	165.62	6.59	76	10	Partially Open Joint / Fracture	--
251.3	124.19	13.34	34	4	Minor Open Joint / Fracture	J1
251.5	7.77	59.68	278	4	Partially Open Joint / Fracture	--
251.9	11.4	67.46	281	2	Partially Open Joint / Fracture	--
252	136.4	10.6	46	10	Minor Open Joint / Fracture	J1
252.3	140.81	10.68	51	0	Bedding / Banding / Foliation	--
252.6	172.14	17.89	82	0	Bedding / Banding / Foliation	--
252.7	356.09	67.84	266	4	Partially Open Joint / Fracture	--
253	12.82	72.94	283	4	Partially Open Joint / Fracture	--

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
253.2	35.05	62.37	305	5	Partially Open Joint / Fracture	J2
253.4	321.27	70.57	231	6	Partially Open Joint / Fracture	J1
253.6	156.33	7.59	66	5	Minor Open Joint / Fracture	J1
254.2	161.18	11.44	71	13	Minor Open Joint / Fracture	J1
254.3	166.68	6.8	77	10	Partially Open Joint / Fracture	--
254.5	232.08	7.16	142	6	Minor Open Joint / Fracture	J2
254.6	130.34	55.08	40	3	Minor Open Joint / Fracture	J1
254.7	143.95	6.38	54	0	Bedding / Banding / Foliation	--
254.8	160.27	10.96	70	4	Minor Open Joint / Fracture	J1
255.3	162.2	19.38	72	0	Bedding / Banding / Foliation	--
256	91.4	18.98	1	61	Partially Open Joint / Fracture	--
256.3	105.27	17.58	15	0	Bedding / Banding / Foliation	--
256.4	117.31	17.36	27	0	Bedding / Banding / Foliation	--
256.6	125.03	15.84	35	0	Bedding / Banding / Foliation	--
256.9	105.62	17.95	16	0	Bedding / Banding / Foliation	--
257.2	97.76	21.72	8	19	Filled Fracture / Joint	--
257.5	137.59	33.09	48	0	Bedding / Banding / Foliation	--
257.7	130.66	32.82	41	0	Bedding / Banding / Foliation	--
258	136.58	23.09	47	13	Filled Fracture / Joint	J1
258.2	129	24.7	39	14	Filled Fracture / Joint	J1
258.4	137.5	24.21	48	0	Bedding / Banding / Foliation	--
258.6	130.6	23.81	41	0	Bedding / Banding / Foliation	--
258.8	142.23	19.83	52	0	Bedding / Banding / Foliation	--
258.9	131.87	19.78	42	0	Bedding / Banding / Foliation	--
258.9	129.43	70.49	39	2	Partially Open Joint / Fracture	J1
259.1	125.26	17.01	35	0	Bedding / Banding / Foliation	--
259.5	301.25	72.43	211	6	Partially Open Joint / Fracture	J1
259.5	141.07	23.26	51	0	Bedding / Banding / Foliation	--
259.6	143.84	22	54	6	Minor Open Joint / Fracture	J1
259.9	131.41	21.38	41	12	Partially Open Joint / Fracture	J1
260	122.42	23.41	32	4	Minor Open Joint / Fracture	J1
260.5	320.4	73.27	230	4	Minor Open Joint / Fracture	J1
260.6	123.1	31.49	33	0	Bedding / Banding / Foliation	--
260.7	129.36	30.3	39	6	Partially Open Joint / Fracture	J1
260.9	121.29	37.33	31	0	Bedding / Banding / Foliation	--
261.4	122	41.81	32	8	Partially Open Joint / Fracture	J1
262.6	314.1	3.6	224	694	Weak Zone / Undifferentiated	--

-- Feature not joint set J1 or J2

[1] Azimuth to the nearest degree measured clockwise from north (0 degrees)

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
119.0	355.49	60.87	265	9	Partially Open Joint / Fracture	--
119.7	49.15	68.15	319	8	Partially Open Joint / Fracture	J2
119.9	75.96	69.41	346	8	Partially Open Joint / Fracture	--
121.5	76.17	71.92	346	5	Partially Open Joint / Fracture	--
122.5	33.2	47.95	303	19	Partially Open Joint / Fracture	J2
123.4	95.44	14.97	5	17	Minor Open Joint / Fracture	--
123.8	103.25	17.3	13	0	Bedding / Banding / Foliation	--
125.1	76.71	70.89	347	7	Partially Open Joint / Fracture	--
125.8	83.93	64.36	354	15	Intermediate Open Joint/Fracture	--
126.3	75.99	62.48	346	8	Partially Open Joint / Fracture	--
127.3	103.06	75.28	13	3	Partially Open Joint / Fracture	--
127.8	84.88	71.66	355	5	Partially Open Joint / Fracture	--
128.3	313.76	79.7	224	3	Partially Open Joint / Fracture	J1
128.8	91.47	66.62	1	7	Partially Open Joint / Fracture	--
128.8	29.37	70.9	299	7	Partially Open Joint / Fracture	J2
129.0	319.4	79.88	229	6	Partially Open Joint / Fracture	J1
130.8	115.51	8.06	26	110	Weak Zone / Undifferentiated	--
131.1	138.02	6.5	48	0	Bedding / Banding / Foliation	--
131.4	145.87	12.31	56	0	Bedding / Banding / Foliation	--
132.0	116.67	9.37	27	0	Bedding / Banding / Foliation	--
132.1	40.26	64.98	310	33	Partially Open Joint / Fracture	J2
132.4	80.95	52.63	351	16	Partially Open Joint / Fracture	--
133.1	74.37	68.3	344	11	Partially Open Joint / Fracture	--
133.2	138.25	64.39	48	3	Partially Open Joint / Fracture	J1
134.0	317.81	82.73	228	21	Major Open Joint / Fracture	J1
134.7	322.58	80.71	233	13	Partially Open Joint / Fracture	J1
137.1	0	0	270	479	Weak Zone / Undifferentiated	--
139.1	128.14	10.45	38	100	Weak Zone / Undifferentiated	--
141.1	80.24	75.16	350	8	Partially Open Joint / Fracture	--
141.7	141.15	15.12	51	12	Minor Open Joint / Fracture	J1
143.2	176.51	13.27	87	397	Weak Zone / Undifferentiated	--
144.0	188.96	13.87	99	27	Partially Open Joint / Fracture	--
144.0	153.69	75	64	7	Partially Open Joint / Fracture	J1
147.4	331.47	79	241	40	Major Open Joint / Fracture	J1
147.5	138.34	72.98	48	117	Major Open Joint / Fracture	J1
149.6	327.4	71.31	237	141	Major Open Joint / Fracture	J1
151.6	212.99	12.46	123	3525	Weak Zone / Undifferentiated	--
152.1	228.69	76.34	139	66	Major Open Joint / Fracture	--
158.4	82	15.11	352	0	Bedding / Banding / Foliation	--
159.1	83.63	12.93	354	0	Bedding / Banding / Foliation	--
159.6	109.25	11.8	19	0	Bedding / Banding / Foliation	--
160.2	72.64	78.23	343	7	Partially Open Joint / Fracture	--
160.7	128.68	20.58	39	0	Bedding / Banding / Foliation	--
161.2	72.44	66.77	342	13	Partially Open Joint / Fracture	--
161.8	72.19	18.26	342	0	Bedding / Banding / Foliation	--
162.2	116.62	11.92	27	0	Bedding / Banding / Foliation	--
162.4	136.06	11.4	46	0	Bedding / Banding / Foliation	--
162.7	120.41	3.99	30	0	Bedding / Banding / Foliation	--
163.1	133.28	46.99	43	0	Bedding / Banding / Foliation	--
164.2	113.94	17.69	24	0	Bedding / Banding / Foliation	--

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
164.8	119.25	15.11	29	0	Bedding / Banding / Foliation	--
165.3	128.82	15	39	0	Bedding / Banding / Foliation	--
165.6	102.53	64.8	13	7	Partially Open Joint / Fracture	--
167.3	142.95	14.41	53	0	Bedding / Banding / Foliation	--
168.5	143.64	11.35	54	0	Bedding / Banding / Foliation	--
168.8	128.73	11.07	39	0	Bedding / Banding / Foliation	--
170.9	314.07	79.58	224	118	Major Open Joint / Fracture	J1
172.4	311.7	2.2	222	186	Weak Zone / Undifferentiated	--
173.8	156.93	5.92	67	0	Bedding / Banding / Foliation	--
174.5	114.03	13.23	24	0	Bedding / Banding / Foliation	--
175.3	100.65	15.25	11	171	Weak Zone / Undifferentiated	--
175.8	90.24	10.05	0	0	Bedding / Banding / Foliation	--
176.1	137.63	10.19	48	0	Bedding / Banding / Foliation	--
176.2	124.67	8.07	35	0	Bedding / Banding / Foliation	--
176.4	67.08	76.49	337	4	Partially Open Joint / Fracture	--
176.5	325.45	78.69	235	11	Intermediate Open Joint/Fracture	J1
177.8	145.81	75.45	56	16	Partially Open Joint / Fracture	J1
178.4	156.53	14.96	67	0	Bedding / Banding / Foliation	--
178.5	151.78	12.94	62	0	Bedding / Banding / Foliation	--
178.7	156.58	15.38	67	0	Bedding / Banding / Foliation	--
179.1	330.83	65.53	241	12	Partially Open Joint / Fracture	J1
179.1	155.54	16.33	66	0	Bedding / Banding / Foliation	--
179.5	344.09	64.79	254	16	Partially Open Joint / Fracture	--
181.5	317.37	73.87	227	15	Partially Open Joint / Fracture	J1
181.9	320.54	78.19	231	18	Partially Open Joint / Fracture	J1
183.3	67.4	73.35	337	14	Partially Open Joint / Fracture	--
184.0	298.98	83.93	209	19	Intermediate Open Joint/Fracture	J1
186.1	301.91	85.46	212	10	Intermediate Open Joint/Fracture	J1
186.9	303.29	88.26	213	11	Partially Open Joint / Fracture	J1
187.7	119.65	80.87	30	10	Partially Open Joint / Fracture	J1
190.1	47.26	75.19	317	7	Partially Open Joint / Fracture	J2
194.4	314.21	87.68	224	7	Partially Open Joint / Fracture	J1
194.4	118.04	81.87	28	23	Partially Open Joint / Fracture	J1
194.6	197.62	30.05	108	496	Weak Zone / Undifferentiated	--
197.2	320.06	81.03	230	16	Intermediate Open Joint/Fracture	J1
198.9	292.4	2	202	1710	Weak Zone / Undifferentiated	--
202.3	313.79	70.07	224	28	Partially Open Joint / Fracture	J1
203.1	314.05	82.13	224	16	Intermediate Open Joint/Fracture	J1
206.7	118.07	77.54	28	28	Partially Open Joint / Fracture	J1
208.3	120.16	77.84	30	70	Major Open Joint / Fracture	J1
209.1	114.54	55.82	25	114	Major Open Joint / Fracture	J1
209.6	290.4	0.6	200	2518	Weak Zone / Undifferentiated	--
213.0	147.81	76.22	58	17	Intermediate Open Joint/Fracture	J1
213.1	309.71	80.19	220	14	Intermediate Open Joint/Fracture	J1
218.0	135.96	79.57	46	12	Partially Open Joint / Fracture	J1
218.2	316.29	79.08	226	8	Partially Open Joint / Fracture	J1
219.1	312.23	81.61	222	19	Partially Open Joint / Fracture	J1
220.5	322.94	75	233	14	Partially Open Joint / Fracture	J1
220.9	326.25	73.65	236	10	Partially Open Joint / Fracture	J1
221.5	323.41	75.55	233	60	Major Open Joint / Fracture	J1

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223.8	316.81	82.13	227	23	Partially Open Joint / Fracture	J1
224.9	237.4	1.4	147	1180	Weak Zone / Undifferentiated	--
227.0	113.46	83.69	23	6	Partially Open Joint / Fracture	J1
227.7	299.52	85.34	210	5	Partially Open Joint / Fracture	J1
228.0	130.34	15.24	40	0	Bedding / Banding / Foliation	--
228.4	132.93	4.82	43	0	Bedding / Banding / Foliation	--
228.6	117.74	13.25	28	0	Bedding / Banding / Foliation	--
228.8	123.5	15.05	34	0	Bedding / Banding / Foliation	--
228.9	132.21	15.41	42	12	Minor Open Joint / Fracture	J1
229.3	87.91	26.96	358	5	Minor Open Joint / Fracture	--
229.7	99.77	13.72	10	0	Bedding / Banding / Foliation	--
229.8	94.24	21.66	4	12	Minor Open Joint / Fracture	--
230.1	161	9.56	71	7	Minor Open Joint / Fracture	J1
230.3	157.89	11.5	68	0	Bedding / Banding / Foliation	--
230.4	167.78	12.18	78	0	Bedding / Banding / Foliation	--
230.6	186.37	11.75	96	0	Bedding / Banding / Foliation	--
230.9	80.58	22.77	351	0	Bedding / Banding / Foliation	--
231.1	71.5	21.41	342	0	Bedding / Banding / Foliation	--
231.2	111.01	22.97	21	0	Bedding / Banding / Foliation	--
231.4	108.86	22.28	19	0	Bedding / Banding / Foliation	--
231.6	125.64	22.49	36	13	Minor Open Joint / Fracture	J1
231.8	154.86	21.74	65	15	Minor Open Joint / Fracture	J1
232.1	160.37	20.71	70	0	Bedding / Banding / Foliation	--
232.3	179.98	18.98	90	0	Bedding / Banding / Foliation	--
232.5	179.05	23.53	89	0	Bedding / Banding / Foliation	--
232.7	163.5	19.78	74	0	Bedding / Banding / Foliation	--
232.8	138.07	18.28	48	0	Bedding / Banding / Foliation	--
233.0	126.68	13.91	37	0	Bedding / Banding / Foliation	--
233.0	127.65	14.76	38	0	Bedding / Banding / Foliation	--
233.1	120.39	15.95	30	0	Bedding / Banding / Foliation	--
233.4	123.94	21.74	34	0	Bedding / Banding / Foliation	--
233.5	123.6	21.75	34	0	Bedding / Banding / Foliation	--
234.8	277.59	73.04	188	26	Intermediate Open Joint/Fracture	--
236.3	359.35	73.04	269	5	Partially Open Joint / Fracture	--
236.4	112.04	38.99	22	10	Minor Open Joint / Fracture	J1
236.7	102.65	30.63	13	9	Minor Open Joint / Fracture	--
237.4	127.89	26.41	38	13	Partially Open Joint / Fracture	J1
237.9	118.07	21.44	28	12	Partially Open Joint / Fracture	J1
238.0	124.7	29.7	35	8	Minor Open Joint / Fracture	J1
238.4	97.55	24.07	8	11	Minor Open Joint / Fracture	--
238.6	108.82	25.8	19	9	Minor Open Joint / Fracture	J1
238.7	93.84	20.06	4	8	Minor Open Joint / Fracture	--
238.8	315.21	77.94	225	3	Partially Open Joint / Fracture	J1
239.0	144.03	9.14	54	10	Minor Open Joint / Fracture	J1
239.5	134.41	23.05	44	8	Minor Open Joint / Fracture	J1
239.7	136.9	1.4	47	334	Weak Zone / Undifferentiated	--
240.2	292.4	75.92	202	1	Minor Open Joint / Fracture	J1
243.1	317.76	43.58	228	25	Filled Fracture / Joint	J1
244.1	324.47	6.11	234	7	Minor Open Joint / Fracture	J1
244.4	137.26	26.01	47	9	Partially Open Joint / Fracture	J1

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Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
244.7	306.57	33.05	217	10	Partially Open Joint / Fracture	J1
244.9	281.07	32.42	191	24	Partially Open Joint / Fracture	--
245.8	277.17	47.47	187	15	Partially Open Joint / Fracture	--
245.9	340.74	76.19	251	8	Partially Open Joint / Fracture	J1
246.0	324.55	33.72	235	19	Partially Open Joint / Fracture	J1
246.2	308.52	27.89	219	9	Minor Open Joint / Fracture	J1
246.8	167.2	1.2	77	303	Weak Zone / Undifferentiated	--
248.0	21.99	77.29	292	16	Partially Open Joint / Fracture	J2
248.9	135.59	67.1	46	11	Partially Open Joint / Fracture	J1
249.0	261.6	3.03	172	15	Minor Open Joint / Fracture	--
249.4	195.18	12.37	105	0	Bedding / Banding / Foliation	--
249.6	192.13	6.08	102	0	Bedding / Banding / Foliation	--
249.8	198.4	26.68	108	37	Intermediate Open Joint/Fracture	--
250.1	201.62	23.59	112	10	Partially Open Joint / Fracture	--
250.6	183.88	15.51	94	11	Minor Open Joint / Fracture	--
250.7	198.87	17.28	109	0	Bedding / Banding / Foliation	--
250.9	202.2	14.82	112	0	Bedding / Banding / Foliation	--
251.0	225.41	21.19	135	0	Bedding / Banding / Foliation	--
251.3	240.99	19.28	151	0	Bedding / Banding / Foliation	--
251.5	211.66	23.18	122	0	Bedding / Banding / Foliation	--
251.6	314.88	80.05	225	8	Partially Open Joint / Fracture	J1
252.5	273.9	10.21	184	19	Minor Open Joint / Fracture	--
252.7	30.83	6.24	301	3	Minor Open Joint / Fracture	J2
252.9	276.91	15.17	187	0	Bedding / Banding / Foliation	--
253.5	159.03	10.68	69	0	Bedding / Banding / Foliation	--
255.3	134.03	8.98	44	0	Bedding / Banding / Foliation	--
255.4	132.57	12.57	43	12	Minor Open Joint / Fracture	J1
255.7	155.6	20.82	66	10	Minor Open Joint / Fracture	J1
255.9	84.18	18.12	354	13	Minor Open Joint / Fracture	--
256.5	157.23	10.23	67	0	Bedding / Banding / Foliation	--
257.9	169.81	23.68	80	0	Bedding / Banding / Foliation	--
258.1	163.2	17.07	73	0	Bedding / Banding / Foliation	--
258.5	123.14	72.75	33	6	Partially Open Joint / Fracture	J1
260.1	137.39	29.21	47	0	Bedding / Banding / Foliation	--
260.5	159.47	33.56	69	0	Bedding / Banding / Foliation	--
261.1	160.79	25.47	71	0	Bedding / Banding / Foliation	--
262.0	196.46	23.15	106	0	Bedding / Banding / Foliation	--
262.3	136.63	5.79	47	0	Bedding / Banding / Foliation	--
262.6	128.48	11.45	38	17	Minor Open Joint / Fracture	J1
262.9	110.59	22.72	21	13	Filled Fracture / Joint	J1
263.1	296.82	63.79	207	7	Partially Open Joint / Fracture	J1
263.3	115.04	79.04	25	6	Partially Open Joint / Fracture	J1
266.0	111.74	51.87	22	263	Weak Zone / Undifferentiated	--
266.4	273.2	78.73	183	3	Partially Open Joint / Fracture	--
267.1	125.1	79.08	35	4	Partially Open Joint / Fracture	J1
268.1	163.02	25.57	73	0	Bedding / Banding / Foliation	--
268.5	141.81	16.36	52	0	Bedding / Banding / Foliation	--
268.7	147.25	16.52	57	0	Bedding / Banding / Foliation	--
269.3	135.08	18.53	45	0	Bedding / Banding / Foliation	--
269.8	141.84	21.45	52	0	Bedding / Banding / Foliation	--

Well SG3-MW17-BR3
Structure Data
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Depth (feet)	Dip Direction (° azimuth)	Dip Angle (°)	Strike[1] (° azimuth)	Aperture (mm)	Structure type	Joint Set
270.3	131.39	21.57	41	0	Bedding / Banding / Foliation	--
270.4	153.01	78.72	63	6	Partially Open Joint / Fracture	J1
270.6	120.93	21.22	31	0	Bedding / Banding / Foliation	--
271.3	7.48	73.44	277	6	Partially Open Joint / Fracture	--

-- Feature not joint set J1 or J2

[1] Azimuth to the nearest degree measured clockwise from north (0 degrees)

Appendix E.5

Structural Data Comparison

TECHNICAL MEMORANDUM

Date: February 14, 2018 **Project No.:** 177-8327

Author: Jay Smerekanicz, PG

cc: James Peace, Alistair Macdonald

RE: **BEDROCK AND BOREHOLE STRUCTURAL DATA COMPARISON**
SAINT-GOBAIN PERMORMANCE PLASTICS
BENNINGTON, VERMONT
VT DEC SITE #199712055

Golder Associates Inc. (Golder), on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), conducted a comparison of outcrop field geologic mapping data, aerial photograph lineament analysis, and downhole geophysical data of the area surrounding the Bennington Landfill, in Bennington, Vermont. Golder performed this excercise to compare field-scale geologic structural data collected from two-dimensional horizontal scans (i.e., outcrops; Golder 2017), with field-scale geologic structural data collected from one-dimensional vertical scans (i.e., boreholes), and then compare the field-scale data with the regional scale aerial photograph data.

The following sections provide a regional geologic summary, describe the study methods used and summarize the findings.

1.0 OUTCROP DATA

Structural outcrop data collection and analysis are summarized in Golder's 2017 letter report. Figure 1 presents the entire discontinuity data set as a rose diagram and stereonet. The data show the presence of three major discontinuity sets, consisting of bedding (B1), and two major joint sets (J1 and J2). The bedding poles shown on the stereonet show the local variation in bedding, ranging from dipping shallowly to the southeast to northwest. This is consistent with the broad, open folding recently mapped in the area (Kim, 2017a). The two predominant joint sets, J1 and J2 have approximate average azimuthal trends of 021° and 306°, respectively. The poles plotting within the 2% contour interval in the stereonet indicate the possibility of two minor joint sets (J3 and J4), having azimuthal trends of 163° and 103°, respectively.

Table 2 in the Golder 2017 report provides a summary of the discontinuity set data statistics, including the average, minimum, maximum, range, and data count persistence, aperture and spacing for each set. Of the three major discontinuity sets, Golder concludes:

The bedding has the closest spacing, longest persistence and narrowest aperture.

Joint Set 1 and Joint Set 2 have similar persistence, aperture and spacing, with Joint Set 1 less persistent and more closely spaced.

Joint Set 2 has an average aperture twice as large as Joint Set 1.

This indicates the differences in the persistence, aperture and spacing of the two predominant joint sets is minimal, while the bedding is more persistent, narrower in aperture, and more closely spaced. It should be noted that the bedding has relatively low dips, and open, broad folding which creates a bias favoring exposure of the higher angle joint sets based on the limited extent of the outcrop exposures.

2.0 BOREHOLE DATA

In late 2017 and early 2018, as part of the investigation of the Bennington Landfill, Saint-Gobain conducted downhole geophysical logging of two deep, open bedrock bores to collect downhole geologic, geophysical and hydrogeophysical data (SG3-MW17-BR2 and SG3-MW17-BR3). The geophysical logs and interpreted geologic information are included in the Conceptual Site Model Site Investigation Report. Part of the downhole data set includes depths, characteristics, and interpretation of discontinuities using caliper and optical and acoustic televiewer equipment. This includes measurement of dip and dip direction of the discontinuities, aperture, and interpreted discontinuity (structure) type. Golder evaluated the downhole discontinuities in a similar manner as for the outcrop data, using rose diagrams and stereonets, which is described in the paragraphs below.

2.1 SG3-MW17-BR2

Figure 2 contains the rose diagram and stereonet of the downhole discontinuity data collected from bedrock boring SG3-MW17-BR2. The rose diagram indicates a strong presence of the J1 joint and B1 bedding sets, striking approximately 045°, and a possible smaller population of a discontinuity set striking roughly east-west. The stereonet in Figure 2 shows that bedding set B1 dips gently to the southeast, and joint set J1 dipping steeply to the northwest. The stereonet also shows the possible smaller population pertaining to a discontinuity set striking roughly east-west, which may correspond to joint set J2 identified from the outcrop mapping program.

2.2 SG3-MW17-BR3

Figure 3 contains the rose diagram and stereonet of the downhole discontinuity data collected from bedrock boring SG3-MW17-BR3. The rose diagram indicates a strong presence of the J1 joint and B1 bedding sets, striking approximately 045°, and three possible smaller populations of a discontinuity sets striking roughly northwest, north-northwest and north-northeast. The stereonet in Figure 3 shows that bedding set B1 dips gently to the southeast, and joint set J1 dipping steeply to the northwest. The stereonet also shows the two possible smaller populations pertaining to discontinuity sets striking roughly northwest, north-northwest and north-northeast. The stereonet also shows the possible smaller population pertaining to a discontinuity set striking roughly northwest, which may correspond to joint set J2 identified from the outcrop mapping program.

3.0 COMPARISON OF OUTCROP AND DOWNHOLE DATA

Figure 4 contains composite rose diagram and stereonet plots of the downhole data. These show that joint set J1 and bedding set B1 are the predominant discontinuity sets measured from the downhole data. Comparison with the outcrop data presented in Figure 1 shows that there is an inherent bias between the two methods, which is caused by the "sampling" plane or direction. Outcrop data collected along roughly horizontal lines of incidence at the ground surface tend to consist of higher angle discontinuities, while borehole data, collected along a near vertical borehole incidence line tend to include more low angle discontinuities. This observation can be seen in the comparison of the outcrop and borehole stereonet plots.

It should also be noted that the outcrop data pertain to a larger area than that encompassed by borings SG3-MW17-BR2 and SG3-MW17-BR3, and due to the presence of a large anticlinal fold plunging to the south-southwest beneath the Bennington Landfill (Kim, 2017a), discontinuity orientations such as bedding, and the major joint sets vary depending on where the sampling location lies within the fold. It is possible that subtle minor folds exist within the limbs of the anticline as well, further varying the discontinuity orientations.

Borings SG3-MW17-BR2 and SG3-MW17-BR3 lie about 150 feet and 1,400 feet southwest of the southwest corner of the landfill, respectively. Based on the shallow dip of the bedding to the southeast measured in the boreholes, both borings may lie on the east-southeast of the anticline's axial plane, on the south-southeast dipping limb but close to the center. Rose diagrams and stereonets of the closest outcrop locations to the borings are presented in the Golder 2017 report (OC-4, OC-5, OC10A, OC-11 and OC-12), and in the recent VTDEC fracture map (Kim, 2017b; Domains 3 and 4). Comparison of these data sets indicates SG3-MW17-BR2 and SG3-MW17-BR3 data closely mimic Golder outcrop locations OC-11 and OC-12, and with VTDEC Domain 4, located on the north and north-northwest sides of the landfill.

The borehole data do not contain many discontinuities pertaining to joint set J2, which may indicate that this set may be too steep to sample with a vertical boring or may not be as prevalent. Outcrop data from OC-11 and OC-12 locations (Golder, 2017) and from Domain 4 (Kim, 2017b) indicate this joint set may not be as prevalent locally.

4.0 COMPARISON TO AIR PHOTO LINEAMENT DATA

Comparison of the composite borehole data presented in the rose diagram (Figure 4) with the overall air photo lineament data in the Golder 2017 report (Figure 13) indicates the trends of the J1 joint set are similar, roughly striking 045°. Additionally, review of the mapped lineaments near SG3-MW17-BR2 and SG3-MW17-BR3 (lineaments 67, 198 – 201, presented in Table 3 and shown in Appendix B-2 of the

Golder 2017 report) indicate that the local lineaments strike approximately 055°, close to the J1 discontinuities measured in the boreholes.

5.0 CLOSING

Jay R. Smerekanicz, PG is the principal author of this Report. Should you have any questions regarding this document, please contact Mr. Jay Smerekanicz, PG at (603) 668-0880.

6.0 REFERNCES

Golder Associates Inc., December 14, 2017. Outcrop Mapping and Air Photo Lineament Analysis, Saint-Gobain Performance Plastics, Bennington, Vermont, VT DEC Site #199712055, 53 p.

Kim, J., 2017a. Preliminary Bedrock Geologic Map of the Bennington Area. Vermont Agency of Natural Resources, Vermont Geological Survey Open File Report VG17-4, 6-08-17 Version, scale 1:12,000.

Kim, J., 2017b. Preliminary Fracture Map of the Bennington Area, Vermont. Vermont Agency of Natural Resources, Vermont Geological Survey Open File Report VG17-4B, 8-04-17 Version, scale 1:12,000.

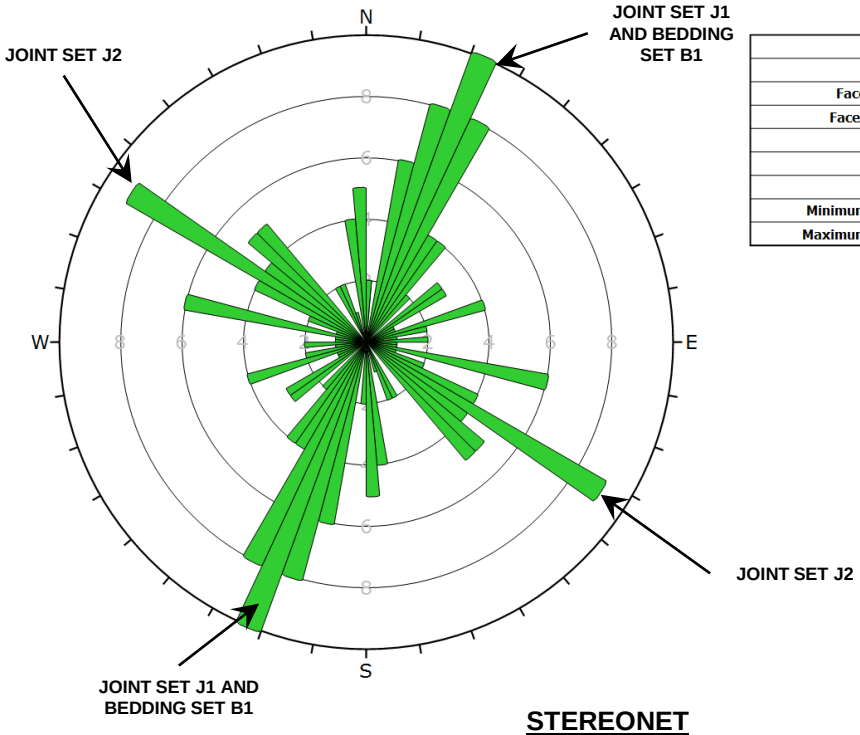
ATTACHMENTS

List of Figures

Figure 1 All Outcrop Data Rose Diagram and Stereonet
Figure 2 SG3-MW17-BR2 Structural Data Rose Diagram and Stereonet
Figure 3 SG3-MW17-BR3 Structural Data Rose Diagram and Stereonet
Figure 4 All Boring Structural Data Rose Diagram and Stereonet
Figure 5 All Outcrop and Boring Structural Data Rose Diagram and Stereonet

ATTACHMENTS

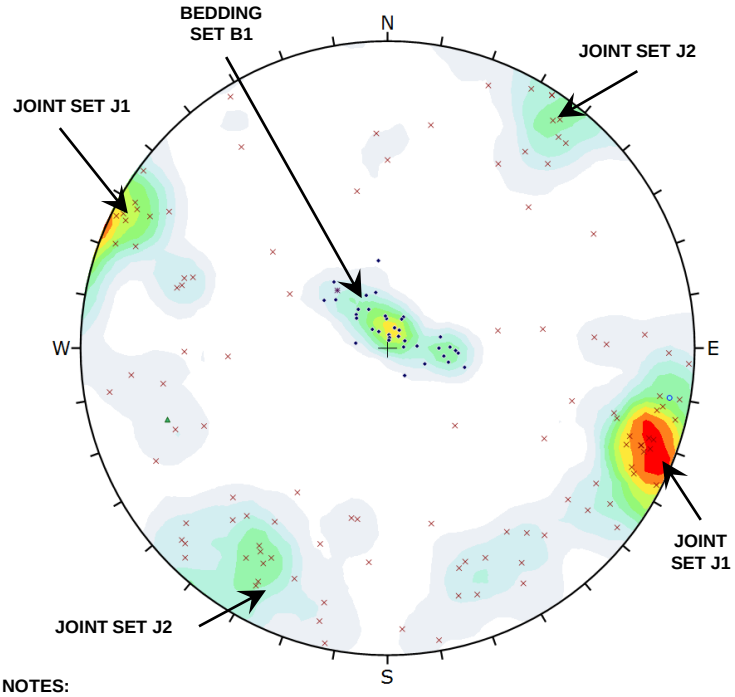
ROSE DIAGRAM



St. Gobain Bedrock Mapping
All Outcrops

Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	5°
Outer Circle	10 planes per arc
Planes Plotted	113
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

STEREONET



St. Gobain Bedrock Mapping
All Outcrops

Symbol	TYPE	Quantity
•	Bedding	36
*	Bedding/Foliation	1
▲	Fault	1
×	Joint	114
○	Tension Gash	1

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
	8.00 - 9.00
	9.00 - 10.00

Contour Data	Pole Vectors
Maximum Density	9.70%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	153 (153 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.011, 08/08/2017.

2.) SEE TABLE 1 (GOLDER 2017) FOR OUTCROP DATA SUMMARY.

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	02/14/18
CHK BY:	JRS	FILE No.	SF BR2&3 Figs.pptx
REV BY:	JSP	DR ST:	01

ALL OUTCROP DATA

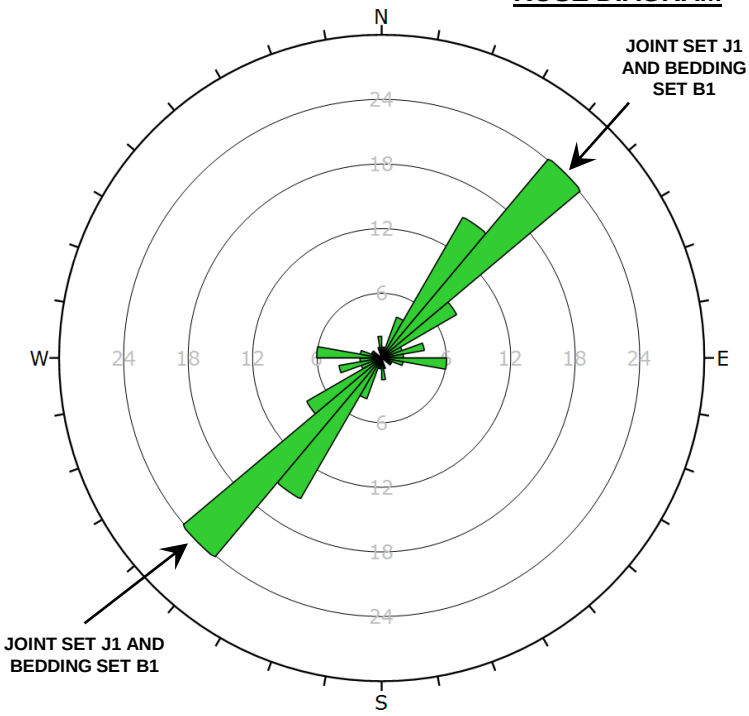
ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

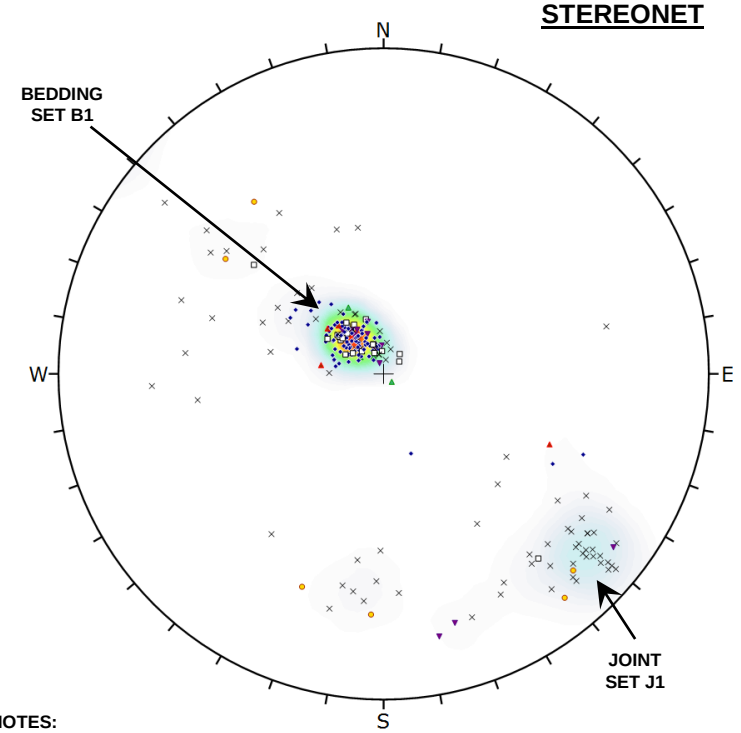
Figure: **1**

ROSE DIAGRAM



Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	30 planes per arc
Planes Plotted	74
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

STEREONET



Symbol	STRUCTURE TYPE	Quantity
	Bedding / Banding / Foliation	95
	Filled Fracture / Joint	4
	Intermediate Open Joint / Fracture	13
	Major Open Joint / Fracture	6
	Minor Open Joint / Fracture	24
	Partially Open Joint / Fracture	86
	Weak Zone / Undifferentiated	4

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
	8.00 - 9.00
	9.00 - 10.00
	10.00 - 11.00
	11.00 - 12.00
	12.00 - 13.00
	13.00 - 14.00
	14.00 - 15.00
	15.00 - 16.00
	16.00 - 17.00
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	21.00 - 22.00
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	31.00 - 32.00
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	33.00 - 34.00
	34.00 - 35.00
	35.00 - 36.00
	36.00 - 37.00
	37.00 - 38.00
	38.00 - 39.00

Contour Data	Pole Vectors
Maximum Density	38.73%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	232 (232 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.012, 24/01/2018.

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DR BY:	LLM	DATE:	02/14/18
CHK BY:	JRS	FILE No.	SF BR2&3 Figs.pptx
REV BY:	JSP	DR ST:	

SG3-MW17-BR2 STRUCTURAL DATA

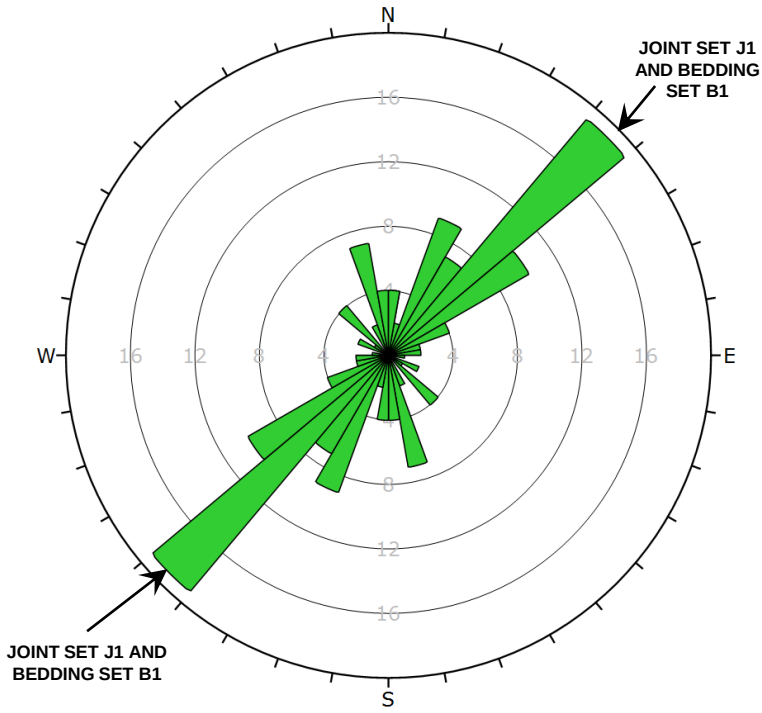
ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

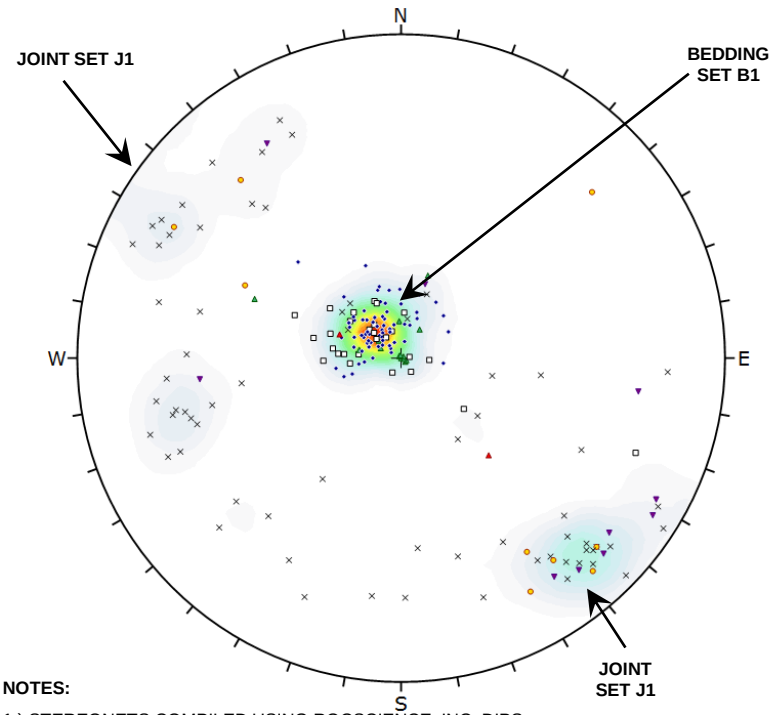
Figure: 2

ROSE DIAGRAM



Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	20 planes per arc
Planes Plotted	80
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

STEREONET



Symbol	STRUCTURE TYPE	Quantity
•	Bedding / Banding / Foliation	75
▲	Filled Fracture / Joint	2
▼	Intermediate Open Joint / Fracture	10
○	Major Open Joint / Fracture	9
□	Minor Open Joint / Fracture	27
×	Partially Open Joint / Fracture	67
▲	Weak Zone / Undifferentiated	14

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
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	11.00 - 12.00
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	18.00 - 19.00
	19.00 - 20.00
	20.00 - 21.00
	21.00 - 22.00
	22.00 - 23.00

Contour Data	Pole Vectors
Maximum Density	22.15%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	204 (204 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.012, 24/01/2018.

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	02/14/18
CHK BY:	JRS	FILE No.	SF BR2&3 Figs.pptx
REV BY:	JSP	DR ST:	

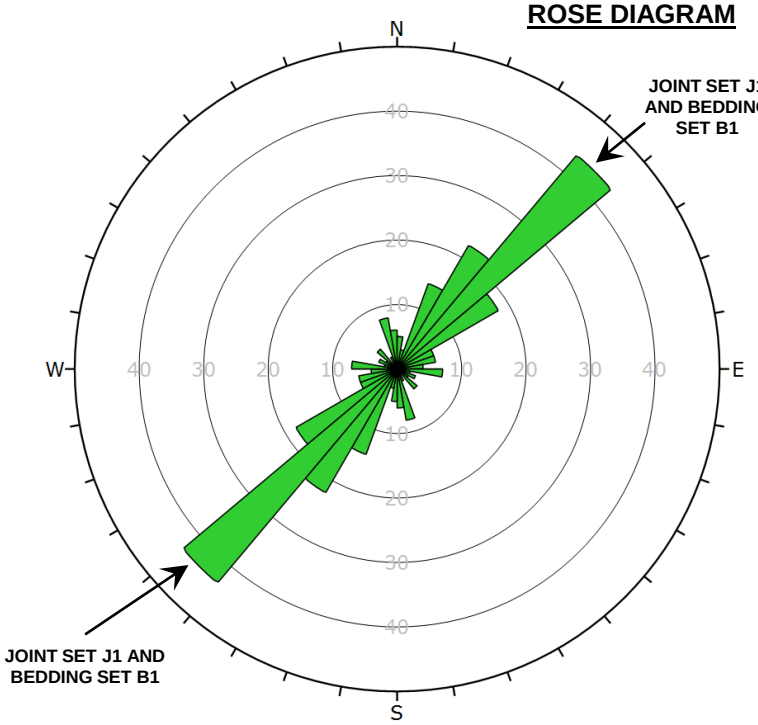
SG3-MW17-BR3 STRUCTURAL DATA
ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

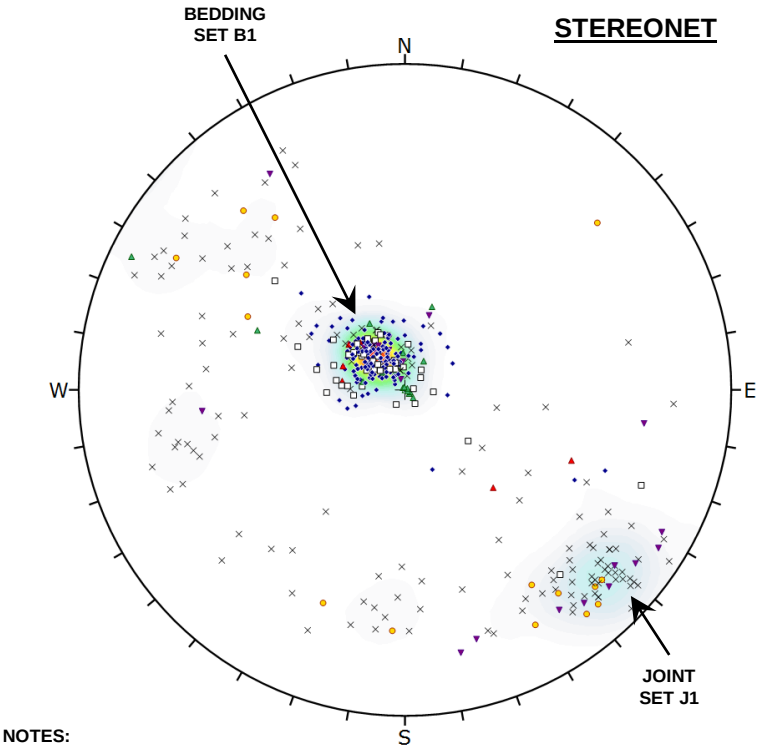
Figure: 3

ROSE DIAGRAM



Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	50 planes per arc
Planes Plotted	155
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

STEREONET



Symbol	STRUCTURE TYPE	Quantity
•	Bedding / Banding / Foliation	170
▲	Filled Fracture / Joint	6
▼	Intermediate Open Joint / Fracture	23
○	Major Open Joint / Fracture	15
□	Minor Open Joint / Fracture	51
×	Partially Open Joint / Fracture	153
▲	Weak Zone / Undifferentiated	18

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
	8.00 - 9.00
	9.00 - 10.00
	10.00 - 11.00
	11.00 - 12.00
	12.00 - 13.00
	13.00 - 14.00
	14.00 - 15.00
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	16.00 - 17.00
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	24.00 - 25.00
	25.00 - 26.00
	26.00 - 27.00
	27.00 - 28.00
	28.00 - 29.00
	29.00 - 30.00

Contour Data	Pole Vectors
Maximum Density	29.37%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	436 (436 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.012, 24/01/2018.

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CHK BY:	JRS	FILE No.	SF BR2&3 Figs.pptx
REV BY:	JSP	DR ST:	

ALL BORING STRUCTURAL DATA

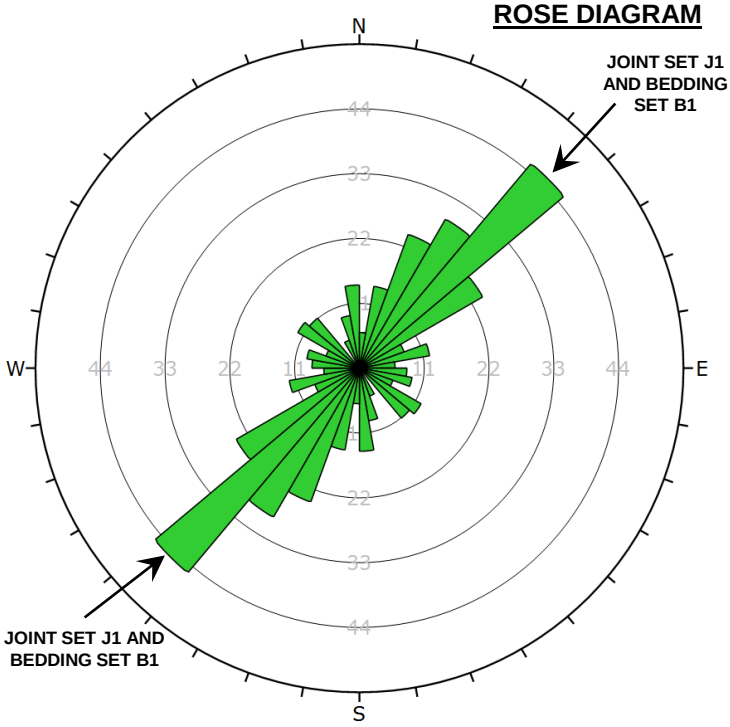
ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

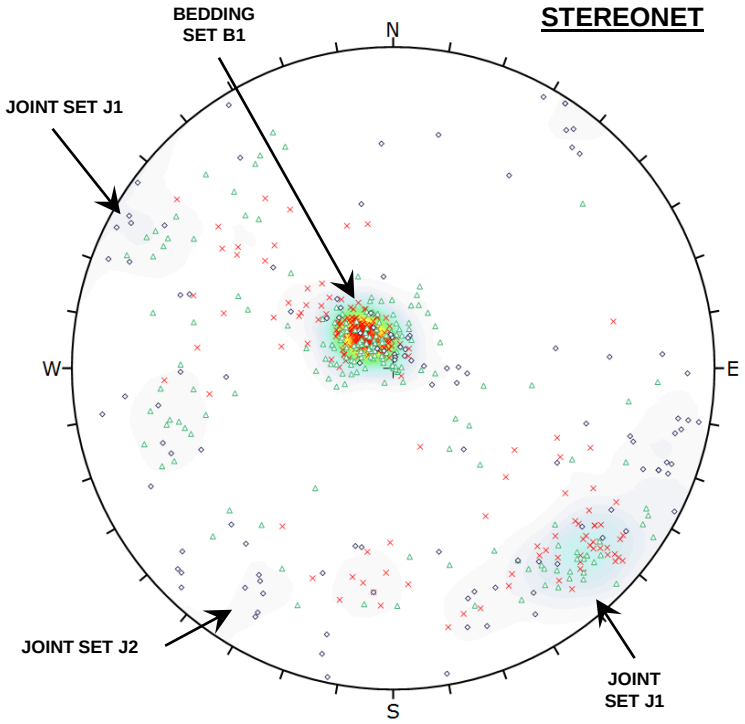
Figure: 4

ROSE DIAGRAM



Plot Mode	Rosette
Plot Data	Apparent Strike
Face Normal Trend	0.0
Face Normal Plunge	90.0
Bin Size	10°
Outer Circle	55 planes per arc
Planes Plotted	242
Minimum Angle To Plot	45.0°
Maximum Angle To Plot	90.0°

STEREONET



Symbol	BORING/OUTCROP	Quantity
◇	Outcrop	118
×	WELL SG3-MW17-BR2	232
△	WELL SG3-MW17-BR3	204

Color	Density Concentrations
	0.00 - 1.00
	1.00 - 2.00
	2.00 - 3.00
	3.00 - 4.00
	4.00 - 5.00
	5.00 - 6.00
	6.00 - 7.00
	7.00 - 8.00
	8.00 - 9.00
	9.00 - 10.00
	10.00 - 11.00
	11.00 - 12.00
	12.00 - 13.00
	13.00 - 14.00
	14.00 - 15.00
	15.00 - 16.00
	16.00 - 17.00
	17.00 - 18.00
	18.00 - 19.00
	19.00 - 20.00
	20.00 - 21.00
	21.00 - 22.00
	22.00 - 23.00
	23.00 - 24.00
	24.00 - 25.00

Contour Data	Pole Vectors
Maximum Density	24.14%
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	554 (554 Entries)
Hemisphere	Lower
Projection	Equal Angle

NOTES:

1.) STEREONETS COMPILED USING ROCSCIENCE, INC. DIPS SOFTWARE, VERS. 7.012, 24/01/2018.

PROJ. NO.	177-8327	SCALE:	N/A
DR BY:	LLM	DATE:	02/14/18
CHK BY:	JRS	FILE No.	SF BR2&3 Figs.pptx
REV BY:	JSP	DR ST:	

ALL OUTCROP AND BORING DISCONTINUITY DATA ROSE DIAGRAM & STEREONET

Golder Associates

ST. GOBAIN /BENNINGTON/VT

Figure: 5

Appendix F

Total Oxidizable Precursor Assay Analysis and Results – Bennington Landfill Split Sampling

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engineering and environmental consultants

BARR

Memorandum

To: File
From: Michael Dupay, Ward Swanson
Subject: Total Oxidizable Precursor Assay Analysis and Results – Bennington Landfill Split Sampling (May 2017)
Date: November 21, 2017
Project: 45021004.00

Background

Groundwater sampling was conducted in accordance with the *CSM Site Investigation: Bennington, Vermont Work Plan* (Barr, 2017a) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain) at the Bennington Landfill (landfill) as part of the planned sampling for comparison to and refinement of the Conceptual Site Model (CSM) of per- and poly-fluoroalkyl substance (PFAS) fate and transport developed for the area. The CSM has been developed from site data, chemical characteristics of PFASs, and modeling studies of processes important to PFAS fate and transport, as described in the *Draft Conceptual Modeling of PFOA Fate and Transport: North Bennington, Vermont. Prepared for Saint-Gobain Performance Plastics* (Draft CSM Report, Barr, 2017b). Water samples collected as part of the investigative work from existing landfill monitoring wells MW07, B-12, MW100S, B-2-1, and B-2-2 and the landfill leachate vault (VLT-01) were sent to Test America (TA) Sacramento, located in West Sacramento, California for analysis by the Total Oxidizable Precursors (TOP) Assay, and to Eurofins Lancaster Laboratories Environmental (ELLE) in Lancaster, Pennsylvania for PFAS analysis. TA was the only laboratory of the two with TOP Assay protocols in place at the time of the analysis. This memorandum describes the results of the TOP Assay provided by TA and a comparison to corresponding PFAS concentrations from ELLE.

TOP Assay Methodology

Current methodologies for measuring PFASs (EPA 537) do not represent the thousands of parameters that are not currently measured by the analysis that may, under certain conditions, be converted to PFASs over time (Buechler, 2017). It has been proposed that the TOP Assay analysis can provide a qualitative assessment of risk for other chemicals present within the sample to convert to PFASs by way of treatment under highly oxidizing and high-temperature conditions. Limitations of the assay include the potential for exhaustion of the oxidant and a tendency to underestimate precursor concentrations in samples with high proportions of flourotelomers with six carbons (C6) or fewer. Additionally, the conditions under which the assay is performed are not representative of environmental conditions.

Samples submitted to a TOP Assay are initially measured for PFASs via EPA 537. The samples are then subjected to the addition of potassium persulfate and sodium hydroxide under 85°C for six hours, followed by neutralization. The samples are then reanalyzed and the differences in values for target PFAS

compounds is calculated. Where there is a post-treatment increase in the concentration of a given target compound, there is a chance that some of the precursors that are not analytes of the EPA 537 method will convert to measurable amounts of the target compounds of concern over time and under certain conditions.

Data Quality

The quality assurance/quality control (QA/QC) data were reviewed to assess the validity of the sampling procedures and analytical results for the data. The analytical data were evaluated according to the procedures outlined in the Barr Data Validation Standard Operating Procedures for blanks, duplicates, and spiked samples, which are based on the EPA data validation procedures found in the National Functional Guidelines or on QA/QC sections in associated analytical methods. Any data qualifiers assigned during the validation process are Barr-defined qualifiers. Some modifications were made to the procedures to account for the practices in the Level 4 data review as conducted by Environmental Standards. The following observations are constrained to the PFAS analysis for the purposes of this memorandum.

In brief:

- Samples were analyzed within recommended hold times.
- Method blanks for PFASs were all non-detect for both laboratories, with the exception of PFBA detections in the post-treatment (TOP) analysis conducted by TA.
- Surrogate recoveries were frequently below criteria across most PFASs for both laboratories, and occasionally high for some in the post-treatment analysis by TA.
- LCS/LCSD recoveries were acceptable for ELLE and the pretreatment analysis by TA; however, recoveries were frequently out of control for the post-treatment analysis by TA, biased both low and high.
- TA did not note that some post-assay calculations were potentially affected by the inclusion of results that were qualified by the laboratory—namely, Total PFASs (pretreatment), Total PFASs (post-treatment), and Total PFAS differences (pretreatment results subtracted from post-treatment results). Those reported summation or differential results should be considered estimated values due to the uncertain nature of the values used for calculation.
- In at least one calculation of Total PFAS differences by TA, values calculated by Barr were not consistent with the laboratory's reported value. This is likely attributable to calculations being conducted with numbers prior to rounding by their LIMS.

All data are considered acceptable, except where noted or qualified.

Data Assessment

Lab analytical data are provided in Tables 1 and 2. Data were evaluated in two ways:

- Relative Percent Differences (RPD) between laboratories to measure precision
- Precursor presence from TOP analysis and potential for future contributions from precursors

Results between laboratories were generally consistent across most parameters, with the exception that ELLE often reported J-flagged results (values between the detection limit and the reporting limit) and TA did not report values below the reporting limit. As such, RPDs were not calculated for those parameters where one laboratory reported a J-flagged result and the other reported a non-detected value. Of the remaining values usable for the purposes of calculating RPDs, 20% had values greater than 30% RPD, three of which are associated with PFBA results, and the other two occur when one lab or the other reported non-detect for a given parameter, and the other lab reported a value above their mutual reporting limits. Table 3 presents the RPDs for the samples below.

Table F.3 Relative Percent Differences between TA and ELLE Sample Results

Sample	Parameter	TA Pretreatment Result (ng/L)	ELLE Result (ng/L)	RPD (%)
MW07	PFOA	18	16	11.76
	PFHxS	0	10	*200.00*
B-12	PFBA	11	8	*31.58*
	PFPeA	9.0	10	10.53
	PFHxA	13	13	0.00
	PFHpA	14	14	0.00
	PFOA	110	100	9.52
	PFNA	10	8	22.22
	PFOS	11	11	0.00
MW100S	PFOA	38	36	5.41
B-2-1	PFBA	9.7	7	*32.34*
	PFOA	42	36	15.38
	PFOS	5.1	6	16.22
	FOSA	5.8	0	*200.00*
B-2-2	PFBA	14	11	24.00
	PFOA	42	37	12.66
	PFOS	8.0	6	28.57

Sample	Parameter	TA Pretreatment Result (ng/L)	ELLE Result (ng/L)	RPD (%)
VLT-01	PFOA	5800	4700	20.95
	PFBA	180	130	*32.26*
	PFPeA	77	92	17.75
	PFHxA	610	590	3.33
	PFHpA	330	280	16.39
	PFBS	8.0	9	11.76
	PFHxS	58	48	18.87
	PFOS	34	35	2.90

Value > 30% RPD

The laboratories were largely in agreement as to the composition of most of the samples, given the potential for random and systemic errors associated with analyses, especially at the scale measured for PFASs. In general, ELLE data reports values slightly lower than that reported by TA.

Pretreatment and post-treatment data for parameters with positive increases post-treatment in one or more samples are included in Table 4. A full table of pretreatment, post-treatment, and differences is attached (Table 1).

Table F.4 TOP Assay Results and Differences (as reported)

Parameter	B-12			B-2-1		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluorobutanoic acid (PFBA)	11	29	**18**	9.7	25	**16**
Perfluoroheptanoic acid (PFHpA)	14	15	**0.91**	< 5.0	< 5.0	0.0
Perfluorohexanoic acid (PFHxA)	13	14	**1.3**	< 5.0	< 5.0	0.0
Perfluorooctanoic acid (PFOA)	110	110	0.0	42	41	0.0
Perfluoropentanoic acid (PFPeA)	9.0	12	**2.7**	< 5.0	< 5.0	0.0
Total PFAS	170	190	**22**	52	66	**14**
Parameter	**B-2-2**			**MW07**		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluorobutanoic acid (PFBA)	14	28	**14**	< 5.0	13	**13**
Perfluoroheptanoic acid (PFHpA)	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0
Perfluorohexanoic acid (PFHxA)	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0
Perfluorooctanoic acid (PFOA)	42	43	**1.1**	18	19	**1.4**
Perfluoropentanoic acid (PFPeA)	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0
Total PFAS	56	71	**15**	18	32	**14**

Parameter	MW100S			Leachate Vault (VLT-01)		
	Pretreatment	Post-Treatment	Difference	Pretreatment	Post-Treatment	Difference
Perfluorobutanoic acid (PFBA)	< 5.0	14	**14**	180	200	**13**
Perfluoroheptanoic acid (PFHpA)	< 5.0	< 5.0	0.0	330	350	**15**
Perfluorohexanoic acid (PFHxA)	< 5.0	< 5.0	0.0	610	630	**18**
Perfluorooctanoic acid (PFOA)	38	41	**2.7**	5800	6100	**330**
Perfluoropentanoic acid (PFPeA)	< 5.0	< 5.0	0.0	77	130	**57**
Total PFAS	38	55	**17**	7000	7400	**410**

In gray = positive increase after treatment
In red = subject to influence via blank detection; either likely false positives or elevated due to potential false positives

As previously noted, during the review of the data, PFBA was present in the method blanks for all the post-treatment samples in concentrations similar to those reported in the pretreatment results (12.7 ng/L and 16.1 ng/L). As such, the PFBA results reported for the post-treatment are suspect and the values calculated based on the values are likewise suspect (PFBA concentrations and differences, and total PFASs concentrations and differences). Given the presence of artificially introduced PFBA in the post-treatment sample, there are expected to be low amounts of PFBA precursors apparent in all of the samples collected, with the exception of the leachate vault sample, which exhibits signs of all target PFASs except for PFNA (and possibly PFBA). Aside from the leachate vault (VLT-01) and well B-12, PFAS precursors outside of PFOA are absent, assuming that the presence of PFBA is attributable to blank contamination. The sample for B-12 contained trace levels of precursors for all but PFNA and PFOA, while the leachate vault shows higher levels of all target PFASs aside from PFNA and the potential false positive result reported for PFBA.

Wells B-2-1 and B-2-2 are adjacent to the leachate vault and do not appear to be influenced by the vault concentrations. B-12 shares some of the same precursors with the leachate vault, but PFOA is notably absent from the change in precursors. MW07 is on the perimeter of the Bennington Landfill and exhibits some of the same precursors as B-2-1 and B-2-2.

In review of the potential precursors, the leachate vault has the most significant potential sources of precursors within the landfill. All available TOP Assay results for the vault are provided in Table 5 and the complete TOP Assay results are provided in Table 2 (attached).

Table F.5 Complete TOP Assay Results, Vault (as reported)

Parameter	Leachate Vault (VLT-01)		
	Pretreatment	Post-Treatment	Pre/Post-Treatment Difference
6:2 Fluorotelomer sulfonate (6:2 FTS)	< 50	< 50	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	< 50	< 50	--
Perfluorobutane sulfonate (PFBS)	8.0	14	--

Parameter	Leachate Vault (VLT-01)		
	Pretreatment	Post-Treatment	Pre/Post-Treatment Difference
Perfluorobutanoic acid (PFBA)	180	**200**	**13**
Perfluorodecane sulfonate (PFDS)	< 5.0	< 5.0	--
Perfluorodecanoic acid (PFDA)	< 5.0	< 5.0	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	< 5.0	< 5.0	--
Perfluoroheptane sulfonate (PFHpS)	< 5.0	< 5.0	--
Perfluoroheptanoic acid (PFHpA)	330	350	15
Perfluorohexane sulfonate (PFHxS)	58	52	--
Perfluorohexanoic acid (PFHxA)	610	630	18
Perfluorononanoic acid (PFNA)	< 5.0	< 5.0	0.0
Perfluorooctane sulfonate (PFOS)	34	31	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	< 5.0	< 5.0	--
Perfluorooctanoic acid (PFOA)	5800	6100	330
Perfluoropentanoic acid (PFPeA)	77	130	57
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	< 5.0	< 5.0	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	< 5.0	< 5.0	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	< 5.0	< 5.0	--
Total PFAS	7000	**7400**	**410**

Note: Pre- and Post- Difference results are calculated prior to the numbers being rounded following laboratory SOPs using the raw instrument data. After rounding, values reported may not be consistent with the differences calculated from the reported pre- and post-treatment data as reported.

In red = subject to influence via blank detection; either likely false positives or elevated due to potential false positives.

Conclusions

Based on the results of the TOP Assay, it appears that the amounts of chemically-oxidizable precursors present in the samples from the Bennington Landfill are negligible, with the exception of the sample from the leachate vault (VLT-01). While this assay has some limitations, this could indicate that additional concentrations of PFASs seen in the future would not be due to the presence of precursors, provided the vault integrity at the landfill is maintained.

References

Barr, 2017a. Revised Work Plan – CSM Site Investigation: Bennington, Vermont. Prepared for Saint-Gobain Performance Plastics. Dated August 2017.

Barr, 2017b. DRAFT Conceptual Modeling of PFOA Fate and Transport: North Bennington, Vermont. Prepared for Saint-Gobain Performance Plastics. Dated June 2017.

Buechler, K., Closing the PFAS Mass Balance: The Total Oxidizable Precursor (TOP) Assay, TA White Paper CA-T-W-006, Rev. 1, July 2017

Attachments:

Table F.1 Groundwater Data Summary
Table F.2 TOP Data Summary
Attachment F.1 Test America Laboratory Report

Tables

Table F.1
Groundwater Data Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12			B-2-1			B-2-2						MW07			MW100S			VLT-01		
Date		5/24/2017			5/25/2017			5/25/2017						5/24/2017			5/24/2017			5/25/2017		
Treatment Type		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment				Post-Treatment		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment
Sample Type		N		N	N		N	N		FD		N	FD	N		N	N		N	N		N
Data Status		Validated		Validated	Validated		Validated	Validated		Validated		Validated	Validated	Validated		Validated	Validated		Validated	Validated		Validated
Lab		Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Lancaster	Test America	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America
Parameter	Units																					
General Parameters																						
Alkalinity, bicarbonate, as CaCO3	mg/l	**329**	--	--	**272**	--	--	**306**	--	**301**	--	--	--	**320**	--	--	**300**	--	--	**1010**	--	--
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 U	--	--	< 1.7 U	--	--	< 1.7 U	--	< 1.7 U	--	--	--	< 1.7 U	--	--	< 1.7 U	--	--	< 1.7 U	--	--
Alkalinity, total, as CaCO3	mg/l	**329**	--	--	**272 J**	--	--	**306 J**	--	**301 J**	--	--	--	**320 J**	--	--	**300 J**	--	--	**1010 J**	--	--
Bromide	mg/l	< 1.3 U	--	--	< 1.3 U	--	--	< 1.3 U	--	< 1.3 U	--	--	--	< 1.3 U	--	--	< 1.3 U	--	--	**4.0**	--	--
Chloride	mg/l	**2.3**	--	--	**88.0**	--	--	**293**	--	**302**	--	--	--	**4.3**	--	--	**1.5 J**	--	--	**264**	--	--
Cyanide	mg/l	< 0.0050 U	--	--	< 0.0050 U	--	--	< 0.0050 U	--	< 0.0050 U	--	--	--	< 0.0050 U	--	--	< 0.0050 U	--	--	< 0.0050 U	--	--
Nitrogen, ammonia, as N	mg/l	< 0.050 U	--	--	< 0.050 U	--	--	**0.33**	--	**0.31**	--	--	--	**0.10**	--	--	< 0.050 U	--	--	**1.3**	--	--
Nitrogen, nitrate, as N	mg/l	**0.75**	--	--	**0.55**	--	--	< 0.25 U	--	< 0.25 U	--	--	--	**0.88**	--	--	**0.46 J**	--	--	**0.62**	--	--
Nitrogen, nitrite, as N	mg/l	< 0.25 U	--	--	< 0.25 U	--	--	< 0.25 U	--	< 0.25 U	--	--	--	< 0.25 U	--	--	< 0.25 U	--	--	< 0.25 U	--	--
Nitrogen, total kjeldahl (TKN)	mg/l	< 0.50 U	--	--	< 0.50 U	--	--	< 0.50 U	--	< 0.50 U	--	--	--	**7.4**	--	--	< 0.50 U	--	--	**23.0**	--	--
Orthophosphate, as P	mg/l	< 0.030 UJ	--	--	< 0.030 U	--	--	< 0.030 U	--	< 0.030 U	--	--	--	< 0.030 UJ	--	--	< 0.030 UJ	--	--	< 0.030 U	--	--
Sulfate, as SO4	mg/l	**6.9**	--	--	**5.8**	--	--	**10.3**	--	**10.7**	--	--	--	**6.7**	--	--	**7.0**	--	--	**219**	--	--
Total Metals																						
Aluminum	mg/l	< 0.0868 U	--	--	< 0.0868 U	--	--	< 0.0868 U	--	< 0.0868 U	--	--	--	**5.25**	--	--	< 0.0868 U	--	--	< 0.0868 U	--	--
Antimony	mg/l	< 0.00048 U	--	--	< 0.00048 U	--	--	< 0.00048 U	--	< 0.00048 U	--	--	--	**0.00067 J**	--	--	< 0.00048 U	--	--	< 0.00048 U	--	--
Arsenic	mg/l	< 0.00068 U	--	--	< 0.00068 U	--	--	**0.0132**	--	**0.0133**	--	--	--	**0.0012 J**	--	--	< 0.00068 U	--	--	**0.0083**	--	--
Barium	mg/l	**0.0544**	--	--	**0.0624**	--	--	**0.526**	--	**0.599**	--	--	--	**0.0485**	--	--	**0.0299**	--	--	**0.0675**	--	--
Beryllium	mg/l	< 0.00011 U	--	--	< 0.00011 U	--	--	< 0.00011 U	--	< 0.00011 U	--	--	--	**0.00033 J**	--	--	< 0.00011 U	--	--	< 0.00011 U	--	--
Boron	mg/l	< 0.0083 U	--	--	< 0.0083 U	--	--	**0.0180 J**	--	**0.0194 J**	--	--	--	< 0.0083 U	--	--	< 0.0083 U	--	--	**1.74**	--	--
Cadmium	mg/l	< 0.00019 U	--	--	< 0.00019 U	--	--	< 0.00019 U	--	< 0.00019 U	--	--	--	< 0.00019 U	--	--	< 0.00019 U	--	--	< 0.00019 U	--	--
Calcium	mg/l	**92.3**	--	--	**81.6**	--	--	**101**	--	**105**	--	--	--	**2.36**	--	--	**85.8**	--	--	**137**	--	--
Chromium	mg/l	< 0.00059 U	--	--	< 0.00059 U	--	--	**0.00060 J**	--	< 0.00059 U	--	--	--	**0.0028 J**	--	--	**0.00060 J**	--	--	**0.0014 J**	--	--
Cobalt	mg/l	< 0.00020 U	--	--	< 0.00020 U	--	--	**0.0202**	--	**0.0200**	--	--	--	**0.0402**	--	--	< 0.00020 U	--	--	**0.0050**	--	--
Copper	mg/l	< 0.00052 U	--	--	< 0.00052 U	--	--	< 0.00052 U	--	< 0.00052 U	--	--	--	**0.0050**	--	--	< 0.00052 U	--	--	**0.0048**	--	--
Iron	mg/l	< 0.0747 U	--	--	< 0.0747 U	--	--	**4.84**	--	**5.02**	--	--	--	**9.03**	--	--	< 0.0747 U	--	--	**4.09**	--	--
Lead	mg/l	< 0.000090 U	--	--	< 0.000090 U	--	--	< 0.000090 U	--	< 0.000090 U	--	--	--	**0.0080**	--	--	< 0.000090 U	--	--	**0.0016 J**	--	--
Magnesium	mg/l	**26.2**	--	--	**19.4**	--	--	**25.3**	--	**26.4**	--	--	--	**1.54**	--	--	**25.6**	--	--	**75.1**	--	--
Manganese	mg/l	**0.0016 J**	--	--	**0.0046**	--	--	**0.927**	--	**1.05**	--	--	--	**0.112**	--	--	**0.0138**	--	--	**0.506**	--	--
Mercury	mg/l	< 0.000050 U	--	--	< 0.000050 U	--	--	< 0.000050 U	--	< 0.000050 U	--	--	--	< 0.000050 U	--	--	< 0.000050 U	--	--	< 0.000050 U	--	--
Nickel	mg/l	< 0.00085 U	--	--	< 0.00085 U	--	--	**0.0051**	--	**0.0052**	--	--	--	**0.0054**	--	--	< 0.00085 U	--	--	**0.0625**	--	--
Potassium	mg/l	**0.922 J**	--	--	**1.05**	--	--	**2.24**	--	**2.44**	--	--	--	**2.21**	--	--	**0.762 J**	--	--	**276**	--	--
Selenium	mg/l	< 0.00044 U	--	--	< 0.00044 U	--	--	< 0.00044 U	--	< 0.00044 U	--	--	--	< 0.00044 U	--	--	< 0.00044 U	--	--	**0.00069 J**	--	--
Silver	mg/l	< 0.00012 U	--	--	< 0.00012 U	--	--	< 0.00012 U	--	< 0.00012 U	--	--	--	< 0.00012 U	--	--	< 0.00012 U	--	--	< 0.00012 U	--	--
Sodium	mg/l	< 0.914 UB	--	--	**51.6**	--	--	**172**	--	**180**	--	--	--	**2.82**	--	--	**1.54 J**	--	--	**265**	--	--
Thallium	mg/l	< 0.00016 U	--	--	< 0.00016 U	--	--	< 0.00016 U	--	< 0.00016 U	--	--	--	< 0.00016 U	--	--	< 0.00016 U	--	--	< 0.00016 U	--	--
Vanadium	mg/l	< 0.00027 UB	--	--	< 0.00020 U	--	--	< 0.00028 UB	--	< 0.00020 U	--	--	--	**0.0012**	--	--	< 0.00028 UB	--	--	< 0.00036 UB	--	--
Zinc	mg/l	< 0.0054 U	--	--	< 0.0054 U	--	--	< 0.0054 U	--	< 0.0054 U	--	--	--	**0.0263 J**	--	--	< 0.0054 U	--	--	**0.0745**	--	--
SVOCs																						
1,4-Dioxane	ug/l	< 0.058 UJ	--	--	< 0.052 UJ	--	--	< 0.052 UJ	--	< 0.054 UJ	--	--	--	< 0.053 UJ	--	--	< 0.051 UJ	--	--	**6.4 J**	--	--

Table F.1
Groundwater Data Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12			B-2-1			B-2-2						MW07			MW100S			VLT-01		
Date		5/24/2017			5/25/2017			5/25/2017						5/24/2017			5/24/2017			5/25/2017		
Treatment Type		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment				Post-Treatment		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment
Sample Type		N		N	N		N	N		FD		N	FD	N		N	N		N	N		N
Data Status		Validated		Validated	Validated		Validated	Validated		Validated		Validated	Validated	Validated		Validated	Validated		Validated	Validated		Validated
Lab		Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Lancaster	Test America	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America
Parameter	Units																					
VOCs																						
1,1,1-Trichloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,1,2-Trichloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,1-Dichloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,1-Dichloroethylene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,2,3-Trichlorobenzene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
1,2,4-Trichlorobenzene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	--	--	< 2 U	--	--	< 2 U	--	< 2 U	--	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,2-Dichlorobenzene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
1,2-Dichloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,2-Dichloropropane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,3-Dichlorobenzene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
1,3-Dichloropropene, cis	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,3-Dichloropropene, trans	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
1,4-Dichlorobenzene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
2-Hexanone	ug/l	< 3 U	--	--	< 3 U	--	--	< 3 U	--	< 3 U	--	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--
Acetone	ug/l	< 6 U	--	--	< 6 U	--	--	< 6 U	--	< 6 U	--	--	--	< 6 U	--	--	< 6 U	--	--	< 6 U	--	--
Benzene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Bromochloromethane	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Bromodichloromethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Bromoform	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Bromomethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Carbon disulfide	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Carbon tetrachloride	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Chlorobenzene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Chlorodibromomethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Chloroethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	**0.6 J**	--	--
Chloroform	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Chloromethane	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Cumene (isopropyl benzene)	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Cyclohexane	ug/l	< 2 U	--	--	< 2 U	--	--	< 2 U	--	< 2 U	--	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Ethyl benzene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	**0.8 J**	--	--
Methyl acetate	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	--	--	< 3 U	--	--	< 3 U	--	< 3 U	--	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	--	--	< 3 U	--	--	< 3 U	--	< 3 U	--	--	--	< 3 U	--	--	< 3 U	--	--	< 3 U	--	--
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Methylcyclohexane	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Methylene chloride	ug/l	< 2 U	--	--	< 2 U	--	--	< 2 U	--	< 2 U	--	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--
Styrene	ug/l	< 1 U	--	--	< 1 U	--	--	< 1 U	--	< 1 U	--	--	--	< 1 U	--	--	< 1 U	--	--	< 1 U	--	--
Tetrachloroethylene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Toluene	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Trichloroethylene (TCE)	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	--	--	< 2 U	--	--	< 2 U	--	< 2 U	--	--	--	< 2 U	--	--	< 2 U	--	--	< 2 U	--	--
Vinyl chloride	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	--
Xylene, m & p	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	**1**	--	--
Xylene, o	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	**1**	--	--
Xylene, total	ug/l	< 0.5 U	--	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 U	--	--	--	< 0.5 U	--	--	< 0.5 U	--	--	**2**	--	--

Table F.1
Groundwater Data Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12			B-2-1			B-2-2						MW07			MW100S			VLT-01		
Date		5/24/2017			5/25/2017			5/25/2017						5/24/2017			5/24/2017			5/25/2017		
Treatment Type		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment				Post-Treatment		Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment	Pre-Treatment		Post-Treatment
Sample Type		N		N	N		N	N		FD		N	FD	N		N	N		N	N		N
Data Status		Validated		Validated	Validated		Validated	Validated		Validated		Validated	Validated	Validated		Validated	Validated		Validated	Validated		Validated
Lab		Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Lancaster	Test America	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America	Lancaster	Test America	Test America
Parameter	Units																					
Per- and Polyfluoroalkyl Substances																						
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 3 U	< 50	< 50 *	< 3 U	< 50 *	< 50 *	< 3 U	< 50	< 3 U	< 50	< 50 *	< 50 *	< 3 U	< 50	< 50	< 3 U	< 50	< 50	**4 J**	< 50	< 50 *
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 4 U	< 50	< 50 *	< 4 U	< 50	< 50 *	< 4 U	< 50	< 4 U	< 50	< 50 *	< 50 *	< 4 UJ	< 50	< 50	< 4 U	< 50	< 50	< 4 U	< 50	< 50 *
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ng/l	< 1 U	--	--	< 1 UJ	--	--	< 1 U	--	< 1 U	--	--	--	< 1 UJ	--	--	< 1 U	--	--	**2 J**	--	--
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	ng/l	< 1 UJ	--	--	< 1 UJ	--	--	< 1 UJ	--	< 1 U	--	--	--	< 1 UJ	--	--	< 1 UJ	--	--	< 1 UJ	--	--
Perfluorobutane sulfonate (PFBS)	ng/l	**1 J**	< 5.0	< 5.0	**2 J**	< 5.0	< 5.0	**2 J**	< 5.0	**2 J**	< 5.0	< 5.0	< 5.0	< 0.8 U	< 5.0	< 5.0	< 0.8 U	< 5.0	< 5.0	**9 J**	**8.0**	**14**
Perfluorobutanoic acid (PFBA)	ng/l	**8 J**	**11**	**29 b***	**7 J**	**9.7**	**25 b***	**11**	**14**	**11**	**13**	**28 b***	**26 b***	< 3 U	< 5.0	**13 b***	**4 J**	< 5.0	**14 b***	**130 J**	**180 ***	**200 b***
Perfluorodecane sulfonate (PFDS)	ng/l	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	--	< 5.0	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Perfluorodecanoic acid (PFDA)	ng/l	**3**	< 5.0	< 5.0	< 0.5 U	< 5.0	< 5.0	< 0.5 U	< 5.0	< 0.5 U	< 5.0	< 5.0	< 5.0	< 0.5 U	< 5.0	< 5.0	< 0.5 U	< 5.0	< 5.0	**0.8 J**	< 5.0	< 5.0
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0
Perfluoroheptane sulfonate (PFHpS)	ng/l	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	--	< 5.0	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Perfluoroheptanoic acid (PFHpA)	ng/l	**14**	**14**	**15 ***	**4**	< 5.0	< 5.0	**4**	< 5.0	**4 J**	< 5.0	< 5.0	< 5.0 *	< 0.5 U	< 5.0	< 5.0	**4**	< 5.0	< 5.0	**280**	**330**	**350 ***
Perfluorohexane sulfonate (PFHxS)	ng/l	**3 J**	< 5.0	< 5.0	< 1 U	< 5.0	< 5.0	**1 J**	< 5.0	**1 J**	< 5.0	< 5.0	< 5.0	**10 JN**	< 5.0	< 5.0	< 1 UJ	< 5.0	< 5.0	**48**	**58**	**52**
Perfluorohexanoic acid (PFHxA)	ng/l	**13**	**13**	**14**	**5**	< 5.0	< 5.0	**4**	< 5.0	**4 J**	< 5.0	< 5.0	< 5.0	< 0.6 U	< 5.0	< 5.0	**4**	< 5.0	< 5.0 *	**590 J**	**610**	**630**
Perfluorononanoic acid (PFNA)	ng/l	**8**	**10**	**9.1**	**0.7 J**	< 5.0	< 5.0	**1 J**	< 5.0	**1 J**	< 5.0	< 5.0	< 5.0	< 0.6 U	< 5.0	< 5.0	**3**	< 5.0	< 5.0	**3**	< 5.0	< 5.0
Perfluorooctane sulfonate (PFOS)	ng/l	**11 J**	**11**	**9.8**	**6 J**	**5.1**	< 5.0	**6 J**	**8.0**	**6 J**	**8.2**	**7.2**	**7.2**	< 2 U	< 5.0	< 5.0	**4 J**	< 5.0	< 5.0	**35 J**	**34**	**31**
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 3 UJ	< 5.0	< 5.0 *	< 3 UJ	**5.8 ***	< 5.0 *	< 3 UJ	< 5.0 *	< 3 UJ	< 5.0 *	< 5.0 *	< 5.0 *	< 3 UJ	< 5.0 **	< 5.0 **	< 3 UJ	< 5.0	< 5.0 **	< 3 UJ	< 5.0	< 5.0 *
Perfluorooctanoic acid (PFOA)	ng/l	**100**	**110**	**110 ***	**36**	**42**	**41 ***	**37**	**42**	**37**	**43**	**43 ***	**43 ***	**16 J**	**18**	**19 ***	**36**	**38**	**41**	**4700**	**5800**	**6100 ***
Perfluoropentanoic acid (PFPeA)	ng/l	**11**	**9.0**	**12**	**4**	< 5.0	< 5.0	**4**	< 5.0	**4**	< 5.0	< 5.0	< 5.0	< 0.5 U	< 5.0	< 5.0	**3**	< 5.0	< 5.0 *	**92**	**77**	**130**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 0.5 U	< 5.0	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0	< 0.5 UJ	< 5.0	< 5.0
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 5.0	< 5.0	< 1 UJ	< 5.0	< 5.0	< 1 UJ	< 5.0	< 1 U	< 5.0	< 5.0	< 5.0	< 1 UJ	< 5.0	< 5.0	< 1 UJ	< 5.0	< 5.0	< 1 U	< 5.0	< 5.0
Total PFC	ng/l	--	**170**	**190 a**	--	**52 a**	**66 a**	--	**56 a**	--	**56 a**	**71 a**	**69 a**	--	**18 a**	**32 a**	--	**38 a**	**55 a**	--	**7000 a**	**7400 a**

TestAmerica data was validated by Barr.

Table F.2
TOP Data Summary
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location		B-12			B-2-1			B-2-2						MW07			MW100S			VLT-01		
Date		5/24/2017			5/25/2017			5/25/2017						5/24/2017			5/24/2017			5/25/2017		
Sample ID		Pre-Treatment	Post-Treatment	Pre/Post-Treatment Difference	Pre-Treatment	Post-Treatment	Pre/Post-Treatment Difference	Pre-Treatment		Post-Treatment		Pre/Post-Treatment Difference		Pre-Treatment	Post-Treatment	Pre/Post-Treatment Difference	Pre-Treatment	Post-Treatment	Pre/Post-Treatment Difference	Pre-Treatment	Post-Treatment	Pre/Post-Treatment Difference
Sample Type		N	N	N	N	N	N	N	FD	N	FD	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Units																					
Per- and Polyfluoroalkyl Substances																						
6:2 Fluorotelomer sulfonate (6:2 FTS)	ng/l	< 50	< 50 *	--	< 50 *	< 50 *	--	< 50	< 50	< 50 *	< 50 *	--	--	< 50	< 50	--	< 50	< 50	--	< 50	< 50 *	--
8:2 Fluorotelomer sulfonate (8:2 FTS)	ng/l	< 50	< 50 *	--	< 50	< 50 *	--	< 50	< 50	< 50 *	< 50 *	--	--	< 50	< 50	--	< 50	< 50	--	< 50	< 50 *	--
Perfluorobutane sulfonate (PFBS)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	**8.0**	**14**	--
Perfluorobutanoic acid (PFBA)	ng/l	**11**	**29 b***	**18 a**	**9.7**	**25 b***	**16 a**	**14**	**13**	**28 b***	**26 b***	**14 a**	**13 a**	< 5.0	**13 b***	**13 a**	< 5.0	**14 b***	**14 a**	**180 ***	**200 b***	**13 a**
Perfluorodecane sulfonate (PFDS)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluorodecanoic acid (PFDA)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluoroheptane sulfonate (PFHpS)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluoroheptanoic acid (PFHpA)	ng/l	**14**	**15 ***	**0.91 a**	< 5.0	< 5.0	0.0	< 5.0	< 5.0	< 5.0	< 5.0 *	0.0	0.0 a	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0 a	**330**	**350 ***	**15 a**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	**58**	**52**	--
Perfluorohexanoic acid (PFHxA)	ng/l	**13**	**14**	**1.3**	< 5.0	< 5.0	0.0	< 5.0	< 5.0	< 5.0	< 5.0	0.0	0.0	< 5.0	< 5.0	0.0	< 5.0	< 5.0 *	0.0 a	**610**	**630**	**18**
Perfluorononanoic acid (PFNA)	ng/l	**10**	**9.1**	**0.0**	< 5.0	< 5.0	0.0	< 5.0	< 5.0	< 5.0	< 5.0	0.0	0.0	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0	< 5.0	< 5.0	0.0
Perfluorooctane sulfonate (PFOS)	ng/l	**11**	**9.8**	--	**5.1**	< 5.0	--	**8.0**	**8.2**	**7.2**	**7.2**	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	**34**	**31**	--
Perfluorooctanesulfonamide (PFOSA / FOSA)	ng/l	< 5.0	< 5.0 *	--	**5.8 ***	< 5.0 *	--	< 5.0 *	< 5.0 *	< 5.0 *	< 5.0 *	--	--	< 5.0 **	< 5.0 **	--	< 5.0	< 5.0 **	--	< 5.0	< 5.0 *	--
Perfluorooctanoic acid (PFOA)	ng/l	**110**	**110 ***	**0.0 a**	**42**	**41 ***	**0.0 a**	**42**	**43**	**43 ***	**43 ***	**1.1 a**	**0.0 a**	**18**	**19 ***	**1.4 a**	**38**	**41**	**2.7 a**	**5800**	**6100 ***	**330 a**
Perfluoropentanoic acid (PFPeA)	ng/l	**9.0**	**12**	**2.7**	< 5.0	< 5.0	0.0	< 5.0	< 5.0	< 5.0	< 5.0	0.0	0.0	< 5.0	< 5.0	0.0	< 5.0	< 5.0 *	0.0 a	**77**	**130**	**57**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	< 5.0	< 5.0	--	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0	< 5.0	--
Total PFC	ng/l	**170**	**190 a**	**22 a**	**52 a**	**66 a**	**14 a**	**56 a**	**56 a**	**71 a**	**69 a**	**15 a**	**13 a**	**18 a**	**32 a**	**14 a**	**38 a**	**55 a**	**17 a**	**7000 a**	**7400 a**	**410 a**

Data was validated by Barr.

Attachment F.1

Test America Laboratory Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-28599-1
Client Project/Site: PFAS TOPs

For:
Barr Engineering Company
4300 MarketPoint Drive
Suite 200
Minneapolis, Minnesota 55435

Attn: Mr. Ward Swanson

Authorized for release by:
6/29/2017 10:24:16 AM

David Alltucker, Project Manager I
(916)374-4383
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-28599-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-28599-1

Receipt
The samples were received on 5/26/2017 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4º C.

LCMS
Method(s) 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a “Reverse Surrogate”. It is used to monitor the oxidation efficiency of the TOP assay. This compound is fortified into all sample fractions prior to any processing. The recovery of this compound should be close to 100% in Pre-Treatment fractions, as this fraction is not oxidized, and 0% in Post-Treatment fractions, indicating complete oxidation of the sample.

Method(s) 537 (modified): The compound M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The Post-Treatment method blank’s PFBA result indicates roughly how much of any field sample’s Post-Treatment PFBA result is contributed by the oxidation process.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C8 FOSA: SG3-MW-7-170524 (320-28599-1), SG3-B-12-170524 (320-28599-2), SG3-B-2-1-170525 (320-28599-4), SG3-B-2-2-170525 (320-28599-5), SG3-VLT-01-170525 (320-28599-6), SG3-FD01-170525 (320-28599-7), (MB 320-168090/1-A) and (MB 320-168333/1-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. All detection limits are below the lower calibration.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for 13C4 PFBA and 13C8 FOSA: SG3-FD01-170525 (320-28599-7). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. All detection limits are below the lower calibration.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for several analytes: SG3-MW-100S-170524 (320-28599-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples. All detection limits are below the lower calibration.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for Perfluorobutanoic acid (PFBA): SG3-VLT-01-170525 (320-28599-6). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. All detection limits are below the lower calibration.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-MW-7-170524 — Lab Sample ID: 320-28599-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	18		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	13	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	19	*	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	13				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	1.4				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	14				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	18				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	32				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SG3-B-12-170524 — Lab Sample ID: 320-28599-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	9.0		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	13		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	14		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	110		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	10		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	11		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	29	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	12		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	14		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	15	*	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	110	*	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	9.1		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	9.8		5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	18				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	2.7				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	1.3				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.91				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG3-B-12-170524 (Continued) — Lab Sample ID: 320-28599-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total PFCA	22				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	170				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	190				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SG3-MW-100S-170524 — Lab Sample ID: 320-28599-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	38		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	14	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	41	*	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	14				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	2.7				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	17				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	38				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	55				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SG3-B-2-1-170525 — Lab Sample ID: 320-28599-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.7		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	42		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	5.1		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctane Sulfonamide (FOSA)	5.8		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	25	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	41	*	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	16				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	14				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	52				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	66				ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-B-2-2-170525 — Lab Sample ID: 320-28599-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	42		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	8.0		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	28	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	43	*	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	7.2		5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	14				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	1.1				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	15				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	56				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	71				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SG3-VLT-01-170525 — Lab Sample ID: 320-28599-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	180		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	77		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	610		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	330		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	8.0		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	58		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	34		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA) - DL	5800		50		ng/L	10		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	200	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	130		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	630		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluoroheptanoic acid (PFHpA)	350	*	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	14		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	52		5.0		ng/L	1		537 (modified)	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG3-VLT-01-170525 (Continued) — Lab Sample ID: 320-28599-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31		5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA) - DL	6100		50		ng/L	10		537 (modified)	Post-Treatment
PFBA	13				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	57				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	18				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	15				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	330				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	410				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	7000				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	7400				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SG3-FD01-170525 — Lab Sample ID: 320-28599-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	43		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	8.2		5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	26	B *	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	43	*	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	7.2		5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	13				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	13				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	56				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	69				ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG3-MW-7-170524
Date Collected: 05/24/17 12:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-1
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorooctanoic acid (PFOA)	**18**		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:39	1
6:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:39	1
8:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*16*	*	*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C4 PFBA	*46*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C2 PFHxA	*56*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C4 PFOA	*68*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C5 PFNA	*68*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C2 PFDA	*67*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C2 PFUnA	*68*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C2 PFDoA	*61*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
18O2 PFHxS	*115*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C4 PFOS	*106*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C4-PFHpA	*67*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
13C5 PFPeA	*50*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
M2-6:2FTS	*130*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
M2-8:2FTS	*119*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*
M2-4:2FTS	*156*	*	*0 - 150*	*06/07/17 16:45*	*06/20/17 04:39*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**13**	**B ***	5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluoroheptanoic acid (PFHpA)	ND	*	5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorooctanoic acid (PFOA)	**19**	*	5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1

Client Sample ID: SG3-MW-7-170524
Date Collected: 05/24/17 12:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-1
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0		ng/L		06/07/17 16:52	06/20/17 05:56	1
6:2FTS	ND	*	50		ng/L		06/07/17 16:52	06/20/17 05:56	1
8:2FTS	ND	*	50		ng/L		06/07/17 16:52	06/20/17 05:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*8*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C4 PFBA	*47*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C2 PFHxA	*57*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C4 PFOA	*51*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C5 PFNA	*38*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C2 PFDA	*31*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C2 PFUnA	*33*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C2 PFDoA	*38*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
18O2 PFHxS	*109*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C4 PFOS	*96*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C4-PFHpA	*62*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
13C5 PFPeA	*50*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
M2-6:2FTS	*93*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
M2-8:2FTS	*91*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/07/17 16:52*	*06/20/17 05:56*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**13**				ng/L			06/26/17 15:43	1
PFPA	**0.00**				ng/L			06/26/17 15:43	1
PFHxA	**0.00**				ng/L			06/26/17 15:43	1
PFHpA	**0.00**				ng/L			06/26/17 15:43	1
PFOA	**1.4**				ng/L			06/26/17 15:43	1
PFNA	**0.00**				ng/L			06/26/17 15:43	1
Total PFCA	**14**				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**18**				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**32**				ng/L			06/26/17 15:28	1

Client Sample ID: SG3-B-12-170524
Date Collected: 05/24/17 13:25
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-2
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluoropentanoic acid (PFPeA)	**9.0**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorohexanoic acid (PFHxA)	**13**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluoroheptanoic acid (PFHpA)	**14**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorooctanoic acid (PFOA)	**110**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorononanoic acid (PFNA)	**10**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorooctanesulfonic acid (PFOS)	**11**		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:46	1
6:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:46	1
8:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*40*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C4 PFBA	*69*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C2 PFHxA	*84*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C4 PFOA	*96*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C5 PFNA	*94*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C2 PFDA	*98*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C2 PFUnA	*101*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C2 PFDoA	*100*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
18O2 PFHxS	*108*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C4 PFOS	*107*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C4-PFHpA	*97*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
13C5 PFPeA	*82*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
M2-6:2FTS	*130*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
M2-8:2FTS	*118*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*
M2-4:2FTS	*173*	*	*0 - 150*	*06/07/17 16:45*	*06/20/17 04:46*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**29**	**B ***	5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluoropentanoic acid (PFPeA)	**12**		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorohexanoic acid (PFHxA)	**14**		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluoroheptanoic acid (PFHpA)	**15**	*	5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorooctanoic acid (PFOA)	**110**	*	5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorononanoic acid (PFNA)	**9.1**		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1

Client Sample ID: SG3-B-12-170524
Date Collected: 05/24/17 13:25
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-2
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorooctanesulfonic acid (PFOS)	**9.8**		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0		ng/L		06/07/17 16:52	06/20/17 06:03	1
6:2FTS	ND	*	50		ng/L		06/07/17 16:52	06/20/17 06:03	1
8:2FTS	ND	*	50		ng/L		06/07/17 16:52	06/20/17 06:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*24*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C4 PFBA	*49*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C2 PFHxA	*65*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C4 PFOA	*77*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C5 PFNA	*75*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C2 PFDA	*69*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C2 PFUnA	*75*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C2 PFDoA	*76*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
18O2 PFHxS	*106*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C4 PFOS	*96*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C4-PFHpA	*79*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
13C5 PFPeA	*61*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
M2-6:2FTS	*88*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
M2-8:2FTS	*79*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/07/17 16:52*	*06/20/17 06:03*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**18**				ng/L			06/26/17 15:43	1
PFPA	**2.7**				ng/L			06/26/17 15:43	1
PFHxA	**1.3**				ng/L			06/26/17 15:43	1
PFHpA	**0.91**				ng/L			06/26/17 15:43	1
PFOA	**0.00**				ng/L			06/26/17 15:43	1
PFNA	**0.00**				ng/L			06/26/17 15:43	1
Total PFCA	**22**				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**170**				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**190**				ng/L			06/26/17 15:28	1

Client Sample ID: SG3-MW-100S-170524
Date Collected: 05/24/17 16:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorooctanoic acid (PFOA)	**38**		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:54	1
6:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:54	1
8:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*40*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C4 PFBA	*83*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C2 PFHxA	*99*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C4 PFOA	*112*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C5 PFNA	*103*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C2 PFDA	*110*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C2 PFUnA	*107*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C2 PFDoA	*110*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
18O2 PFHxS	*111*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C4 PFOS	*105*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C4-PFHpA	*110*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
13C5 PFPeA	*94*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
M2-6:2FTS	*130*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
M2-8:2FTS	*120*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*
M2-4:2FTS	*154*	*	*0 - 150*	*06/07/17 16:45*	*06/20/17 04:54*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**	**B ***	5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluoroheptanoic acid (PFHpA)	ND	*	5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorooctanoic acid (PFOA)	**41**	*	5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 06:11	1

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-MW-100S-170524
Date Collected: 05/24/17 16:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0	ng/L		06/07/17 16:52	06/20/17 06:11	1
6:2FTS	ND	*	50	ng/L		06/07/17 16:52	06/20/17 06:11	1
8:2FTS	ND	*	50	ng/L		06/07/17 16:52	06/20/17 06:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*8*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C4 PFBA	*18*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C2 PFHxA	*23*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C4 PFOA	*31*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C5 PFNA	*29*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C2 PFDA	*27*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C2 PFUnA	*30*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C2 PFDoA	*28*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
18O2 PFHxS	*103*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C4 PFOS	*97*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C4-PFHpA	*28*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
13C5 PFPeA	*20*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
M2-6:2FTS	*91*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
M2-8:2FTS	*103*		*25 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/07/17 16:52*	*06/20/17 06:11*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**14**			ng/L			06/26/17 15:43	1
PFPA	**0.00**			ng/L			06/26/17 15:43	1
PFHxA	**0.00**			ng/L			06/26/17 15:43	1
PFHpA	**0.00**			ng/L			06/26/17 15:43	1
PFOA	**2.7**			ng/L			06/26/17 15:43	1
PFNA	**0.00**			ng/L			06/26/17 15:43	1
Total PFCA	**17**			ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**38**			ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**55**			ng/L			06/26/17 15:28	1

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-B-2-1-170525
Date Collected: 05/25/17 09:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-4
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.7**		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorooctanoic acid (PFOA)	**42**		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorooctanesulfonic acid (PFOS)	**5.1**		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
Perfluorooctane Sulfonamide (FOSA)	**5.8**		5.0		ng/L		06/08/17 15:09	06/20/17 07:13	1
6:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 07:13	1
8:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 07:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*22*	*	*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C4 PFBA	*69*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C2 PFHxA	*76*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C4 PFOA	*84*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C5 PFNA	*80*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C2 PFDA	*84*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C2 PFUnA	*90*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C2 PFDoA	*91*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
18O2 PFHxS	*112*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C4 PFOS	*103*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C4-PFHpA	*85*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
13C5 PFPeA	*73*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
M2-6:2FTS	*126*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
M2-8:2FTS	*105*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*
M2-4:2FTS	*180*	*	*0 - 150*	*06/08/17 15:09*	*06/20/17 07:13*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**25**	**B ***	5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluoroheptanoic acid (PFHpA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorooctanoic acid (PFOA)	**41**	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-B-2-1-170525
Date Collected: 05/25/17 09:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-4
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:22	1
6:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:22	1
8:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*15*	*	*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C4 PFBA	*53*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C2 PFHxA	*65*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C4 PFOA	*71*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C5 PFNA	*61*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C2 PFDA	*54*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C2 PFUnA	*51*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C2 PFDoA	*43*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
18O2 PFHxS	*104*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C4 PFOS	*98*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C4-PFHpA	*70*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
13C5 PFPeA	*60*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
M2-6:2FTS	*93*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
M2-8:2FTS	*93*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/08/17 15:14*	*06/20/17 08:22*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**16**				ng/L			06/26/17 15:43	1
PFPA	**0.00**				ng/L			06/26/17 15:43	1
PFHxA	**0.00**				ng/L			06/26/17 15:43	1
PFHpA	**0.00**				ng/L			06/26/17 15:43	1
PFOA	**0.00**				ng/L			06/26/17 15:43	1
PFNA	**0.00**				ng/L			06/26/17 15:43	1
Total PFCA	**14**				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**52**				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**66**				ng/L			06/26/17 15:28	1

Client Sample ID: SG3-B-2-2-170525
Date Collected: 05/25/17 10:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-5
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorooctanoic acid (PFOA)	**42**		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorooctanesulfonic acid (PFOS)	**8.0**		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 07:20	1
6:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 07:20	1
8:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 07:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*19*	*	*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C4 PFBA	*71*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C2 PFHxA	*79*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C4 PFOA	*102*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C5 PFNA	*98*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C2 PFDA	*98*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C2 PFUnA	*103*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C2 PFDoA	*104*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
18O2 PFHxS	*114*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C4 PFOS	*105*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C4-PFHpA	*93*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
13C5 PFPeA	*75*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
M2-6:2FTS	*150*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
M2-8:2FTS	*110*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*
M2-4:2FTS	*189*	*	*0 - 150*	*06/08/17 15:09*	*06/20/17 07:20*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**28**	**B ***	5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluoroheptanoic acid (PFHpA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorooctanoic acid (PFOA)	**43**	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1

Client Sample ID: SG3-B-2-2-170525
Date Collected: 05/25/17 10:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-5
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorooctanesulfonic acid (PFOS)	**7.2**		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:30	1
6:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:30	1
8:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*14*	*	*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C4 PFBA	*81*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C2 PFHxA	*81*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C4 PFOA	*88*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C5 PFNA	*77*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C2 PFDA	*68*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C2 PFUnA	*66*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C2 PFDoA	*73*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
18O2 PFHxS	*102*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C4 PFOS	*97*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C4-PFHpA	*88*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
13C5 PFPeA	*83*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
M2-6:2FTS	*77*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
M2-8:2FTS	*72*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/08/17 15:14*	*06/20/17 08:30*	*1*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**14**				ng/L			06/26/17 15:43	1
PFPA	**0.00**				ng/L			06/26/17 15:43	1
PFHxA	**0.00**				ng/L			06/26/17 15:43	1
PFHpA	**0.00**				ng/L			06/26/17 15:43	1
PFOA	**1.1**				ng/L			06/26/17 15:43	1
PFNA	**0.00**				ng/L			06/26/17 15:43	1
Total PFCA	**15**				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**56**				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**71**				ng/L			06/26/17 15:28	1

Client Sample ID: SG3-VLT-01-170525
Date Collected: 05/25/17 09:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-6
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**180**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluoropentanoic acid (PFPeA)	**77**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorohexanoic acid (PFHxA)	**610**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluoroheptanoic acid (PFHpA)	**330**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorononanoic acid (PFNA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorobutanesulfonic acid (PFBS)	**8.0**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorohexanesulfonic acid (PFHxS)	**58**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorooctanesulfonic acid (PFOS)	**34**		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0	ng/L		06/08/17 15:09	06/20/17 07:28	1
6:2FTS	ND		50	ng/L		06/08/17 15:09	06/20/17 07:28	1
8:2FTS	ND		50	ng/L		06/08/17 15:09	06/20/17 07:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*29*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C4 PFBA	*13*	*	*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C2 PFHxA	*43*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C5 PFNA	*93*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C2 PFDA	*109*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C2 PFUnA	*114*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C2 PFDoA	*104*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
18O2 PFHxS	*93*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C4 PFOS	*102*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C4-PFHpA	*61*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
13C5 PFPeA	*29*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
M2-6:2FTS	*142*		*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
M2-8:2FTS	*256*	*	*25 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*
M2-4:2FTS	*200*	*	*0 - 150*	*06/08/17 15:09*	*06/20/17 07:28*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	**5800**		50	ng/L		06/08/17 15:09	06/22/17 00:06	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*138*		*25 - 150*	*06/08/17 15:09*	*06/22/17 00:06*	*10*
M2-4:2FTS	*300*	*	*0 - 150*	*06/08/17 15:09*	*06/22/17 00:06*	*10*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**200**	**B ***	5.0	ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluoropentanoic acid (PFPeA)	**130**		5.0	ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorohexanoic acid (PFHxA)	**630**		5.0	ng/L		06/08/17 15:14	06/20/17 08:37	1

Client Sample ID: SG3-VLT-01-170525
Date Collected: 05/25/17 09:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-6
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**350**	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorotetradecanoic acid (PFTeA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorobutanesulfonic acid (PFBS)	**14**		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorohexanesulfonic acid (PFHxS)	**52**		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorooctanesulfonic acid (PFOS)	**31**		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0		ng/L		06/08/17 15:14	06/20/17 08:37	1
6:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:37	1
8:2FTS	ND	*	50		ng/L		06/08/17 15:14	06/20/17 08:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*14*	*	*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C4 PFBA	*73*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C2 PFHxA	*66*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C5 PFNA	*72*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C2 PFDA	*59*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C2 PFUnA	*60*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C2 PFDoA	*63*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
18O2 PFHxS	*98*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C4 PFOS	*103*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C4-PFHpA	*70*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
13C5 PFPeA	*70*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
M2-6:2FTS	*64*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
M2-8:2FTS	*92*		*25 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*
M2-4:2FTS	*3*		*0 - 150*	*06/08/17 15:14*	*06/20/17 08:37*	*1*

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment - DL

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	**6100**		50		ng/L		06/08/17 15:14	06/22/17 00:14	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*82*		*25 - 150*	*06/08/17 15:14*	*06/22/17 00:14*	*10*
M2-4:2FTS	*3*		*0 - 150*	*06/08/17 15:14*	*06/22/17 00:14*	*10*

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**13**				ng/L			06/26/17 15:43	1
PFPA	**57**				ng/L			06/26/17 15:43	1
PFHxA	**18**				ng/L			06/26/17 15:43	1
PFHpA	**15**				ng/L			06/26/17 15:43	1
PFOA	**330**				ng/L			06/26/17 15:43	1
PFNA	**0.00**				ng/L			06/26/17 15:43	1

Client Sample ID: SG3-VLT-01-170525

Lab Sample ID: 320-28599-6
Date Collected: 05/25/17 09:20
Matrix: Water
Date Received: 05/26/17 09:15

Method: Total PFCA-Dif - Total PFCA (Treatment Difference) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**410**				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**7000**				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	**7400**				ng/L			06/26/17 15:28	1

Client Sample ID: SG3-FD01-170525

Lab Sample ID: 320-28599-7
Date Collected: 05/25/17 00:00
Matrix: Water
Date Received: 05/26/17 09:15

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**13**		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorooctanoic acid (PFOA)	**43**		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorooctanesulfonic acid (PFOS)	**8.2**		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 05:02	1
6:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 05:02	1
8:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 05:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*22*	*	*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C4 PFBA	*75*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C2 PFHxA	*85*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C4 PFOA	*98*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C5 PFNA	*97*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C2 PFDA	*102*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C2 PFUnA	*106*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C2 PFDoA	*104*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
18O2 PFHxS	*114*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C4 PFOS	*106*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C4-PFHpA	*97*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*
13C5 PFPeA	*82*		*25 - 150*	*06/07/17 16:45*	*06/20/17 05:02*	*1*

Client Sample ID: SG3-FD01-170525
Date Collected: 05/25/17 00:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-7
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2FTS	143		25 - 150	06/07/17 16:45	06/20/17 05:02	1
M2-8:2FTS	121		25 - 150	06/07/17 16:45	06/20/17 05:02	1
M2-4:2FTS	180	*	0 - 150	06/07/17 16:45	06/20/17 05:02	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**26**	**B ***	5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluoroheptanoic acid (PFHpA)	ND	*	5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorooctanoic acid (PFOA)	**43**	*	5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorononanoic acid (PFNA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorooctanesulfonic acid (PFOS)	**7.2**		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	5.0	ng/L		06/07/17 16:52	06/20/17 06:19	1
6:2FTS	ND	*	50	ng/L		06/07/17 16:52	06/20/17 06:19	1
8:2FTS	ND	*	50	ng/L		06/07/17 16:52	06/20/17 06:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	10	*	25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C4 PFBA	23	*	25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C2 PFHxA	30		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C4 PFOA	45		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C5 PFNA	41		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C2 PFDA	38		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C2 PFUnA	36		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C2 PFDoA	34		25 - 150	06/07/17 16:52	06/20/17 06:19	1
18O2 PFHxS	102		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C4 PFOS	100		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C4-PFHpA	38		25 - 150	06/07/17 16:52	06/20/17 06:19	1
13C5 PFPeA	26		25 - 150	06/07/17 16:52	06/20/17 06:19	1
M2-6:2FTS	92		25 - 150	06/07/17 16:52	06/20/17 06:19	1
M2-8:2FTS	91		25 - 150	06/07/17 16:52	06/20/17 06:19	1
M2-4:2FTS	0		0 - 150	06/07/17 16:52	06/20/17 06:19	1

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	**13**			ng/L			06/26/17 15:43	1
PFPA	**0.00**			ng/L			06/26/17 15:43	1
PFHxA	**0.00**			ng/L			06/26/17 15:43	1
PFHpA	**0.00**			ng/L			06/26/17 15:43	1

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-FD01-170525
Date Collected: 05/25/17 00:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-7
Matrix: Water

Method: Total PFCA-Dif - Total PFCA (Treatment Difference) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PFOA	0.00				ng/L			06/26/17 15:43	1
PFNA	0.00				ng/L			06/26/17 15:43	1
Total PFCA	13				ng/L			06/26/17 15:43	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	56				ng/L			06/26/17 15:28	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	69				ng/L			06/26/17 15:28	1

Total Oxidation Precursors

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-MW-7-170524

Lab Sample ID: 320-28599-1
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	ND		ng/L	13		ng/L	13	ng/L
Perfluoropentanoic acid (PFPeA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	18		ng/L	19		ng/L	1.4	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	18		ng/L	32		ng/L	14	ng/L

Client Sample ID: SG3-B-12-170524

Lab Sample ID: 320-28599-2
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	11		ng/L	29		ng/L	18	ng/L
Perfluoropentanoic acid (PFPeA)	9.0		ng/L	12		ng/L	2.7	ng/L
Perfluorohexanoic acid (PFHxA)	13		ng/L	14		ng/L	1.3	ng/L
Perfluoroheptanoic acid (PFHpA)	14		ng/L	15		ng/L	0.91	ng/L
Perfluorooctanoic acid (PFOA)	110		ng/L	110		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	10		ng/L	9.1		ng/L	0.00	ng/L
Total PFCA	170		ng/L	190		ng/L	22	ng/L

Client Sample ID: SG3-MW-100S-170524

Lab Sample ID: 320-28599-3
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	ND		ng/L	14		ng/L	14	ng/L
Perfluoropentanoic acid (PFPeA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	38		ng/L	41		ng/L	2.7	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	38		ng/L	55		ng/L	17	ng/L

Client Sample ID: SG3-B-2-1-170525

Lab Sample ID: 320-28599-4
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	9.7		ng/L	25		ng/L	16	ng/L
Perfluoropentanoic acid (PFPeA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	42		ng/L	41		ng/L	0.00	ng/L

[1] Difference = Post-Treatment - Pre-Treament

Total Oxidation Precursors

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-B-2-1-170525

Lab Sample ID: 320-28599-4
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	52		ng/L	66		ng/L	14	ng/L

Client Sample ID: SG3-B-2-2-170525

Lab Sample ID: 320-28599-5
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	14		ng/L	28		ng/L	14	ng/L
Perfluoropentanoic acid (PFPeA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	42		ng/L	43		ng/L	1.1	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	56		ng/L	71		ng/L	15	ng/L

Client Sample ID: SG3-VLT-01-170525

Lab Sample ID: 320-28599-6
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	180		ng/L	200		ng/L	13	ng/L
Perfluoropentanoic acid (PFPeA)	77		ng/L	130		ng/L	57	ng/L
Perfluorohexanoic acid (PFHxA)	610		ng/L	630		ng/L	18	ng/L
Perfluoroheptanoic acid (PFHpA)	330		ng/L	350		ng/L	15	ng/L
Perfluorooctanoic acid (PFOA)	5800		ng/L	6100		ng/L	330	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	7000		ng/L	7400		ng/L	410	ng/L

Client Sample ID: SG3-FD01-170525

Lab Sample ID: 320-28599-7
Matrix: Water

Analyte	Pre - Treatment Method: 537 (modified) Result	Qualifier	Unit	Post - Treatment Method: 537 (modified) Result	Qualifier	Unit	Difference [1] Result	Unit
Perfluorobutanoic acid (PFBA)	13		ng/L	26		ng/L	13	ng/L
Perfluoropentanoic acid (PFPeA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	43		ng/L	43		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	56		ng/L	69		ng/L	13	ng/L

[1] Difference = Post-Treatment - Pre-Treament

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Pre-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHxA (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUnA (25-150)	3C2 PFDoA (25-150)
320-28599-1	SG3-MW-7-170524	16 *	46	56	68	68	67	68	61
320-28599-2	SG3-B-12-170524	40	69	84	96	94	98	101	100
320-28599-3	SG3-MW-100S-170524	40	83	99	112	103	110	107	110
320-28599-4	SG3-B-2-1-170525	22 *	69	76	84	80	84	90	91
320-28599-5	SG3-B-2-2-170525	19 *	71	79	102	98	98	103	104
320-28599-6	SG3-VLT-01-170525	29	13 *	43		93	109	114	104
320-28599-6 - DL	SG3-VLT-01-170525				138				
320-28599-7	SG3-FD01-170525	22 *	75	85	98	97	102	106	104
LCS 320-168081/2-A	Lab Control Sample	56	109	100	111	103	104	103	102
LCS 320-168332/2-A	Lab Control Sample	51	107	95	108	94	97	97	97
LCSD 320-168081/3-A	Lab Control Sample Dup	41	106	98	108	100	104	101	97
LCSD 320-168332/3-A	Lab Control Sample Dup	52	102	95	105	97	98	97	100
MB 320-168081/1-A	Method Blank	34	88	85	94	92	95	96	95
MB 320-168332/1-A	Method Blank	55	109	101	113	103	101	103	104

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	18O2 PFHxS (25-150)	13C4 PFOS (25-150)	13C4-PFHpA (25-150)	13C5 PFPeA (25-150)	M2-6:2FTS (25-150)	M2-8:2FTS (25-150)	M2-4:2FTS (0-150)
320-28599-1	SG3-MW-7-170524	115	106	67	50	130	119	156 *
320-28599-2	SG3-B-12-170524	108	107	97	82	130	118	173 *
320-28599-3	SG3-MW-100S-170524	111	105	110	94	130	120	154 *
320-28599-4	SG3-B-2-1-170525	112	103	85	73	126	105	180 *
320-28599-5	SG3-B-2-2-170525	114	105	93	75	150	110	189 *
320-28599-6	SG3-VLT-01-170525	93	102	61	29	142	256 *	200 *
320-28599-6 - DL	SG3-VLT-01-170525							300 *
320-28599-7	SG3-FD01-170525	114	106	97	82	143	121	180 *
LCS 320-168081/2-A	Lab Control Sample	111	100	113	101	118	117	108
LCS 320-168332/2-A	Lab Control Sample	105	95	109	98	112	96	119
LCSD 320-168081/3-A	Lab Control Sample Dup	107	97	109	100	112	116	113
LCSD 320-168332/3-A	Lab Control Sample Dup	107	96	110	99	109	99	109
MB 320-168081/1-A	Method Blank	111	108	97	86	114	116	114
MB 320-168332/1-A	Method Blank	109	99	116	104	119	103	115

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS
M2-8:2FTS = M2-8:2FTS
M2-4:2FTS = M2-4:2FTS

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Post-Treatment**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHxA (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUnA (25-150)	3C2 PFDoA (25-150)
320-28599-1	SG3-MW-7-170524	8 *	47	57	51	38	31	33	38
320-28599-2	SG3-B-12-170524	24 *	49	65	77	75	69	75	76
320-28599-3	SG3-MW-100S-170524	8 *	18 *	23 *	31	29	27	30	28
320-28599-4	SG3-B-2-1-170525	15 *	53	65	71	61	54	51	43
320-28599-5	SG3-B-2-2-170525	14 *	81	81	88	77	68	66	73
320-28599-6	SG3-VLT-01-170525	14 *	73	66		72	59	60	63
320-28599-6 - DL	SG3-VLT-01-170525				82				
320-28599-7	SG3-FD01-170525	10 *	23 *	30	45	41	38	36	34
LCS 320-168090/2-A	Lab Control Sample	8 *	55	74	74	59	48	42	40
LCS 320-168333/2-A	Lab Control Sample	3 *	25	28	15 *	11 *	11 *	11 *	13 *
LCSD 320-168090/3-A	Lab Control Sample Dup	25	73	77	86	79	76	77	78
LCSD 320-168333/3-A	Lab Control Sample Dup	6 *	37	29	17 *	14 *	13 *	15 *	17 *
MB 320-168090/1-A	Method Blank	9 *	65	61	62	49	40	38	39
MB 320-168333/1-A	Method Blank	7 *	44	48	46	32	27	28	28

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	18O2 PFHxS (25-150)	13C4 PFOS (25-150)	13C4-PFHpA (25-150)	13C5 PFPeA (25-150)	M2-6:2FTS (25-150)	M2-8:2FTS (25-150)	M2-4:2FTS (0-150)
320-28599-1	SG3-MW-7-170524	109	96	62	50	93	91	0
320-28599-2	SG3-B-12-170524	106	96	79	61	88	79	0
320-28599-3	SG3-MW-100S-170524	103	97	28	20 *	91	103	0
320-28599-4	SG3-B-2-1-170525	104	98	70	60	93	93	0
320-28599-5	SG3-B-2-2-170525	102	97	88	83	77	72	0
320-28599-6	SG3-VLT-01-170525	98	103	70	70	64	92	3
320-28599-6 - DL	SG3-VLT-01-170525							3
320-28599-7	SG3-FD01-170525	102	100	38	26	92	91	0
LCS 320-168090/2-A	Lab Control Sample	104	97	81	65	87	90	0
LCS 320-168333/2-A	Lab Control Sample	101	91	22 *	30	85	83	0
LCSD 320-168090/3-A	Lab Control Sample Dup	99	94	87	77	111	105	0
LCSD 320-168333/3-A	Lab Control Sample Dup	103	90	22 *	30	98	85	0
MB 320-168090/1-A	Method Blank	120	112	67	58	106	101	0
MB 320-168333/1-A	Method Blank	105	99	53	44	98	96	0

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS
M2-8:2FTS = M2-8:2FTS
M2-4:2FTS = M2-4:2FTS

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-168081/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 168081

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:45	06/20/17 04:16	1
6:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:16	1
8:2FTS	ND		50		ng/L		06/07/17 16:45	06/20/17 04:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*34*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C4 PFBA	*88*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C2 PFHxA	*85*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C4 PFOA	*94*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C5 PFNA	*92*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C2 PFDA	*95*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C2 PFUnA	*96*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C2 PFDoA	*95*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
18O2 PFHxS	*111*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C4 PFOS	*108*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C4-PFHpA	*97*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
13C5 PFPeA	*86*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
M2-6:2FTS	*114*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
M2-8:2FTS	*116*		*25 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*
M2-4:2FTS	*114*		*0 - 150*	*06/07/17 16:45*	*06/20/17 04:16*	*1*

Lab Sample ID: LCS 320-168081/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 168081

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluorobutanoic acid (PFBA)			100	117		ng/L		117	74 - 138		
Perfluoropentanoic acid (PFPeA)			100	102		ng/L		102	69 - 134		
Perfluorohexanoic acid (PFHxA)			100	101		ng/L		101	70 - 136		
Perfluoroheptanoic acid (PFHpA)			100	102		ng/L		102	63 - 135		
Perfluorooctanoic acid (PFOA)			100	102		ng/L		102	63 - 141		

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-168081/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 168081

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	100	113		ng/L		113	71 - 140
Perfluorodecanoic acid (PFDA)	100	110		ng/L		110	66 - 141
Perfluoroundecanoic acid (PFUnA)	100	111		ng/L		111	68 - 139
Perfluorododecanoic acid (PFDoA)	100	101		ng/L		101	71 - 139
Perfluorotridecanoic Acid (PFTriA)	100	95.0		ng/L		95	51 - 139
Perfluorotetradecanoic acid (PFTeA)	100	97.1		ng/L		97	47 - 130
Perfluorobutanesulfonic acid (PFBS)	88.4	90.7		ng/L		103	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	91.0	96.8		ng/L		106	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	123		ng/L		129	32 - 170
Perfluorooctanesulfonic acid (PFOS)	92.8	106		ng/L		114	47 - 162
Perfluorodecanesulfonic acid (PFDS)	96.4	98.7		ng/L		102	35 - 157
Perfluorooctane Sulfonamide (FOSA)	100	91.5		ng/L		91	59 - 163
6:2FTS	94.8	101		ng/L		106	60 - 140
8:2FTS	95.8	101		ng/L		105	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*56*		*25 - 150*
13C4 PFBA	*109*		*25 - 150*
13C2 PFHxA	*100*		*25 - 150*
13C4 PFOA	*111*		*25 - 150*
13C5 PFNA	*103*		*25 - 150*
13C2 PFDA	*104*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*102*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
13C4 PFOS	*100*		*25 - 150*
13C4-PFHpA	*113*		*25 - 150*
13C5 PFPeA	*101*		*25 - 150*
M2-6:2FTS	*118*		*25 - 150*
M2-8:2FTS	*117*		*25 - 150*
M2-4:2FTS	*108*		*0 - 150*

Lab Sample ID: LCSD 320-168081/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 168081

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	117		ng/L		117	74 - 138	0	30
Perfluoropentanoic acid (PFPeA)	100	103		ng/L		103	69 - 134	1	30
Perfluorohexanoic acid (PFHxA)	100	104		ng/L		104	70 - 136	3	30
Perfluoroheptanoic acid (PFHpA)	100	102		ng/L		102	63 - 135	1	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-168081/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 168081

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)			100	99.9		ng/L		100	63 - 141	2	30
Perfluorononanoic acid (PFNA)			100	111		ng/L		111	71 - 140	2	30
Perfluorodecanoic acid (PFDA)			100	109		ng/L		109	66 - 141	0	30
Perfluoroundecanoic acid (PFUnA)			100	105		ng/L		105	68 - 139	5	30
Perfluorododecanoic acid (PFDoA)			100	104		ng/L		104	71 - 139	3	30
Perfluorotridecanoic Acid (PFTriA)			100	103		ng/L		103	51 - 139	8	30
Perfluorotetradecanoic acid (PFTeA)			100	102		ng/L		102	47 - 130	5	30
Perfluorobutanesulfonic acid (PFBS)			88.4	93.1		ng/L		105	55 - 147	3	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	96.8		ng/L		106	58 - 138	0	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	123		ng/L		130	32 - 170	1	30
Perfluorooctanesulfonic acid (PFOS)			92.8	107		ng/L		116	47 - 162	1	30
Perfluorodecanesulfonic acid (PFDS)			96.4	94.6		ng/L		98	35 - 157	4	30
Perfluorooctane Sulfonamide (FOSA)			100	90.7		ng/L		91	59 - 163	1	30
6:2FTS			94.8	103		ng/L		109	60 - 140	2	30
8:2FTS			95.8	106		ng/L		111	60 - 140	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*41*		*25 - 150*
13C4 PFBA	*106*		*25 - 150*
13C2 PFHxA	*98*		*25 - 150*
13C4 PFOA	*108*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*
13C2 PFDA	*104*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
13C2 PFDoA	*97*		*25 - 150*
18O2 PFHxS	*107*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C4-PFHpA	*109*		*25 - 150*
13C5 PFPeA	*100*		*25 - 150*
M2-6:2FTS	*112*		*25 - 150*
M2-8:2FTS	*116*		*25 - 150*
M2-4:2FTS	*113*		*0 - 150*

Lab Sample ID: MB 320-168332/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-168332/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/08/17 15:09	06/20/17 06:50	1
6:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 06:50	1
8:2FTS	ND		50		ng/L		06/08/17 15:09	06/20/17 06:50	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*55*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C4 PFBA	*109*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C2 PFHxA	*101*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C4 PFOA	*113*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C5 PFNA	*103*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C2 PFDA	*101*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C2 PFUnA	*103*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C2 PFDoA	*104*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
18O2 PFHxS	*109*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C4 PFOS	*99*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C4-PFHpA	*116*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
13C5 PFPeA	*104*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
M2-6:2FTS	*119*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
M2-8:2FTS	*103*		*25 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*
M2-4:2FTS	*115*		*0 - 150*	*06/08/17 15:09*	*06/20/17 06:50*	*1*

Lab Sample ID: LCS 320-168332/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	100	117		ng/L		117	74 - 138
Perfluoropentanoic acid (PFPeA)	100	104		ng/L		104	69 - 134
Perfluorohexanoic acid (PFHxA)	100	103		ng/L		103	70 - 136
Perfluoroheptanoic acid (PFHpA)	100	105		ng/L		105	63 - 135
Perfluorooctanoic acid (PFOA)	100	96.7		ng/L		97	63 - 141
Perfluorononanoic acid (PFNA)	100	118		ng/L		118	71 - 140
Perfluorodecanoic acid (PFDA)	100	106		ng/L		106	66 - 141
Perfluoroundecanoic acid (PFUnA)	100	111		ng/L		111	68 - 139

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-168332/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorododecanoic acid (PFDoA)	100	104		ng/L		104	71 - 139
Perfluorotridecanoic Acid (PFTriA)	100	101		ng/L		101	51 - 139
Perfluorotetradecanoic acid (PFTeA)	100	99.0		ng/L		99	47 - 130
Perfluorobutanesulfonic acid (PFBS)	88.4	93.6		ng/L		106	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	91.0	98.2		ng/L		108	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	124		ng/L		130	32 - 170
Perfluorooctanesulfonic acid (PFOS)	92.8	98.4		ng/L		106	47 - 162
Perfluorodecanesulfonic acid (PFDS)	96.4	98.5		ng/L		102	35 - 157
Perfluorooctane Sulfonamide (FOSA)	100	96.9		ng/L		97	59 - 163
6:2FTS	94.8	109		ng/L		115	60 - 140
8:2FTS	95.8	107		ng/L		112	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*51*		*25 - 150*
13C4 PFBA	*107*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFOA	*108*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*97*		*25 - 150*
13C2 PFUnA	*97*		*25 - 150*
13C2 PFDoA	*97*		*25 - 150*
18O2 PFHxS	*105*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
13C4-PFHpA	*109*		*25 - 150*
13C5 PFPeA	*98*		*25 - 150*
M2-6:2FTS	*112*		*25 - 150*
M2-8:2FTS	*96*		*25 - 150*
M2-4:2FTS	*119*		*0 - 150*

Lab Sample ID: LCSD 320-168332/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	118		ng/L		118	74 - 138	1	30
Perfluoropentanoic acid (PFPeA)	100	102		ng/L		102	69 - 134	2	30
Perfluorohexanoic acid (PFHxA)	100	103		ng/L		103	70 - 136	0	30
Perfluoroheptanoic acid (PFHpA)	100	96.8		ng/L		97	63 - 135	9	30
Perfluorooctanoic acid (PFOA)	100	102		ng/L		102	63 - 141	6	30
Perfluorononanoic acid (PFNA)	100	109		ng/L		109	71 - 140	7	30
Perfluorodecanoic acid (PFDA)	100	108		ng/L		108	66 - 141	2	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-168332/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 168332

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)			100	108		ng/L		108	68 - 139	3	30
Perfluorododecanoic acid (PFDoA)			100	102		ng/L		102	71 - 139	1	30
Perfluorotridecanoic Acid (PFTriA)			100	98.2		ng/L		98	51 - 139	3	30
Perfluorotetradecanoic acid (PFTeA)			100	95.2		ng/L		95	47 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)			88.4	93.9		ng/L		106	55 - 147	0	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	96.3		ng/L		106	58 - 138	2	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	122		ng/L		128	32 - 170	2	30
Perfluorooctanesulfonic acid (PFOS)			92.8	101		ng/L		109	47 - 162	3	30
Perfluorodecanesulfonic acid (PFDS)			96.4	97.9		ng/L		102	35 - 157	1	30
Perfluorooctane Sulfonamide (FOSA)			100	93.8		ng/L		94	59 - 163	3	30
6:2FTS			94.8	106		ng/L		112	60 - 140	3	30
8:2FTS			95.8	109		ng/L		114	60 - 140	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*52*		*25 - 150*
13C4 PFBA	*102*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFOA	*105*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*98*		*25 - 150*
13C2 PFUnA	*97*		*25 - 150*
13C2 PFDoA	*100*		*25 - 150*
18O2 PFHxS	*107*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C4-PFHpA	*110*		*25 - 150*
13C5 PFPeA	*99*		*25 - 150*
M2-6:2FTS	*109*		*25 - 150*
M2-8:2FTS	*99*		*25 - 150*
M2-4:2FTS	*109*		*0 - 150*

Lab Sample ID: MB 320-168090/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	12.7		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-168090/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/07/17 16:52	06/20/17 05:33	1
6:2FTS	ND		50		ng/L		06/07/17 16:52	06/20/17 05:33	1
8:2FTS	ND		50		ng/L		06/07/17 16:52	06/20/17 05:33	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*9*	*	*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C4 PFBA	*65*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C2 PFHxA	*61*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C4 PFOA	*62*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C5 PFNA	*49*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C2 PFDA	*40*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C2 PFUnA	*38*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C2 PFDoA	*39*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
18O2 PFHxS	*120*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C4 PFOS	*112*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C4-PFHpA	*67*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
13C5 PFPeA	*58*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
M2-6:2FTS	*106*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
M2-8:2FTS	*101*		*25 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/07/17 16:52*	*06/20/17 05:33*	*1*

Lab Sample ID: LCS 320-168090/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	100	136		ng/L		136	74 - 138
Perfluoropentanoic acid (PFPeA)	100	127		ng/L		127	69 - 134
Perfluorohexanoic acid (PFHxA)	100	118		ng/L		118	70 - 136
Perfluoroheptanoic acid (PFHpA)	100	142	*	ng/L		142	63 - 135
Perfluorooctanoic acid (PFOA)	100	325	*	ng/L		325	63 - 141
Perfluorononanoic acid (PFNA)	100	108		ng/L		108	71 - 140
Perfluorodecanoic acid (PFDA)	100	98.2		ng/L		98	66 - 141
Perfluoroundecanoic acid (PFUnA)	100	98.8		ng/L		99	68 - 139
Perfluorododecanoic acid (PFDoA)	100	94.3		ng/L		94	71 - 139

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-168090/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic Acid (PFTriA)	100	97.0		ng/L		97	51 - 139
Perfluorotetradecanoic acid (PFTeA)	100	116		ng/L		116	47 - 130
Perfluorobutanesulfonic acid (PFBS)	88.4	92.8		ng/L		105	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	91.0	95.0		ng/L		104	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	111		ng/L		117	32 - 170
Perfluorooctanesulfonic acid (PFOS)	92.8	101		ng/L		109	47 - 162
Perfluorodecanesulfonic acid (PFDS)	96.4	90.6		ng/L		94	35 - 157
Perfluorooctane Sulfonamide (FOSA)	100	ND	*	ng/L		0	59 - 163
6:2FTS	94.8	ND	*	ng/L		0	60 - 140
8:2FTS	95.8	ND	*	ng/L		0	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*8*	*	*25 - 150*
13C4 PFBA	*55*		*25 - 150*
13C2 PFHxA	*74*		*25 - 150*
13C4 PFOA	*74*		*25 - 150*
13C5 PFNA	*59*		*25 - 150*
13C2 PFDA	*48*		*25 - 150*
13C2 PFUnA	*42*		*25 - 150*
13C2 PFDoA	*40*		*25 - 150*
18O2 PFHxS	*104*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C4-PFHpA	*81*		*25 - 150*
13C5 PFPeA	*65*		*25 - 150*
M2-6:2FTS	*87*		*25 - 150*
M2-8:2FTS	*90*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*

Lab Sample ID: LCSD 320-168090/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	140	*	ng/L		140	74 - 138	3	30
Perfluoropentanoic acid (PFPeA)	100	126		ng/L		126	69 - 134	1	30
Perfluorohexanoic acid (PFHxA)	100	119		ng/L		119	70 - 136	1	30
Perfluoroheptanoic acid (PFHpA)	100	141	*	ng/L		141	63 - 135	1	30
Perfluorooctanoic acid (PFOA)	100	259	*	ng/L		259	63 - 141	23	30
Perfluorononanoic acid (PFNA)	100	107		ng/L		107	71 - 140	1	30
Perfluorodecanoic acid (PFDA)	100	101		ng/L		101	66 - 141	2	30
Perfluoroundecanoic acid (PFUnA)	100	109		ng/L		109	68 - 139	10	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-168090/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 168090

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorododecanoic acid (PFDoA)			100	96.3		ng/L		96	71 - 139	2	30
Perfluorotridecanoic Acid (PFTriA)			100	96.0		ng/L		96	51 - 139	1	30
Perfluorotetradecanoic acid (PFTeA)			100	93.2		ng/L		93	47 - 130	22	30
Perfluorobutanesulfonic acid (PFBS)			88.4	94.1		ng/L		106	55 - 147	1	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	98.0		ng/L		108	58 - 138	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	120		ng/L		126	32 - 170	8	30
Perfluorooctanesulfonic acid (PFOS)			92.8	105		ng/L		113	47 - 162	4	30
Perfluorodecanesulfonic acid (PFDS)			96.4	94.2		ng/L		98	35 - 157	4	30
Perfluorooctane Sulfonamide (FOSA)			100	ND	*	ng/L		0	59 - 163	NC	30
6:2FTS			94.8	ND	*	ng/L		0	60 - 140	NC	30
8:2FTS			95.8	ND	*	ng/L		0	60 - 140	NC	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*25*		*25 - 150*
13C4 PFBA	*73*		*25 - 150*
13C2 PFHxA	*77*		*25 - 150*
13C4 PFOA	*86*		*25 - 150*
13C5 PFNA	*79*		*25 - 150*
13C2 PFDA	*76*		*25 - 150*
13C2 PFUnA	*77*		*25 - 150*
13C2 PFDoA	*78*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*
13C4-PFHpA	*87*		*25 - 150*
13C5 PFPeA	*77*		*25 - 150*
M2-6:2FTS	*111*		*25 - 150*
M2-8:2FTS	*105*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*

Lab Sample ID: MB 320-168333/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	16.1		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 320-168333/1-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
Perfluorooctane Sulfonamide (FOSA)	ND		5.0		ng/L		06/08/17 15:14	06/20/17 07:59	1
6:2FTS	ND		50		ng/L		06/08/17 15:14	06/20/17 07:59	1
8:2FTS	ND		50		ng/L		06/08/17 15:14	06/20/17 07:59	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*7*	*	*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C4 PFBA	*44*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C2 PFHxA	*48*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C4 PFOA	*46*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C5 PFNA	*32*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C2 PFDA	*27*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C2 PFUnA	*28*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C2 PFDoA	*28*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
18O2 PFHxS	*105*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C4 PFOS	*99*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C4-PFHpA	*53*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
13C5 PFPeA	*44*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
M2-6:2FTS	*98*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
M2-8:2FTS	*96*		*25 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*
M2-4:2FTS	*0*		*0 - 150*	*06/08/17 15:14*	*06/20/17 07:59*	*1*

Lab Sample ID: LCS 320-168333/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	100	140	*	ng/L		140	74 - 138
Perfluoropentanoic acid (PFPeA)	100	120		ng/L		120	69 - 134
Perfluorohexanoic acid (PFHxA)	100	115		ng/L		115	70 - 136
Perfluoroheptanoic acid (PFHpA)	100	138	*	ng/L		138	63 - 135
Perfluorooctanoic acid (PFOA)	100	329	*	ng/L		329	63 - 141
Perfluorononanoic acid (PFNA)	100	110		ng/L		110	71 - 140
Perfluorodecanoic acid (PFDA)	100	102		ng/L		102	66 - 141
Perfluoroundecanoic acid (PFUnA)	100	103		ng/L		103	68 - 139
Perfluorododecanoic acid (PFDoA)	100	99.1		ng/L		99	71 - 139
Perfluorotridecanoic Acid (PFTriA)	100	123		ng/L		123	51 - 139
Perfluorotetradecanoic acid (PFTeA)	100	179	*	ng/L		179	47 - 130

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-168333/2-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanesulfonic acid (PFBS)	88.4	93.6		ng/L		106	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	91.0	95.1		ng/L		104	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	121		ng/L		127	32 - 170
Perfluorooctanesulfonic acid (PFOS)	92.8	109		ng/L		118	47 - 162
Perfluorodecanesulfonic acid (PFDS)	96.4	89.0		ng/L		92	35 - 157
Perfluorooctane Sulfonamide (FOSA)	100	ND	*	ng/L		0	59 - 163
6:2FTS	94.8	ND	*	ng/L		0	60 - 140
8:2FTS	95.8	ND	*	ng/L		0	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*3*	*	*25 - 150*
13C4 PFBA	*25*		*25 - 150*
13C2 PFHxA	*28*		*25 - 150*
13C4 PFOA	*15*	*	*25 - 150*
13C5 PFNA	*11*	*	*25 - 150*
13C2 PFDA	*11*	*	*25 - 150*
13C2 PFUnA	*11*	*	*25 - 150*
13C2 PFDoA	*13*	*	*25 - 150*
18O2 PFHxS	*101*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C4-PFHpA	*22*	*	*25 - 150*
13C5 PFPeA	*30*		*25 - 150*
M2-6:2FTS	*85*		*25 - 150*
M2-8:2FTS	*83*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*

Lab Sample ID: LCSD 320-168333/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	141	*	ng/L		141	74 - 138	0	30
Perfluoropentanoic acid (PFPeA)	100	126		ng/L		126	69 - 134	5	30
Perfluorohexanoic acid (PFHxA)	100	114		ng/L		114	70 - 136	0	30
Perfluoroheptanoic acid (PFHpA)	100	141	*	ng/L		141	63 - 135	2	30
Perfluorooctanoic acid (PFOA)	100	325	*	ng/L		325	63 - 141	1	30
Perfluorononanoic acid (PFNA)	100	111		ng/L		111	71 - 140	1	30
Perfluorodecanoic acid (PFDA)	100	105		ng/L		105	66 - 141	2	30
Perfluoroundecanoic acid (PFUnA)	100	107		ng/L		107	68 - 139	4	30
Perfluorododecanoic acid (PFDoA)	100	102		ng/L		102	71 - 139	3	30
Perfluorotridecanoic Acid (PFTriA)	100	123		ng/L		123	51 - 139	1	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-168333/3-A
Matrix: Water
Analysis Batch: 170081

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 168333

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotetradecanoic acid (PFTeA)			100	158	*	ng/L		158	47 - 130	12	30
Perfluorobutanesulfonic acid (PFBS)			88.4	94.0		ng/L		106	55 - 147	0	30
Perfluorohexanesulfonic acid (PFHxS)			91.0	95.5		ng/L		105	58 - 138	0	30
Perfluoroheptanesulfonic Acid (PFHpS)			95.2	124		ng/L		130	32 - 170	2	30
Perfluorooctanesulfonic acid (PFOS)			92.8	110		ng/L		118	47 - 162	0	30
Perfluorodecanesulfonic acid (PFDS)			96.4	99.0		ng/L		103	35 - 157	11	30
Perfluorooctane Sulfonamide (FOSA)			100	ND	*	ng/L		0	59 - 163	NC	30
6:2FTS			94.8	ND	*	ng/L		0	60 - 140	NC	30
8:2FTS			95.8	ND	*	ng/L		0	60 - 140	NC	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*6*	*	*25 - 150*
13C4 PFBA	*37*		*25 - 150*
13C2 PFHxA	*29*		*25 - 150*
13C4 PFOA	*17*	*	*25 - 150*
13C5 PFNA	*14*	*	*25 - 150*
13C2 PFDA	*13*	*	*25 - 150*
13C2 PFUnA	*15*	*	*25 - 150*
13C2 PFDoA	*17*	*	*25 - 150*
18O2 PFHxS	*103*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C4-PFHpA	*22*	*	*25 - 150*
13C5 PFPeA	*30*		*25 - 150*
M2-6:2FTS	*98*		*25 - 150*
M2-8:2FTS	*85*		*25 - 150*
M2-4:2FTS	*0*		*0 - 150*

LCMS

Prep Batch: 168081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-1	SG3-MW-7-170524	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-2	SG3-B-12-170524	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-3	SG3-MW-100S-170524	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-7	SG3-FD01-170525	Pre-Treatment	Water	TOPS Pre - Prep	
MB 320-168081/1-A	Method Blank	Pre-Treatment	Water	TOPS Pre - Prep	
LCS 320-168081/2-A	Lab Control Sample	Pre-Treatment	Water	TOPS Pre - Prep	
LCSD 320-168081/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOPS Pre - Prep	

Prep Batch: 168090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-1	SG3-MW-7-170524	Post-Treatment	Water	TOPS Post Prep	
320-28599-2	SG3-B-12-170524	Post-Treatment	Water	TOPS Post Prep	
320-28599-3	SG3-MW-100S-170524	Post-Treatment	Water	TOPS Post Prep	
320-28599-7	SG3-FD01-170525	Post-Treatment	Water	TOPS Post Prep	
MB 320-168090/1-A	Method Blank	Post-Treatment	Water	TOPS Post Prep	
LCS 320-168090/2-A	Lab Control Sample	Post-Treatment	Water	TOPS Post Prep	
LCSD 320-168090/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOPS Post Prep	

Prep Batch: 168332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-4	SG3-B-2-1-170525	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-5	SG3-B-2-2-170525	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-6	SG3-VLT-01-170525	Pre-Treatment	Water	TOPS Pre - Prep	
320-28599-6 - DL	SG3-VLT-01-170525	Pre-Treatment	Water	TOPS Pre - Prep	
MB 320-168332/1-A	Method Blank	Pre-Treatment	Water	TOPS Pre - Prep	
LCS 320-168332/2-A	Lab Control Sample	Pre-Treatment	Water	TOPS Pre - Prep	
LCSD 320-168332/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOPS Pre - Prep	

Prep Batch: 168333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-4	SG3-B-2-1-170525	Post-Treatment	Water	TOPS Post Prep	
320-28599-5	SG3-B-2-2-170525	Post-Treatment	Water	TOPS Post Prep	
320-28599-6 - DL	SG3-VLT-01-170525	Post-Treatment	Water	TOPS Post Prep	
320-28599-6	SG3-VLT-01-170525	Post-Treatment	Water	TOPS Post Prep	
MB 320-168333/1-A	Method Blank	Post-Treatment	Water	TOPS Post Prep	
LCS 320-168333/2-A	Lab Control Sample	Post-Treatment	Water	TOPS Post Prep	
LCSD 320-168333/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOPS Post Prep	

Analysis Batch: 170081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-1	SG3-MW-7-170524	Post-Treatment	Water	537 (modified)	168090
320-28599-1	SG3-MW-7-170524	Pre-Treatment	Water	537 (modified)	168081
320-28599-2	SG3-B-12-170524	Post-Treatment	Water	537 (modified)	168090
320-28599-2	SG3-B-12-170524	Pre-Treatment	Water	537 (modified)	168081
320-28599-3	SG3-MW-100S-170524	Post-Treatment	Water	537 (modified)	168090
320-28599-3	SG3-MW-100S-170524	Pre-Treatment	Water	537 (modified)	168081
320-28599-4	SG3-B-2-1-170525	Post-Treatment	Water	537 (modified)	168333
320-28599-4	SG3-B-2-1-170525	Pre-Treatment	Water	537 (modified)	168332
320-28599-5	SG3-B-2-2-170525	Post-Treatment	Water	537 (modified)	168333
320-28599-5	SG3-B-2-2-170525	Pre-Treatment	Water	537 (modified)	168332
320-28599-6	SG3-VLT-01-170525	Post-Treatment	Water	537 (modified)	168333

LCMS (Continued)

Analysis Batch: 170081 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-6	SG3-VLT-01-170525	Pre-Treatment	Water	537 (modified)	168332
320-28599-7	SG3-FD01-170525	Post-Treatment	Water	537 (modified)	168090
320-28599-7	SG3-FD01-170525	Pre-Treatment	Water	537 (modified)	168081
MB 320-168081/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	168081
MB 320-168090/1-A	Method Blank	Post-Treatment	Water	537 (modified)	168090
MB 320-168332/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	168332
MB 320-168333/1-A	Method Blank	Post-Treatment	Water	537 (modified)	168333
LCS 320-168081/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	168081
LCS 320-168090/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	168090
LCS 320-168332/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	168332
LCS 320-168333/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	168333
LCSD 320-168081/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	168081
LCSD 320-168090/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	168090
LCSD 320-168332/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	168332
LCSD 320-168333/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	168333

Analysis Batch: 170447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-6 - DL	SG3-VLT-01-170525	Post-Treatment	Water	537 (modified)	168333
320-28599-6 - DL	SG3-VLT-01-170525	Pre-Treatment	Water	537 (modified)	168332

Analysis Batch: 171065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-1	SG3-MW-7-170524	Post-Treatment	Water	Total PFCA-Sum	
320-28599-1	SG3-MW-7-170524	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-2	SG3-B-12-170524	Post-Treatment	Water	Total PFCA-Sum	
320-28599-2	SG3-B-12-170524	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-3	SG3-MW-100S-170524	Post-Treatment	Water	Total PFCA-Sum	
320-28599-3	SG3-MW-100S-170524	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-4	SG3-B-2-1-170525	Post-Treatment	Water	Total PFCA-Sum	
320-28599-4	SG3-B-2-1-170525	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-5	SG3-B-2-2-170525	Post-Treatment	Water	Total PFCA-Sum	
320-28599-5	SG3-B-2-2-170525	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-6	SG3-VLT-01-170525	Post-Treatment	Water	Total PFCA-Sum	
320-28599-6	SG3-VLT-01-170525	Pre-Treatment	Water	Total PFCA-Sum	
320-28599-7	SG3-FD01-170525	Post-Treatment	Water	Total PFCA-Sum	
320-28599-7	SG3-FD01-170525	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 171070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28599-1	SG3-MW-7-170524	Total/NA	Water	Total PFCA-Dif	
320-28599-2	SG3-B-12-170524	Total/NA	Water	Total PFCA-Dif	
320-28599-3	SG3-MW-100S-170524	Total/NA	Water	Total PFCA-Dif	
320-28599-4	SG3-B-2-1-170525	Total/NA	Water	Total PFCA-Dif	
320-28599-5	SG3-B-2-2-170525	Total/NA	Water	Total PFCA-Dif	
320-28599-6	SG3-VLT-01-170525	Total/NA	Water	Total PFCA-Dif	
320-28599-7	SG3-FD01-170525	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-MW-7-170524
Date Collected: 05/24/17 12:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100.00 mL	0.50 mL	168090	06/07/17 16:52	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 05:56	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100.00 mL	0.50 mL	168081	06/07/17 16:45	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 04:39	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-B-12-170524
Date Collected: 05/24/17 13:25
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100.00 mL	0.50 mL	168090	06/07/17 16:52	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 06:03	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100.00 mL	0.50 mL	168081	06/07/17 16:45	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 04:46	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-MW-100S-170524
Date Collected: 05/24/17 16:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100.00 mL	0.50 mL	168090	06/07/17 16:52	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 06:11	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100.00 mL	0.50 mL	168081	06/07/17 16:45	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 04:54	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-B-2-1-170525
Date Collected: 05/25/17 09:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100 mL	0.50 mL	168333	06/08/17 15:14	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 08:22	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100 mL	0.50 mL	168332	06/08/17 15:09	JER	TAL SAC

Lab Chronicle

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-B-2-1-170525
Date Collected: 05/25/17 09:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 07:13	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-B-2-2-170525
Date Collected: 05/25/17 10:10
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100 mL	0.50 mL	168333	06/08/17 15:14	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 08:30	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100 mL	0.50 mL	168332	06/08/17 15:09	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 07:20	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-VLT-01-170525
Date Collected: 05/25/17 09:20
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100 mL	0.50 mL	168333	06/08/17 15:14	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 08:37	CBW	TAL SAC
Post-Treatment	Prep	TOPS Post Prep	DL		100 mL	0.50 mL	168333	06/08/17 15:14	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)	DL	10			170447	06/22/17 00:14	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			100 mL	0.50 mL	168332	06/08/17 15:09	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 07:28	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep	DL		100 mL	0.50 mL	168332	06/08/17 15:09	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)	DL	10			170447	06/22/17 00:06	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Client Sample ID: SG3-FD01-170525
Date Collected: 05/25/17 00:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			100.00 mL	0.50 mL	168090	06/07/17 16:52	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1			170081	06/20/17 06:19	CBW	TAL SAC

Lab Chronicle

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Client Sample ID: SG3-FD01-170525
Date Collected: 05/25/17 00:00
Date Received: 05/26/17 09:15

Lab Sample ID: 320-28599-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOPS Pre - Prep			100.00 mL	0.50 mL	168081	06/07/17 16:45	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1			170081	06/20/17 05:02	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1			171070	06/26/17 15:43	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			171065	06/26/17 15:28	MKW	TAL SAC

Laboratory References:
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-29-18
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	TAL SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Barr Engineering Company
Project/Site: PFAS TOPs

TestAmerica Job ID: 320-28599-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-28599-1	SG3-MW-7-170524	Water	05/24/17 12:20	05/26/17 09:15
320-28599-2	SG3-B-12-170524	Water	05/24/17 13:25	05/26/17 09:15
320-28599-3	SG3-MW-100S-170524	Water	05/24/17 16:00	05/26/17 09:15
320-28599-4	SG3-B-2-1-170525	Water	05/25/17 09:10	05/26/17 09:15
320-28599-5	SG3-B-2-2-170525	Water	05/25/17 10:10	05/26/17 09:15
320-28599-6	SG3-VLT-01-170525	Water	05/25/17 09:20	05/26/17 09:15
320-28599-7	SG3-FD01-170525	Water	05/25/17 00:00	05/26/17 09:15

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916.373.5600 Fax:

Chain of Custody Record

198134

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Kirk Mulne	Site Contact: Ward Swanson	Date: 5/25/17	COC No:
Company Name: CT Male Associates	Tel/Fax: Same as Client	Lab Contact: David Althecker	Carrier: FedEx	1 of 1 COCs
Address: 50 Century Hill Dr	Analysis Turnaround Time			Sampler:
City/State/Zip: Latham, NY 12110	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
Phone: 518-786-7400	TAT if different from Below 3 weeks			Walk-in Client:
Fax: 518-786-7285	☐ 2 weeks			Lab Sampling:
Project Name: SGPP- Bennington	☐ 1 week			
Site: Bennington Landfill	☐ 2 days			Job / SDG No.:
P O # 16.6131	☐ 1 day			

320-28599 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFC Precursors (TOP Assay)	Sample Specific Notes:
SG3-MW-7-170524	5/24/17	1220	G	GW	3	N	N	X	
SG3-B-12-170524	5/24/17	1325	G	GW	3	N	N	X	
SG3-MW-100S-170524	5/24/17	1600	G	GW	3	N	N	X	
SG3-B-2-1-170525	5/25/17	0910	G	GW	3	N	N	X	
SG3-B-2-2-170525	5/25/17	1010	G	GW	3	N	N	X	
SG3-VLT-01-170525	5/25/17	0920	G	GW	3	N	N	X	
SG3-FD01-170525	5/25/17	—	G	GW	3	N	N	X	
								1	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.4 Corr'd: 1.4 | Therm ID No.: Alk-1

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Lorene Cramer	CT Male Associates	5/25/17 1600	[signature]	TAWS	5/26/17 0915
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Barr Engineering Company

Job Number: 320-28599-1

Login Number: 28599
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix G

Hydrogeologic Investigation

Appendix G.1 Transducer Data Files *(can be provided separately upon request)*

Appendix G.2 Slug Test Analysis

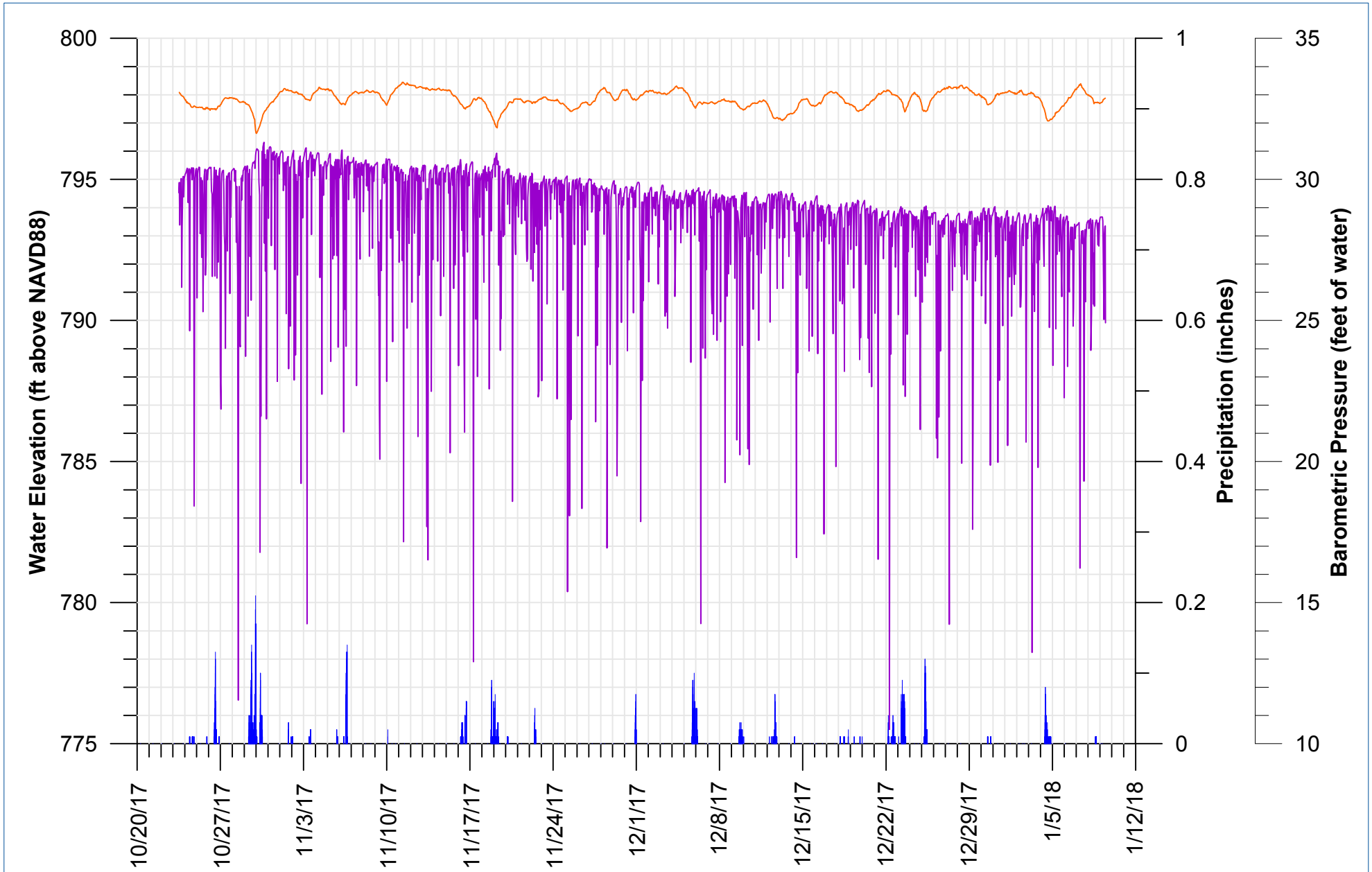
Appendix G.3 Grain Size Distribution Analysis

Appendix G.4 Specific Capacity Analysis

Appendix G.1

Transducer Data Files

(can be provided separately upon request)



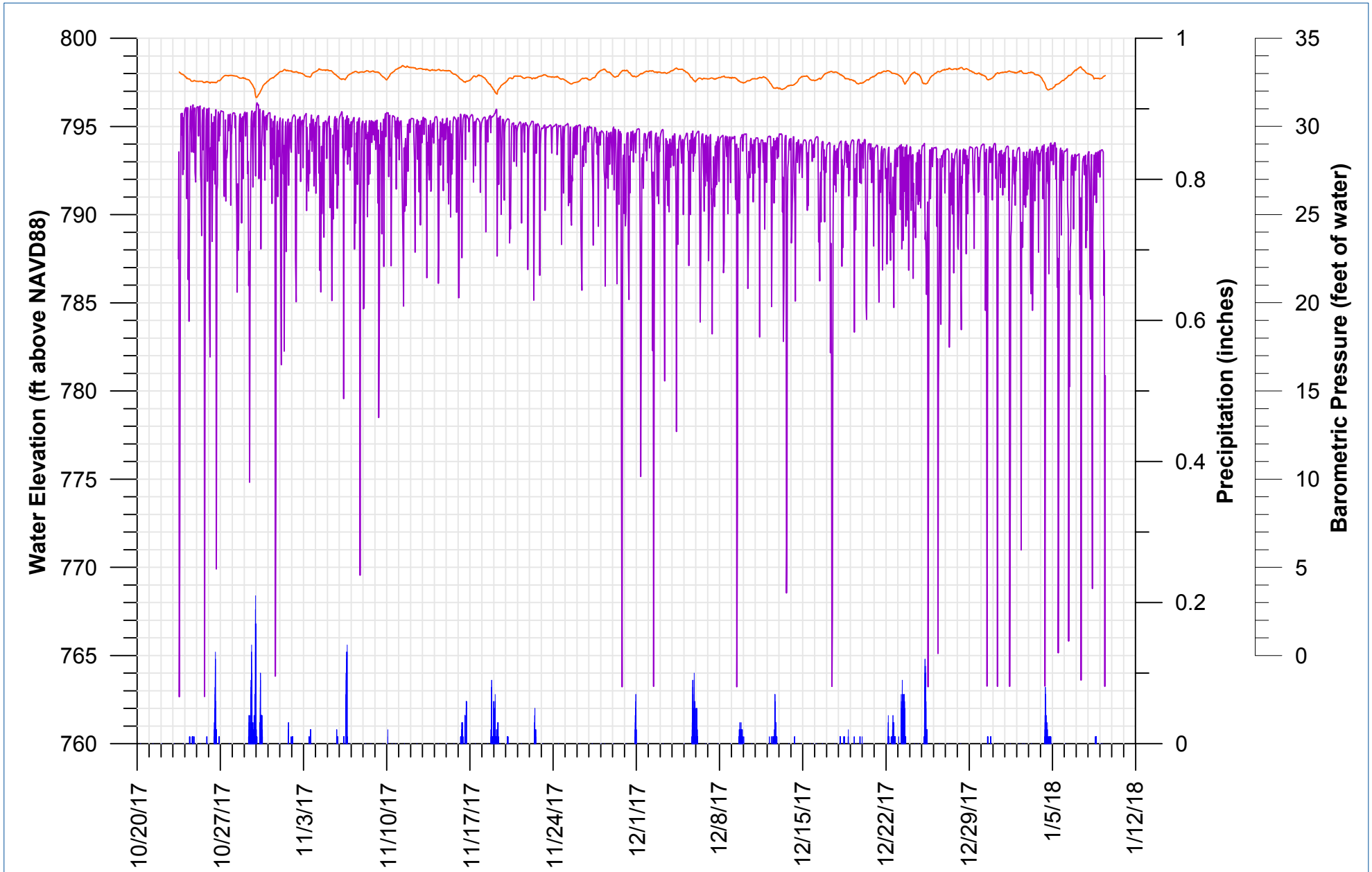
Hourly precipitation measured at William H. Morse State Airport.

BARR

32 CORTLAND LANE HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.1

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\32_Cortland_20180130.grf



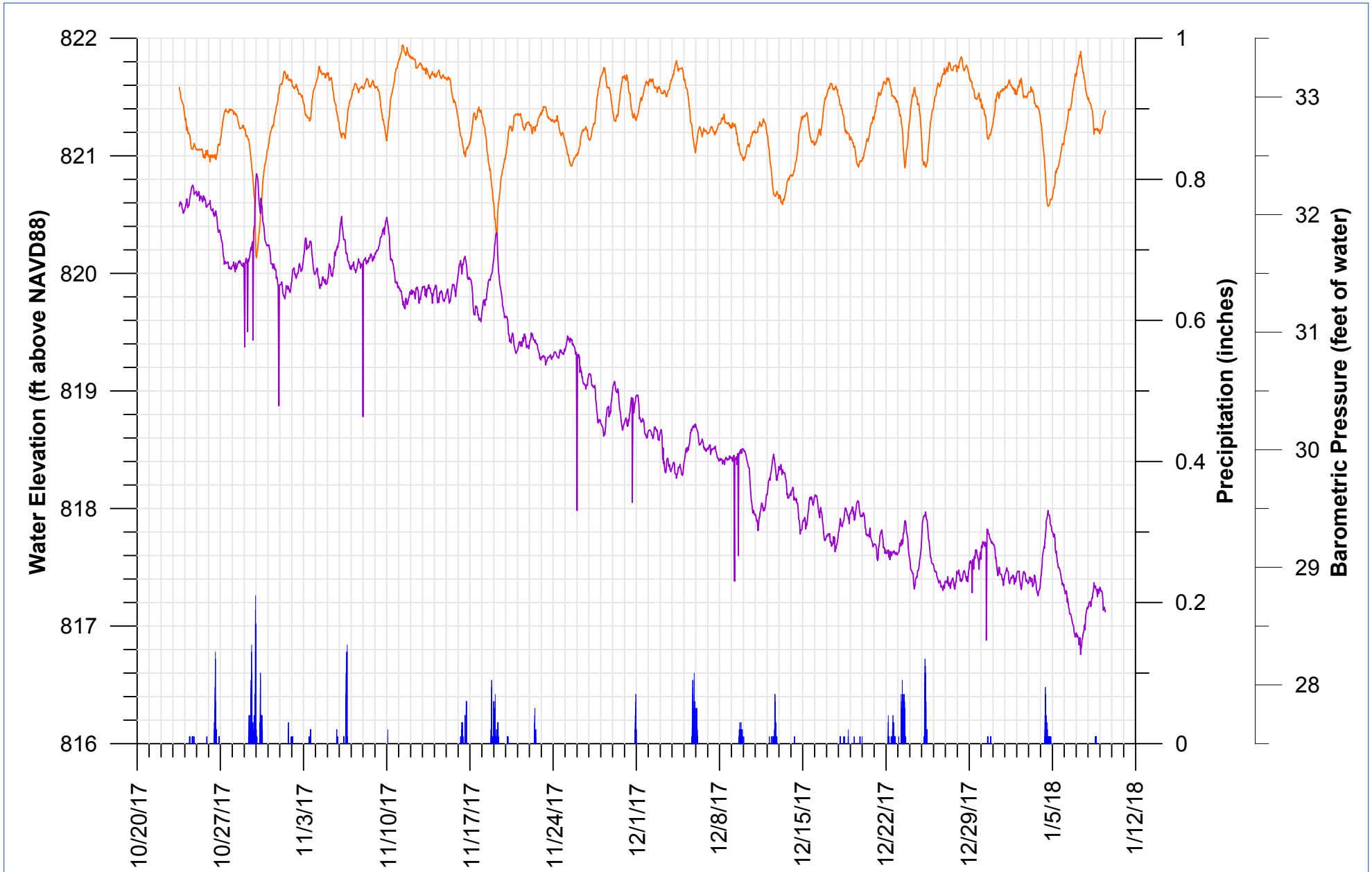
Hourly precipitation measured at William H. Morse State Airport.

54 CORTLAND LANE HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.2

BARR

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\54_Cortland_20180130.grf



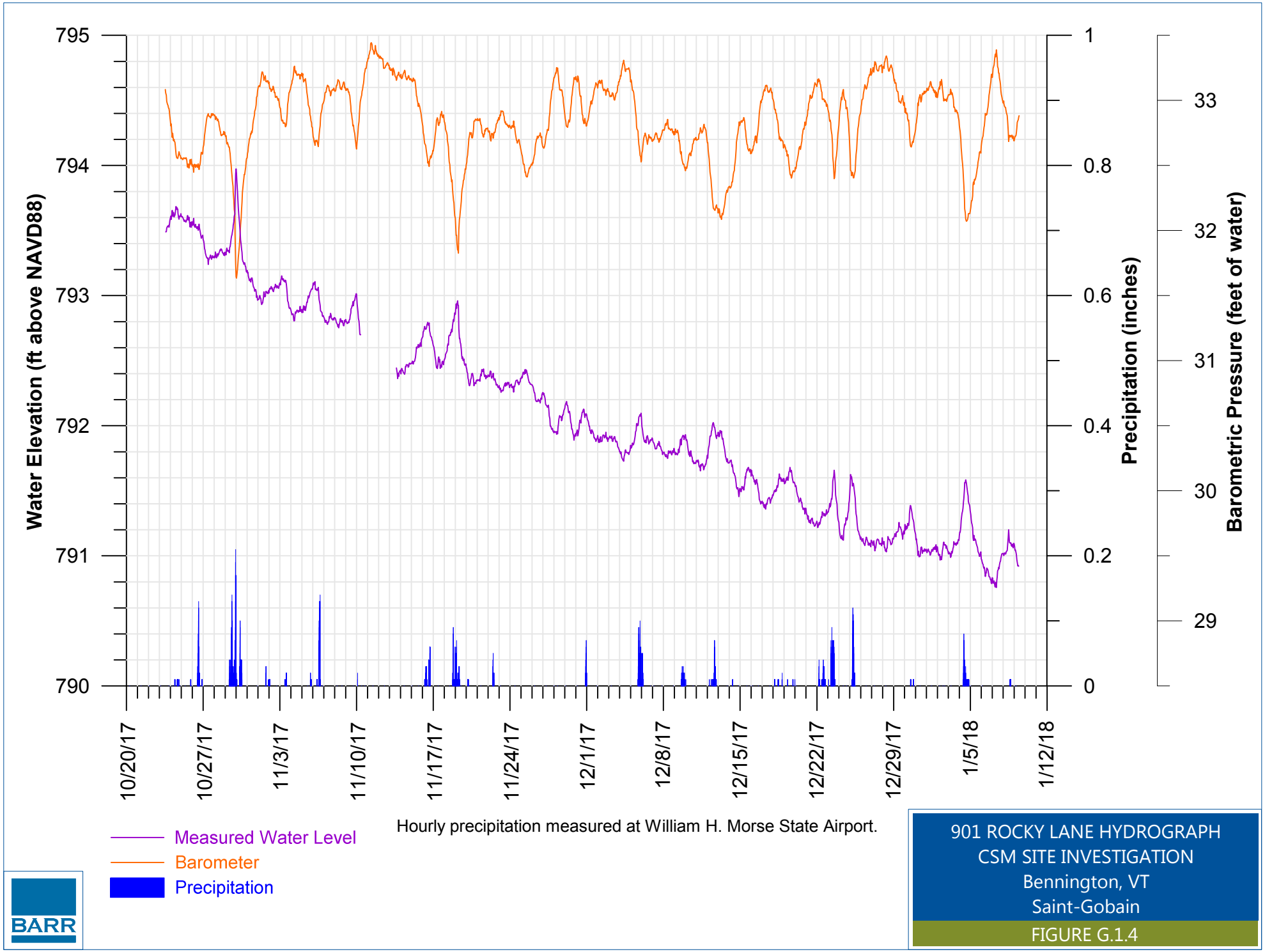
Hourly precipitation measured at William H. Morse State Airport.

BARR

49 MICHAELS DRIVE HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.3

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\49_Michaels_20180129.grf



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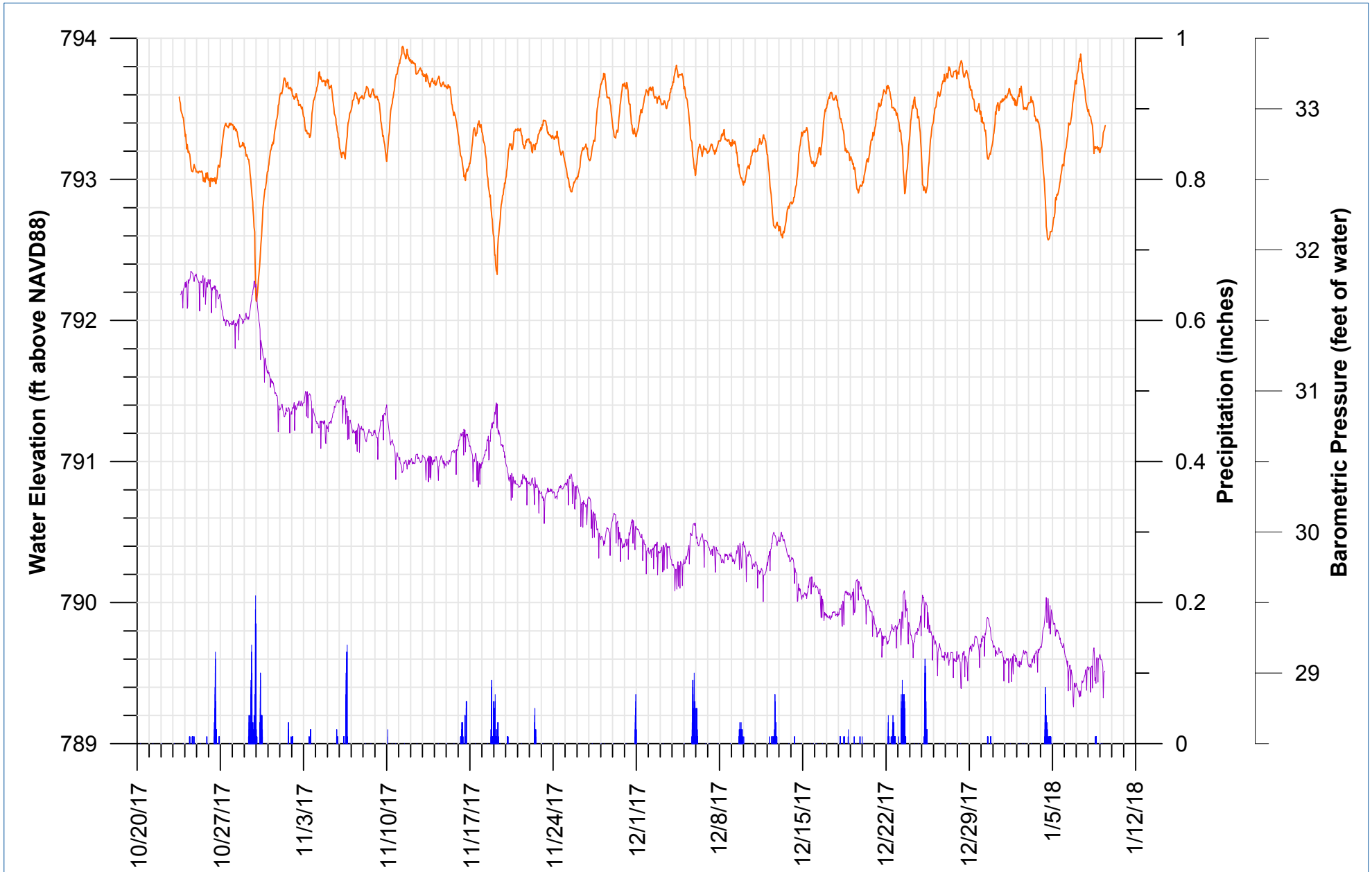

BARR

1102 ROCKY LANE HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.5

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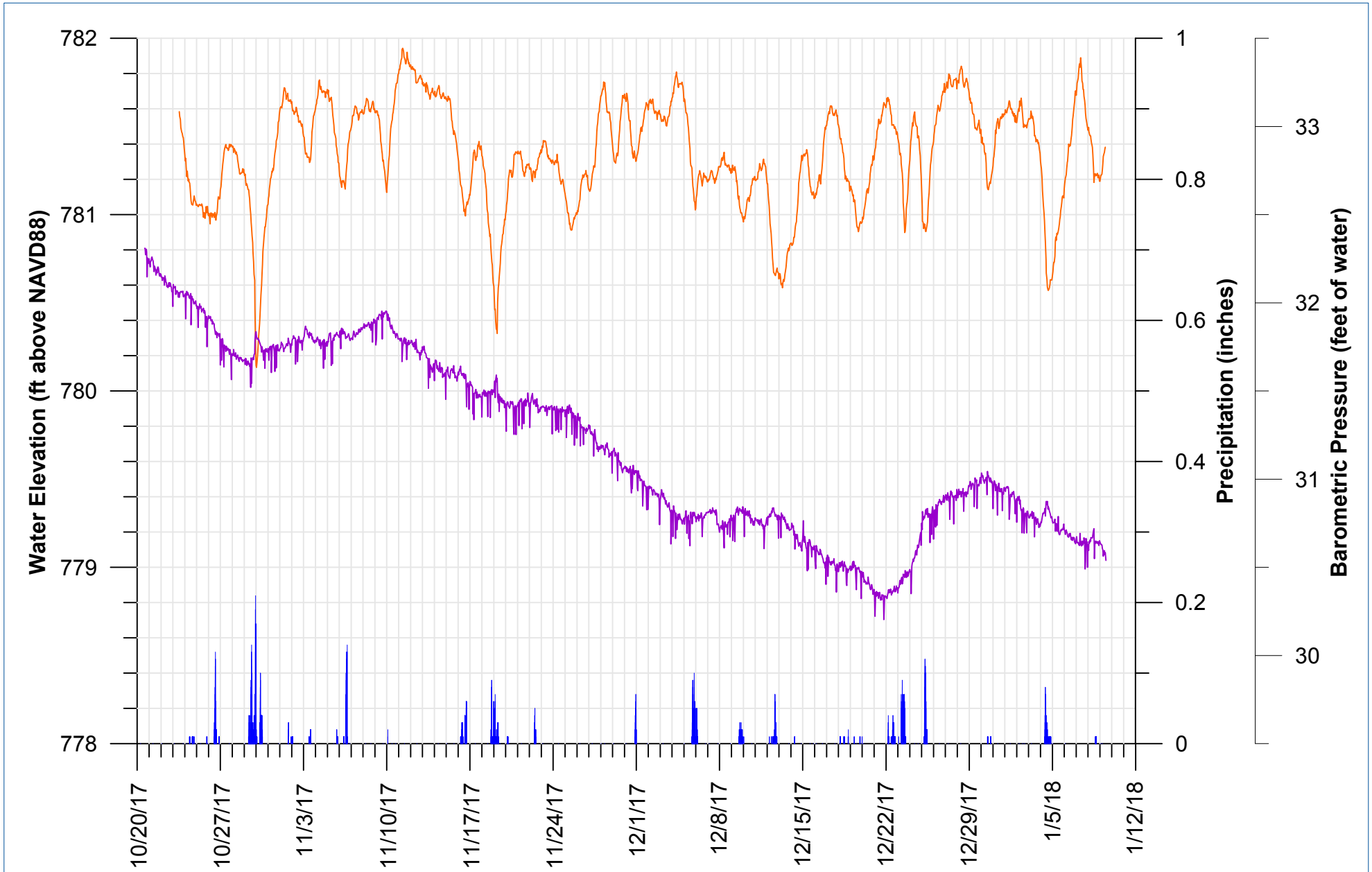


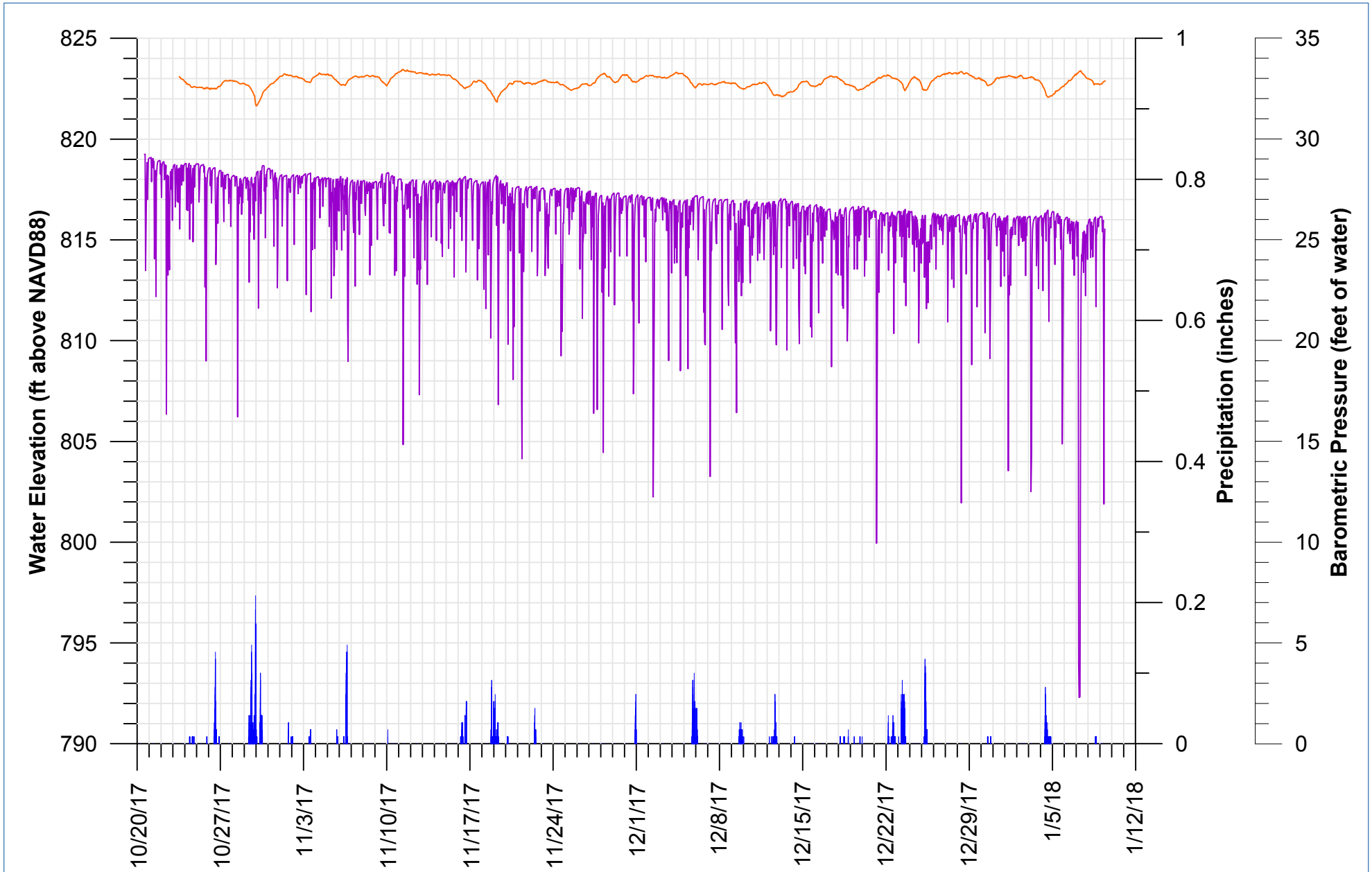
Hourly precipitation measured at William H. Morse State Airport.

BARR

1371 HARWOOD HILL RD HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.6

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\1371_Harwood_20180130.grf



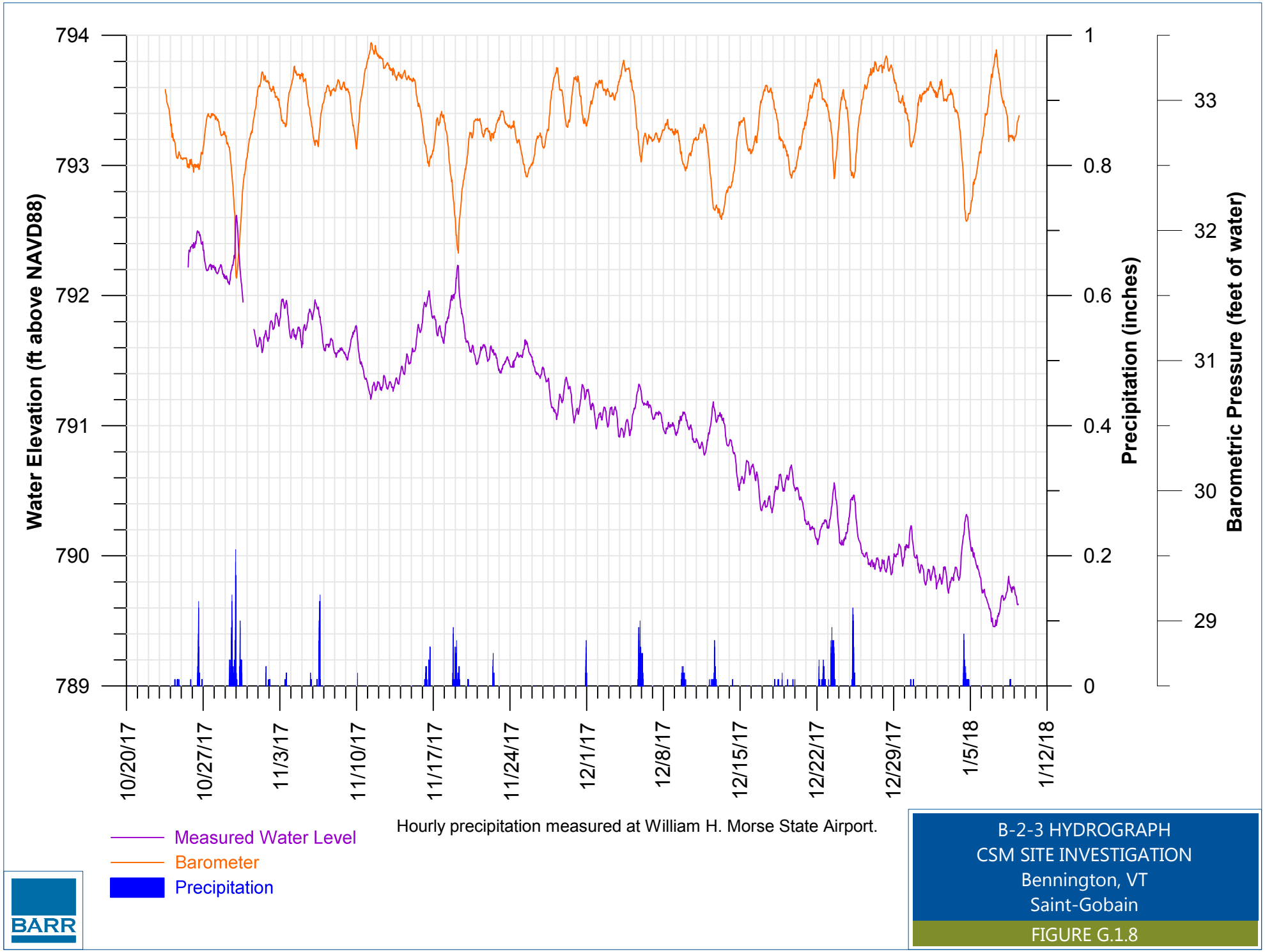
Hourly precipitation measured at William H. Morse State Airport.

1400 BECKS DRIVE HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.7

BARR

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\1400_Becks_20180130.grf



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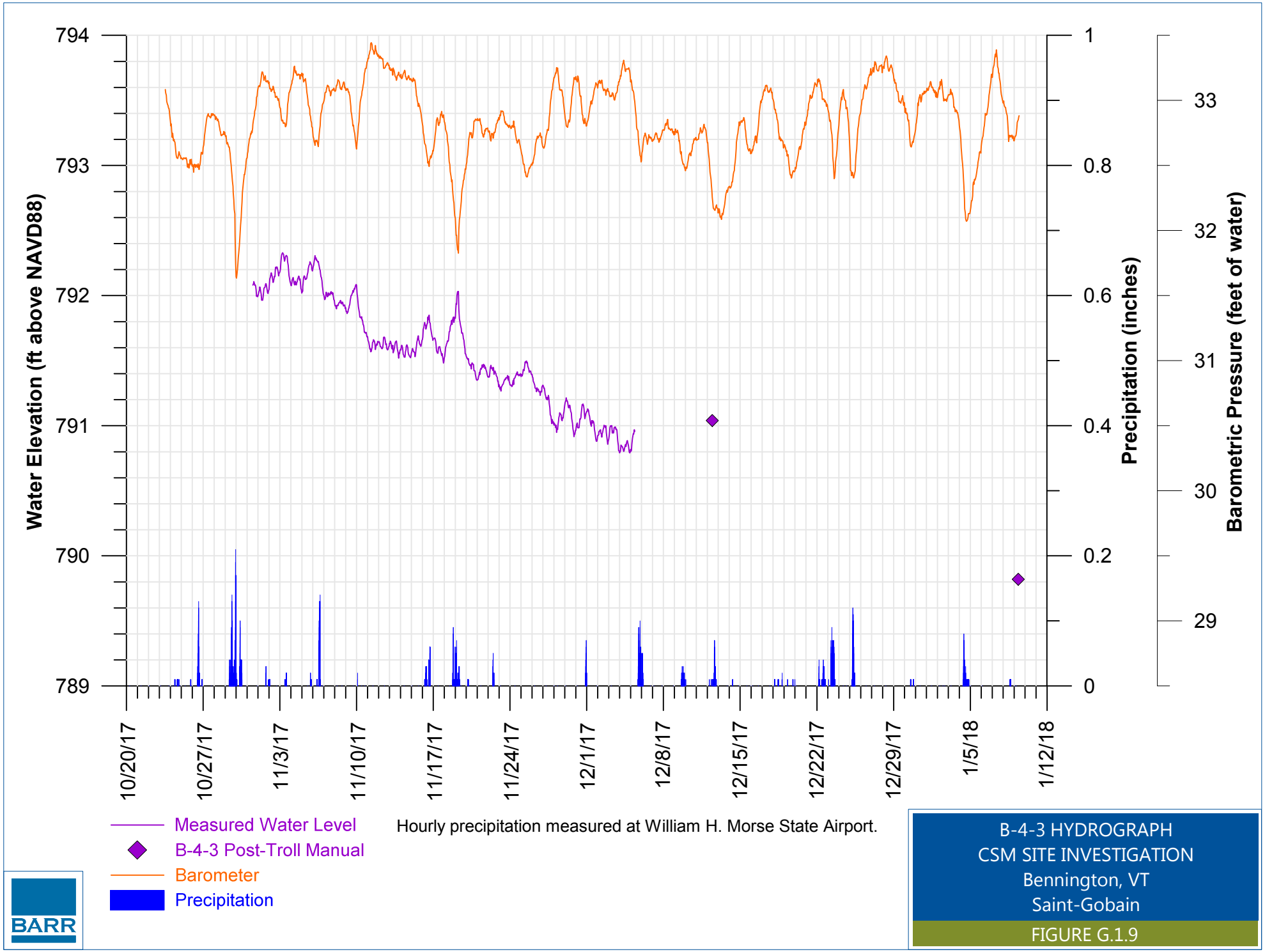

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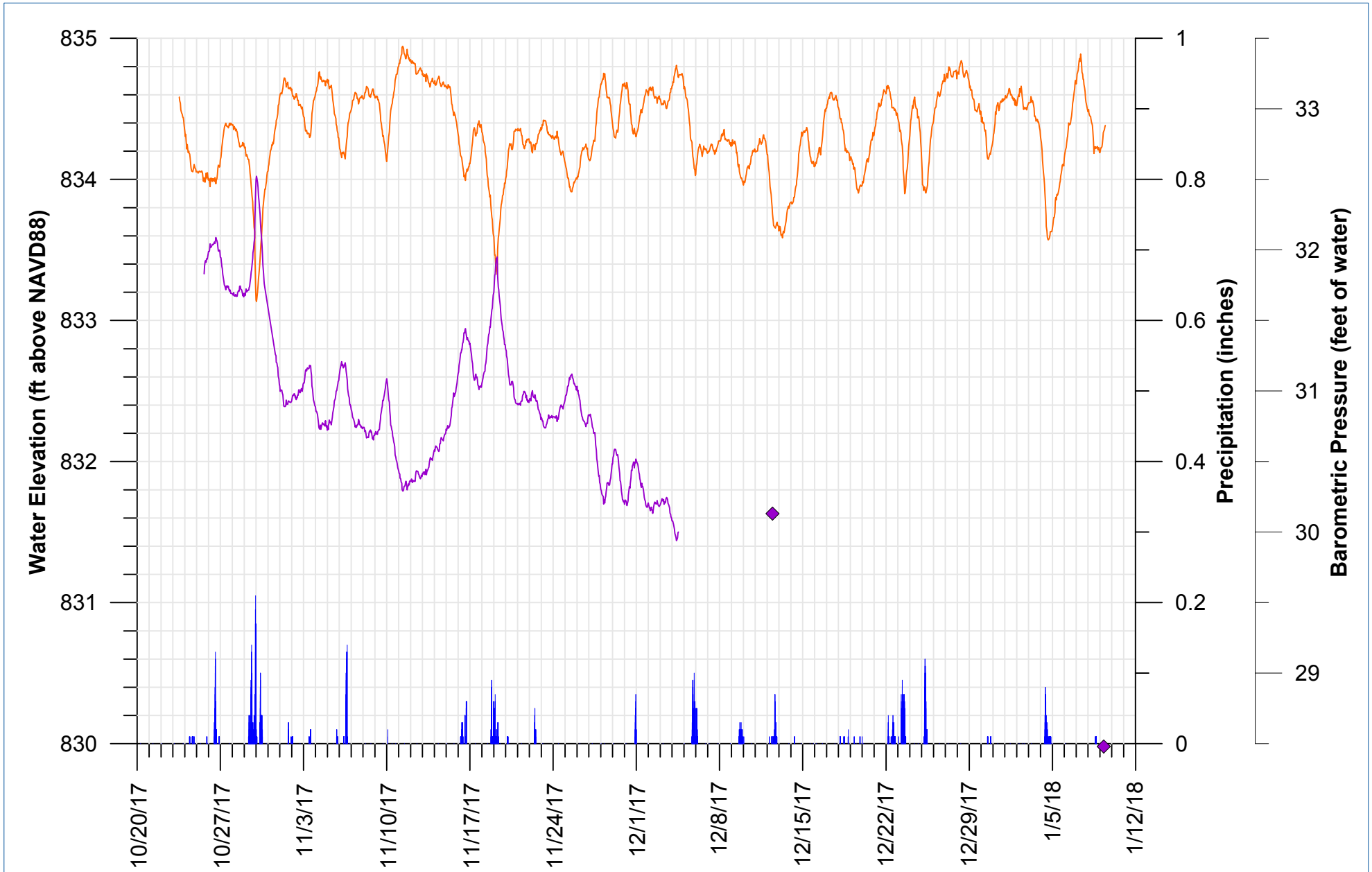


BARR

B-6-3 HYDROGRAPH
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE G.1.10

P:\Mpls\45 VT\02\45021004 SGPP Bennington\WorkFiles\CAA II CSM INVESTIGATION\Reporting\Appendices\Appendix G Hydrogeologic Investigation\G.1 Transducer Data\grapher\B-6-3_20180129.grf

Appendix G.2

Slug Test Analysis

resourceful. naturally.
engineering and environmental consultants

BARR

Technical Memorandum

To: Project file
From: Adam Janzen
Subject: SGPP Vermont Slug Test Analysis
Date: December 14, 2017
Project: 45021004.00

Slug testing was conducted at wells SG3-MW17-01, SG3-MW17-02, SG3-MW17-03, SG3-MW17-04, SG3-MW17-06, SG3-MW17-07, and SG3-MW17-WWTP. Falling-head (i.e., slug in) and rising-head (i.e., slug out) tests were initiated at each well using solid slugs of 1-foot and 3-foot lengths constructed from 1.5625-inch-OD plastic pipe filled with concrete. In-Situ LevelTroll 400 pressure transducer/dataloggers were used to monitor water levels at a recording interval of up to 500 milliseconds (i.e., 2 readings per second) in each well during the slug testing. The transducers were suspended in the wells using either fishing line or mason twine. Because viewing the data in real-time was not possible with this configuration, water level recovery during the slug testing was monitored by periodically collecting manual water level measurements with an electric tape (Heron Dipper-T).

The LevelTroll 400 is an absolute transducer, meaning that it measures the sum of barometric pressure and the water pressure above the transducer. Hourly barometric pressure data were collected with an In-Situ BaroTroll located at the Bennington Landfill. Due to the short durations of the slug tests (generally < 1 hour), barometric corrections were not applied to the slug test data.

On several occasions, the position of the transducer in the well was disturbed by slug removal. Data from these tests were not used in the analysis, and, when possible, the affected tests were repeated.

Due to a small water column (approximately 3 feet) and slow recharge rate, a recovery test was conducted at SG3-MW17-05 instead of slug tests. The recovery test procedure consisted of purging the well dry with a peristaltic pump and then monitoring the water level recovery with a LevelTroll 400 transducer at a 1-minute recording interval. Due to the long duration of the recovery at SG3-MW17-05 (approximately 16 hours), pressure readings were corrected for barometric pressure fluctuations using the barometric data collected by the BaroTroll at the landfill.

The slug test data and the SG3-MW17-05 recovery test data were analyzed in AQTESOLV (HydroSOLVE, 2007) using conventional analytical methods to estimate values of hydraulic conductivity. Except where noted below, the Bouwer-Rice (1976) straight-line method was used for all analyses. The analysis for each well is discussed below, followed by plots of the fits to the data:

- SG3-MW17-01. This well is screened across the water table, so only the rising-head tests were analyzed. Filter pack recharge was not observed in the data, so no effective radius correction was applied. Only the data from the tests using the 3' slug were analyzed because insufficient test signal was captured from the 1' slug tests due to rapid water level recovery.

- SG3-MW17-02. This well is screened across the water table, so only the rising-head tests were analyzed. Filter pack recharge was not observed in the data, so no effective radius correction was applied. Extremely rapid water level recovery at this well resulted in no usable signal from the 1′ slug tests and minimal (3-4 data points) signal from the 3′ tests, even at a 500 millisecond recording interval. Analysis was attempted for the 3′ slug tests, though the results should be considered approximate.
- SG3-MW17-03. This well is screened across the water table, so only the rising-head tests were analyzed. Filter pack recharge was observed in the data in the form of the "double straight line effect" (Bouwer, 1989), so an effective radius correction using equation 6.11b from Butler (1998) was applied. As recommended by Butler (1998), the Bouwer-Rice solution was fit to the second (less steep) limb of the double straight line response.
- SG3-MW17-04. This well is not screened across the water table, so both the falling-head and rising-head tests were analyzed. The response curve shapes were slightly concave up instead of straight; the Bouwer-Rice straight-line solution was fit to the approximately linear region between normalized displacement (displacement scaled by the initial displacement) of 0.2-0.3 as recommended by Butler (1998). No rising-head data were available for the 3′ tests at this well due to a combination of transducer disturbance and full transducer memory.
- SG3-MW17-05. The response to the recovery test was approximately linear, so the Bouwer-Rice straight-line solution was fit to the data over the recommended range of 0.2-0.3 normalized displacement.
- SG3-MW17-06. This well is screened across the water table, so only the rising-head tests were analyzed. Filter pack recharge was not observed in the data, so no effective radius correction was applied. Water levels rose slightly during the slug testing at this well; the resulting linear trend was filtered out of the data before proceeding with the analysis. Only the data from the tests using the 3′ slug were analyzed because insufficient test signal was captured from the 1′ slug tests due to rapid water level recovery.
- SG3-MW17-07. This well is not screened across the water table, so both the falling-head and rising-head tests were analyzed. The response curve shapes were slightly concave up instead of straight; the Bouwer-Rice straight-line solution was fit to the approximately linear region over the recommended normalized displacement range of 0.2-0.3.
- SG3-MW17-WWTP. This well is not screened across the water table, so both the falling-head and rising-head tests were analyzed. The response to this test was clearly not linear, so the Bouwer-Rice solution was not applicable. Instead, the data from this well were analyzed using the Kansas Geological Survey model (Hyder et at., 1994). Only one rising-head was available for this well due to transducer disturbance issues.

References

Bouwer, H., 1989. The Bouwer and Rice slug test--an update. *Ground Water*, vol. 27, no. 3, pp. 304-309.

Bouwer, H. and R.C. Rice, 1976. A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells. *Water Resources Research*, vol. 12, no. 3, pp. 423-428.

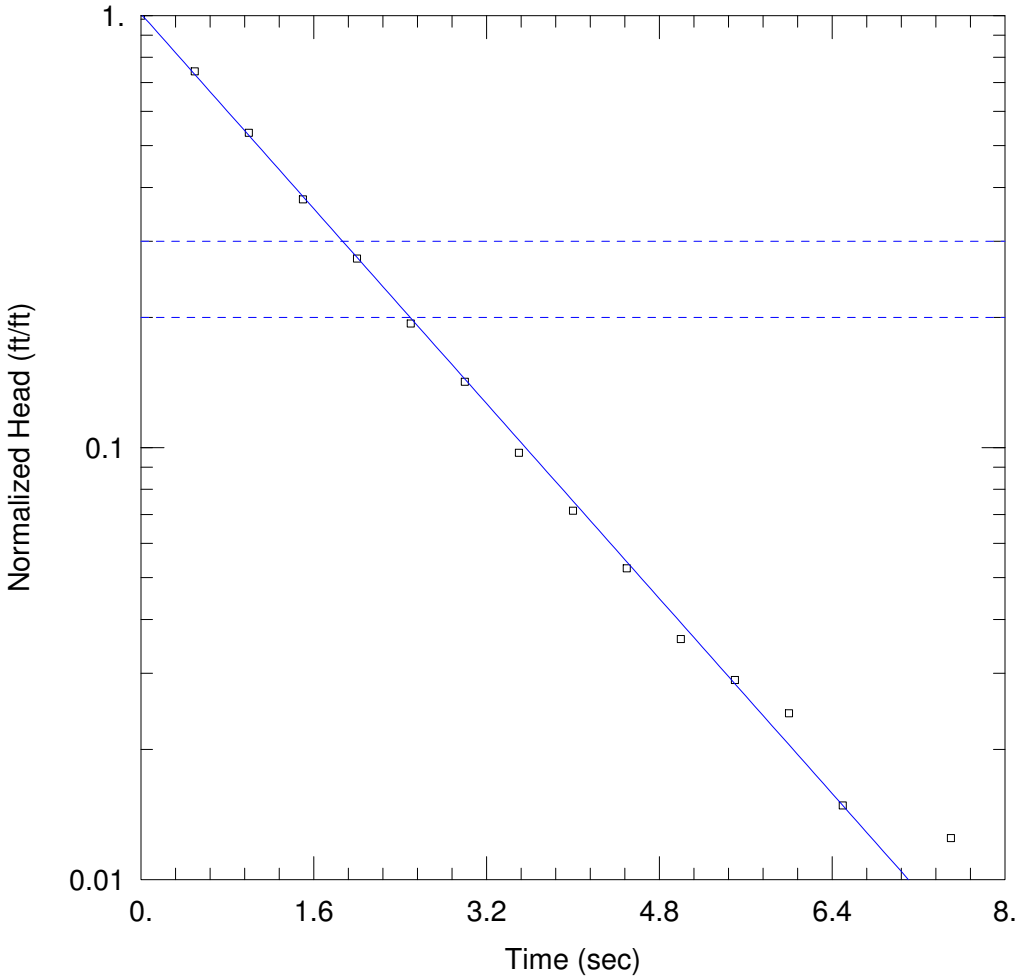
Butler, J.J., Jr., 1998. The Design, Performance, and Analysis of Slug Tests. Lewis Publishers, Boca Raton, FL, 252 p.

Hyder, Z, J.J. Butler, Jr., C.D. McElwee and W. Liu, 1994. Slug tests in partially penetrating wells. *Water Resources Research*, vol. 30, no. 11, pp. 2945-2957.

HydroSOLVE, Inc. (HydroSOLVE), 2007. AQTESOLV, version 4.50 Professional, developed by Glenn M. Duffield.

Table G.2.1
Hydraulic Conductivity Estimates from Slug Testing
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Well	Screened Across Water Table?	Test	Analysis Method	K (ft/day)	Geometric Mean K (ft/day)	Material
SG3-MW17-01	Yes	3ft Slug Out1	Bouwer-Rice	89	86	GP
		3ft Slug Out2	Bouwer-Rice	84		
SG3-MW17-02	Yes	3ft Slug Out1	Bouwer-Rice	226	227	GP
		3ft Slug Out3	Bouwer-Rice	229		
SG3-MW17-03	Yes	1ft Slug Out1	Bouwer-Rice	0.76	0.63	SC/SM/ML
		3ft Slug Out1	Bouwer-Rice	0.53		
SG3-MW17-04	No	1ft Slug In2	Bouwer-Rice	2.2	2.1	SP
		1ft Slug Out2	Bouwer-Rice	2.2		
		3ft Slug In1	Bouwer-Rice	2.1		
		3ft Slug In2	Bouwer-Rice	2.1		
SG3-MW17-05	Yes	Recovery	Bouwer-Rice	0.01	0.01	ML
SG3-MW17-06	Yes	3ft Slug Out1	Bouwer-Rice	82	87	GP-GM
		3ft Slug Out2	Bouwer-Rice	93		
SG3-MW17-07	No	1ft Slug In1	Bouwer-Rice	0.07	0.09	ML
		1ft Slug Out1	Bouwer-Rice	0.13		
		3ft Slug In1	Bouwer-Rice	0.08		
		3ft Slug Out1	Bouwer-Rice	0.09		
SG3-MW17-WWTP	No	1ft Slug In1	KGS	2.5	2.3	QUARTZITE
		1ft Slug In2	KGS	2.1		
		1ft Slug Out2	KGS	3.0		
		3ft Slug In1	KGS	1.7		



3FT SLUG OUT1

Data Set: \...\01_3ft_slugout_1.aqt
Date: 11/09/17 Time: 14:45:28

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-01
Test Date: 10/23/2017

AQUIFER DATA

Saturated Thickness: 4.79 ft Anisotropy Ratio (Kz/Kr): 1.

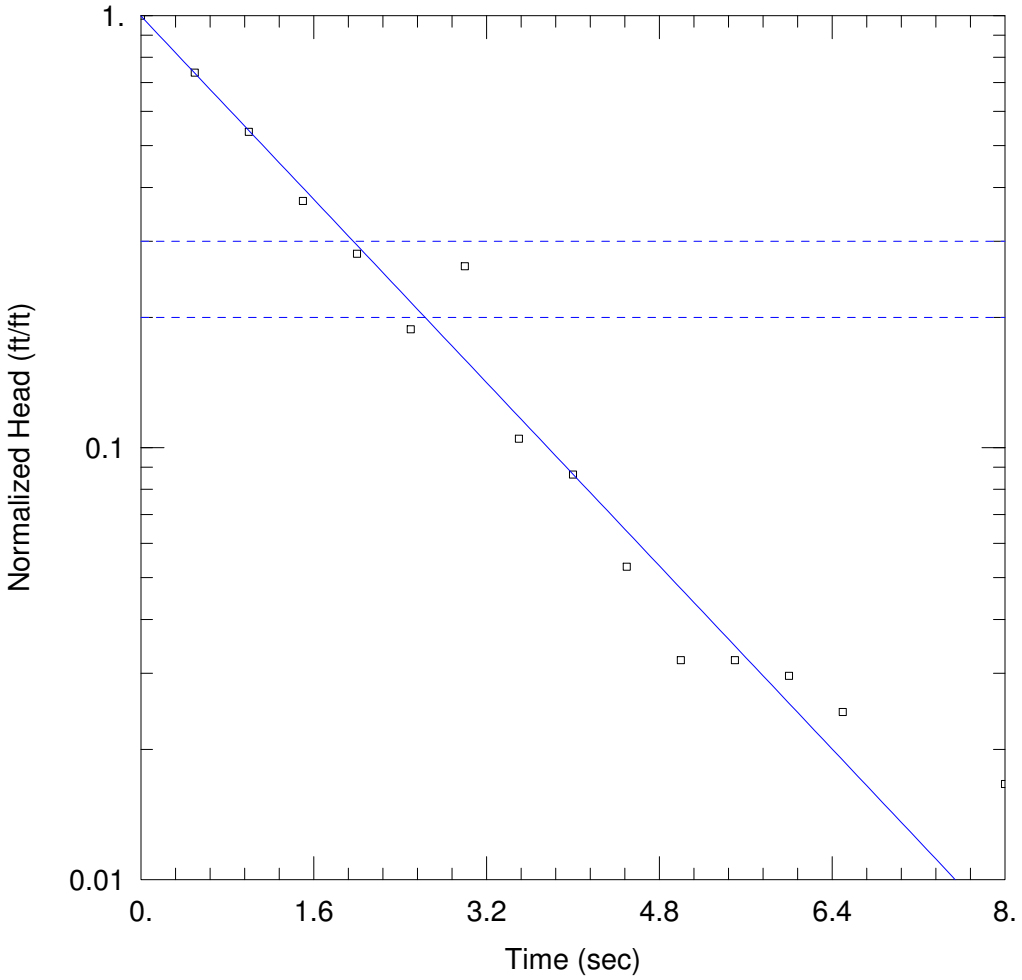
WELL DATA (SG3-MW17-01)

Initial Displacement: 0.98 ft
Total Well Penetration Depth: 4.79 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 4.79 ft
Screen Length: 4.79 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 88.84 ft/day y0 = 0.9894 ft



3FT SLUG OUT2

Data Set: \...\01_3ft_slugout_2.aqt
Date: 11/09/17 Time: 14:46:33

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-01
Test Date: 10/23/2017

AQUIFER DATA

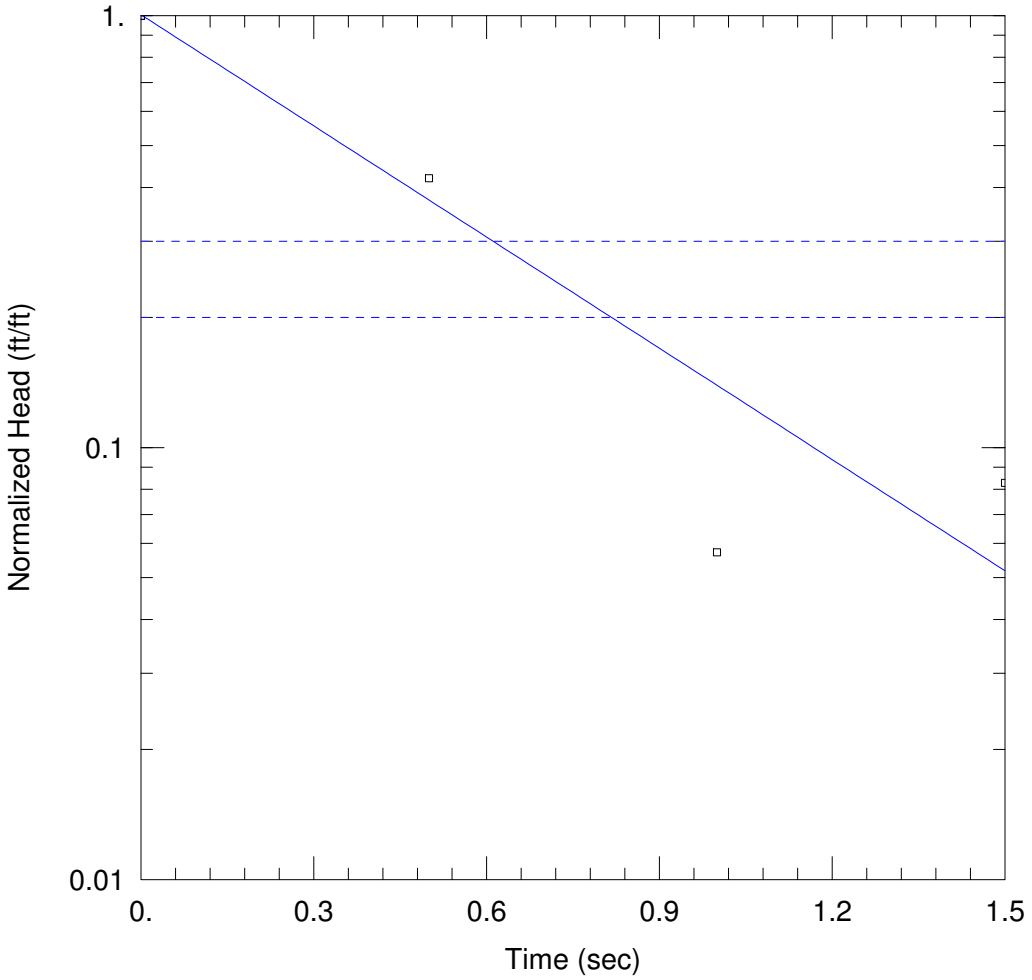
Saturated Thickness: 4.79 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-01)

Initial Displacement: 0.89 ft
Total Well Penetration Depth: 4.79 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 4.79 ft
Screen Length: 4.79 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 83.5 ft/day
y0 = 0.887 ft



3FT SLUG OUT1

Data Set: \...\02_3ft_slugout_1.aqt
Date: 11/09/17 Time: 14:48:02

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-02
Test Date: 10/24/2017

AQUIFER DATA

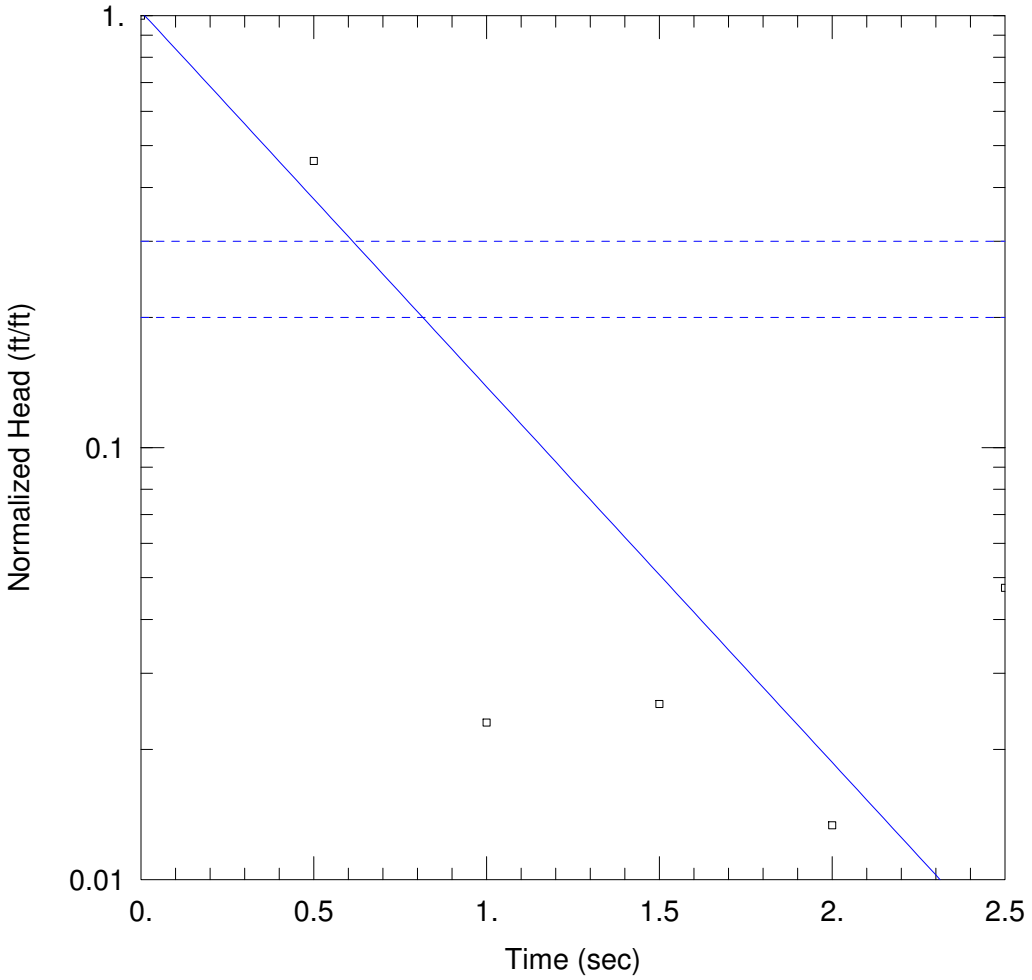
Saturated Thickness: 6.36 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-02)

Initial Displacement: 0.28 ft
Total Well Penetration Depth: 6.36 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 6.36 ft
Screen Length: 6.36 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 226.3 ft/day
y0 = 0.2812 ft



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Data Set: \...\02_3ft_slugout_3.aqt
Date: 11/09/17 Time: 14:50:14

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-02
Test Date: 10/24/2017

AQUIFER DATA

Saturated Thickness: 6.36 ft Anisotropy Ratio (Kz/Kr): 1.

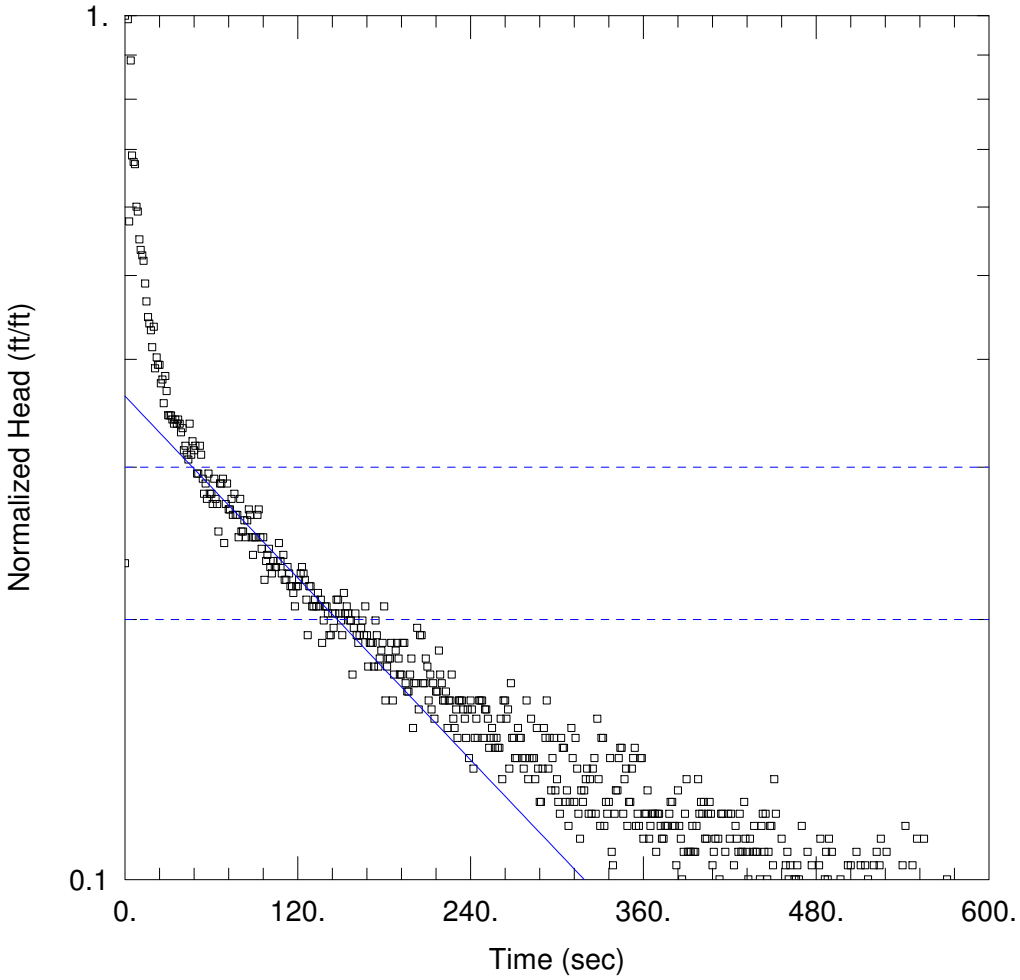
WELL DATA (SG3-MW17-02)

Initial Displacement: 0.19 ft
Total Well Penetration Depth: 6.36 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 6.36 ft
Screen Length: 6.36 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 229.2 ft/day y0 = 0.1942 ft



1FT SLUG OUT1

Data Set: \...\03_1ft_slugout_1.aqt
Date: 11/09/17 Time: 14:41:23

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-03
Test Date: 10/25/2017

AQUIFER DATA

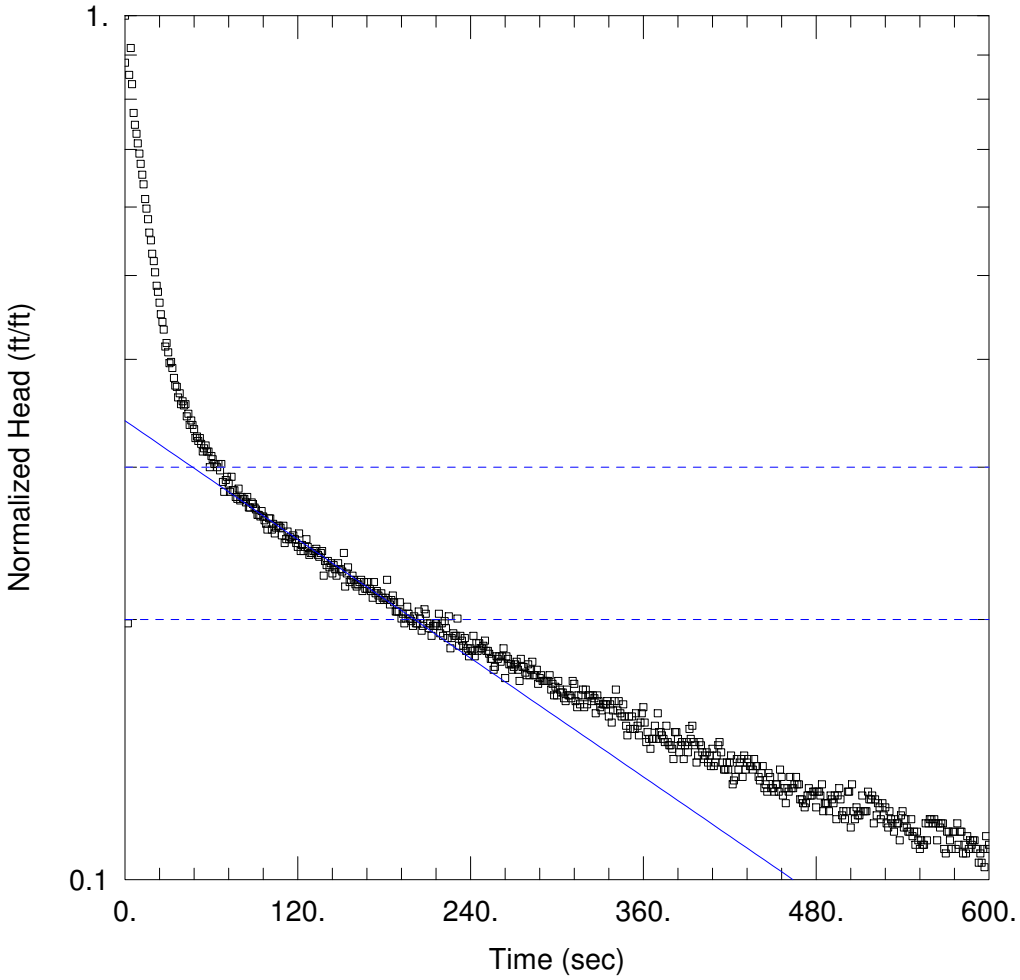
Saturated Thickness: 13.46 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-03)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 13.46 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.46 ft
Screen Length: 13.46 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.7581 ft/day
y0 = 0.219 ft



3FT SLUG OUT1

Data Set: \...\03_3ft_slugout_1.aqt
Date: 11/09/17 Time: 14:42:19

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-03
Test Date: 10/25/2017

AQUIFER DATA

Saturated Thickness: 13.46 ft Anisotropy Ratio (Kz/Kr): 1.

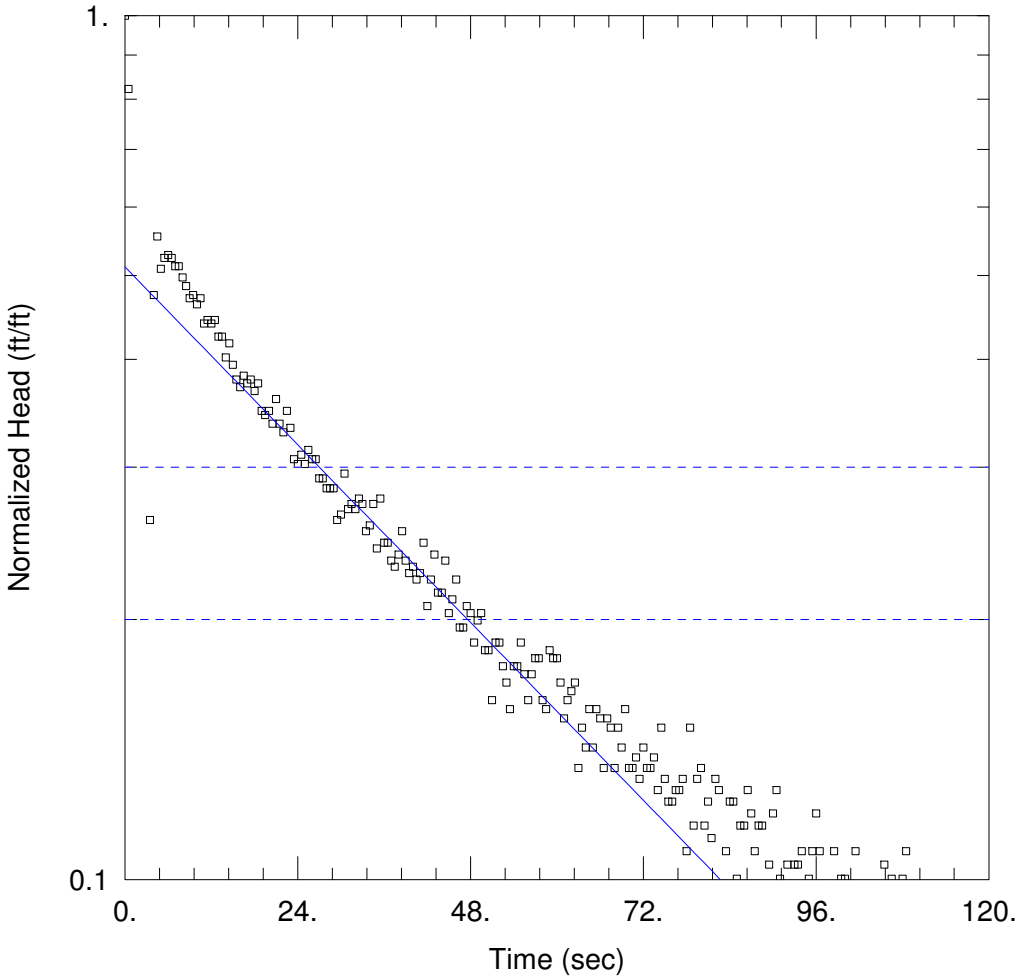
WELL DATA (SG3-MW17-03)

Initial Displacement: 1.806 ft
Total Well Penetration Depth: 13.46 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.46 ft
Screen Length: 13.46 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.5283 ft/day y0 = 0.6134 ft



1FT SLUG IN2

Data Set: \...\04_1ft_slugin_2.aqt
Date: 11/09/17 Time: 14:51:38

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-04
Test Date: 10/27/2017

AQUIFER DATA

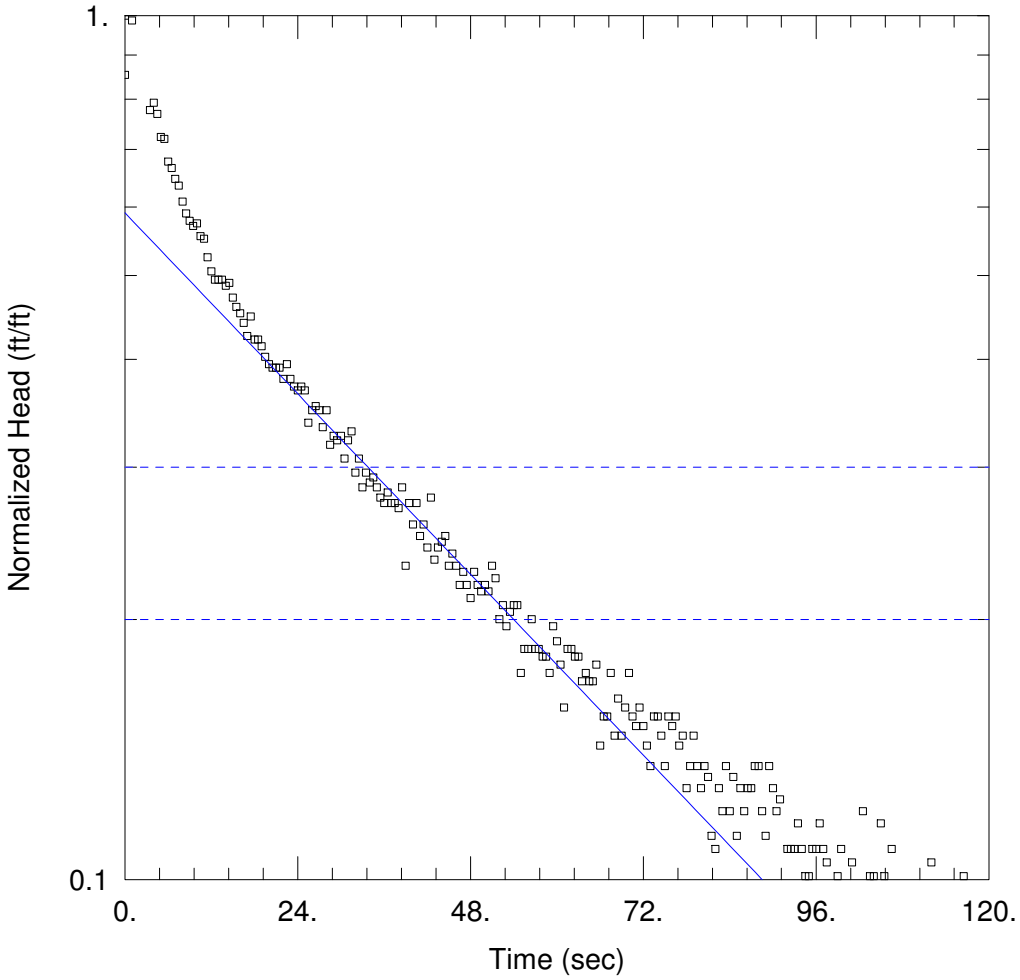
Saturated Thickness: 43.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-04)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 43.72 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 43.72 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.19 ft/day
y0 = 0.309 ft



1FT SLUG OUT2

Data Set: \...\04_1ft_slugout_2.aqt
Date: 11/09/17 Time: 14:53:36

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-04
Test Date: 10/27/2017

AQUIFER DATA

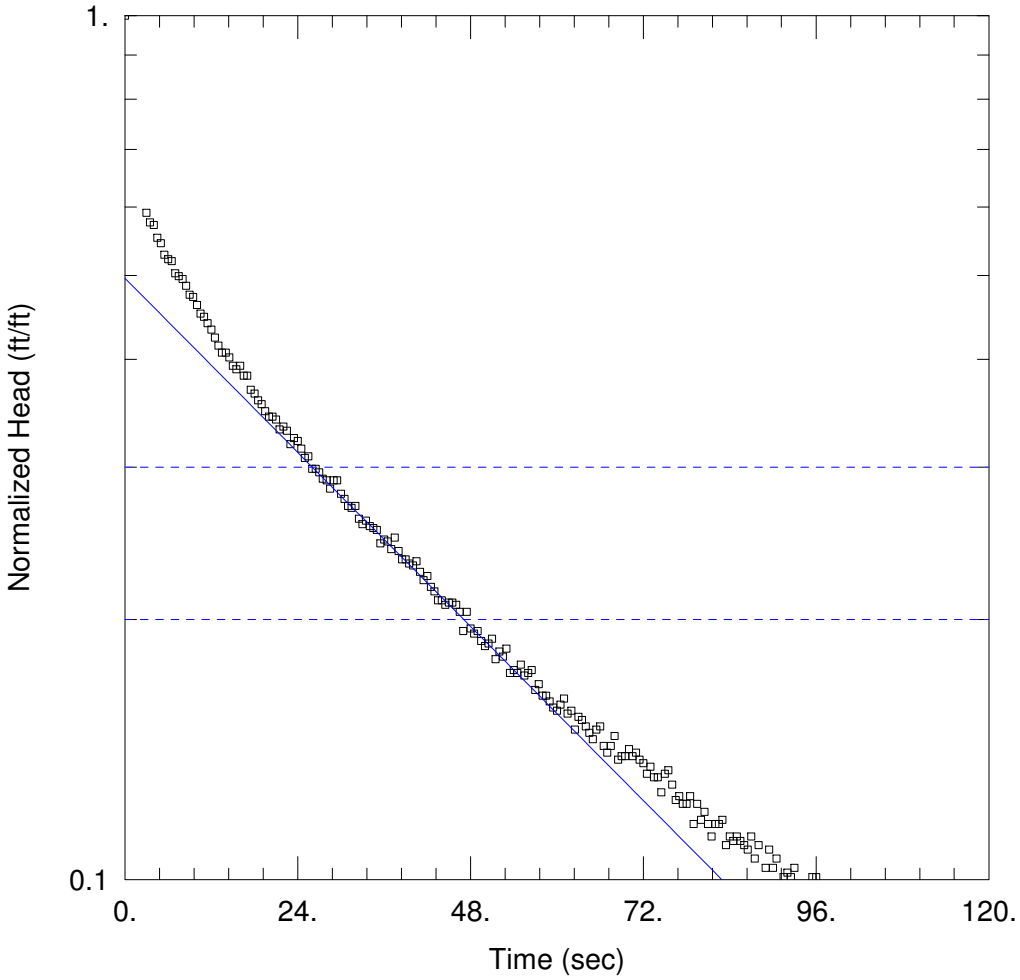
Saturated Thickness: 43.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-04)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 43.72 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 43.72 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.227 ft/day
y0 = 0.3569 ft



3FT SLUG IN1

Data Set: \...\04_3ft_slugin_1.aqt
Date: 11/09/17 Time: 14:52:55

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-04
Test Date: 10/27/2017

AQUIFER DATA

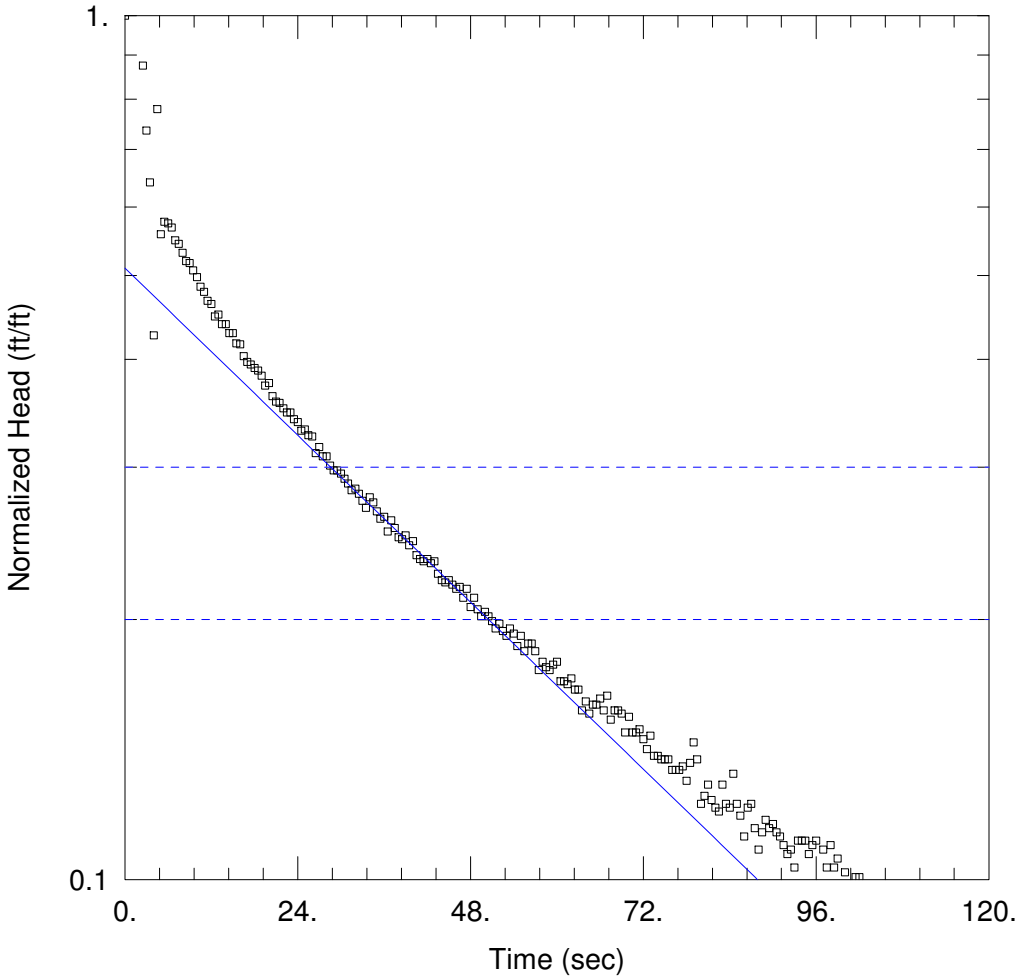
Saturated Thickness: 43.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-04)

Initial Displacement: 1.806 ft Static Water Column Height: 43.72 ft
Total Well Penetration Depth: 43.72 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 2.145 ft/day y0 = 0.8966 ft



3FT SLUG IN2

Data Set: \...\04_3ft_slugin_2.aqt
Date: 11/09/17 Time: 14:52:14

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-04
Test Date: 10/27/2017

AQUIFER DATA

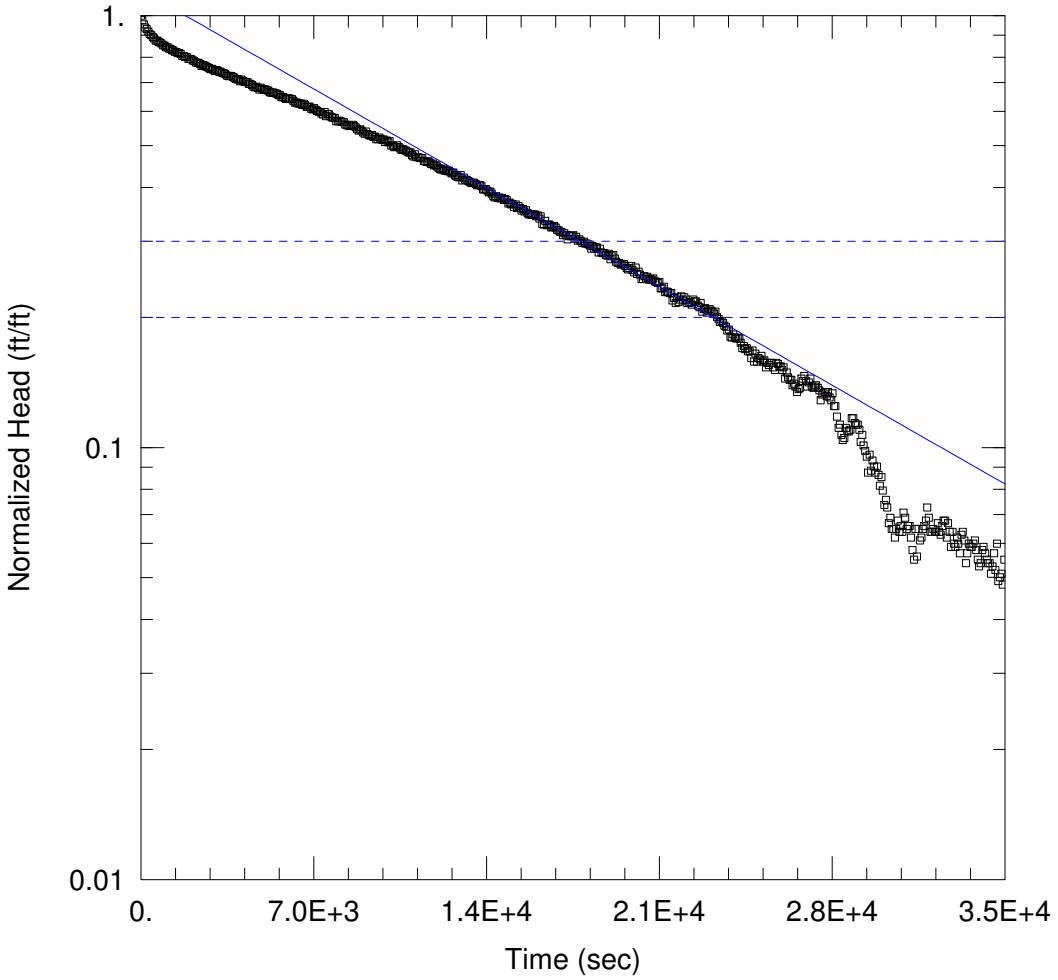
Saturated Thickness: 43.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-04)

Initial Displacement: 1.806 ft Static Water Column Height: 43.72 ft
Total Well Penetration Depth: 43.72 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 2.057 ft/day y0 = 0.9211 ft



RECOVERY TEST2

Data Set: \...\05_recovery_2.aqt
Date: 11/09/17 Time: 14:54:48

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-05
Test Date: 10/29/2017

AQUIFER DATA

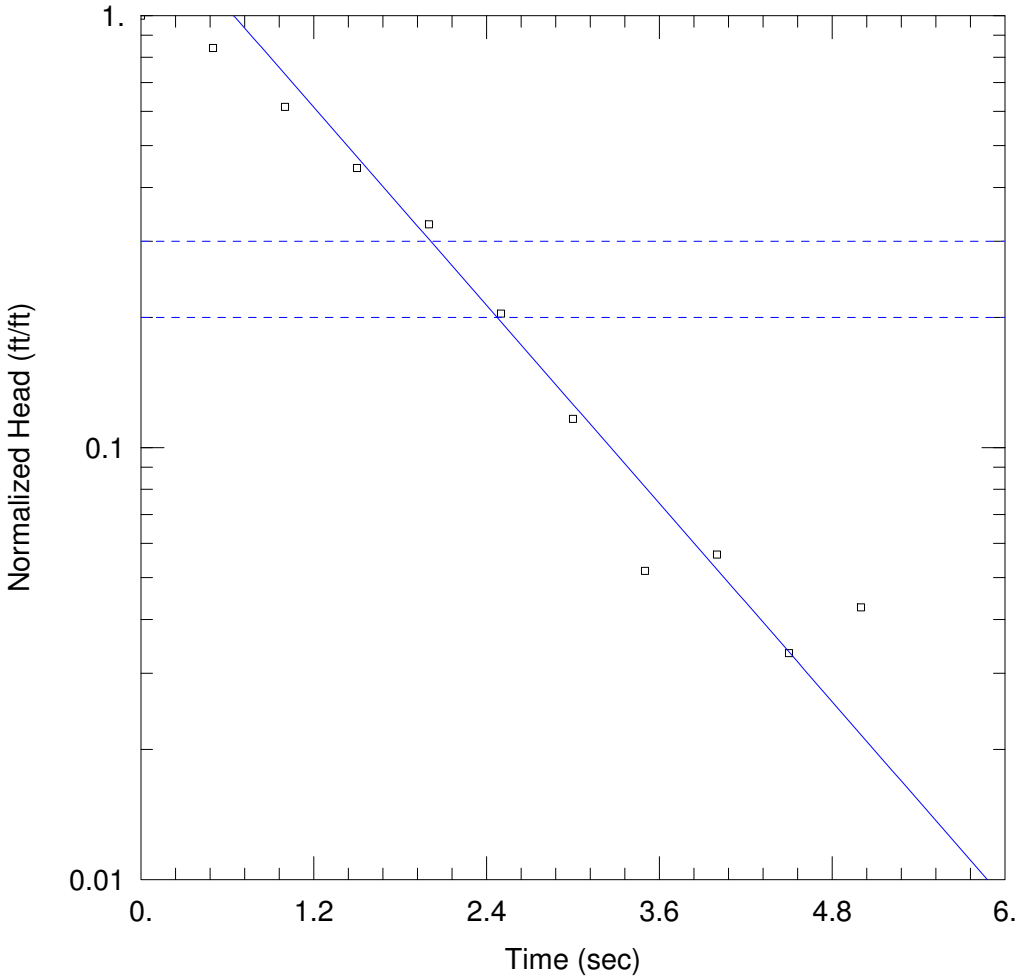
Saturated Thickness: 2.95 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-05)

Initial Displacement: 2.35 ft
Total Well Penetration Depth: 2.95 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 2.95 ft
Screen Length: 2.95 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01361 ft/day
y0 = 2.69 ft



3FT SLUG OUT1

Data Set: \...\06_3ft_slugout_1.aqt
Date: 11/09/17 Time: 14:56:56

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-06
Test Date: 10/25/2017

AQUIFER DATA

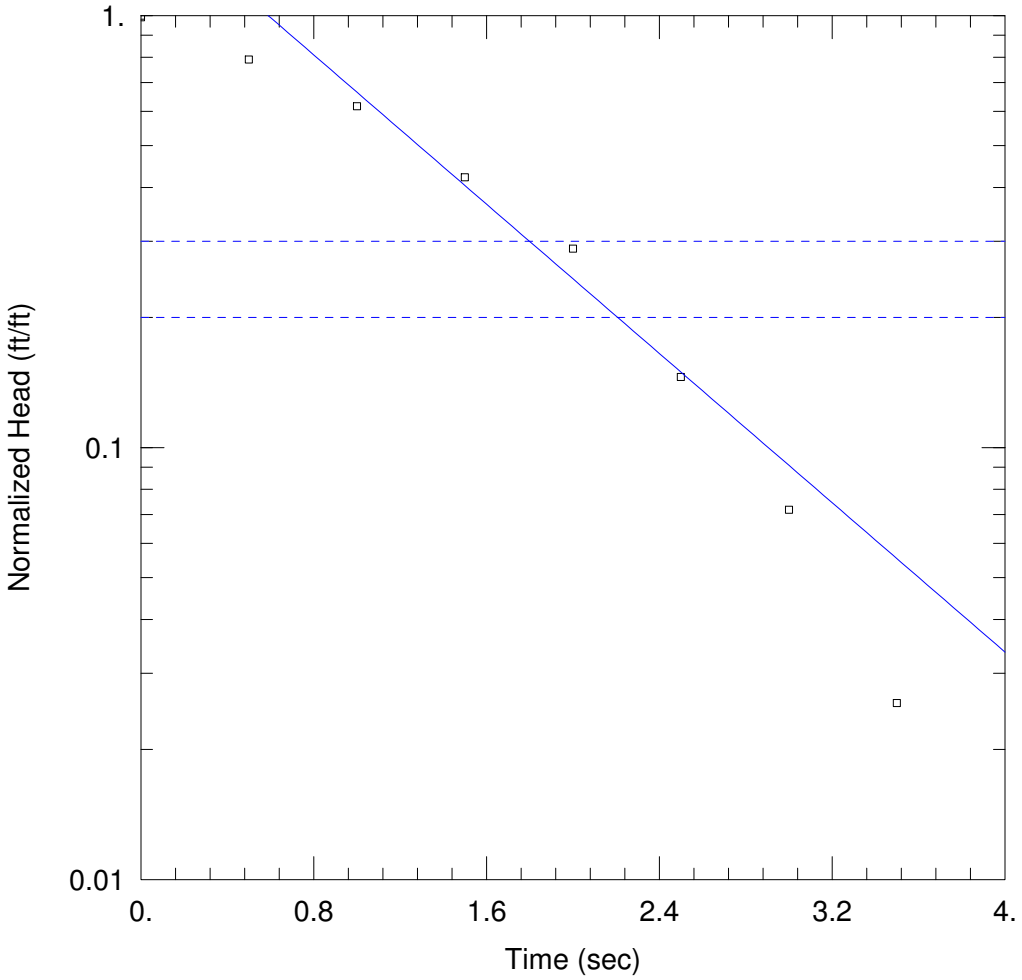
Saturated Thickness: 8.67 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-06)

Initial Displacement: 0.5 ft
Total Well Penetration Depth: 8.67 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.67 ft
Screen Length: 8.67 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 81.98 ft/day
y0 = 0.8813 ft



3FT SLUG OUT2

Data Set: \...\06_3ft_slugout_2.aqt
Date: 11/09/17 Time: 14:56:13

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-06
Test Date: 10/25/2017

AQUIFER DATA

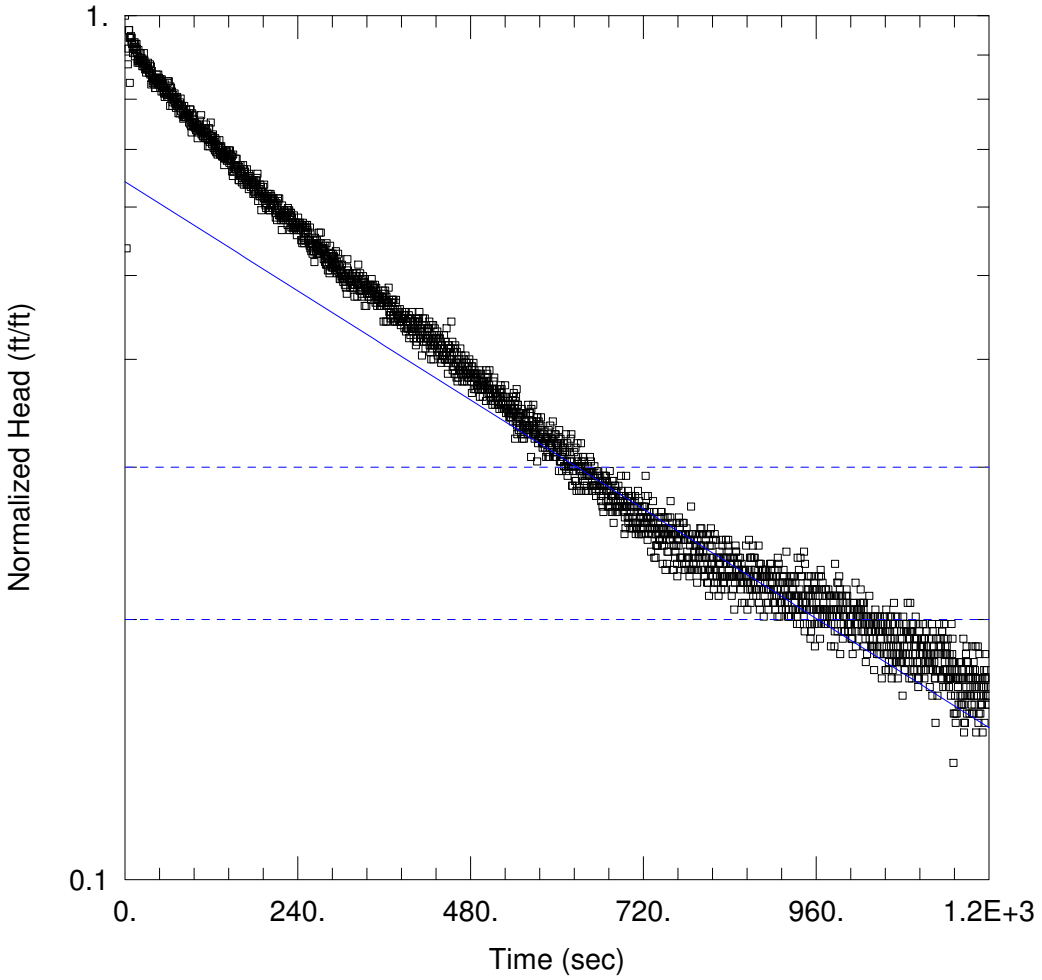
Saturated Thickness: 8.67 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-06)

Initial Displacement: 0.5 ft
Total Well Penetration Depth: 8.67 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.67 ft
Screen Length: 8.67 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 92.67 ft/day
y0 = 0.8978 ft



1FT SLUG IN1

Data Set: \...\07_1ft_slugin_1.aqt
Date: 11/09/17 Time: 14:58:09

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-07
Test Date: 10/25/2017

AQUIFER DATA

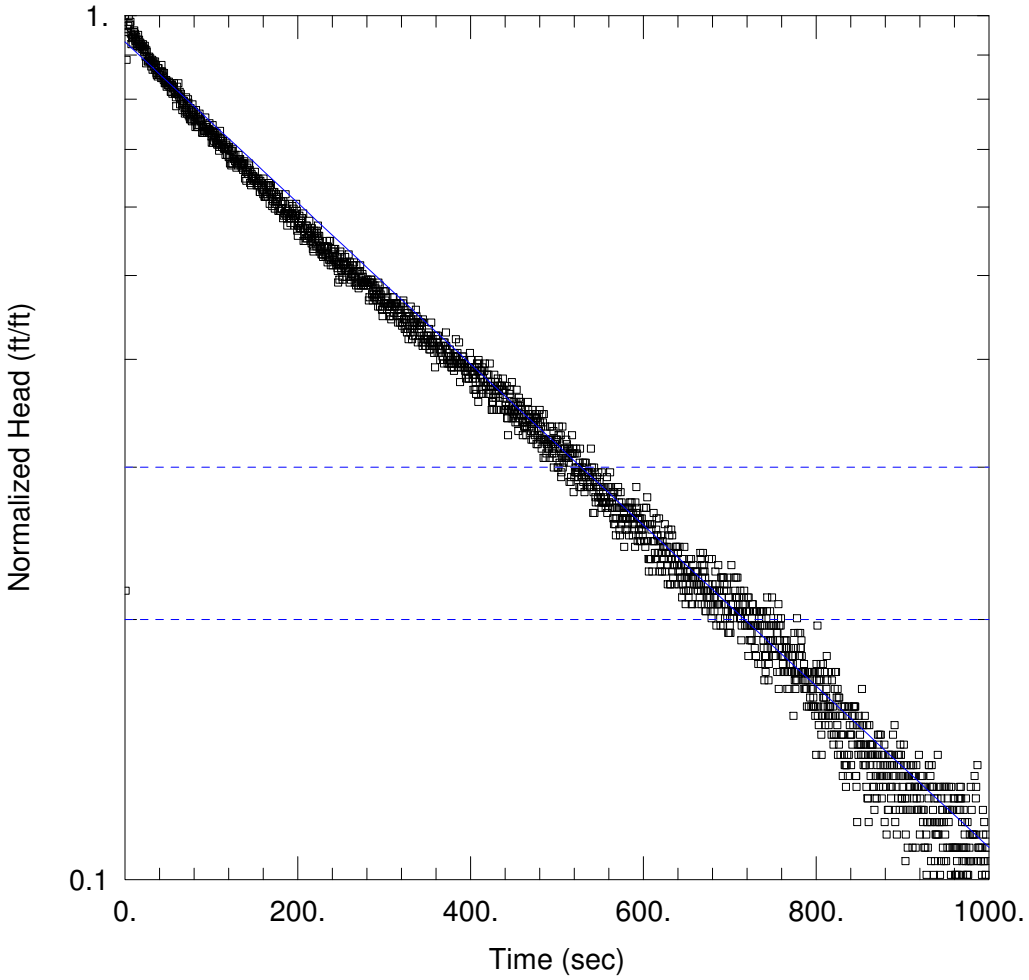
Saturated Thickness: 63.94 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-07)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 63.94 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 63.94 ft
Screen Length: 20. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07443 ft/day
y0 = 0.3879 ft



1FT SLUG OUT1

Data Set: \...\07_1ft_slugout_1.aqt
Date: 11/09/17 Time: 14:58:51

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-07
Test Date: 10/25/2017

AQUIFER DATA

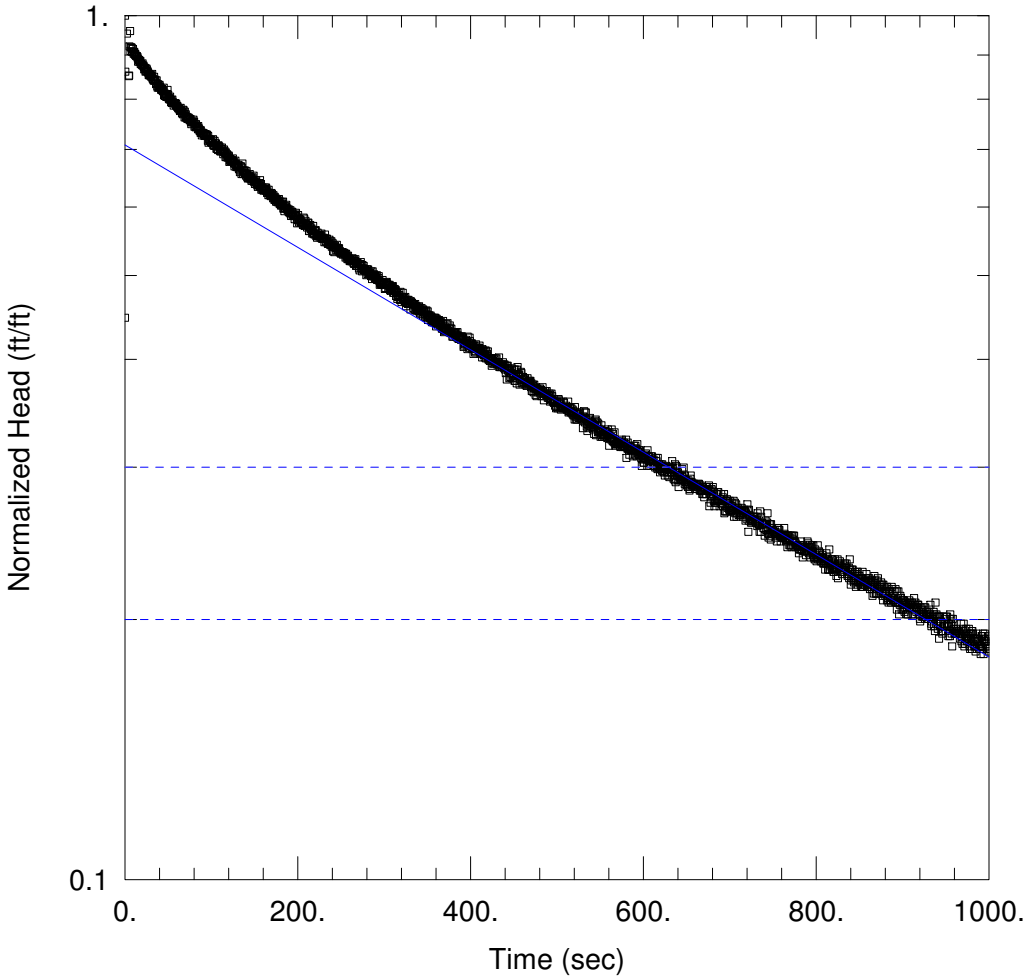
Saturated Thickness: 63.94 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-07)

Initial Displacement: 0.604 ft Static Water Column Height: 63.94 ft
Total Well Penetration Depth: 63.94 ft Screen Length: 20. ft
Casing Radius: 0.08333 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.1317 ft/day y0 = 0.563 ft



3FT SLUG IN1

Data Set: \...\07_3ft_slugin_1.aqt
Date: 11/09/17 Time: 15:00:37

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-07
Test Date: 10/26/2017

AQUIFER DATA

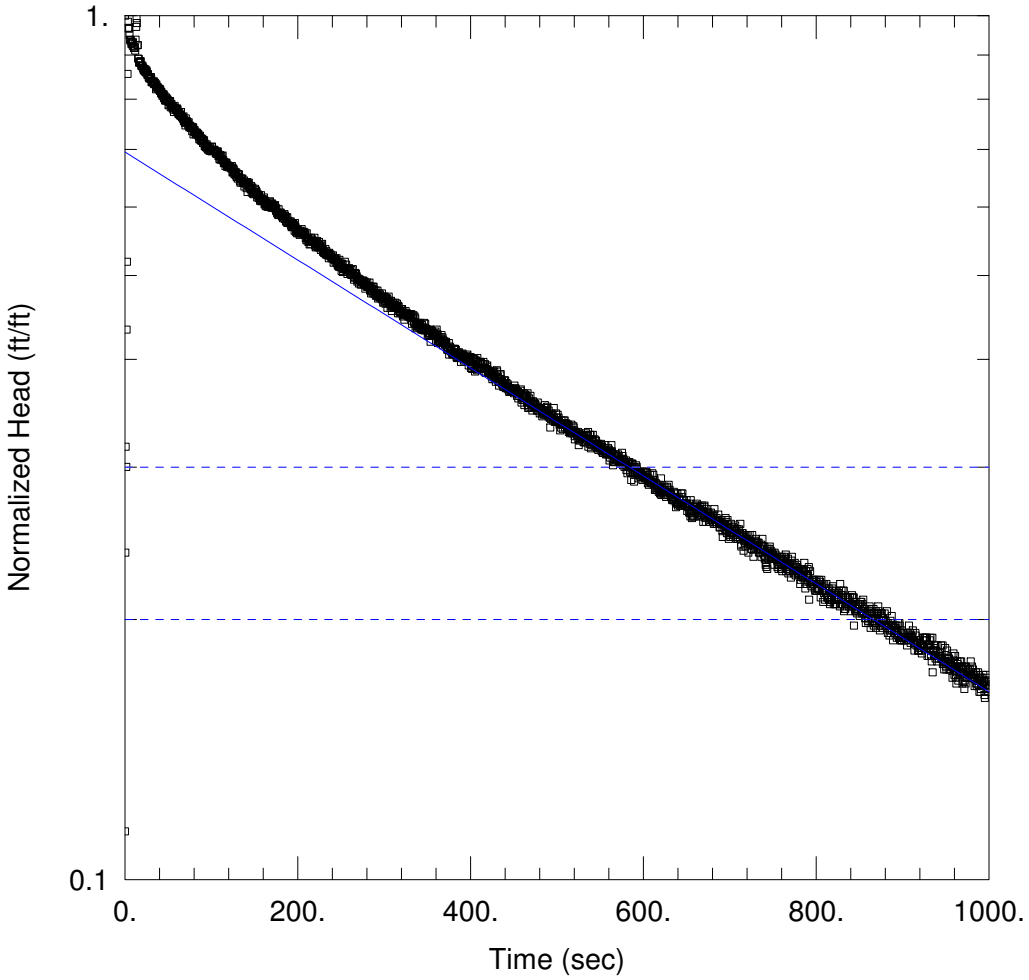
Saturated Thickness: 64.06 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-07)

Initial Displacement: 1.806 ft Static Water Column Height: 64.06 ft
Total Well Penetration Depth: 64.06 ft Screen Length: 20. ft
Casing Radius: 0.08333 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.08377 ft/day y0 = 1.279 ft



3FT SLUG OUT1

Data Set: \...\07_3ft_slugout_1.aqt
Date: 11/09/17 Time: 14:59:51

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-07
Test Date: 10/26/2017

AQUIFER DATA

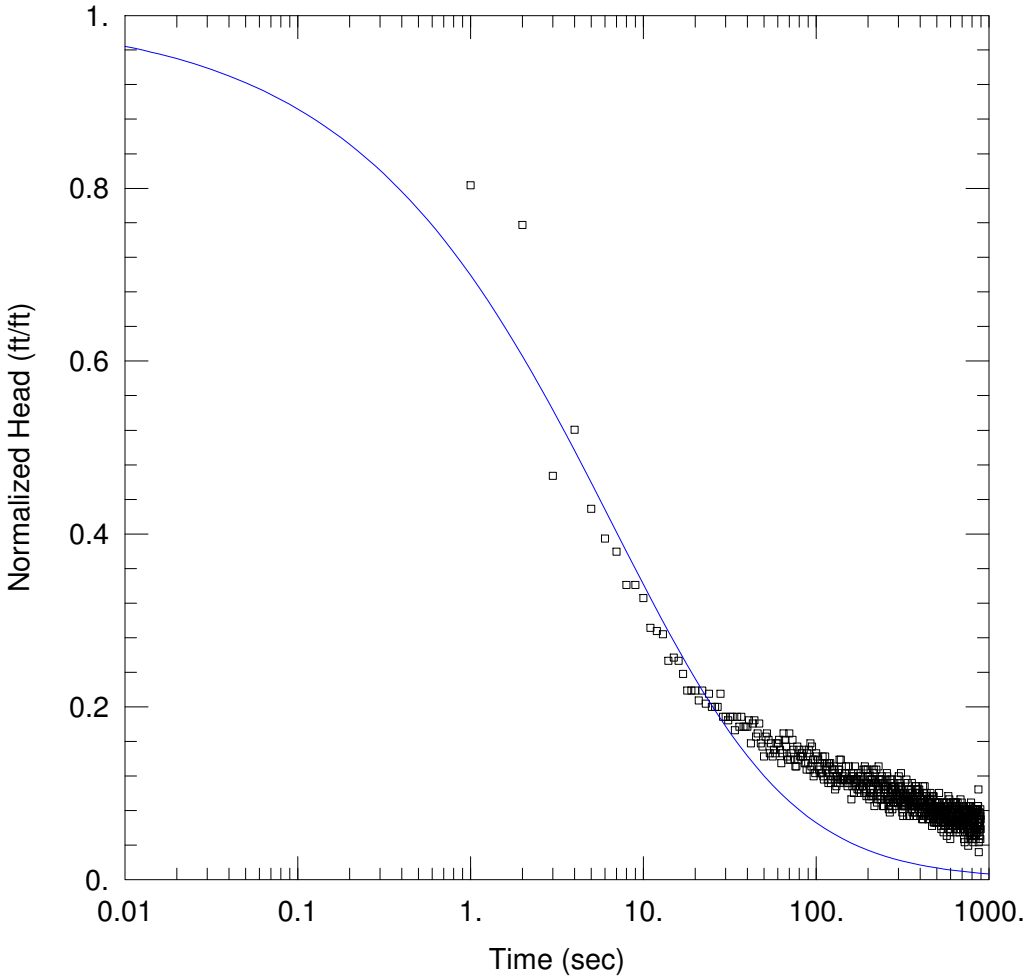
Saturated Thickness: 64.06 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (SG3-MW17-07)

Initial Displacement: 1.806 ft Static Water Column Height: 64.06 ft
Total Well Penetration Depth: 64.06 ft Screen Length: 20. ft
Casing Radius: 0.08333 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0883 ft/day y0 = 1.255 ft



1FT SLUG IN1

Data Set: \...\WWTP_1ft_slugin_1.aqt
Date: 11/09/17 Time: 14:35:09

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-WWTP
Test Date: 10/23/2017

AQUIFER DATA

Saturated Thickness: 10. ft

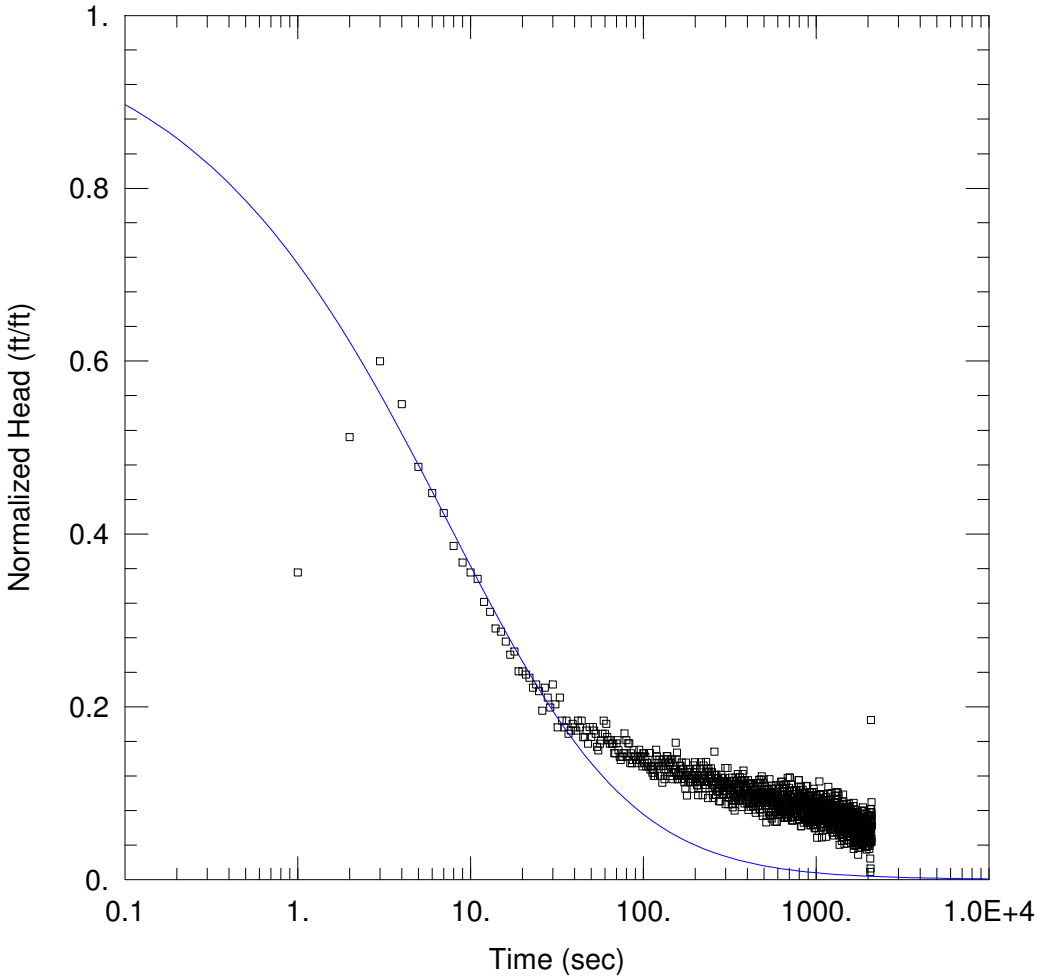
WELL DATA (SG3-MW17-WWTP)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 11.06 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 11.06 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 2.456 ft/day
Kz/Kr = 1.
Ss = 0.01024 ft^{-1}



1FT SLUG IN2

Data Set: \...\WWTP_1ft_slugin_2.aqt
Date: 11/09/17 Time: 14:37:53

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-WWTP
Test Date: 10/24/2017

AQUIFER DATA

Saturated Thickness: 10. ft

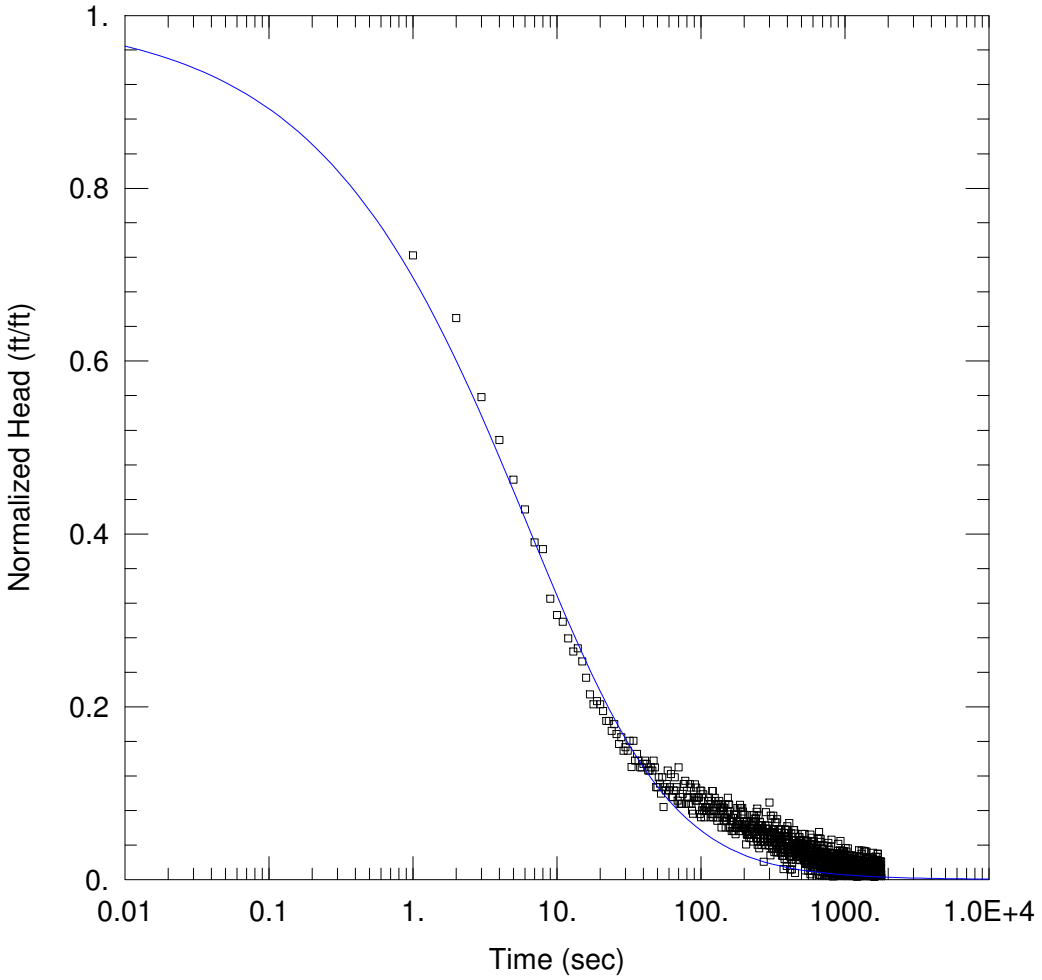
WELL DATA (SG3-MW17-WWTP)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 11.11 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 11.11 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 2.083 ft/day
Kz/Kr = 1.
Ss = 0.01111 ft^{-1}



1FT SLUG OUT2

Data Set: \...\WWTP_1ft_slugout_2.aqt
Date: 11/09/17 Time: 14:32:16

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-WWTP
Test Date: 10/24/2017

AQUIFER DATA

Saturated Thickness: 10. ft

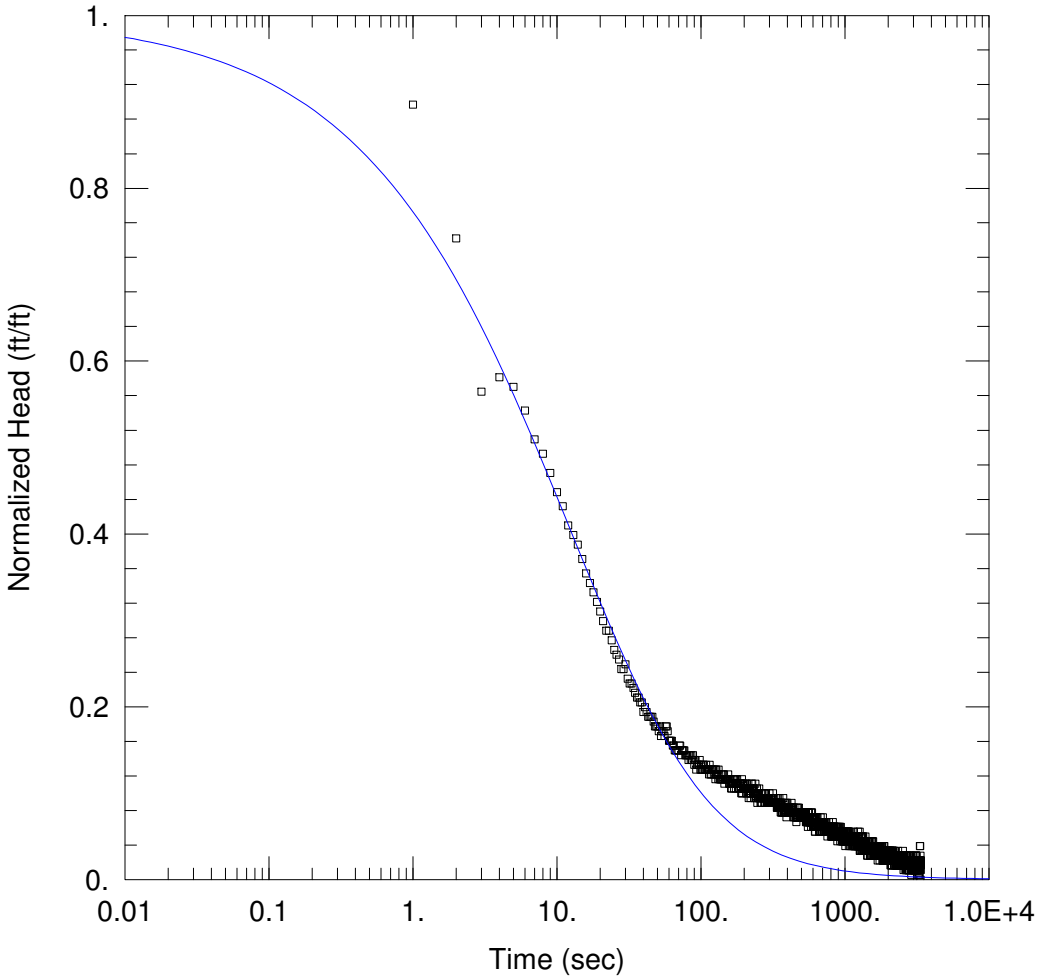
WELL DATA (SG3-MW17-WWTP)

Initial Displacement: 0.604 ft
Total Well Penetration Depth: 11.11 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 11.11 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.33

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 3.038 ft/day
Kz/Kr = 1.
Ss = 0.008261 ft^{-1}



3FT SLUG IN1

Data Set: \...\WWTP_3ft_slugin_1.aqt
Date: 11/09/17 Time: 14:28:36

PROJECT INFORMATION

Company: Barr
Client: SGPP
Project: 45021004.00
Location: North Bennington, VT
Test Well: SG3-MW17-WWTP
Test Date: 10/24/2017

AQUIFER DATA

Saturated Thickness: 10. ft

WELL DATA (SG3-MW17-WWTP)

Initial Displacement: 1.806 ft
Total Well Penetration Depth: 11.11 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 11.11 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 1.681 ft/day
Kz/Kr = 1.
Ss = 0.007478 ft^{-1}

Appendix G.3

Grain Size Distribution Analysis

Technical Memorandum

To: Project file
From: Evan Christianson and Adam Janzen
Subject: SGPP Vermont Grain Size Analysis
Date: March 7, 2018
Project: 45021004.00

Hydraulic conductivity estimates were derived from analysis of grain size data. Such analyses use empirical equations that relate hydraulic conductivity (K) to various combinations of grain size dimensions, porosity, and fluid properties. Three of these methods were used in this study:

- Hazen (1911). This simple method estimates hydraulic conductivity as the square of d_{10}, the grain size diameter for which 10% (by weight) of the soil particles are smaller and 90% are larger. The Hazen equation is given by:

  $$K = (d_{10})^2$$

  where K is in cm/sec and d_{10} is in mm.

  Originally developed for uniform sands (Freeze and Cherry, 1979), the Hazen methodis often considered appropriate for sands with d_{10} values between 0.1 and 3.0 mm (Fetter, 1988) and coefficient of uniformity (Cu) values less than 5 (Hendry, 1991). While the Hazen equation may not be applicable for fine-grained soils, it is commonly used to obtain rough hydraulic conductivity estimates for all soil types. For consistency, a Hazen K value was reported for all samples.

- Kozeny-Carman (1937). This method incorporates fluid properties (specific weight and viscosity), effective porosity, a shape factor, an empirical coefficient, and the specific surface area. The Kozeny-Carman equation is given by (Carrier, 2003):

  $$K = \left(\frac{\gamma}{\mu}\right)\left(\frac{1}{C}\right)\left(\frac{1}{S_0^2}\right)\left[\frac{e^3}{(1+e)}\right]$$

  $$S_0 = s_f \sum \frac{f_i}{d_i}$$

  $$e = \frac{\eta}{1-\eta}$$

  where K is in cm/sec, γ = specific weight of water (assumed to be 0.009789 N/cm^3), μ = dynamic viscosity of water (assumed to be 1.0e-7 N*s/cm^2), C = empirical Kozeny-Carman coefficient (assumed to be 5.0), S_0 = specific surface area per unit volume of particles (1/cm), s_f = shape factor (assumed to be 6), f_i = fraction of particles in the *i*th increment of the grain size curve, d_i = particle size of the *i*th increment of the grain size curve, e = void ratio, and η = effective porosity

(assumed to be 0.3). The assumed effective porosity of 0.3 is within literature ranges for effective porosity of sands, silts, and clays (Rawls et al., 1983).

- Barr (2001). This method modifies the Kozeny-Carman equation to use a hydraulic radius calculated from the effective porosity and surface area of the porous medium instead of the specific surface area. The Barr equation is given by:

$$K = \frac{\gamma \eta m^2}{5\mu}$$

$$m = \frac{\eta}{S_0(1-\eta)}$$

$$S_0 = 3C_s \sum \frac{f_i}{\left(d_i/2\right)}$$

where K is in cm/sec, γ = specific weight of water, μ = dynamic viscosity of water, η = effective porosity, m = hydraulic radius, S_0 = surface area per unit mass of solid material, C_s = shape factor (assumed to be 1.1), f_i = fraction of particles in the *i*th increment of the grain size curve, and d_i = particle size of the *i*th increment of the grain size curve. The same values as for the Kozeny-Carman equation were assumed for the fluid specific weight, fluid viscosity, and effective porosity.

These empirical methods provide rough, screening-level estimates of hydraulic conductivity and one method is not clearly superior to another. Therefore, for the purposes of this study all three methods were used to estimate hydraulic conductivity from the grain-size distributions. In the main body of the report, the hydraulic conductivity estimates for each sample are presented as a composite of all three methods.

This memo is followed by a table and plots of the grain size distributions for each sample. Hydraulic conductivity estimates for each sample is summarized in Table G.3.2.

References

Barr D.W., 2001, Coefficient of Permeability Determined by Measurable Parameters. Ground Water v. 39, no. 3 pg. 356-361.

Carman, P.C., 1937. Fluid flow through granular beds. *Transactions* 15, 4-20. London: Institution of Chemical Engineers.

Carrier, W.D III, 2003. Goodbye, Hazen; Hello, Kozeny-Carman. Journal of Geotechnical and Geoenvironmental Engineering, v. 129 no. 11 pg. 1054-1056.

Fetter, C.W., 1988. Applied Hydrogeology, Merrill Publishing Company, Columbus, Ohio. 592 p.

Hazen, A., 1911. Discussion: dams on sand foundations. Transactions of the American Society of Civil Engineers 73:199–203.

Hendry, M.J., 1991. Grain-Size Analysis. Booklet 8, Analysis and Design of Aquifer Tests. National Water Well Association, Dublin, Ohio.

Rawls, W.J., Brakensiek, D.L. and Miller, N., 1983. Green-Ampt infiltration parameters from soils data. Journal of Hydraulic Engineering, 109(1), pp.62-70.

Table G.3.1
Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

General Parameters [% passing]			0.001 mm	0.002 mm	0.005 mm	0.020 mm	0.050 mm	0.064 mm	0.075 mm	0.15 mm	0.30 mm	0.60 mm	1.18 mm	2.36 mm	3.35 mm	4.75 mm	19 mm	37.5 mm	75 mm
Location	Date	Depth																	
D01	9/13/2017	0-5 ft	< 0.50 U	1.0	2.0	4.5	9.0	12.0	13.3	18.3	23.6	29.8	36.0	40.8	46.5	52.1	88.9	100	100
		5-11 ft	15.0	23.0	35.0	58.0	66.5	68.5	69.9	71.9	73.8	76.1	78.7	81.9	87.0	90.8	100	100	100
		11-14 ft	2.5	3.0	7.0	17.0	26.5	30.0	31.6	35.8	39.5	44.5	51.2	58.2	65.4	73.2	97.6	100	100
		14-20 ft	< 0.50 U	2.5	7.5	20.5	34.5	40.5	42.7	47.5	49.9	52.3	55.5	60.6	65.1	71.3	87.8	100	100
		20-29 ft	2.0	4.5	8.5	22.0	34.5	39.0	40.9	45.7	48.5	50.2	53.4	57.7	65.7	72.9	89.8	100	100
D02	9/20/2017	0-0.5 ft	0.50	0.50	2.0	11.5	21.5	28.0	29.6	36.3	42.1	49.8	57.1	62.9	70.2	80.4	100	100	100
		0.5-2 ft	< 0.50 U	0.50	1.5	6.0	11.5	13.5	14.7	18.4	22.3	27.5	32.4	38.3	44.3	51.9	92.2	100	100
		2-5 ft	< 0.50 U	0.50	1.5	3.5	7.0	8.5	9.6	12.1	14.9	18.3	21.1	23.7	26.5	29.8	60.0	91.1	100
D03	8/28/2017	0-10 ft	< 0.50 U	< 0.50 U	< 0.50 U	1.5	3.5	4.0	4.6	5.5	6.7	11.1	21.3	28.0	31.0	34.8	55.7	96.3	100
		10-20 ft	< 0.50 U	< 0.50 U	< 0.50 U	1.5	3.5	4.5	5.2	6.5	8.3	12.8	24.5	41.5	51.4	62.9	89.6	100	100
D05	8/28/2017	0-1.5 ft	1.5	4.5	11.0	33.0	51.5	59.5	62.0	66.3	70.2	75.5	80.4	84.0	90.4	94.2	100	100	100
		1.5-15 ft	7.5	9.5	14.5	25.0	33.0	38.5	41.1	51.7	60.6	64.8	67.0	68.6	75.5	80.0	84.8	84.8	100
		15-20 ft	3.0	8.0	14.5	29.0	36.0	38.5	39.4	42.5	46.2	50.7	55.7	61.2	69.7	78.1	94.5	100	100
		20-27 ft	2.5	7.5	12.5	27.5	38.0	42.5	44.7	51.2	56.3	61.0	65.7	69.7	80.8	88.9	100	100	100
D06	9/22/2017	0.1-2.5 ft	< 0.50 U	1.5	3.5	11.0	21.0	25.0	26.6	33.3	40.8	47.0	50.8	54.1	57.2	71.3	84.0	85.6	100
		2.5-10 ft	< 0.50 U	0.50	1.5	5.0	11.5	13.5	14.7	18.8	23.1	29.4	35.0	41.6	49.0	58.7	87.7	100	100
D07	9/08/2017	0-1 ft	0.50	2.0	4.0	11.0	21.5	28.0	30.5	37.7	44.1	51.9	57.4	61.4	66.2	71.1	91.5	100	100
		1-10 ft	3.5	6.0	10.0	18.0	33.5	42.0	45.2	54.6	58.7	62.3	64.8	66.5	70.8	76.7	88.8	100	100
		10-20 ft	5.0	7.0	10.0	20.0	39.5	50.0	54.4	67.0	72.2	76.7	80.0	82.1	87.0	90.2	93.3	100	100
		20-28 ft	3.5	5.0	8.0	17.0	37.5	47.5	51.1	62.3	67.3	71.9	75.7	78.3	84.1	88.9	96.3	100	100
		28-31 ft	0.50	1.5	2.5	7.0	14.0	17.5	19.1	23.6	27.4	33.3	40.1	46.4	51.7	56.5	76.6	92.5	100
		33-40 ft	4.5	7.5	11.5	22.0	34.0	40.0	42.3	48.1	51.6	55.5	58.1	59.5	64.0	68.2	90.2	100	100
		40-50 ft	6.0	9.0	13.5	25.0	44.5	53.0	56.1	65.1	70.6	77.4	83.2	85.7	88.9	91.6	97.5	100	100
		50-60 ft	7.5	12.0	16.0	27.0	44.5	51.5	53.3	58.4	61.7	65.1	67.7	69.7	74.1	77.2	91.4	100	100
	9/09/2017	60-75 ft	6.5	8.0	11.0	20.0	37.0	44.5	47.0	54.6	59.3	64.2	67.7	69.2	73.2	77.0	97.6	100	100
		75-78 ft	7.0	8.5	11.0	16.5	31.5	37.0	39.7	47.2	52.4	57.9	61.1	62.1	66.4	70.9	85.3	100	100
		80-85 ft	18.5	20.0	22.0	30.0	52.5	62.0	65.1	74.6	82.4	88.2	90.5	90.9	96.1	98.7	100	100	100
		85-87 ft	14.0	15.0	17.0	24.5	45.0	53.0	56.8	66.6	75.5	83.7	86.9	87.9	90.2	91.4	95.8	100	100
		90-92 ft	12.5	13.0	15.0	22.0	47.0	57.0	60.7	69.2	77.3	85.2	89.4	90.6	92.8	94.4	99.2	100	100
		95-100 ft	13.0	15.5	19.5	32.5	55.5	63.5	67.1	75.9	85.7	93.0	96.7	97.8	98.6	99.0	100	100	100
		100-110 ft	17.0	18.0	21.0	30.0	52.5	62.0	65.2	74.2	83.4	91.4	95.0	95.9	97.8	98.5	100	100	100
	9/10/2017	110-123 ft	10.0	11.5	13.0	23.0	50.0	60.0	64.1	74.4	85.7	94.0	96.7	97.4	98.9	99.4	100	100	100
		125-132 ft	< 0.50 U	1.5	2.5	10.0	29.0	40.0	44.5	55.9	68.9	83.5	93.7	96.7	97.9	98.7	100	100	100
		132-144 ft	< 0.50 U	1.5	2.5	6.0	20.0	28.0	31.5	46.9	70.6	88.1	92.5	94.2	95.4	96.8	100	100	100
		144-157 ft	2.5	3.0	4.0	8.0	22.5	32.0	35.0	44.8	53.8	62.3	67.5	70.7	73.6	77.9	94.8	100	100
	9/11/2017	159-163 ft	12.0	13.5	17.5	23.5	38.0	44.0	46.7	52.6	58.3	67.9	75.8	79.7	87.5	92.0	100	100	100
		163-170 ft	16.5	27.0	41.5	72.0	82.5	86.5	88.3	91.3	93.3	94.9	96.3	96.6	99.3	99.9	100	100	100
		170-190 ft	13.5	22.0	34.5	58.0	72.0	75.5	77.0	81.6	86.0	90.7	95.4	97.7	99.5	99.9	100	100	100
		190-200 ft	27.0	37.5	52.0	72.5	84.5	88.0	89.8	91.9	93.1	96.4	99.0	99.1	99.7	99.9	100	100	100
D09	10/16/2017	0-15 ft	< 0.50 U	< 0.50 U	0.50	4.0	9.0	11.5	12.4	15.8	20.0	29.5	40.4	48.7	51.9	55.4	75.5	100	100
		15-26 ft	< 0.50 U	1.0	2.0	5.0	8.5	10.0	10.9	13.6	15.8	18.7	22.0	25.2	27.3	29.5	51.8	81.7	100
		26-34 ft	8.0	12.5	17.0	28.0	43.5	49.0	52.0	61.7	70.0	78.0	83.1	87.4	91.2	93.4	100	100	100
		34-70 ft	7.5	12.0	18.0	31.5	48.0	52.0	54.1	62.6	68.5	75.1	79.5	83.5	87.8	90.6	97.6	100	100

Table G.3.1
Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

General Parameters [% passing]			0.001 mm	0.002 mm	0.005 mm	0.020 mm	0.050 mm	0.064 mm	0.075 mm	0.15 mm	0.30 mm	0.60 mm	1.18 mm	2.36 mm	3.35 mm	4.75 mm	19 mm	37.5 mm	75 mm
Location	Date	Depth																	
D10	10/08/2017	0-20 ft	3.5	5.0	7.5	17.5	30.0	35.0	37.5	44.0	49.1	55.0	60.6	65.9	70.4	74.1	87.0	93.1	100
		20-30 ft	7.5	12.5	20.5	38.5	55.5	61.0	62.9	69.7	74.6	79.9	85.0	88.2	89.4	91.0	96.8	100	100
		30-60 ft	6.5	10.5	17.0	32.5	44.5	49.5	51.7	57.3	61.6	66.3	69.9	73.4	77.7	81.0	89.5	93.8	100
	10/10/2017	60-90 ft	6.5	12.0	18.5	36.0	50.0	55.5	57.4	63.2	67.8	73.2	78.6	82.3	83.3	85.1	94.5	100	100
		90-93 ft	12.5	17.5	25.5	44.5	61.5	67.5	69.7	77.2	83.8	93.5	97.7	98.5	99.6	99.8	100	100	100
		93-101 ft	4.0	7.5	11.5	20.5	32.0	38.5	41.6	53.0	63.0	76.6	84.6	85.8	91.8	93.1	98.6	100	100
		101-105 ft	< 0.50 U	< 0.50 U	3.0	10.5	25.5	33.5	36.7	50.6	68.9	91.8	96.6	97.1	98.4	98.9	100	100	100
		105-107 ft	2.0	4.5	8.0	17.5	35.5	42.5	45.6	62.4	79.0	89.1	94.0	95.6	96.9	97.6	99.2	100	100
D11	9/26/2017	1-20 ft	4.5	7.0	11.0	22.0	34.0	39.0	41.3	47.2	51.2	55.4	59.1	62.5	66.8	70.2	84.2	100	100
		23-50 ft	5.0	10.0	16.0	28.0	42.5	48.0	50.1	56.9	62.0	68.4	71.9	74.9	77.4	80.4	92.2	100	100
		50-80 ft	10.0	15.5	22.0	36.5	51.0	56.5	57.7	64.4	68.6	73.4	76.4	78.7	83.8	87.0	97.9	100	100
		80-89 ft	16.0	18.5	23.5	36.5	50.5	56.0	57.8	65.2	68.4	71.4	73.6	74.8	79.6	83.2	96.3	100	100
		89-96 ft	13.5	18.0	26.5	42.0	54.0	58.0	59.9	63.1	64.7	66.0	67.4	68.6	75.1	80.0	88.7	100	100
		102-104 ft	3.0	5.0	8.5	17.5	26.5	29.5	30.5	31.1	31.5	32.4	34.0	35.7	38.0	41.6	64.0	80.3	100
		104-121 ft	10.0	12.5	16.5	27.0	49.5	57.5	60.7	66.0	67.8	69.9	73.5	75.6	80.9	84.4	97.1	100	100
	9/27/2017	121-123 ft	24.5	31.0	40.5	61.0	70.5	73.5	74.9	78.3	79.8	81.1	82.7	84.0	92.3	95.3	100	100	100
		123-144 ft	9.0	12.5	20.5	38.5	50.5	55.0	56.9	61.2	64.0	67.0	70.4	73.4	82.0	87.3	96.7	100	100
		144-145 ft	0.50	1.5	4.0	8.0	15.0	19.0	20.8	27.1	36.3	52.1	63.8	68.0	70.5	73.8	90.5	100	100
D12	10/03/2017	0-7.5 ft	3.0	4.5	8.0	20.5	31.0	34.5	36.5	42.5	46.7	50.9	55.2	60.4	65.2	69.7	87.8	100	100
		7.5-12 ft	3.5	5.0	8.0	20.0	33.5	37.5	39.3	45.1	49.3	53.6	58.2	64.9	72.4	79.9	97.4	100	100
		12-30 ft	1.0	4.5	10.0	23.0	34.5	38.0	39.7	43.8	47.7	52.1	56.5	62.5	67.4	72.0	87.2	100	100
	10/04/2017	30-37 ft	1.5	5.5	11.5	28.0	40.5	44.5	46.3	50.8	54.9	59.9	65.9	74.2	79.7	84.5	99.3	100	100
D13	9/06/2017	0-1 ft	< 0.50 U	3.0	8.0	17.5	27.0	32.5	35.3	44.8	55.1	68.2	80.2	88.0	91.2	93.7	100	100	100
		1-10 ft	3.5	7.0	11.5	21.0	35.5	42.5	45.7	55.3	62.0	68.1	73.7	79.0	83.5	86.3	100	100	100
		10-15 ft	1.5	3.5	7.0	14.5	27.0	32.5	35.0	42.0	47.4	53.0	59.0	64.8	69.0	71.8	85.3	100	100
		15-25 ft	1.5	2.5	5.0	13.0	23.0	28.0	29.8	36.3	40.9	45.7	51.2	59.4	64.6	69.5	91.1	100	100
D14	8/29/2017	0-1.3 ft	< 0.50 U	1.5	6.0	19.5	32.0	37.5	39.6	46.2	51.7	58.0	63.5	68.3	73.1	76.4	85.2	100	100
		1.5-3 ft	6.5	10.5	18.0	33.0	48.0	55.0	57.6	65.3	70.1	74.4	77.8	79.7	90.2	95.7	100	100	100
		3-9 ft	< 0.50 U	1.5	2.5	7.5	15.0	18.5	20.1	25.6	29.5	32.8	36.5	41.3	46.3	52.1	75.6	100	100
		9-12 ft	5.0	7.5	10.5	18.5	34.0	41.5	44.7	53.4	56.6	58.0	59.0	60.3	68.5	73.0	84.0	91.8	100
D15	10/18/2017	0.5-15 ft	2.5	5.0	10.0	21.5	38.0	45.0	48.0	56.0	60.8	65.7	70.3	75.3	89.9	84.0	94.2	100	100
		15-75 ft	5.5	10.0	16.0	30.0	45.0	50.0	52.2	59.2	63.5	67.3	71.3	75.6	81.1	85.6	95.6	100	100
D16	9/20/2017	1.1-8 ft	2.5	7.0	11.5	24.0	35.5	39.5	41.5	47.3	51.4	55.2	58.7	62.5	75.0	84.1	92.9	100	100
		8-10 ft	4.0	8.0	13.5	30.0	45.5	52.0	54.7	67.3	78.3	85.8	89.5	92.8	94.2	94.8	98.8	100	100
		10-23 ft	7.0	13.0	21.0	36.0	54.5	61.0	63.7	73.9	80.6	86.2	89.8	92.4	95.2	96.3	98.5	100	100
		23-27 ft	10.5	16.5	23.5	38.5	49.5	52.0	53.7	57.0	58.6	59.7	60.2	60.6	71.5	81.4	91.7	100	100
		27-28.5 ft	1.5	2.5	4.5	10.0	16.5	19.0	20.2	24.1	27.6	32.1	34.9	36.7	45.3	56.7	95.0	100	100
		28.5-30 ft	5.0	8.5	13.5	25.5	38.5	45.5	48.0	56.6	62.9	69.2	72.7	74.7	79.0	82.4	94.1	100	100
	9/21/2017	30-37 ft	8.0	9.5	12.5	22.0	30.5	34.0	35.7	40.5	44.3	48.7	52.0	55.2	60.3	64.9	78.0	100	100
D17	10/06/2017	0-9 ft	< 0.50 U	1.0	4.5	12.5	16.0	18.0	18.7	22.1	27.1	33.9	42.8	54.9	63.3	71.2	94.8	100	100
		9-10 ft	< 0.50 U	4.5	13.0	28.5	37.0	40.0	41.5	47.5	56.3	66.0	75.5	84.9	89.4	93.6	100	100	100
D18	8/25/2017	0-1.7 ft	10.0	14.0	24.5	62.0	82.0	87.0	88.7	89.2	89.6	90.3	91.3	92.2	95.7	98.0	100	100	100
		1.7-7.5 ft	19.0	28.5	43.5	76.0	85.0	86.5	87.0	87.2	87.2	87.3	87.3	87.4	91.3	94.4	100	100	100
		7.5-8.7 ft	28.0	63.5	78.0	92.0	94.5	95.0	95.2	95.2	95.3	95.3	95.3	95.3	99.1	99.5	100	100	100
		8.7-19 ft	18.0	32.5	58.5	90.5	95.0	96.0	97.0	97.2	97.6	97.7	97.8	97.9	99.8	100	100	100	100
	8/27/2017	19-25 ft	2.5	5.5	10.5	21.0	31.0	34.0	35.9	40.0	45.1	50.4	55.9	62.9	71.8	79.7	99.4	100	100

Table G.3.1
Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

General Parameters [% passing]			0.001 mm	0.002 mm	0.005 mm	0.020 mm	0.050 mm	0.064 mm	0.075 mm	0.15 mm	0.30 mm	0.60 mm	1.18 mm	2.36 mm	3.35 mm	4.75 mm	19 mm	37.5 mm	75 mm
Location	Date	Depth																	
D19	8/30/2017	0-1.5 ft	2.5	3.0	7.0	18.0	28.0	33.0	34.5	39.2	42.4	45.8	49.0	51.4	59.5	68.1	91.7	100	100
		1.5-3 ft	4.5	8.0	13.0	25.0	38.0	42.5	44.3	49.5	53.1	56.4	59.0	61.6	70.3	79.1	92.8	100	100
D20	9/18/2017	20-24 ft	2.5	5.5	10.0	27.5	50.5	59.0	63.1	71.2	74.2	76.6	78.4	79.9	82.1	83.8	91.8	100	100
		24-40 ft	2.0	4.5	8.5	22.0	38.5	44.5	47.2	52.8	56.4	59.9	64.2	69.2	77.0	82.6	94.2	100	100
		48-50 ft	3.0	5.0	10.0	23.0	38.0	44.5	47.4	57.2	65.3	73.3	78.0	81.9	85.6	88.7	96.1	100	100
	9/19/2017	50-60 ft	4.5	8.0	15.5	36.5	55.0	63.0	66.1	77.1	86.8	92.5	94.3	95.8	97.4	98.2	100	100	100
		60-61 ft	1.0	4.0	8.5	19.5	30.5	35.5	38.0	50.1	59.4	63.4	67.6	73.6	77.8	82.5	100	100	100
		63-68 ft	1.5	5.0	11.5	24.0	33.5	37.5	39.0	44.2	49.2	54.8	61.3	68.4	76.5	83.3	95.4	100	100
		68.5-70 ft	10.0	16.5	28.0	53.5	73.5	81.0	83.4	92.6	95.3	96.2	97.1	98.3	99.1	99.5	100	100	100
		70-74 ft	2.0	4.0	8.0	15.5	22.0	25.5	27.0	31.2	34.4	37.7	41.8	47.9	55.7	62.9	86.0	100	100
		75-77 ft	3.0	7.5	12.0	22.0	34.5	39.0	41.6	50.7	57.0	62.4	67.6	72.3	80.7	86.5	97.8	100	100
		78-79 ft	6.0	10.0	14.5	24.0	37.5	42.5	45.3	55.3	62.1	66.2	70.1	75.0	79.0	83.7	100	100	100
D21	10/05/2017	0-3.5 ft	< 0.50 U	2.5	7.0	25.0	39.5	45.5	47.9	54.0	59.5	65.5	70.5	74.1	79.4	83.4	100	100	100
		3.5-17 ft	< 0.50 U	< 0.50 U	2.5	14.5	36.0	45.5	49.7	59.9	64.5	68.0	71.5	75.1	78.0	80.6	89.7	100	100
D22	10/06/2017	0-1 ft	2.5	7.5	13.0	26.5	42.0	48.0	51.0	59.1	64.9	70.8	75.8	80.8	85.5	89.3	99.3	100	100
		1-11 ft	7.0	11.5	17.0	32.5	44.0	48.0	49.9	54.7	58.2	61.8	65.6	70.7	77.4	82.9	94.9	100	100
		12.5-15 ft	4.5	8.5	15.0	29.5	45.0	51.0	53.3	59.4	64.4	69.9	75.8	80.9	84.0	87.7	97.9	100	100
D23	9/07/2017	0-2 ft	< 0.50 U	2.0	4.5	11.5	18.0	20.5	22.0	26.4	30.8	37.6	45.7	53.3	59.2	64.8	88.7	100	100
		5-10 ft	4.0	5.5	9.0	17.0	26.0	29.5	31.3	38.2	45.2	48.1	51.1	54.7	58.8	62.4	84.5	100	100
		10-15 ft	10.5	15.0	24.5	44.0	58.0	62.5	64.1	66.8	69.0	71.2	73.6	76.0	82.2	86.2	95.5	100	100
		15-38 ft	12.0	17.0	25.5	45.0	55.0	57.5	59.0	62.1	65.1	68.5	72.3	77.1	82.8	89.2	100	100	100
		38-43 ft	4.5	7.5	14.0	36.0	44.5	47.5	48.6	52.6	58.4	66.4	76.0	84.7	90.4	95.0	100	100	100
		43-50 ft	1.0	5.5	12.5	34.5	47.0	50.0	51.6	56.5	63.7	73.3	83.3	89.7	92.9	95.8	100	100	100
D24	9/23/2017	0-8 ft	10.5	16.5	27.5	49.0	61.5	65.0	66.8	70.9	74.1	77.4	80.9	85.1	91.6	94.6	100	100	100
		9-45 ft	10.0	15.0	24.5	45.0	55.5	59.0	60.6	64.2	67.1	70.3	73.9	78.7	83.4	87.5	98.2	100	100
	9/24/2017	45-48 ft	8.0	10.0	15.5	33.5	56.5	64.0	67.2	73.3	75.9	77.8	79.8	81.6	86.5	90.0	98.6	100	100
		48-51 ft	2.0	5.0	7.5	27.0	62.0	73.5	78.3	84.1	85.4	86.1	87.4	89.4	93.6	96.4	100	100	100
		51-70 ft	17.0	20.5	27.5	48.0	71.0	77.0	79.5	83.9	86.1	87.6	88.7	89.7	94.0	96.8	100	100	100
D25	9/22/2017	1.1-5 ft	< 0.50 U	< 0.50 U	< 0.50 U	2.0	9.5	14.5	17.0	31.5	51.8	67.9	73.8	76.5	77.7	78.8	85.2	100	100
		5-9.5 ft	2.0	5.0	9.0	19.0	32.5	39.0	41.2	50.3	55.9	61.5	65.3	68.5	73.3	77.4	87.3	92.4	100
		9.5-13 ft	3.5	5.5	8.0	18.5	34.5	42.0	45.3	56.3	62.8	69.6	73.8	77.1	81.1	84.3	96.9	100	100
		15-20 ft	2.0	4.0	7.5	14.0	29.5	37.5	40.8	57.6	67.0	72.3	75.3	77.7	81.5	84.4	95.8	100	100
D26	10/10/2017	0-3.5 ft	5.0	7.0	9.5	21.0	33.0	37.5	39.6	45.5	49.5	53.6	56.9	59.8	63.9	67.0	85.7	100	100
		3.5-10 ft	6.0	9.0	14.5	32.5	46.5	49.5	50.9	55.7	60.1	65.2	70.3	75.6	80.0	84.5	95.1	100	100
	10/11/2017	10-40 ft	8.0	9.5	13.0	27.0	38.0	41.0	42.7	49.9	54.7	59.7	63.3	70.4	77.6	83.7	95.0	100	100
S02	9/12/2017	0.5-1 ft	0.50	1.0	2.0	4.5	8.0	10.5	11.7	15.0	19.7	26.1	32.9	40.8	49.1	60.9	94.6	100	100
		1-1.5 ft	0.50	1.5	3.0	5.5	9.0	11.5	12.9	16.9	22.6	31.4	38.6	43.1	48.3	55.1	83.5	100	100
SG3-MW17-BR1	9/27/2017	21-30.5 ft	5.0	7.0	11.5	23.5	38.5	44.5	46.9	55.8	63.2	72.4	78.6	83.1	88.3	91.3	98.7	100	100
		30.5-33 ft	2.0	3.0	5.0	8.5	17.5	22.5	25.0	38.7	60.7	79.2	88.3	93.1	95.8	97.5	100	100	100
		33-130 ft	5.5	9.5	16.0	31.0	44.5	50.0	52.3	59.6	65.7	72.4	77.0	80.3	84.8	88.8	97.9	100	100
	9/29/2017	130-137 ft	9.0	11.5	14.5	19.0	26.5	29.0	30.4	36.1	40.9	47.8	53.8	59.7	66.5	73.8	92.3	100	100
	10/09/2017	170-180 ft	3.0	15.0	32.5	54.0	67.5	70.0	70.9	78.3	84.2	88.9	92.4	95.4	97.0	98.1	100	100	100
		193-195 ft	< 0.50 U	2.5	16.5	42.5	54.5	59.0	60.9	66.2	73.3	81.4	89.2	94.2	96.7	98.0	100	100	100
		223-260 ft	4.0	12.5	26.0	55.5	66.0	69.0	70.4	76.3	80.7	84.5	88.5	92.3	95.3	96.6	100	100	100
		260-285 ft	4.0	10.5	20.5	38.0	46.5	47.0	47.4	50.6	54.8	60.5	67.4	75.8	80.0	83.8	94.1	100	100
		290-299 ft	10.0	19.0	37.0	66.5	80.5	84.0	85.2	89.3	92.2	95.0	96.8	98.1	99.5	99.8	100	100	100

Table G.3.1
Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

General Parameters [% passing]			0.001 mm	0.002 mm	0.005 mm	0.020 mm	0.050 mm	0.064 mm	0.075 mm	0.15 mm	0.30 mm	0.60 mm	1.18 mm	2.36 mm	3.35 mm	4.75 mm	19 mm	37.5 mm	75 mm
Location	Date	Depth																	
SG3-MW17-BR2	10/12/2017	134-135 ft	1.0	1.0	1.5	6.5	13.0	17.0	18.5	25.5	36.4	55.8	70.0	77.4	79.3	81.4	96.1	100	100
SG3-MW17-BR3	10/23/2017	0 - 7.5 ft	0.50	0.50	1.0	6.0	10.0	11.0	12.1	16.1	21.7	31.7	42.2	49.3	53.8	58.7	93.3	100	100
		7.5 - 40 ft	5.0	5.0	18.5	34.0	49.0	53.5	55.6	63.0	68.1	73.6	77.5	80.8	85.8	88.8	96.4	100	100
		40 - 83 ft	13.0	14.0	17.0	32.0	46.0	50.0	53.2	61.2	66.8	72.9	77.0	80.5	83.9	86.5	92.4	100	100
	10/24/2017	83 - 90 ft	27.0	39.0	54.0	79.0	90.0	93.0	93.6	95.3	96.2	97.1	97.8	98.1	98.5	98.8	100	100	100
		90 -96 ft	17.0	17.0	20.0	38.0	48.0	55.0	57.9	70.1	82.6	94.1	98.1	99.1	99.5	99.7	100	100	100
		96 - 106 ft	7.0	8.5	15.0	30.0	48.0	53.0	55.3	70.3	85.3	95.5	99.2	99.8	99.8	99.9	100	100	100
SG3-MW17-BR4	10/21/2017	0.3 - 2.2 ft	< 0.50 U	< 0.50 U	< 0.50 U	2.0	7.0	9.0	9.7	12.6	15.2	18.6	22.7	29.9	35.4	43.1	87.6	100	100
		29 - 67 ft	6.0	7.0	9.0	23.0	45.0	50.0	53.3	62.0	67.2	72.6	76.4	78.6	82.6	96.7	100	100	100
		67 - 80 ft	3.0	3.0	5.0	16.0	55.0	78.0	86.5	99.1	99.7	99.8	99.9	99.9	100	100	100	100	100
		84 - 92 ft	6.0	7.0	9.0	15.0	22.0	27.0	28.3	34.1	42.8	59.2	66.9	71.0	76.0	81.9	93.0	100	100
	10/22/2017	92 - 97 ft	16.0	30.0	50.0	85.0	95.0	96.0	97.2	98.5	98.7	99.1	99.2	99.2	99.9	100	100	100	100
	10/30/2017	97 - 167 ft	4.0	17.0	36.0	66.0	78.0	82.0	83.3	89.5	93.5	96.8	98.6	99.1	99.6	99.7	100	100	100
		167 - 207 ft	5.0	8.0	13.0	30.0	49.0	58.0	60.4	71.6	80.1	91.3	98.4	99.3	99.5	99.7	100	100	100
		207 - 287 ft	5.0	10.0	18.0	41.0	58.0	63.0	65.8	73.2	75.2	77.8	81.0	82.5	87.3	90.9	100	100	100
	11/1/2017	334 - 335 ft	< 0.50 U	3.0	8.0	23.0	30.0	35.0	36.0	39.9	43.3	47.9	54.7	61.4	68.6	76.6	95.4	100	100
		353 - 354 ft	4.0	13.0	29.0	54.0	64.5	69.0	69.8	74.4	78.0	81.3	84.5	88.1	91.2	93.6	100	100	100
		374 - 375 ft	3.0	5.0	8.0	18.0	25.0	27.0	26.9	28.6	30.5	33.4	37.5	43.2	53.1	64.2	90.0	100	100
	11/2/2017	394 - 395 ft	1.0	1.0	3.0	12.0	20.0	25.0	27.6	38.8	49.0	63.6	93.5	100	100	100	100	100	100

Table G.3.2
Hydraulic Conductivity Estimates from Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location	Date	Depth	Field USCS Classification	Hydraulic Conductivity (feet/day)		
				Barr	Kozeny-Carmen	Hazen
D01	9/13/2017	0 - 5 ft	SP	1.5E+00	1.8E+00	8.5E+00
		5 - 11 ft	CL	6.2E-03	7.6E-03	2.0E-03
		11 - 14 ft	SP	1.7E-01	2.0E-01	1.9E-01
		14 - 20 ft	CL-ML	2.0E-01	2.5E-01	1.4E-01
		20 - 29 ft	CL-ML	1.1E-01	1.4E-01	1.1E-01
D02	9/20/2017	0 - 0.5 ft	OL-OH	8.6E-01	1.0E+00	8.3E-01
		0.5 - 2 ft	SM	1.8E+00	2.2E+00	4.6E+00
		2 - 5 ft	QUARTZITE	2.6E+00	3.1E+00	1.9E+01
D03	8/28/2017	0 - 10 ft	SP	4.9E+00	6.0E+00	8.2E+02
		10 - 20 ft	SP	4.7E+00	5.7E+00	5.0E+02
D05	8/28/2017	0 - 1.5 ft	OL-OH	7.9E-02	9.6E-02	5.8E-02
		1.5 - 15 ft	CL	1.1E-02	1.4E-02	1.4E-02
		15 - 20 ft	CL	5.0E-02	6.1E-02	2.0E-02
		20 - 27 ft	CL	6.0E-02	7.2E-02	2.9E-02
D06	9/22/2017	0.1 - 2.5 ft	SC	5.5E-01	6.7E-01	8.8E-01
		2.5 - 10 ft	SM,GP	1.9E+00	2.3E+00	4.9E+00
D07	9/08/2017	0 - 1 ft	OL-OH	4.5E-01	5.4E-01	8.7E-01
		1 - 10 ft	CL	7.5E-02	9.2E-02	7.1E-02
		10 - 20 ft	CL	5.4E-02	6.5E-02	7.1E-02
		20 - 28 ft	CL	8.9E-02	1.1E-01	1.6E-01
		28 - 31 ft	SP	8.7E-01	1.1E+00	3.0E+00
		33 - 40 ft	CL	5.3E-02	6.5E-02	3.8E-02
		40 - 50 ft	CL	3.5E-02	4.3E-02	1.8E-02
		50 - 60 ft	CL	2.4E-02	3.0E-02	5.5E-03
	9/09/2017	60 - 75 ft	CL	1.5E-02	1.9E-02	4.3E-02
		75 - 78 ft	CL	1.4E-02	1.8E-02	3.6E-02
		80 - 85 ft	CL	2.7E-03	3.2E-03	9.8E-04
		85 - 87 ft	CL	4.5E-03	5.5E-03	1.6E-03
		90 - 92 ft	CL	5.6E-03	6.8E-03	1.9E-03
		95 - 100 ft	ML	4.5E-03	5.5E-03	1.8E-03
		100 - 110 ft	CL	3.1E-03	3.8E-03	1.1E-03
	9/10/2017	110 - 123 ft	ML	7.7E-03	9.4E-03	2.8E-03
		125 - 132 ft	SP	5.0E-01	6.1E-01	1.1E+00
		132 - 144 ft	SP	6.6E-01	8.0E-01	2.6E+00
		144 - 157 ft	SP	2.5E-01	3.0E-01	1.8E+00
	9/11/2017	159 - 163 ft	SC	5.7E-03	6.9E-03	2.1E-03
		163 - 170 ft	CL	4.6E-03	5.5E-03	1.8E-03
		170 - 190 ft	CL	6.7E-03	8.2E-03	2.2E-03
		190 - 200 ft	CL	9.8E-04	1.2E-03	5.3E-04

Table G.3.2
Hydraulic Conductivity Estimates from Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location	Date	Depth	Field USCS Classification	Hydraulic Conductivity (feet/day)		
				Barr	Kozeny-Carmen	Hazen
D09	10/16/2017	0 - 15 ft	SM-SC	2.8E+00	3.4E+00	8.7E+00
		15 - 26 ft	GP-GM	1.6E+00	1.9E+00	1.2E+01
		26 - 34 ft	CL	2.2E-02	2.7E-02	4.7E-03
		34 - 70 ft	CL	2.2E-02	2.7E-02	5.7E-03
D10	10/08/2017	0 - 20 ft	SM	9.9E-02	1.2E-01	1.9E-01
		20 - 30 ft	SM	1.9E-02	2.3E-02	5.4E-03
		30 - 60 ft	CL-ML	2.6E-02	3.2E-02	9.6E-03
	10/10/2017	60 - 90 ft	CL-ML	2.2E-02	2.7E-02	6.6E-03
		90 - 93 ft	CL	1.0E-02	1.2E-02	2.3E-03
		93 - 101 ft	SP-SM	5.7E-02	6.9E-02	3.7E-02
		101 - 105 ft	SP	6.3E-01	7.7E-01	1.0E+00
		105 - 107 ft	SM	1.2E-01	1.4E-01	1.5E-01
D11	9/26/2017	1 - 20 ft	CL-ML	5.7E-02	6.9E-02	4.8E-02
		23 - 50 ft	CL	3.3E-02	4.0E-02	1.1E-02
		50 - 80 ft	CL	1.4E-02	1.7E-02	2.8E-03
		80 - 89 ft	CL	3.2E-03	3.9E-03	1.2E-03
		89 - 96 ft	CL-CH	9.6E-03	1.2E-02	2.2E-03
		102 - 104 ft	CL	1.1E-01	1.3E-01	1.3E-01
		104 - 121 ft	CL	7.1E-03	8.6E-03	2.8E-03
	9/27/2017	121 - 123 ft	CL	1.3E-03	1.6E-03	6.2E-04
		123 - 144 ft	CL-ML	7.1E-03	8.7E-03	4.0E-03
		144 - 145 ft	SP	6.2E-01	7.6E-01	2.3E+00
D12	10/03/2017	0 - 7.5 ft	GC	1.0E-01	1.3E-01	1.3E-01
		7.5 - 12 ft	CL	9.1E-02	1.1E-01	1.4E-01
		12 - 30 ft	CL	1.2E-01	1.5E-01	7.1E-02
	10/04/2017	30 - 37 ft	CL	8.3E-02	1.0E-01	4.8E-02
D13	9/06/2017	0 - 1 ft	OL-OH	2.0E-01	2.5E-01	1.4E-01
		1 - 10 ft	CL-ML	6.1E-02	7.5E-02	4.0E-02
		10 - 15 ft	CL-ML	1.9E-01	2.3E-01	2.6E-01
		15 - 25 ft	CL-ML	2.8E-01	3.4E-01	5.1E-01
D14	8/29/2017	0 - 1.3 ft	OL-OH	2.8E-01	3.4E-01	2.0E-01
		1.5 - 3 ft	CL	2.5E-02	3.1E-02	9.7E-03
		3 - 9 ft	SM	8.4E-01	1.0E+00	2.4E+00
		9 - 12 ft	SM	5.4E-02	6.6E-02	5.5E-02

Table G.3.2
Hydraulic Conductivity Estimates from Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location	Date	Depth	Field USCS Classification	Hydraulic Conductivity (feet/day)		
				Barr	Kozeny-Carmen	Hazen
D15	10/18/2017	0.5 - 15 ft	ML	8.8E-02	1.1E-01	7.1E-02
		15 - 75 ft	ML	3.1E-02	3.8E-02	1.1E-02
D16	9/20/2017	1.1 - 8 ft	CL	6.9E-02	8.4E-02	4.1E-02
		8 - 10 ft	SM	4.3E-02	5.2E-02	2.3E-02
		10 - 23 ft	CL-CH	1.9E-02	2.3E-02	5.4E-03
		23 - 27 ft	CH	1.3E-02	1.6E-02	2.7E-03
		27 - 28.5 ft	SM	3.5E-01	4.3E-01	1.1E+00
		28.5 - 30 ft	CL-CH	4.1E-02	5.0E-02	2.0E-02
	9/21/2017	30 - 37 ft	CL-CH	1.1E-02	1.4E-02	1.6E-02
D17	10/06/2017	0 - 9 ft	FILL	5.9E-01	7.2E-01	4.5E-01
		9 - 10 ft	SLATE	9.6E-02	1.2E-01	4.0E-02
D18	8/25/2017	0 - 1.7 ft	OL-OH	5.1E-03	6.2E-03	2.8E-03
		1.7 - 7.5 ft	CH	3.9E-03	4.8E-03	1.7E-03
		7.5 - 8.7 ft	ML	1.3E-03	1.6E-03	1.3E-03
		8.7 - 19 ft	CH	3.0E-03	3.7E-03	1.7E-03
	8/27/2017	19 - 25 ft	CL-ML	8.8E-02	1.1E-01	6.0E-02
D19	8/30/2017	0 - 1.5 ft	OL-OH	1.6E-01	1.9E-01	1.8E-01
		1.5 - 3 ft	CL	4.6E-02	5.6E-02	2.5E-02
D20	9/18/2017	20 - 24 ft	CL	7.2E-02	8.7E-02	7.1E-02
		24 - 40 ft	CL	1.1E-01	1.3E-01	1.1E-01
		48 - 50 ft	CL	8.0E-02	9.7E-02	7.1E-02
	9/19/2017	50 - 60 ft	CL	3.4E-02	4.2E-02	2.0E-02
		60 - 61 ft	SC	1.5E-01	1.8E-01	1.1E-01
		63 - 68 ft	CL	9.6E-02	1.2E-01	4.8E-02
		68.5 - 70 ft	ML	1.0E-02	1.3E-02	2.8E-03
		70 - 74 ft	CL	1.5E-01	1.9E-01	1.6E-01
		75 - 77 ft	SC	6.2E-02	7.5E-02	3.2E-02
		78 - 79 ft	CL	3.3E-02	4.1E-02	1.1E-02
D21	10/05/2017	0 - 3.5 ft	CL-ML	1.8E-01	2.2E-01	1.4E-01
		3.5 - 17 ft	ML	5.2E-01	6.3E-01	5.9E-01
D22	10/06/2017	0 - 1 ft	ML	5.7E-02	7.0E-02	2.7E-02
		1 - 11 ft	CL	2.4E-02	2.9E-02	6.8E-03
		12.5 - 15 ft	CL	3.8E-02	4.7E-02	1.8E-02

Table G.3.2
Hydraulic Conductivity Estimates from Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

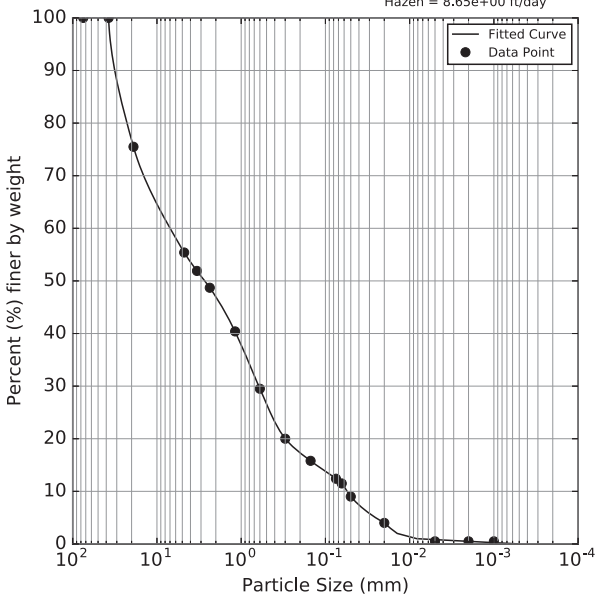
Location	Date	Depth	Field USCS Classification	Hydraulic Conductivity (feet/day)		
				Barr	Kozeny-Carmen	Hazen
D23	9/07/2017	0 - 2 ft	SC	4.6E-01	5.6E-01	6.9E-01
		5 - 10 ft	CL	8.4E-02	1.0E-01	1.1E-01
		10 - 15 ft	CL	1.3E-02	1.5E-02	2.7E-03
		15 - 38 ft	CL	4.3E-03	5.3E-03	2.1E-03
		38 - 43 ft	CL	4.0E-02	4.8E-02	2.6E-02
		43 - 50 ft	SLATE	7.4E-02	9.0E-02	4.1E-02
D24	9/23/2017	0 - 8 ft	CL	1.1E-02	1.3E-02	2.7E-03
		9 - 45 ft	CL	1.3E-02	1.6E-02	2.8E-03
	9/24/2017	45 - 48 ft	CL	2.4E-02	2.9E-02	1.1E-02
		48 - 51 ft	ML	8.5E-02	1.0E-01	1.4E-01
		51 - 70 ft	CL-ML	2.6E-03	3.2E-03	1.1E-03
D25	9/22/2017	1.1 - 5 ft	ML	2.3E+00	2.8E+00	7.6E+00
		5 - 9.5 ft	CL	1.1E-01	1.3E-01	1.0E-01
		9.5 - 13 ft	SC	8.5E-02	1.0E-01	1.5E-01
		15 - 20 ft	ML-SM	1.4E-01	1.7E-01	2.5E-01
D26	10/10/2017	0 - 3.5 ft	CL-ML	5.8E-02	7.1E-02	8.6E-02
		3.5 - 10 ft	CL-ML	3.2E-02	3.9E-02	1.7E-02
	10/11/2017	10 - 40 ft	CL	3.0E-02	3.6E-02	1.6E-02
S02	9/12/2017	0.5 - 1 ft	SM	1.5E+00	1.9E+00	1.1E+01
		1 - 1.5 ft	SM	9.6E-01	1.2E+00	8.9E+00
SG3-MW17-BR1	9/27/2017	21 - 30.5 ft	CL	5.0E-02	6.1E-02	4.3E-02
		30.5 - 33 ft	SM	2.5E-01	3.0E-01	1.8E+00
		33 - 130 ft	CL	3.1E-02	3.8E-02	1.3E-02
	9/29/2017	130 - 137 ft	OCHER	2.6E-02	3.2E-02	4.3E-03
	10/09/2017	170 - 180 ft	OCHER	1.6E-02	1.9E-02	7.2E-03
		193 - 195 ft	KAOLIN	7.1E-02	8.6E-02	3.9E-02
		223 - 260 ft	OCHER	1.8E-02	2.2E-02	7.9E-03
		260 - 285 ft	OCHER	2.8E-02	3.4E-02	1.0E-02
		290 - 299 ft	OCHER	7.7E-03	9.4E-03	2.8E-03
SG3-MW17-BR2	10/12/2017	134 - 135 ft	SP	1.2E+00	1.4E+00	3.6E+00

Table G.3.2
Hydraulic Conductivity Estimates from Grain Size Distributions
CSM Site Investigation Report
Bennington, VT
Saint-Gobain Performance Plastics

Location	Date	Depth	Field USCS Classification	Hydraulic Conductivity (feet/day)		
				Barr	Kozeny-Carmen	Hazen
SG3-MW17-BR3	10/23/2017	0 - 7.5 ft	SP-SM	2.0E+00	2.5E+00	7.1E+00
		7.5 - 40 ft	CL	4.2E-02	5.1E-02	3.8E-02
		40 - 83 ft	CL	4.9E-03	6.0E-03	1.8E-03
	10/24/2017	83 - 90 ft	CH	2.4E-03	2.9E-03	1.3E-03
		90 -96 ft	CL	3.2E-03	3.9E-03	1.1E-03
		96 - 106 ft	CL	3.0E-02	3.6E-02	2.1E-02
SG3-MW17-BR4	10/21/2017	0.3 - 2.2 ft	OL-OH	3.8E+00	4.6E+00	1.8E+01
		29 - 67 ft	CL	4.9E-02	5.9E-02	1.0E-01
		67 - 80 ft	SM	1.3E-01	1.6E-01	4.1E-01
		84 - 92 ft	SM	6.0E-02	7.3E-02	1.3E-01
	10/22/2017	92 - 97 ft	OCHER	3.7E-03	4.5E-03	1.9E-03
	10/30/2017	97 - 167 ft	KAOLIN	1.2E-02	1.4E-02	6.1E-03
		167 - 207 ft	KAOLIN	3.9E-02	4.7E-02	2.6E-02
		207 - 287 ft	KAOLIN	2.6E-02	3.2E-02	1.1E-02
	11/1/2017	334 - 335 ft	OCHER	2.1E-01	2.6E-01	1.1E-01
		353 - 354 ft	OCHER	1.7E-02	2.1E-02	7.6E-03
		374 - 375 ft	OCHER	1.1E-01	1.3E-01	1.5E-01
	11/2/2017	394 - 395 ft	SP	6.3E-01	7.6E-01	7.0E-01

Sample:
SG3-D09 0-15 feet

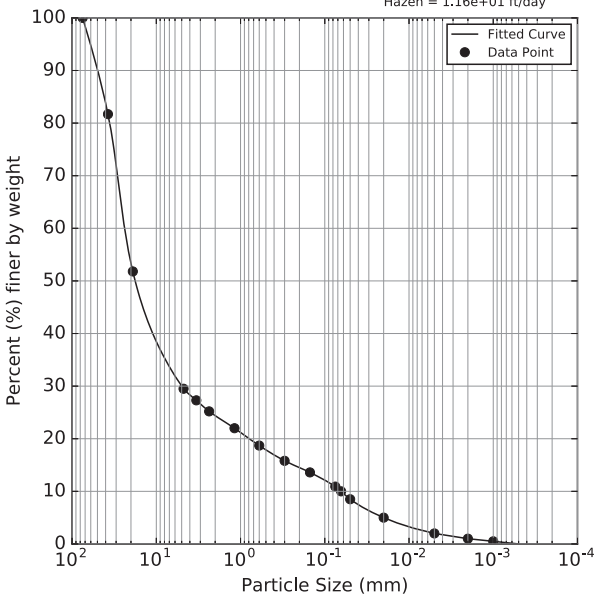
Hydraulic Conductivity Estimates
Barr = 2.77e+00 ft/day
Kozeny-Carman = 3.37e+00 ft/day
Hazen = 8.65e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	0.5
0.02	4.0
0.05	9.0
0.064	11.5
0.075	12.4
0.15	15.8
0.3	20.0
0.6	29.5
1.18	40.4
2.36	48.7
3.35	51.9
4.75	55.4
19.0	75.5
37.5	100.0
75.0	100.0

Sample:
SG3-D09 15-26 feet

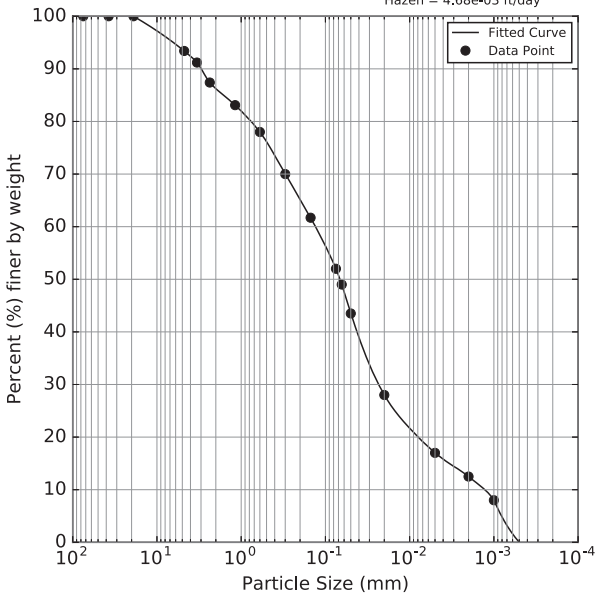
Hydraulic Conductivity Estimates
Barr = 1.56e+00 ft/day
Kozeny-Carman = 1.90e+00 ft/day
Hazen = 1.16e+01 ft/day



(mm)	%
0.001	0.5
0.002	1.0
0.005	2.0
0.02	5.0
0.05	8.5
0.064	10.0
0.075	10.9
0.15	13.6
0.3	15.8
0.6	18.7
1.18	22.0
2.36	25.2
3.35	27.3
4.75	29.5
19.0	51.8
37.5	81.7
75.0	100.0

Sample:
SG3-D09 26-34 feet

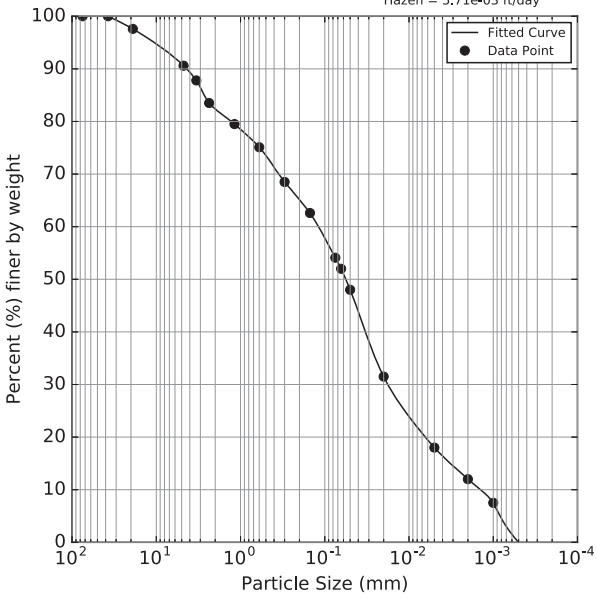
Hydraulic Conductivity Estimates
Barr = 2.19e-02 ft/day
Kozeny-Carman = 2.66e-02 ft/day
Hazen = 4.68e-03 ft/day



(mm)	%
0.001	8.0
0.002	12.5
0.005	17.0
0.02	28.0
0.05	43.5
0.064	49.0
0.075	52.0
0.15	61.7
0.3	70.0
0.6	78.0
1.18	83.1
2.36	87.4
3.35	91.2
4.75	93.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D09 34-70 feet

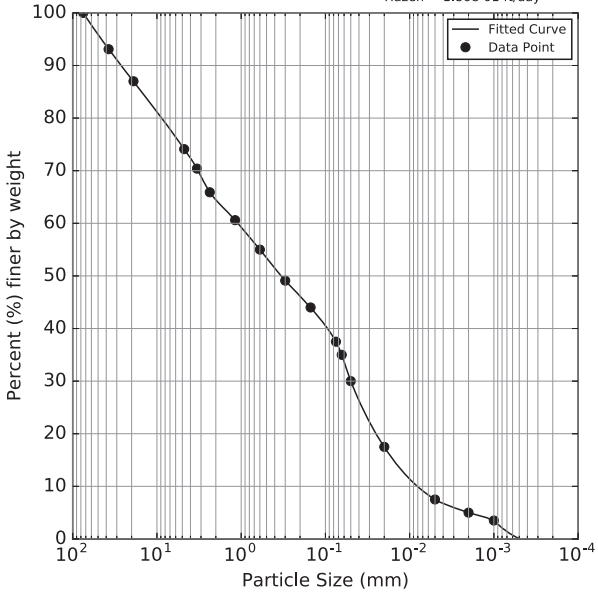
Hydraulic Conductivity Estimates
Barr = 2.19e-02 ft/day
Kozeny-Carman = 2.67e-02 ft/day
Hazen = 5.71e-03 ft/day



(mm)	%
0.001	7.5
0.002	12.0
0.005	18.0
0.02	31.5
0.05	48.0
0.064	52.0
0.075	54.1
0.15	62.6
0.3	68.5
0.6	75.1
1.18	79.5
2.36	83.5
3.35	87.8
4.75	90.6
19.0	97.6
37.5	100.0
75.0	100.0

Sample:
SG3-D10 0-20 feet

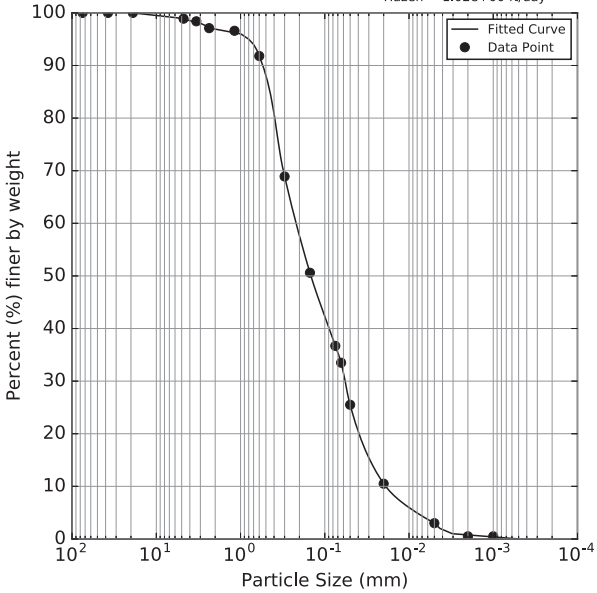
Hydraulic Conductivity Estimates
Barr = 9.87e-02 ft/day
Kozeny-Carman = 1.20e-01 ft/day
Hazen = 1.86e-01 ft/day



(mm)	%
0.001	3.5
0.002	5.0
0.005	7.5
0.02	17.5
0.05	30.0
0.064	35.0
0.075	37.5
0.15	44.0
0.3	49.1
0.6	55.0
1.18	60.6
2.36	65.9
3.35	70.4
4.75	74.1
19.0	87.0
37.5	93.1
75.0	100.0

Sample:
SG3-D10 101-105 feet

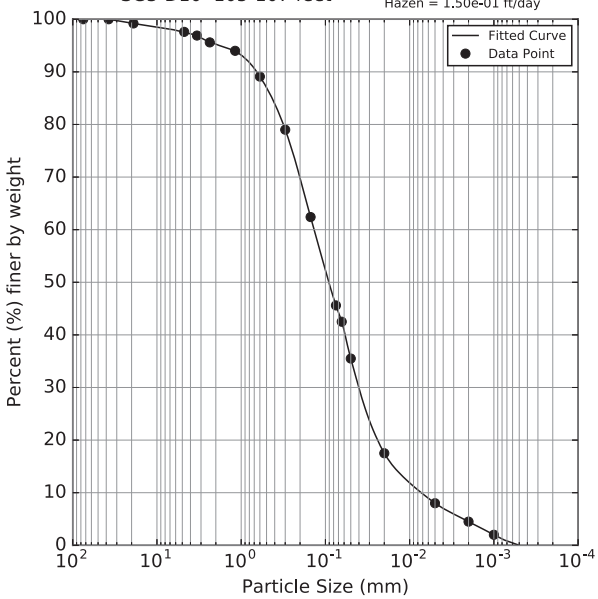
Hydraulic Conductivity Estimates
Barr = 6.30e-01 ft/day
Kozeny-Carman = 7.66e-01 ft/day
Hazen = 1.02e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	3.0
0.02	10.5
0.05	25.5
0.064	33.5
0.075	36.7
0.15	50.6
0.3	68.9
0.6	91.8
1.18	96.6
2.36	97.1
3.35	98.4
4.75	98.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D10 105-107 feet

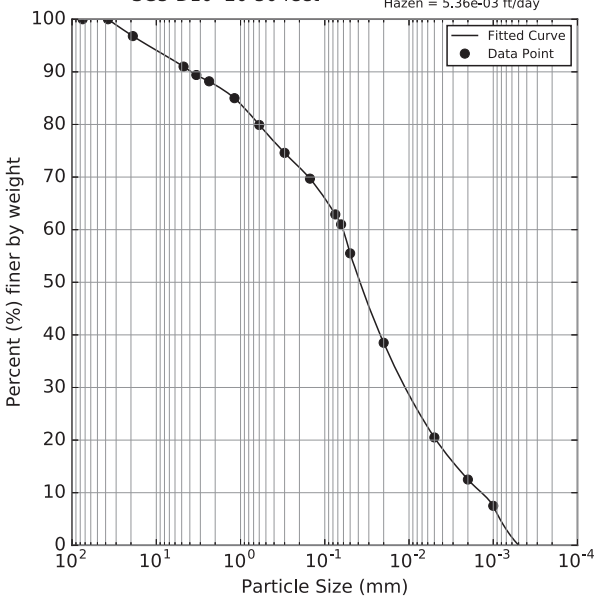
Hydraulic Conductivity Estimates
Barr = 1.17e-01 ft/day
Kozeny-Carman = 1.42e-01 ft/day
Hazen = 1.50e-01 ft/day



(mm)	%
0.001	2.0
0.002	4.5
0.005	8.0
0.02	17.5
0.05	35.5
0.064	42.5
0.075	45.6
0.15	62.4
0.3	79.0
0.6	89.1
1.18	94.0
2.36	95.6
3.35	96.9
4.75	97.6
19.0	99.2
37.5	100.0
75.0	100.0

Sample:
SG3-D10 20-30 feet

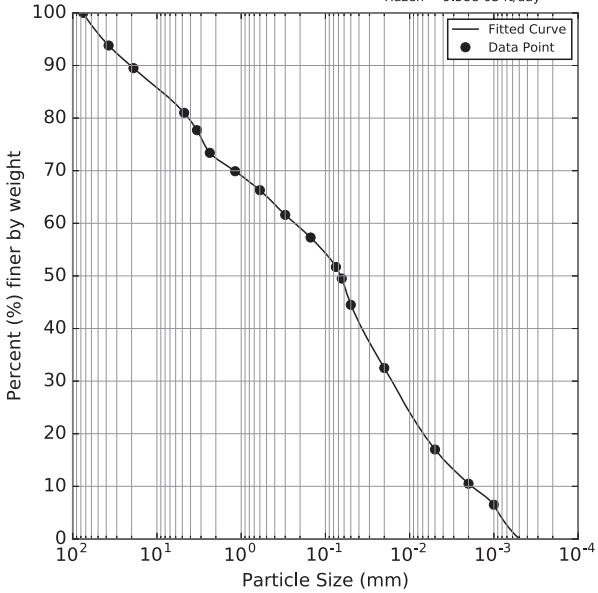
Hydraulic Conductivity Estimates
Barr = 1.87e-02 ft/day
Kozeny-Carman = 2.28e-02 ft/day
Hazen = 5.36e-03 ft/day



(mm)	%
0.001	7.5
0.002	12.5
0.005	20.5
0.02	38.5
0.05	55.5
0.064	61.0
0.075	62.9
0.15	69.7
0.3	74.6
0.6	79.9
1.18	85.0
2.36	88.2
3.35	89.4
4.75	91.0
19.0	96.8
37.5	100.0
75.0	100.0

Sample:
SG3-D10 30-60 feet

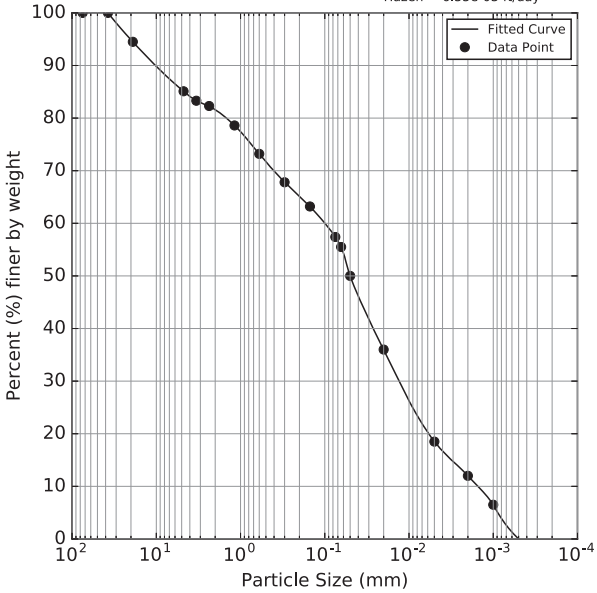
Hydraulic Conductivity Estimates
Barr = 2.63e-02 ft/day
Kozeny-Carman = 3.21e-02 ft/day
Hazen = 9.58e-03 ft/day



(mm)	%
0.001	6.5
0.002	10.5
0.005	17.0
0.02	32.5
0.05	44.5
0.064	49.5
0.075	51.7
0.15	57.3
0.3	61.6
0.6	66.3
1.18	69.9
2.36	73.4
3.35	77.7
4.75	81.0
19.0	89.5
37.5	93.8
75.0	100.0

Sample:
SG3-D10 60-90 feet

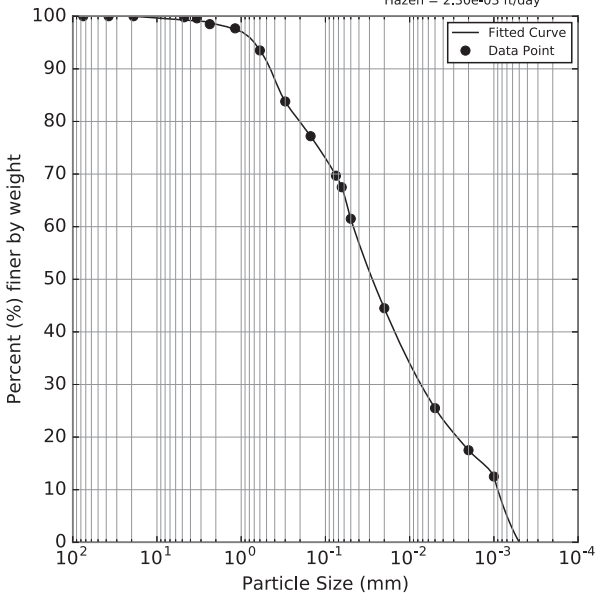
Hydraulic Conductivity Estimates
Barr = 2.24e-02 ft/day
Kozeny-Carman = 2.72e-02 ft/day
Hazen = 6.55e-03 ft/day



(mm)	%
0.001	6.5
0.002	12.0
0.005	18.5
0.02	36.0
0.05	50.0
0.064	55.5
0.075	57.4
0.15	63.2
0.3	67.8
0.6	73.2
1.18	78.6
2.36	82.3
3.35	83.3
4.75	85.1
19.0	94.5
37.5	100.0
75.0	100.0

Sample:
SG3-D10 90-93 feet

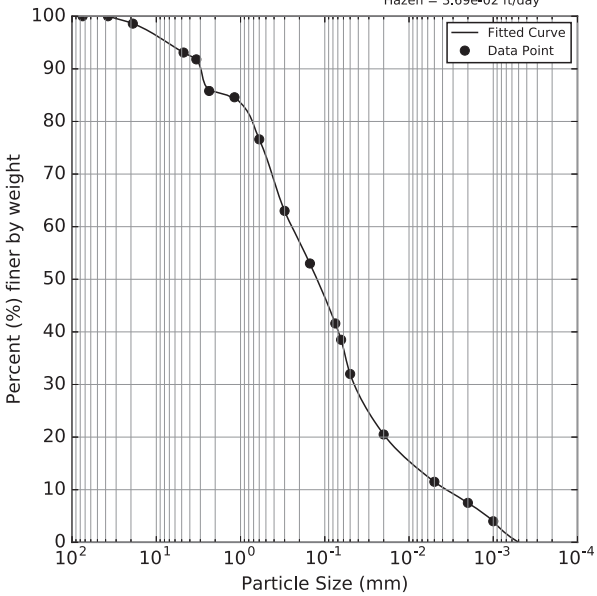
Hydraulic Conductivity Estimates
Barr = 1.00e-02 ft/day
Kozeny-Carman = 1.22e-02 ft/day
Hazen = 2.30e-03 ft/day



(mm)	%
0.001	12.5
0.002	17.5
0.005	25.5
0.02	44.5
0.05	61.5
0.064	67.5
0.075	69.7
0.15	77.2
0.3	83.8
0.6	93.5
1.18	97.7
2.36	98.5
3.35	99.6
4.75	99.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D10 93-101 feet

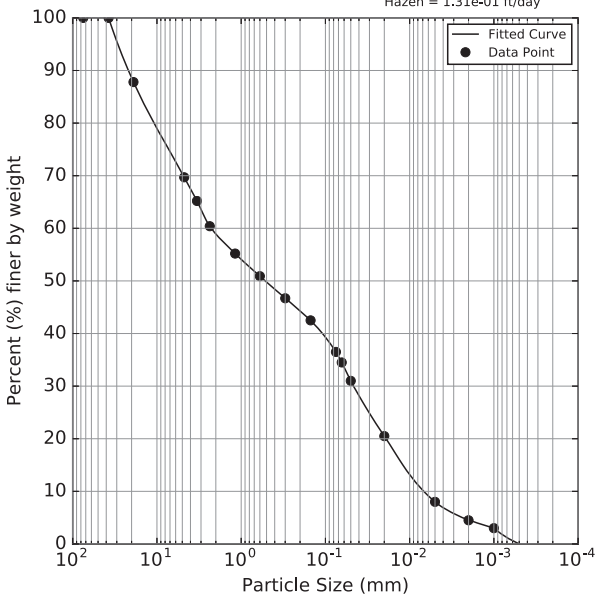
Hydraulic Conductivity Estimates
Barr = 5.66e-02 ft/day
Kozeny-Carman = 6.88e-02 ft/day
Hazen = 3.69e-02 ft/day



(mm)	%
0.001	4.0
0.002	7.5
0.005	11.5
0.02	20.5
0.05	32.0
0.064	38.5
0.075	41.6
0.15	53.0
0.3	63.0
0.6	76.6
1.18	84.6
2.36	85.8
3.35	91.8
4.75	93.1
19.0	98.6
37.5	100.0
75.0	100.0

Sample:
SG3-D12 0-7.5 feet

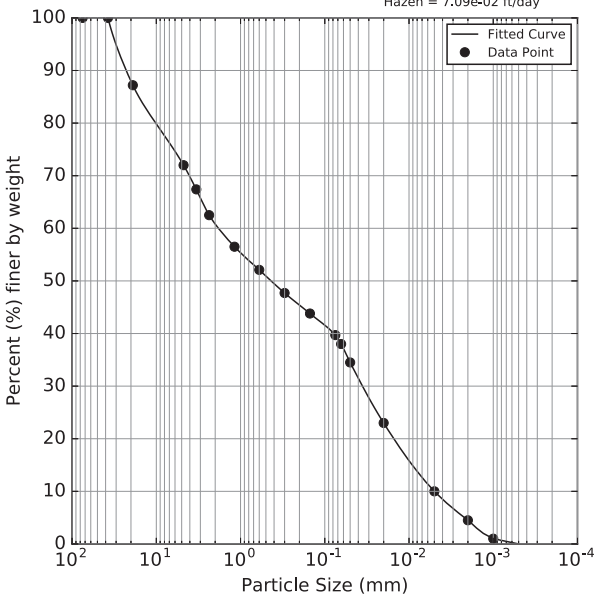
Hydraulic Conductivity Estimates
Barr = 1.04e-01 ft/day
Kozeny-Carman = 1.26e-01 ft/day
Hazen = 1.31e-01 ft/day



(mm)	%
0.001	3.0
0.002	4.5
0.005	8.0
0.02	20.5
0.05	31.0
0.064	34.5
0.075	36.5
0.15	42.5
0.3	46.7
0.6	50.9
1.18	55.2
2.36	60.4
3.35	65.2
4.75	69.7
19.0	87.8
37.5	100.0
75.0	100.0

Sample:
SG3-D12 12-30 feet

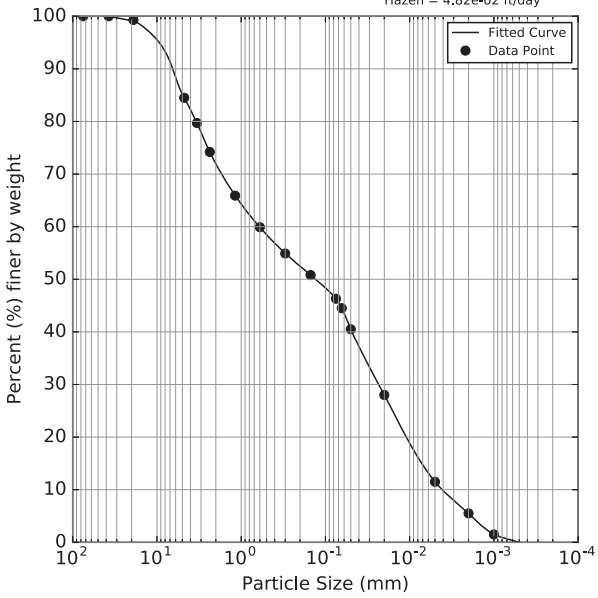
Hydraulic Conductivity Estimates
Barr = 1.21e-01 ft/day
Kozeny-Carman = 1.48e-01 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	1.0
0.002	4.5
0.005	10.0
0.02	23.0
0.05	34.5
0.064	38.0
0.075	39.7
0.15	43.8
0.3	47.7
0.6	52.1
1.18	56.5
2.36	62.5
3.35	67.4
4.75	72.0
19.0	87.2
37.5	100.0
75.0	100.0

Sample:
SG3-D12 30-37 feet

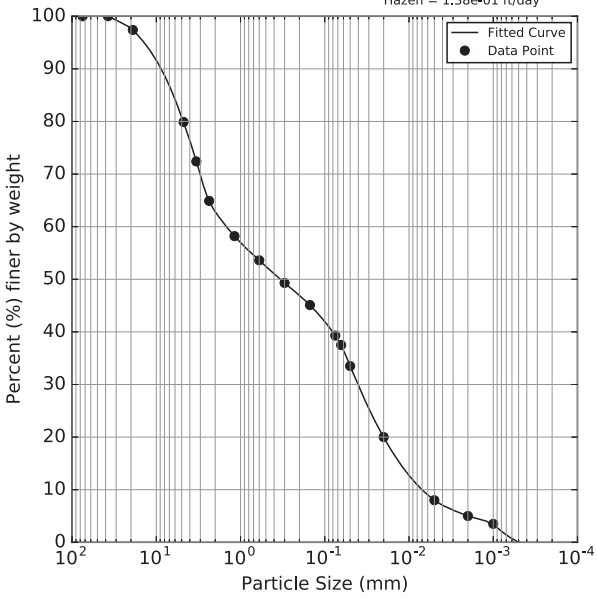
Hydraulic Conductivity Estimates
Barr = 8.26e-02 ft/day
Kozeny-Carman = 1.01e-01 ft/day
Hazen = 4.82e-02 ft/day



(mm)	%
0.001	1.5
0.002	5.5
0.005	11.5
0.02	28.0
0.05	40.5
0.064	44.5
0.075	46.3
0.15	50.8
0.3	54.9
0.6	59.9
1.18	65.9
2.36	74.2
3.35	79.7
4.75	84.5
19.0	99.3
37.5	100.0
75.0	100.0

Sample:
SG3-D12 7.5-12 feet

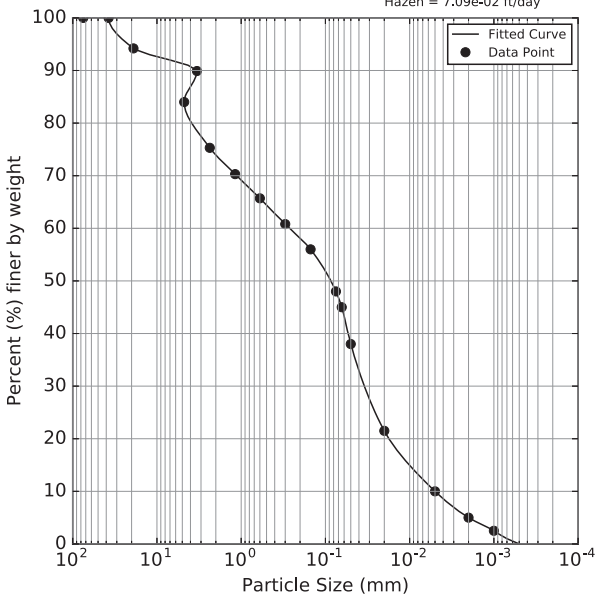
Hydraulic Conductivity Estimates
Barr = 9.11e-02 ft/day
Kozeny-Carman = 1.11e-01 ft/day
Hazen = 1.38e-01 ft/day



(mm)	%
0.001	3.5
0.002	5.0
0.005	8.0
0.02	20.0
0.05	33.5
0.064	37.5
0.075	39.3
0.15	45.1
0.3	49.3
0.6	53.6
1.18	58.2
2.36	64.9
3.35	72.4
4.75	79.9
19.0	97.4
37.5	100.0
75.0	100.0

Sample:
SG3-D15 0.5-15 feet

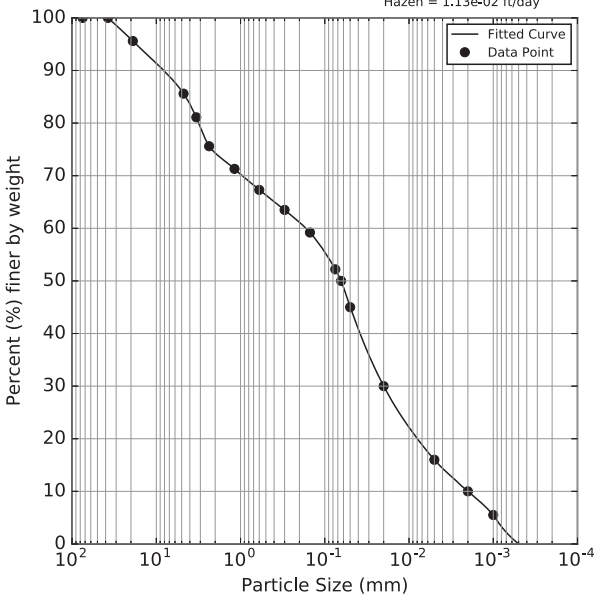
Hydraulic Conductivity Estimates
Barr = 8.81e-02 ft/day
Kozeny-Carman = 1.07e-01 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	2.5
0.002	5.0
0.005	10.0
0.02	21.5
0.05	38.0
0.064	45.0
0.075	48.0
0.15	56.0
0.3	60.8
0.6	65.7
1.18	70.3
2.36	75.3
4.75	84.0
3.35	89.9
19.0	94.2
37.5	100.0
75.0	100.0

Sample:
SG3-D15 15-75 feet

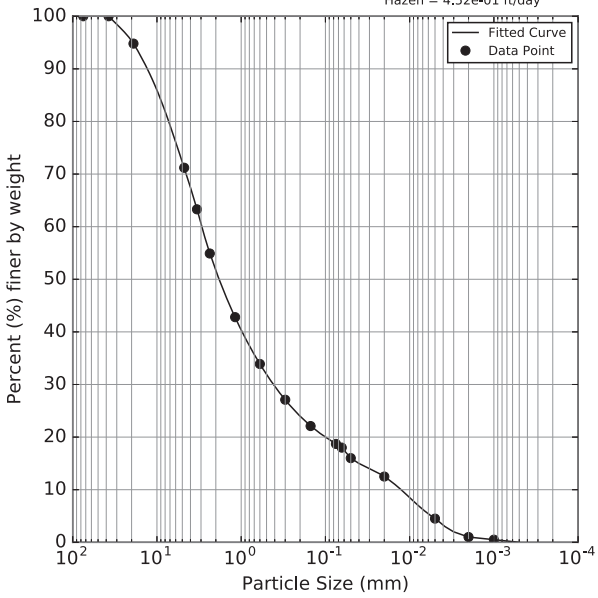
Hydraulic Conductivity Estimates
Barr = 3.08e-02 ft/day
Kozeny-Carman = 3.75e-02 ft/day
Hazen = 1.13e-02 ft/day



(mm)	%
0.001	5.5
0.002	10.0
0.005	16.0
0.02	30.0
0.05	45.0
0.064	50.0
0.075	52.2
0.15	59.2
0.3	63.5
0.6	67.3
1.18	71.3
2.36	75.6
3.35	81.1
4.75	85.6
19.0	95.6
37.5	100.0
75.0	100.0

Sample:
SG3-D17 0-9 feet

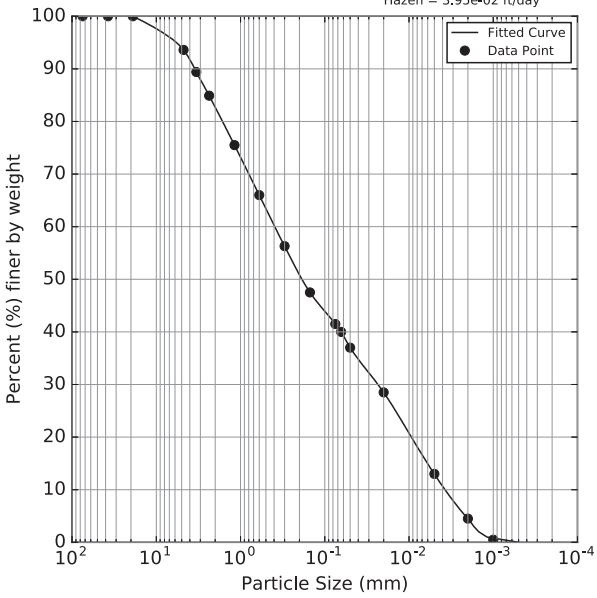
Hydraulic Conductivity Estimates
Barr = 5.94e-01 ft/day
Kozeny-Carman = 7.22e-01 ft/day
Hazen = 4.52e-01 ft/day



(mm)	%
0.001	0.5
0.002	1.0
0.005	4.5
0.02	12.5
0.05	16.0
0.064	18.0
0.075	18.7
0.15	22.1
0.3	27.1
0.6	33.9
1.18	42.8
2.36	54.9
3.35	63.3
4.75	71.2
19.0	94.8
37.5	100.0
75.0	100.0

Sample:
SG3-D17 9-10 feet

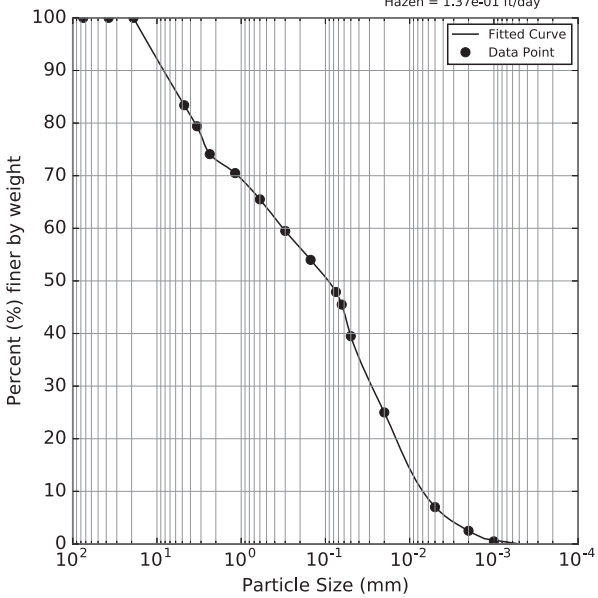
Hydraulic Conductivity Estimates
Barr = 9.64e-02 ft/day
Kozeny-Carman = 1.17e-01 ft/day
Hazen = 3.95e-02 ft/day



(mm)	%
0.001	0.5
0.002	4.5
0.005	13.0
0.02	28.5
0.05	37.0
0.064	40.0
0.075	41.5
0.15	47.5
0.3	56.3
0.6	66.0
1.18	75.5
2.36	84.9
3.35	89.4
4.75	93.6
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D21 0-3.5 feet

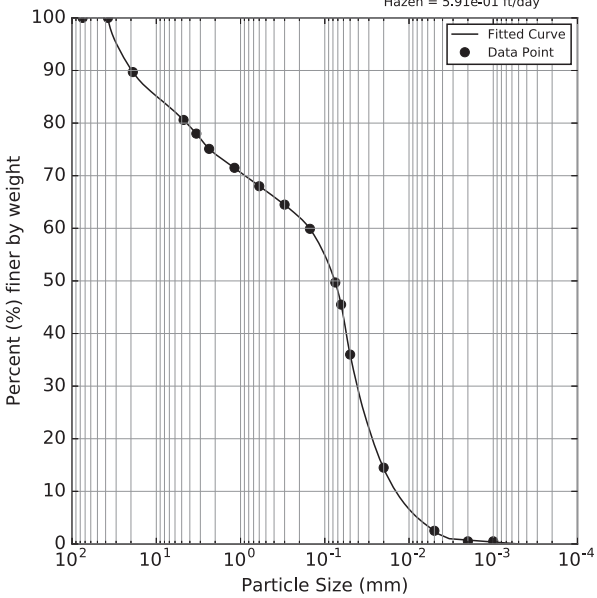
Hydraulic Conductivity Estimates
Barr = 1.79e-01 ft/day
Kozeny-Carman = 2.18e-01 ft/day
Hazen = 1.37e-01 ft/day



(mm)	%
0.001	0.5
0.002	2.5
0.005	7.0
0.02	25.0
0.05	39.5
0.064	45.5
0.075	47.9
0.15	54.0
0.3	59.5
0.6	65.5
1.18	70.5
2.36	74.1
3.35	79.4
4.75	83.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D21 3.5-17 feet

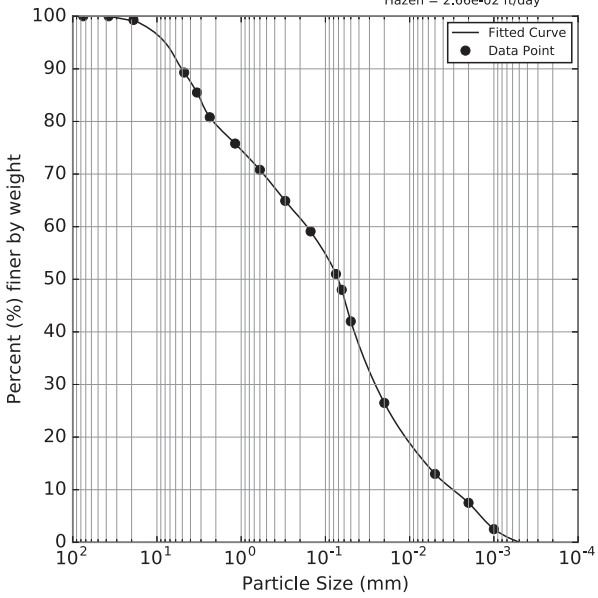
Hydraulic Conductivity Estimates
Barr = 5.19e-01 ft/day
Kozeny-Carman = 6.32e-01 ft/day
Hazen = 5.91e-01 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	2.5
0.02	14.5
0.05	36.0
0.064	45.5
0.075	49.7
0.15	59.9
0.3	64.5
0.6	68.0
1.18	71.5
2.36	75.1
3.35	78.0
4.75	80.6
19.0	89.7
37.5	100.0
75.0	100.0

Sample:
SG3-D22 0-1 feet

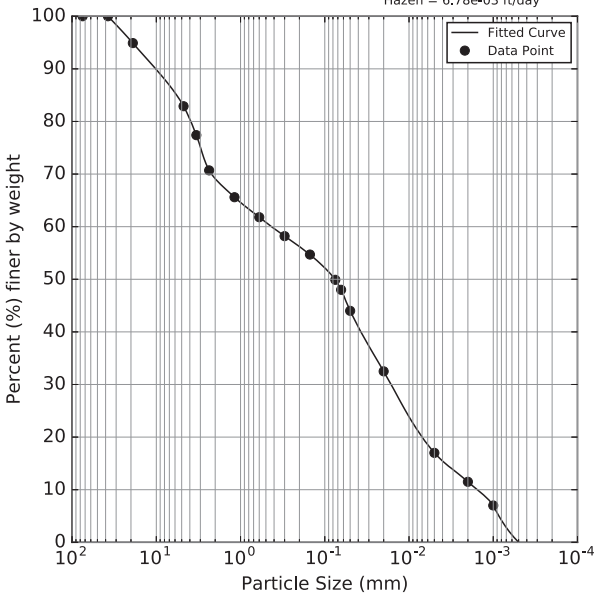
Hydraulic Conductivity Estimates
Barr = 5.73e-02 ft/day
Kozeny-Carman = 6.97e-02 ft/day
Hazen = 2.66e-02 ft/day



(mm)	%
0.001	2.5
0.002	7.5
0.005	13.0
0.02	26.5
0.05	42.0
0.064	48.0
0.075	51.0
0.15	59.1
0.3	64.9
0.6	70.8
1.18	75.8
2.36	80.8
3.35	85.5
4.75	89.3
19.0	99.3
37.5	100.0
75.0	100.0

Sample:
SG3-D22 1-11 feet

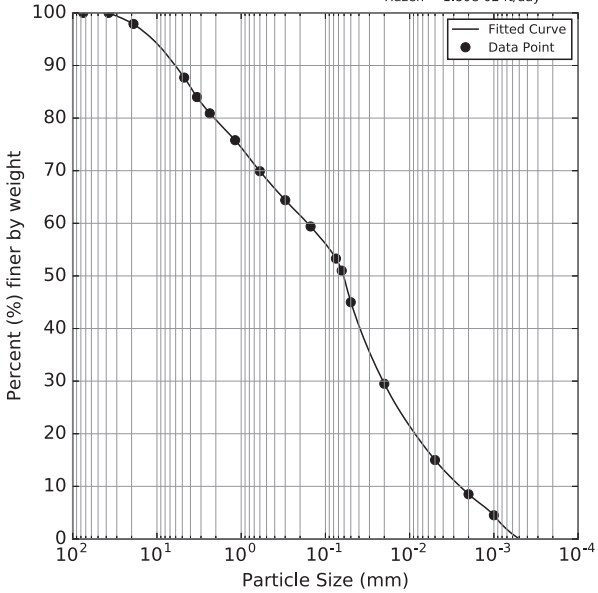
Hydraulic Conductivity Estimates
Barr = 2.42e-02 ft/day
Kozeny-Carman = 2.94e-02 ft/day
Hazen = 6.78e-03 ft/day



(mm)	%
0.001	7.0
0.002	11.5
0.005	17.0
0.02	32.5
0.05	44.0
0.064	48.0
0.075	49.9
0.15	54.7
0.3	58.2
0.6	61.8
1.18	65.6
2.36	70.7
3.35	77.4
4.75	82.9
19.0	94.9
37.5	100.0
75.0	100.0

Sample:
SG3-D22 12.5-15 feet

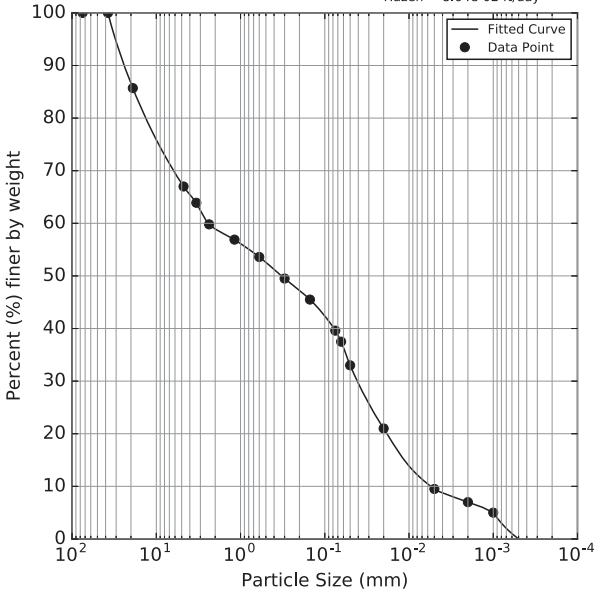
Hydraulic Conductivity Estimates
Barr = 3.82e-02 ft/day
Kozeny-Carman = 4.65e-02 ft/day
Hazen = 1.80e-02 ft/day



(mm)	%
0.001	4.5
0.002	8.5
0.005	15.0
0.02	29.5
0.05	45.0
0.064	51.0
0.075	53.3
0.15	59.4
0.3	64.4
0.6	69.9
1.18	75.8
2.36	80.9
3.35	84.0
4.75	87.7
19.0	97.9
37.5	100.0
75.0	100.0

Sample:
SG3-D26 0-3.5 feet

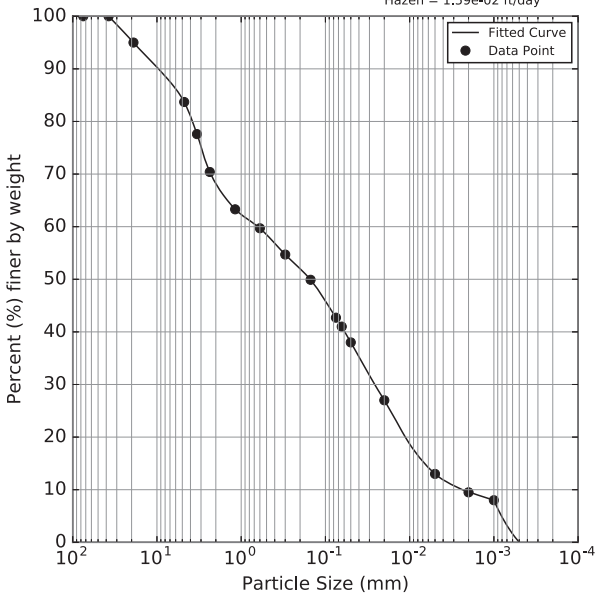
Hydraulic Conductivity Estimates
Barr = 5.80e-02 ft/day
Kozeny-Carman = 7.06e-02 ft/day
Hazen = 8.64e-02 ft/day



(mm)	%
0.001	5.0
0.002	7.0
0.005	9.5
0.02	21.0
0.05	33.0
0.064	37.5
0.075	39.6
0.15	45.5
0.3	49.5
0.6	53.6
1.18	56.9
2.36	59.8
3.35	63.9
4.75	67.0
19.0	85.7
37.5	100.0
75.0	100.0

Sample:
SG3-D26 10-40 feet

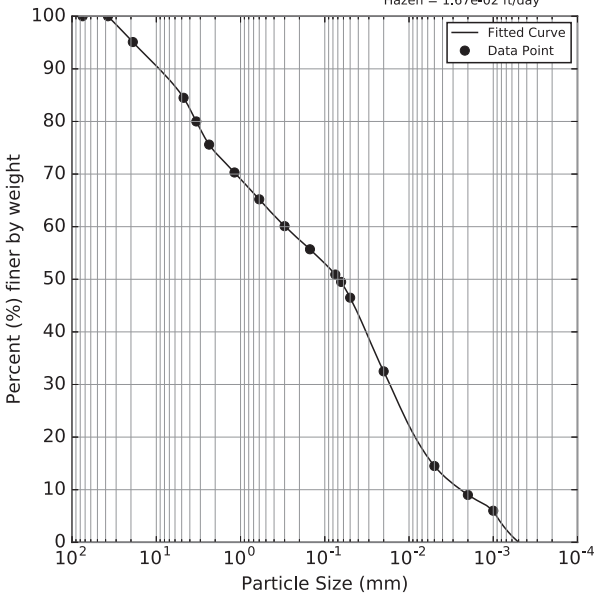
Hydraulic Conductivity Estimates
Barr = 2.99e-02 ft/day
Kozeny-Carman = 3.64e-02 ft/day
Hazen = 1.59e-02 ft/day



(mm)	%
0.001	8.0
0.002	9.5
0.005	13.0
0.02	27.0
0.05	38.0
0.064	41.0
0.075	42.7
0.15	49.9
0.3	54.7
0.6	59.7
1.18	63.3
2.36	70.4
3.35	77.6
4.75	83.7
19.0	95.0
37.5	100.0
75.0	100.0

Sample:
SG3-D26 3.5-10 feet

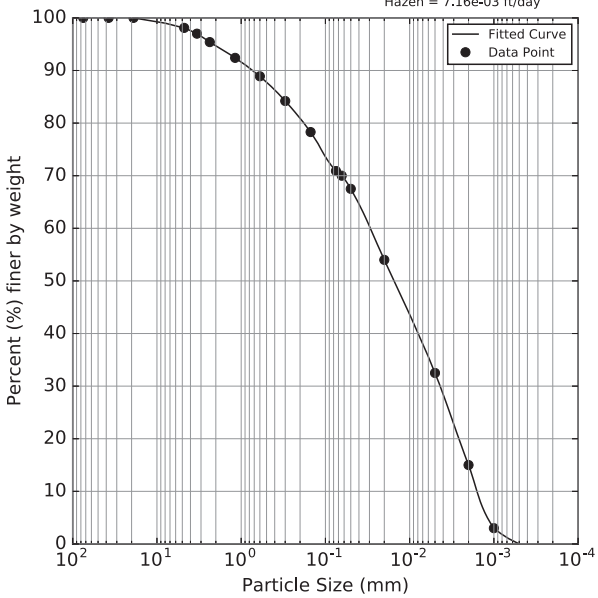
Hydraulic Conductivity Estimates
Barr = 3.21e-02 ft/day
Kozeny-Carman = 3.90e-02 ft/day
Hazen = 1.67e-02 ft/day



(mm)	%
0.001	6.0
0.002	9.0
0.005	14.5
0.02	32.5
0.05	46.5
0.064	49.5
0.075	50.9
0.15	55.7
0.3	60.1
0.6	65.2
1.18	70.3
2.36	75.6
3.35	80.0
4.75	84.5
19.0	95.1
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR1 170-180 feet

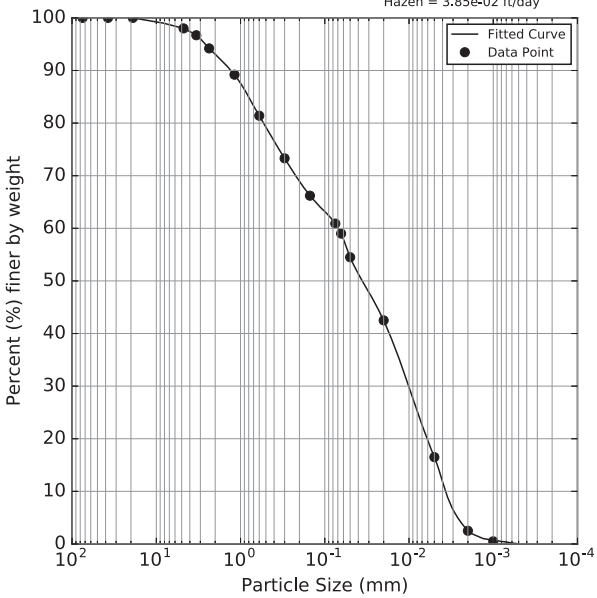
Hydraulic Conductivity Estimates
Barr = 1.56e-02 ft/day
Kozeny-Carman = 1.89e-02 ft/day
Hazen = 7.16e-03 ft/day



(mm)	%
0.001	3.0
0.002	15.0
0.005	32.5
0.02	54.0
0.05	67.5
0.064	70.0
0.075	70.9
0.15	78.3
0.3	84.2
0.6	88.9
1.18	92.4
2.36	95.4
3.35	97.0
4.75	98.1
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR1 193-195 feet

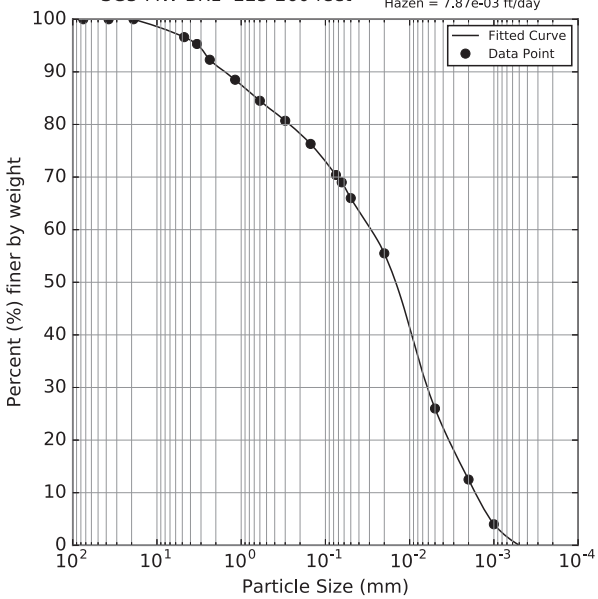
Hydraulic Conductivity Estimates
Barr = 7.06e-02 ft/day
Kozeny-Carman = 8.59e-02 ft/day
Hazen = 3.85e-02 ft/day



(mm)	%
0.001	0.5
0.002	2.5
0.005	16.5
0.02	42.5
0.05	54.5
0.064	59.0
0.075	60.9
0.15	66.2
0.3	73.3
0.6	81.4
1.18	89.2
2.36	94.2
3.35	96.7
4.75	98.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR1 223-260 feet

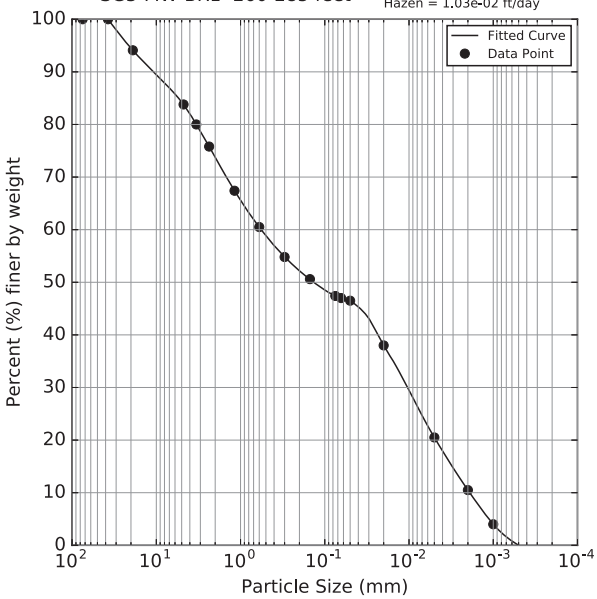
Hydraulic Conductivity Estimates
Barr = 1.81e-02 ft/day
Kozeny-Carman = 2.20e-02 ft/day
Hazen = 7.87e-03 ft/day



(mm)	%
0.001	4.0
0.002	12.5
0.005	26.0
0.02	55.5
0.05	66.0
0.064	69.0
0.075	70.4
0.15	76.3
0.3	80.7
0.6	84.5
1.18	88.5
2.36	92.3
3.35	95.3
4.75	96.6
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR1 260-285 feet

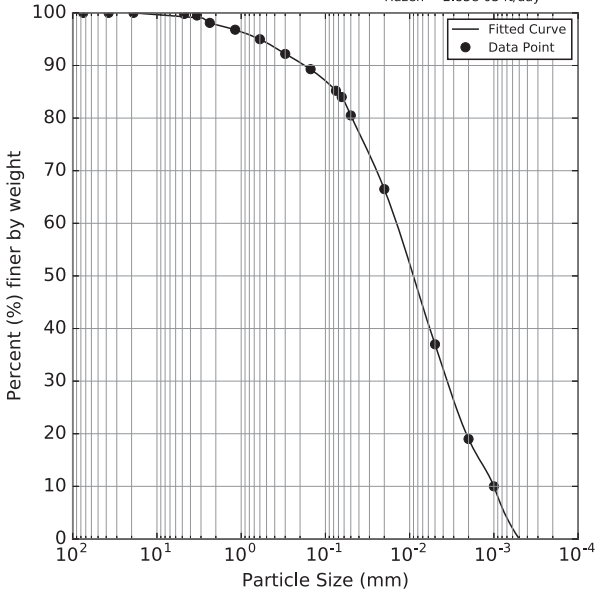
Hydraulic Conductivity Estimates
Barr = 2.81e-02 ft/day
Kozeny-Carman = 3.42e-02 ft/day
Hazen = 1.03e-02 ft/day



(mm)	%
0.001	4.0
0.002	10.5
0.005	20.5
0.02	38.0
0.05	46.5
0.064	47.0
0.075	47.4
0.15	50.6
0.3	54.8
0.6	60.5
1.18	67.4
2.36	75.8
3.35	80.0
4.75	83.8
19.0	94.1
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR1 290-299 feet

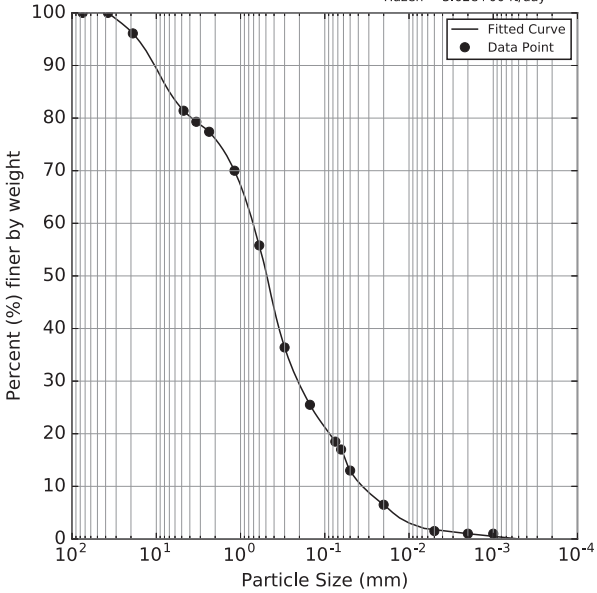
Hydraulic Conductivity Estimates
Barr = 7.74e-03 ft/day
Kozeny-Carman = 9.42e-03 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	19.0
0.005	37.0
0.02	66.5
0.05	80.5
0.064	84.0
0.075	85.2
0.15	89.3
0.3	92.2
0.6	95.0
1.18	96.8
2.36	98.1
3.35	99.5
4.75	99.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR2 134-135 feet

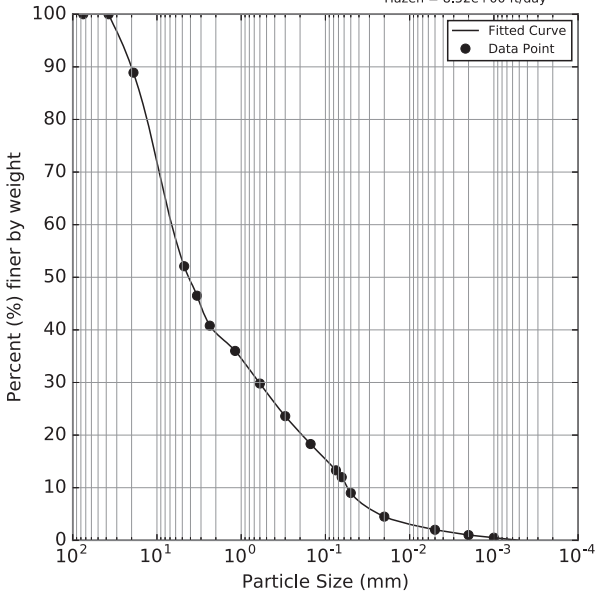
Hydraulic Conductivity Estimates
Barr = 1.18e+00 ft/day
Kozeny-Carman = 1.44e+00 ft/day
Hazen = 3.62e+00 ft/day



(mm)	%
0.001	1.0
0.002	1.0
0.005	1.5
0.02	6.5
0.05	13.0
0.064	17.0
0.075	18.5
0.15	25.5
0.3	36.4
0.6	55.8
1.18	70.0
2.36	77.4
3.35	79.3
4.75	81.4
19.0	96.1
37.5	100.0
75.0	100.0

Sample:
SG3-D01 0-5 feet

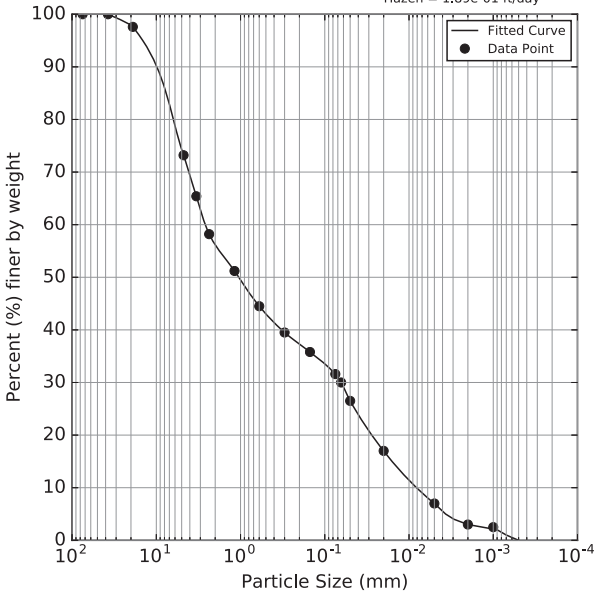
Hydraulic Conductivity Estimates
Barr = 1.47e+00 ft/day
Kozeny-Carman = 1.79e+00 ft/day
Hazen = 8.52e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.0
0.005	2.0
0.02	4.5
0.05	9.0
0.064	12.0
0.075	13.3
0.15	18.3
0.3	23.6
0.6	29.8
1.18	36.0
2.36	40.8
3.35	46.5
4.75	52.1
19.0	88.9
37.5	100.0
75.0	100.0

Sample:
SG3-D01 11-14 feet

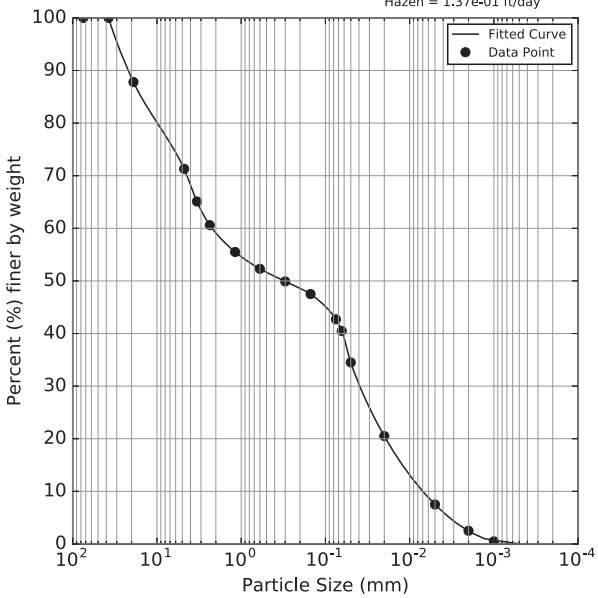
Hydraulic Conductivity Estimates
Barr = 1.66e-01 ft/day
Kozeny-Carman = 2.02e-01 ft/day
Hazen = 1.89e-01 ft/day



(mm)	%
0.001	2.5
0.002	3.0
0.005	7.0
0.02	17.0
0.05	26.5
0.064	30.0
0.075	31.6
0.15	35.8
0.3	39.5
0.6	44.5
1.18	51.2
2.36	58.2
3.35	65.4
4.75	73.2
19.0	97.6
37.5	100.0
75.0	100.0

Sample:
SG3-D01 14-20 feet

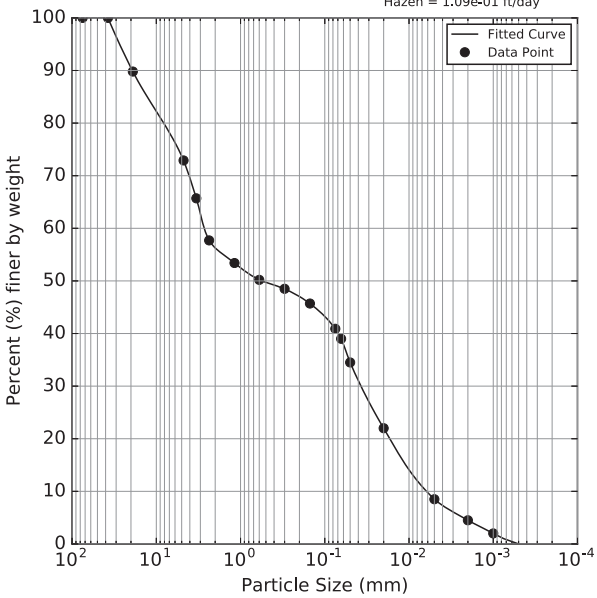
Hydraulic Conductivity Estimates
Barr = 2.02e-01 ft/day
Kozeny-Carman = 2.46e-01 ft/day
Hazen = 1.37e-01 ft/day



(mm)	%
0.001	0.5
0.002	2.5
0.005	7.5
0.02	20.5
0.05	34.5
0.064	40.5
0.075	42.7
0.15	47.5
0.3	49.9
0.6	52.3
1.18	55.5
2.36	60.6
3.35	65.1
4.75	71.3
19.0	87.8
37.5	100.0
75.0	100.0

Sample:
SG3-D01 20-29 feet

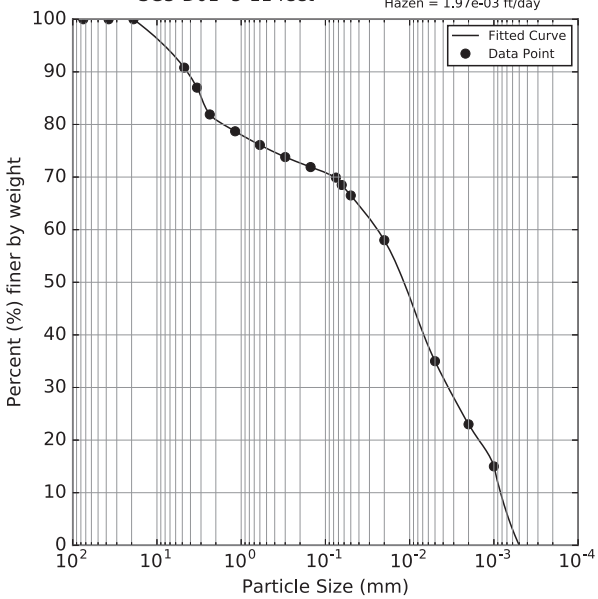
Hydraulic Conductivity Estimates
Barr = 1.13e-01 ft/day
Kozeny-Carman = 1.37e-01 ft/day
Hazen = 1.09e-01 ft/day



(mm)	%
0.001	2.0
0.002	4.5
0.005	8.5
0.02	22.0
0.05	34.5
0.064	39.0
0.075	40.9
0.15	45.7
0.3	48.5
0.6	50.2
1.18	53.4
2.36	57.7
3.35	65.7
4.75	72.9
19.0	89.8
37.5	100.0
75.0	100.0

Sample:
SG3-D01 5-11 feet

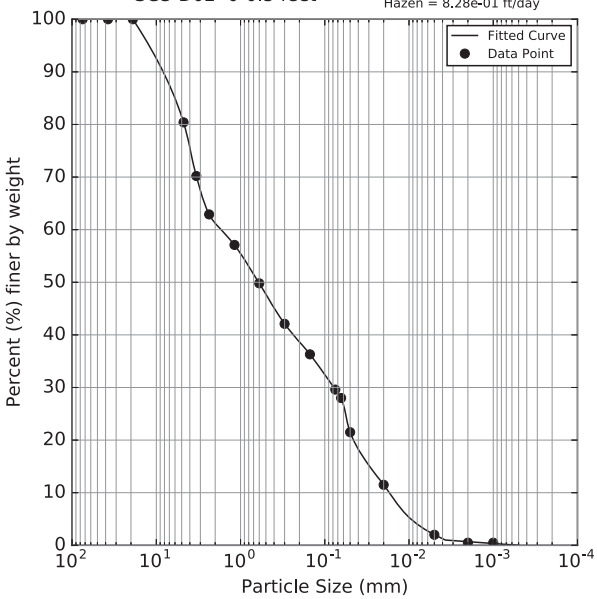
Hydraulic Conductivity Estimates
Barr = 6.21e-03 ft/day
Kozeny-Carman = 7.55e-03 ft/day
Hazen = 1.97e-03 ft/day



(mm)	%
0.001	15.0
0.002	23.0
0.005	35.0
0.02	58.0
0.05	66.5
0.064	68.5
0.075	69.9
0.15	71.9
0.3	73.8
0.6	76.1
1.18	78.7
2.36	81.9
3.35	87.0
4.75	90.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D02 0-0.5 feet

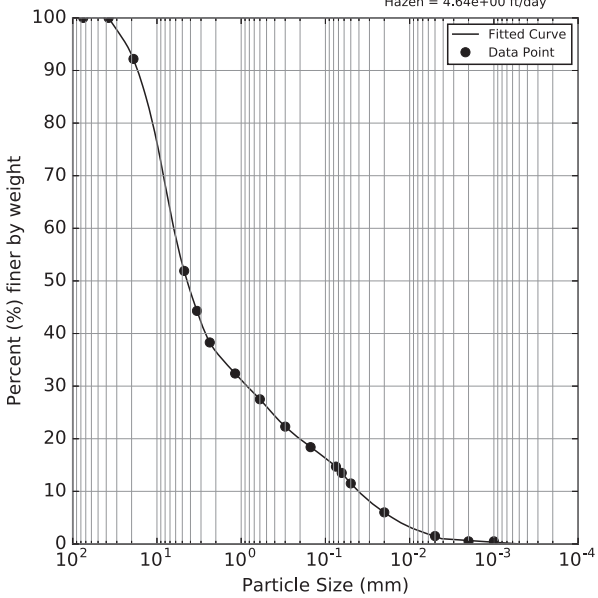
Hydraulic Conductivity Estimates
Barr = 8.56e-01 ft/day
Kozeny-Carman = 1.04e+00 ft/day
Hazen = 8.28e-01 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	2.0
0.02	11.5
0.05	21.5
0.064	28.0
0.075	29.6
0.15	36.3
0.3	42.1
0.6	49.8
1.18	57.1
2.36	62.9
3.35	70.2
4.75	80.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D02 0.5-2 feet

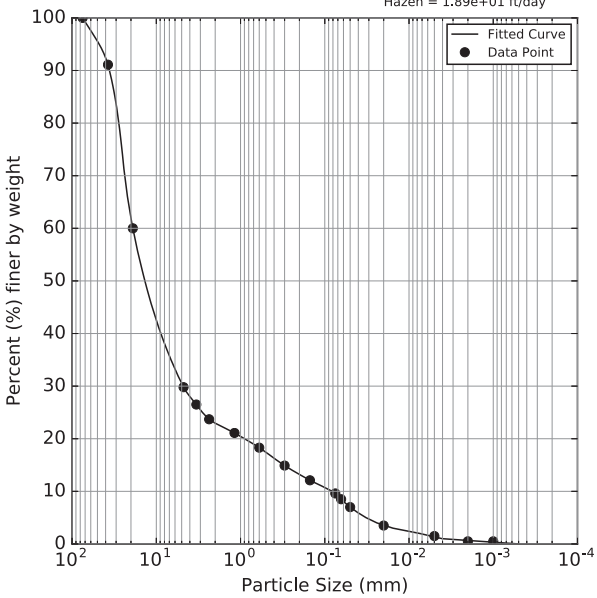
Hydraulic Conductivity Estimates
Barr = 1.78e+00 ft/day
Kozeny-Carman = 2.16e+00 ft/day
Hazen = 4.64e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	1.5
0.02	6.0
0.05	11.5
0.064	13.5
0.075	14.7
0.15	18.4
0.3	22.3
0.6	27.5
1.18	32.4
2.36	38.3
3.35	44.3
4.75	51.9
19.0	92.2
37.5	100.0
75.0	100.0

Sample:
SG3-D02 2-5 feet

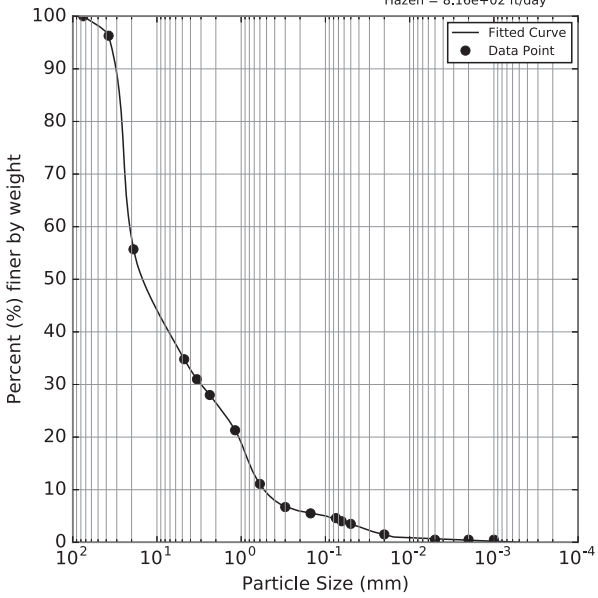
Hydraulic Conductivity Estimates
Barr = 2.56e+00 ft/day
Kozeny-Carman = 3.11e+00 ft/day
Hazen = 1.89e+01 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	1.5
0.02	3.5
0.05	7.0
0.064	8.5
0.075	9.6
0.15	12.1
0.3	14.9
0.6	18.3
1.18	21.1
2.36	23.7
3.35	26.5
4.75	29.8
19.0	60.0
37.5	91.1
75.0	100.0

Sample:
SG3-D03 0-10 feet

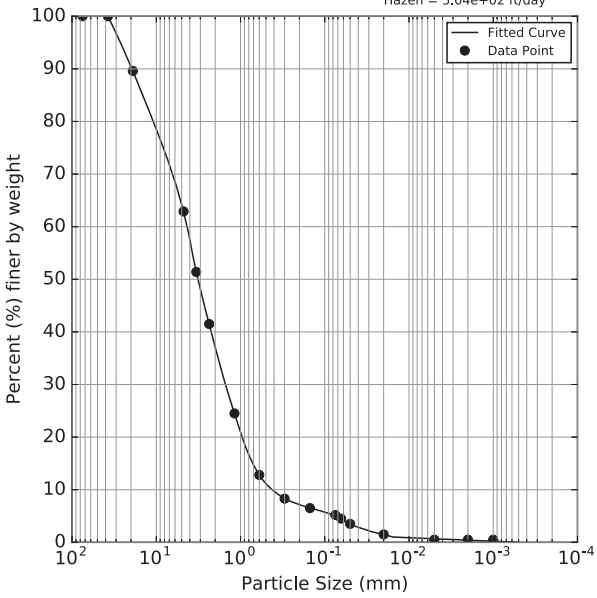
Hydraulic Conductivity Estimates
Barr = 4.93e+00 ft/day
Kozeny-Carman = 6.00e+00 ft/day
Hazen = 8.16e+02 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	0.5
0.02	1.5
0.05	3.5
0.064	4.0
0.075	4.6
0.15	5.5
0.3	6.7
0.6	11.1
1.18	21.3
2.36	28.0
3.35	31.0
4.75	34.8
19.0	55.7
37.5	96.3
75.0	100.0

Sample:
SG3-D03 10-20 feet

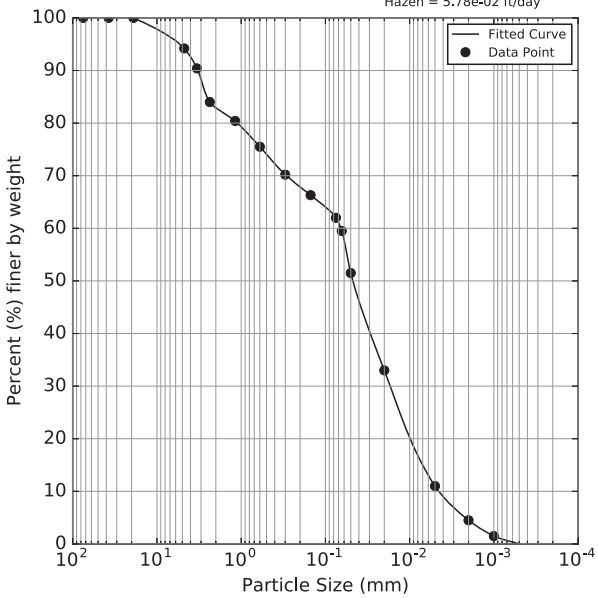
Hydraulic Conductivity Estimates
Barr = 4.71e+00 ft/day
Kozeny-Carman = 5.73e+00 ft/day
Hazen = 5.04e+02 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	0.5
0.02	1.5
0.05	3.5
0.064	4.5
0.075	5.2
0.15	6.5
0.3	8.3
0.6	12.8
1.18	24.5
2.36	41.5
3.35	51.4
4.75	62.9
19.0	89.6
37.5	100.0
75.0	100.0

Sample:
SG3-D05 0-1.5 feet

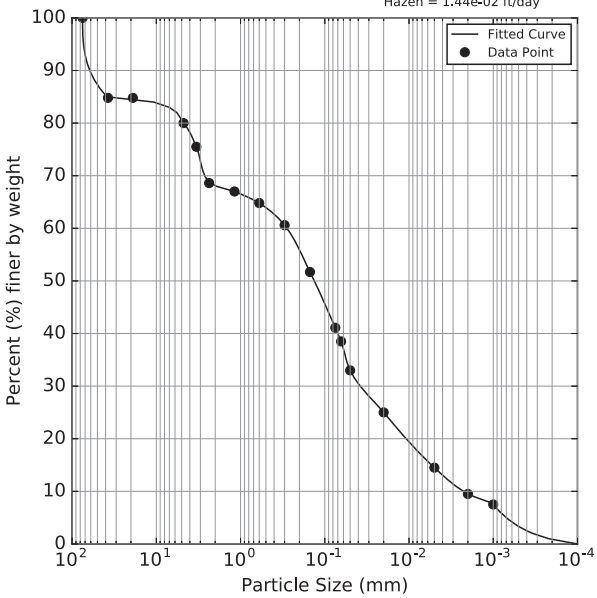
Hydraulic Conductivity Estimates
Barr = 7.91e-02 ft/day
Kozeny-Carman = 9.63e-02 ft/day
Hazen = 5.78e-02 ft/day



(mm)	%
0.001	1.5
0.002	4.5
0.005	11.0
0.02	33.0
0.05	51.5
0.064	59.5
0.075	62.0
0.15	66.3
0.3	70.2
0.6	75.5
1.18	80.4
2.36	84.0
3.35	90.4
4.75	94.2
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D05 1.5-15 feet

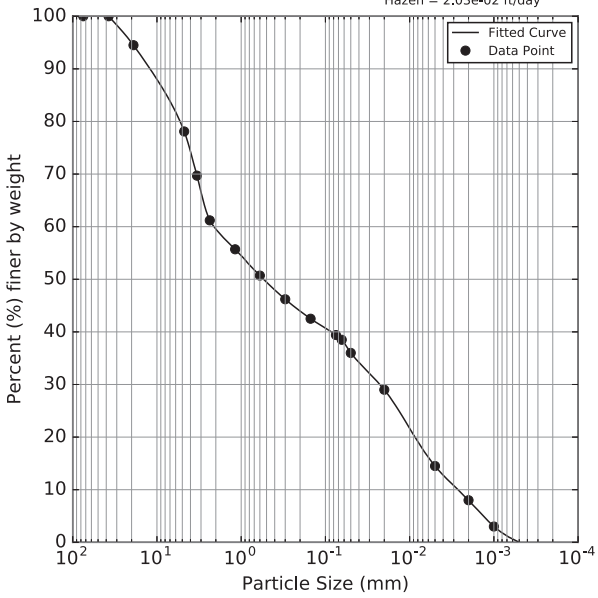
Hydraulic Conductivity Estimates
Barr = 1.14e-02 ft/day
Kozeny-Carman = 1.38e-02 ft/day
Hazen = 1.44e-02 ft/day



(mm)	%
0.001	7.5
0.002	9.5
0.005	14.5
0.02	25.0
0.05	33.0
0.064	38.5
0.075	41.1
0.15	51.7
0.3	60.6
0.6	64.8
1.18	67.0
2.36	68.6
3.35	75.5
4.75	80.0
19.0	84.8
37.5	84.8
75.0	100.0

Sample:
SG3-D05 15-20 feet

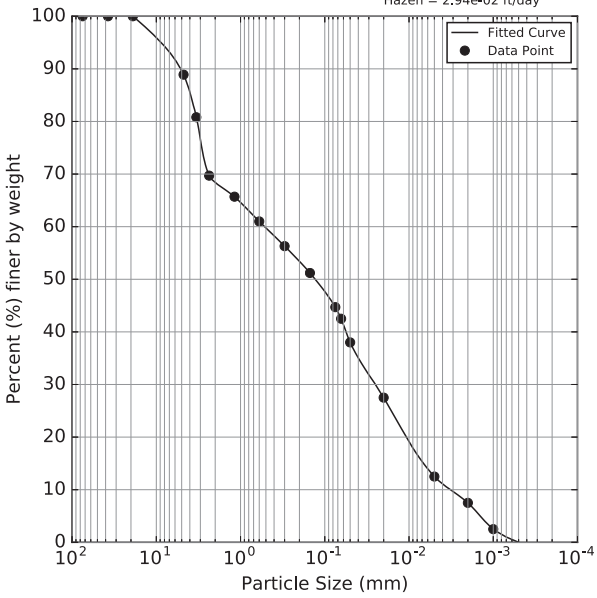
Hydraulic Conductivity Estimates
Barr = 5.00e-02 ft/day
Kozeny-Carman = 6.09e-02 ft/day
Hazen = 2.03e-02 ft/day



(mm)	%
0.001	3.0
0.002	8.0
0.005	14.5
0.02	29.0
0.05	36.0
0.064	38.5
0.075	39.4
0.15	42.5
0.3	46.2
0.6	50.7
1.18	55.7
2.36	61.2
3.35	69.7
4.75	78.1
19.0	94.5
37.5	100.0
75.0	100.0

Sample:
SG3-D05 20-27 feet

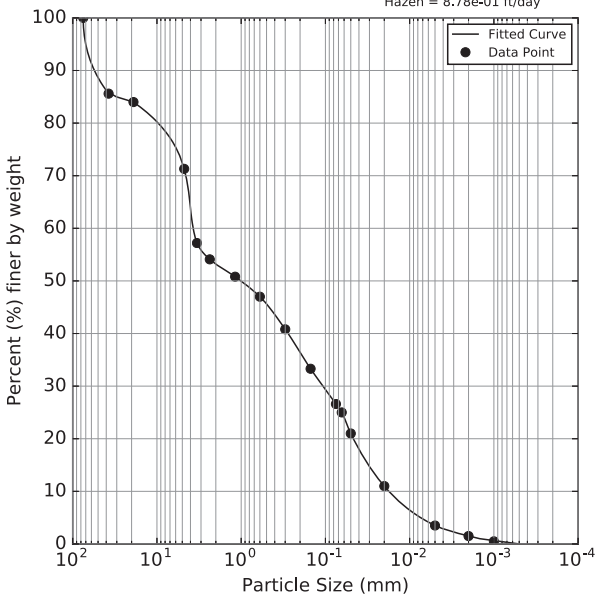
Hydraulic Conductivity Estimates
Barr = 5.95e-02 ft/day
Kozeny-Carman = 7.24e-02 ft/day
Hazen = 2.94e-02 ft/day



(mm)	%
0.001	2.5
0.002	7.5
0.005	12.5
0.02	27.5
0.05	38.0
0.064	42.5
0.075	44.7
0.15	51.2
0.3	56.3
0.6	61.0
1.18	65.7
2.36	69.7
3.35	80.8
4.75	88.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D06 0.1-2.5 feet

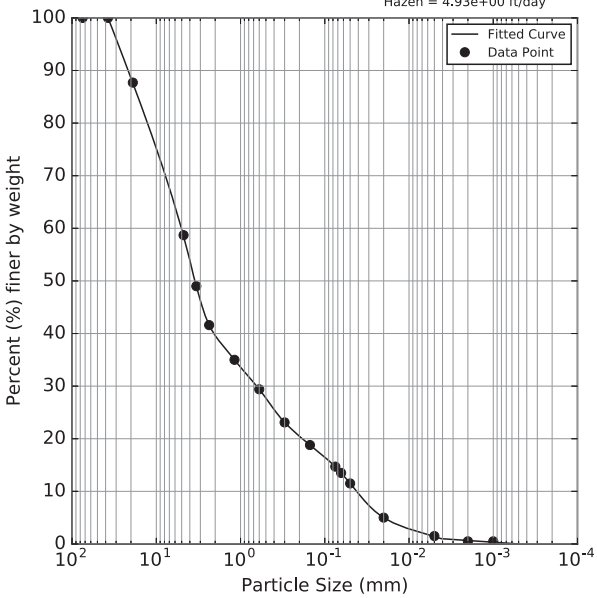
Hydraulic Conductivity Estimates
Barr = 5.49e-01 ft/day
Kozeny-Carman = 6.69e-01 ft/day
Hazen = 8.78e-01 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	3.5
0.02	11.0
0.05	21.0
0.064	25.0
0.075	26.6
0.15	33.3
0.3	40.8
0.6	47.0
1.18	50.8
2.36	54.1
3.35	57.2
4.75	71.3
19.0	84.0
37.5	85.6
75.0	100.0

Sample:
SG3-D06 2.5-10 feet

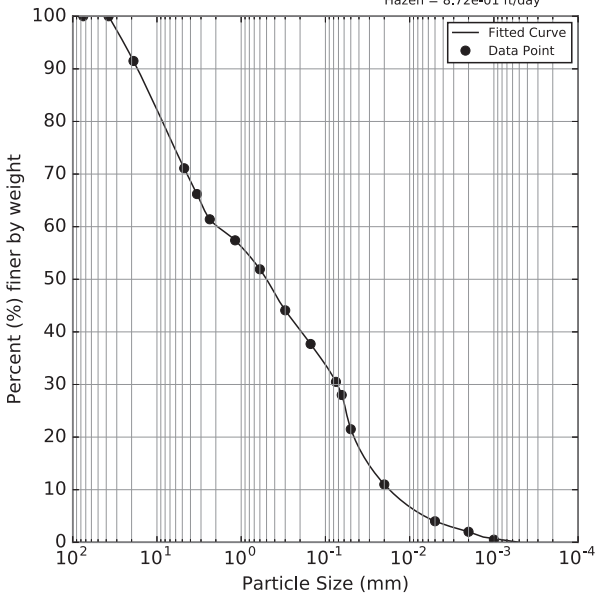
Hydraulic Conductivity Estimates
Barr = 1.88e+00 ft/day
Kozeny-Carman = 2.29e+00 ft/day
Hazen = 4.93e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	1.5
0.02	5.0
0.05	11.5
0.064	13.5
0.075	14.7
0.15	18.8
0.3	23.1
0.6	29.4
1.18	35.0
2.36	41.6
3.35	49.0
4.75	58.7
19.0	87.7
37.5	100.0
75.0	100.0

Sample:
SG3-D07 0-1 feet

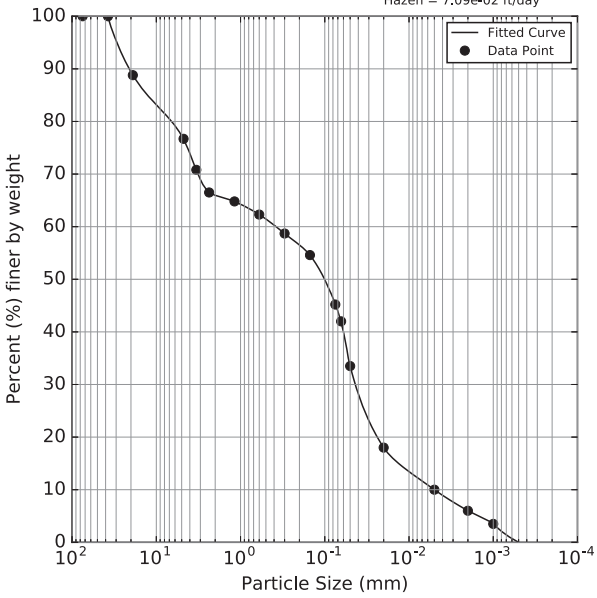
Hydraulic Conductivity Estimates
Barr = 4.47e-01 ft/day
Kozeny-Carman = 5.44e-01 ft/day
Hazen = 8.72e-01 ft/day



(mm)	%
0.001	0.5
0.002	2.0
0.005	4.0
0.02	11.0
0.05	21.5
0.064	28.0
0.075	30.5
0.15	37.7
0.3	44.1
0.6	51.9
1.18	57.4
2.36	61.4
3.35	66.2
4.75	71.1
19.0	91.5
37.5	100.0
75.0	100.0

Sample:
SG3-D07 1-10 feet

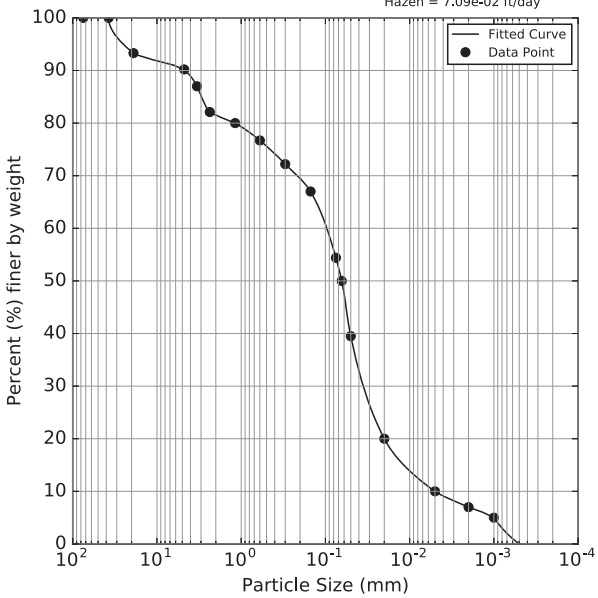
Hydraulic Conductivity Estimates
Barr = 7.52e-02 ft/day
Kozeny-Carman = 9.15e-02 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	3.5
0.002	6.0
0.005	10.0
0.02	18.0
0.05	33.5
0.064	42.0
0.075	45.2
0.15	54.6
0.3	58.7
0.6	62.3
1.18	64.8
2.36	66.5
3.35	70.8
4.75	76.7
19.0	88.8
37.5	100.0
75.0	100.0

Sample:
SG3-D07 10-20 feet

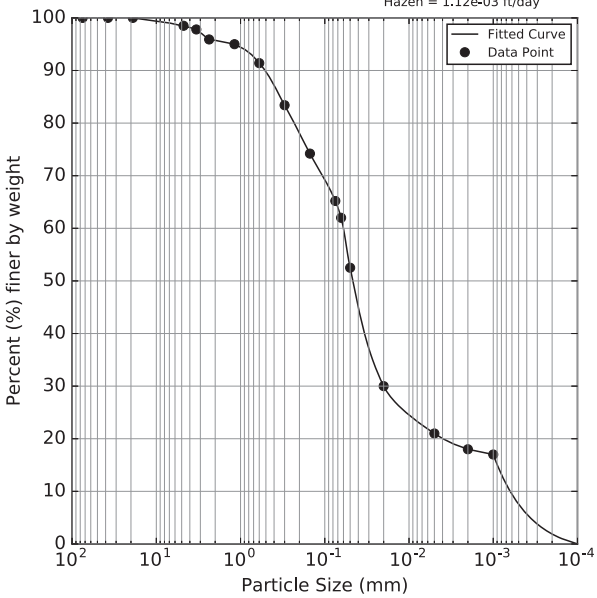
Hydraulic Conductivity Estimates
Barr = 5.36e-02 ft/day
Kozeny-Carman = 6.53e-02 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	5.0
0.002	7.0
0.005	10.0
0.02	20.0
0.05	39.5
0.064	50.0
0.075	54.4
0.15	67.0
0.3	72.2
0.6	76.7
1.18	80.0
2.36	82.1
3.35	87.0
4.75	90.2
19.0	93.3
37.5	100.0
75.0	100.0

Sample:
SG3-D07 100-110 feet

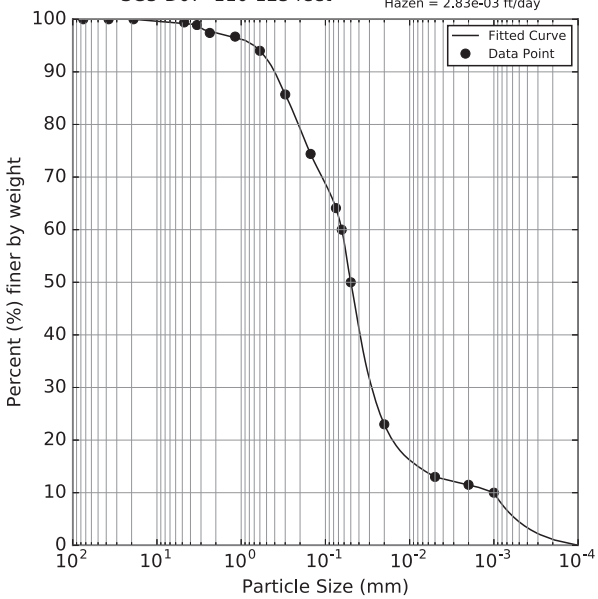
Hydraulic Conductivity Estimates
Barr = 3.09e-03 ft/day
Kozeny-Carman = 3.76e-03 ft/day
Hazen = 1.12e-03 ft/day



(mm)	%
0.001	17.0
0.002	18.0
0.005	21.0
0.02	30.0
0.05	52.5
0.064	62.0
0.075	65.2
0.15	74.2
0.3	83.4
0.6	91.4
1.18	95.0
2.36	95.9
3.35	97.8
4.75	98.5
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 110-123 feet

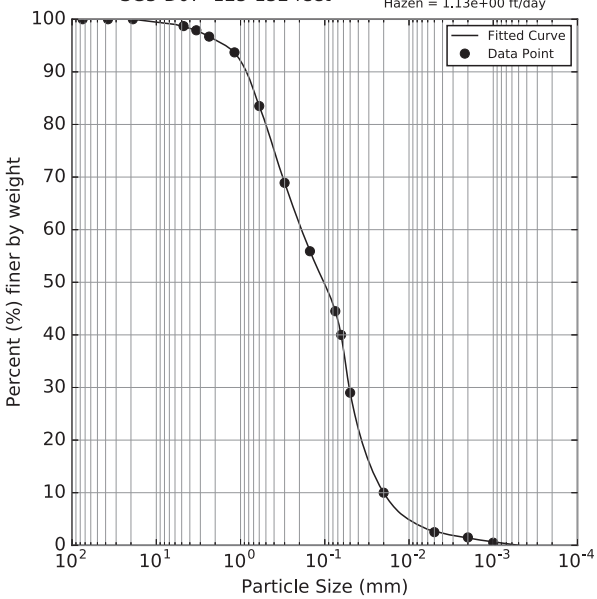
Hydraulic Conductivity Estimates
Barr = 7.72e-03 ft/day
Kozeny-Carman = 9.40e-03 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	11.5
0.005	13.0
0.02	23.0
0.05	50.0
0.064	60.0
0.075	64.1
0.15	74.4
0.3	85.7
0.6	94.0
1.18	96.7
2.36	97.4
3.35	98.9
4.75	99.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 125-132 feet

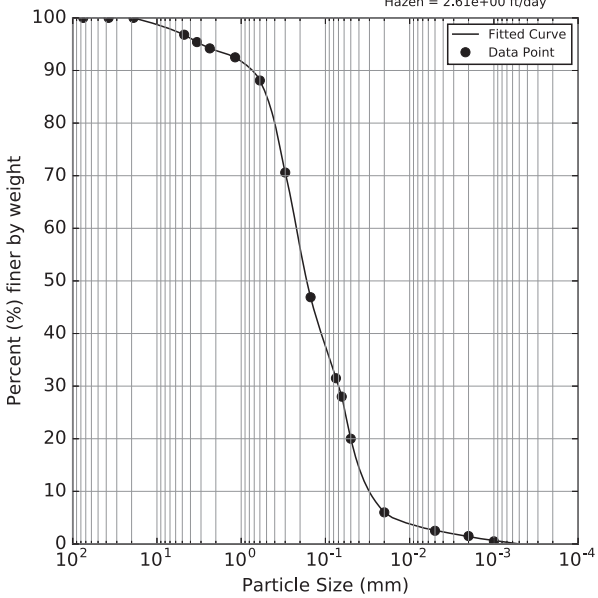
Hydraulic Conductivity Estimates
Barr = 5.02e-01 ft/day
Kozeny-Carman = 6.10e-01 ft/day
Hazen = 1.13e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	2.5
0.02	10.0
0.05	29.0
0.064	40.0
0.075	44.5
0.15	55.9
0.3	68.9
0.6	83.5
1.18	93.7
2.36	96.7
3.35	97.9
4.75	98.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 132-144 feet

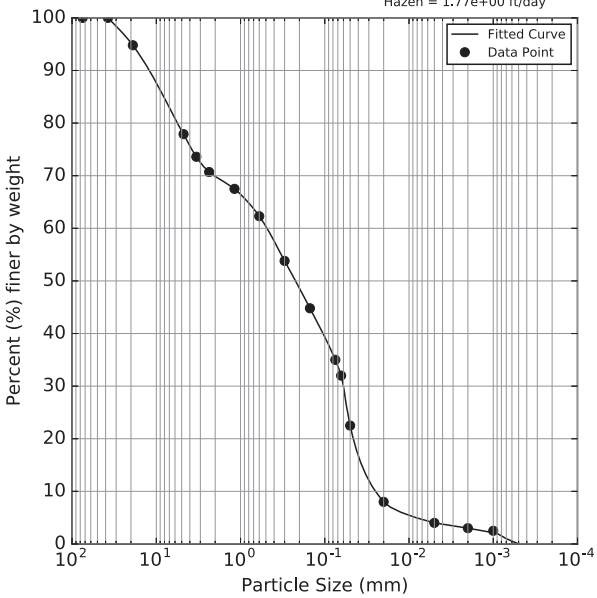
Hydraulic Conductivity Estimates
Barr = 6.60e-01 ft/day
Kozeny-Carman = 8.03e-01 ft/day
Hazen = 2.61e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	2.5
0.02	6.0
0.05	20.0
0.064	28.0
0.075	31.5
0.15	46.9
0.3	70.6
0.6	88.1
1.18	92.5
2.36	94.2
3.35	95.4
4.75	96.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 144-157 feet

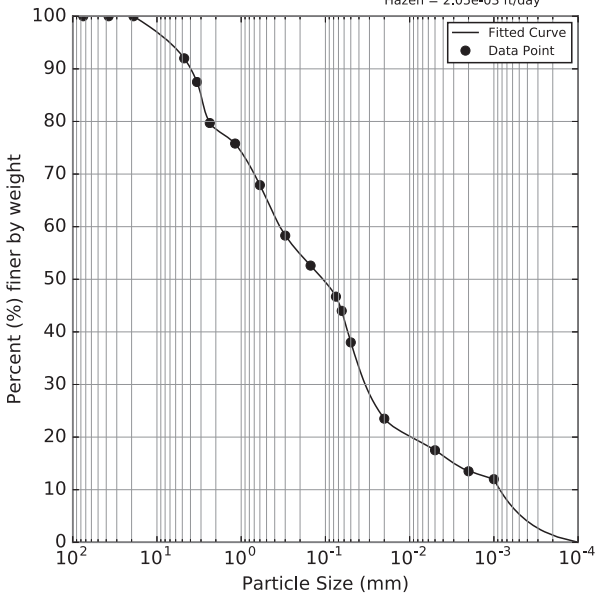
Hydraulic Conductivity Estimates
Barr = 2.45e-01 ft/day
Kozeny-Carman = 2.98e-01 ft/day
Hazen = 1.77e+00 ft/day



(mm)	%
0.001	2.5
0.002	3.0
0.005	4.0
0.02	8.0
0.05	22.5
0.064	32.0
0.075	35.0
0.15	44.8
0.3	53.8
0.6	62.3
1.18	67.5
2.36	70.7
3.35	73.6
4.75	77.9
19.0	94.8
37.5	100.0
75.0	100.0

Sample:
SG3-D07 159-163 feet

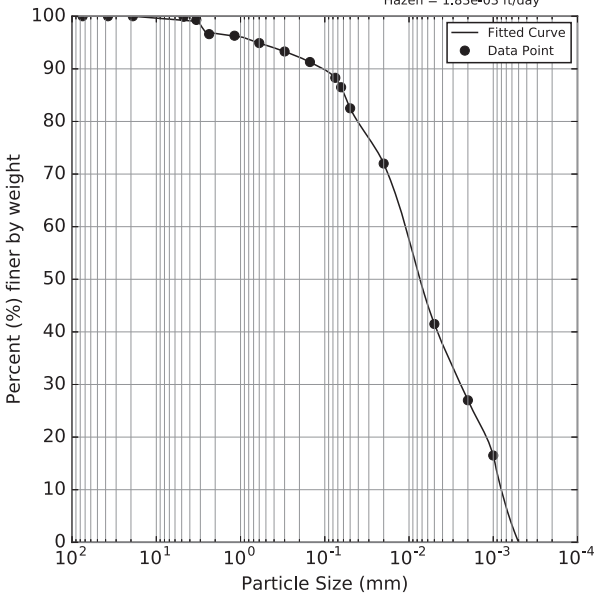
Hydraulic Conductivity Estimates
Barr = 5.69e-03 ft/day
Kozeny-Carman = 6.93e-03 ft/day
Hazen = 2.05e-03 ft/day



(mm)	%
0.001	12.0
0.002	13.5
0.005	17.5
0.02	23.5
0.05	38.0
0.064	44.0
0.075	46.7
0.15	52.6
0.3	58.3
0.6	67.9
1.18	75.8
2.36	79.7
3.35	87.5
4.75	92.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 163-170 feet

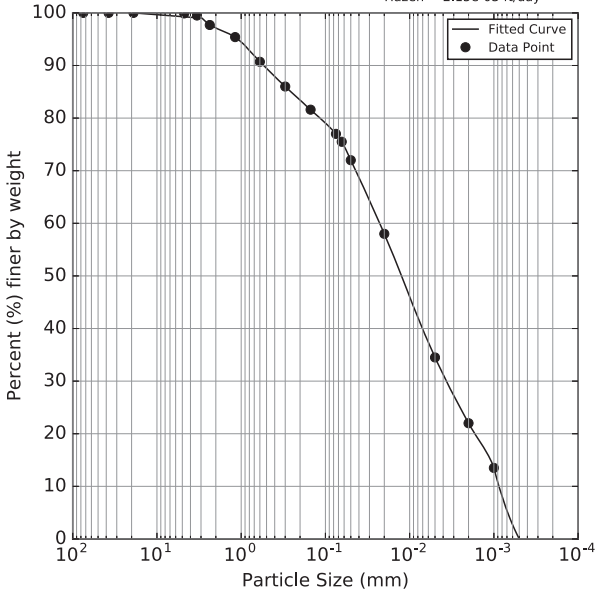
Hydraulic Conductivity Estimates
Barr = 4.55e-03 ft/day
Kozeny-Carman = 5.53e-03 ft/day
Hazen = 1.83e-03 ft/day



(mm)	%
0.001	16.5
0.002	27.0
0.005	41.5
0.02	72.0
0.05	82.5
0.064	86.5
0.075	88.3
0.15	91.3
0.3	93.3
0.6	94.9
1.18	96.3
2.36	96.6
3.35	99.3
4.75	99.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 170-190 feet

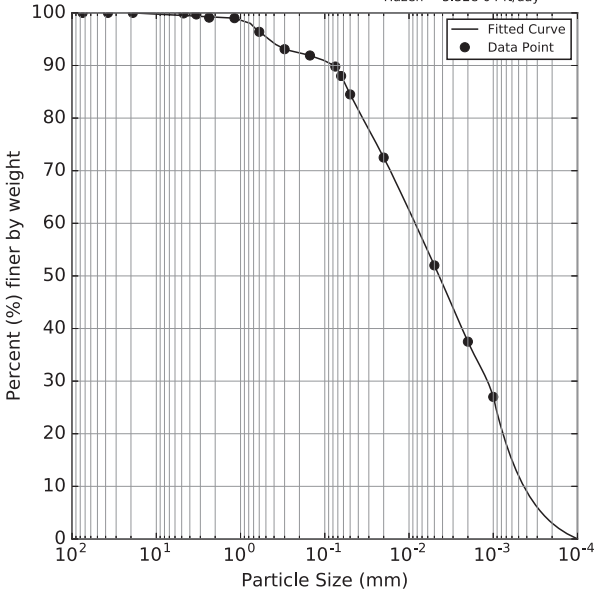
Hydraulic Conductivity Estimates
Barr = 6.73e-03 ft/day
Kozeny-Carman = 8.19e-03 ft/day
Hazen = 2.15e-03 ft/day



(mm)	%
0.001	13.5
0.002	22.0
0.005	34.5
0.02	58.0
0.05	72.0
0.064	75.5
0.075	77.0
0.15	81.6
0.3	86.0
0.6	90.7
1.18	95.4
2.36	97.7
3.35	99.5
4.75	99.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 190-200 feet

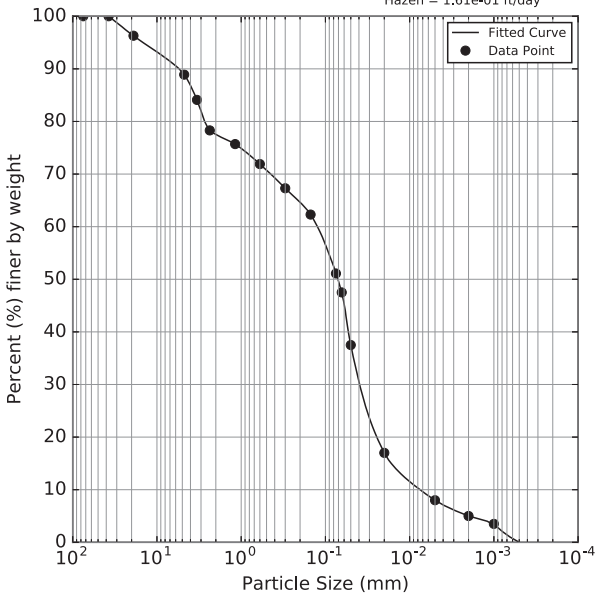
Hydraulic Conductivity Estimates
Barr = 9.75e-04 ft/day
Kozeny-Carman = 1.19e-03 ft/day
Hazen = 5.32e-04 ft/day



(mm)	%
0.001	27.0
0.002	37.5
0.005	52.0
0.02	72.5
0.05	84.5
0.064	88.0
0.075	89.8
0.15	91.9
0.3	93.1
0.6	96.4
1.18	99.0
2.36	99.1
3.35	99.7
4.75	99.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 20-28 feet

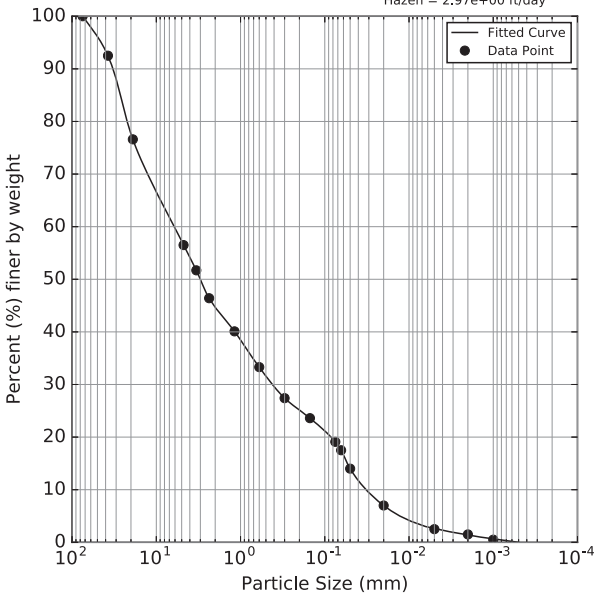
Hydraulic Conductivity Estimates
Barr = 8.93e-02 ft/day
Kozeny-Carman = 1.09e-01 ft/day
Hazen = 1.61e-01 ft/day



(mm)	%
0.001	3.5
0.002	5.0
0.005	8.0
0.02	17.0
0.05	37.5
0.064	47.5
0.075	51.1
0.15	62.3
0.3	67.3
0.6	71.9
1.18	75.7
2.36	78.3
3.35	84.1
4.75	88.9
19.0	96.3
37.5	100.0
75.0	100.0

Sample:
SG3-D07 28-31 feet

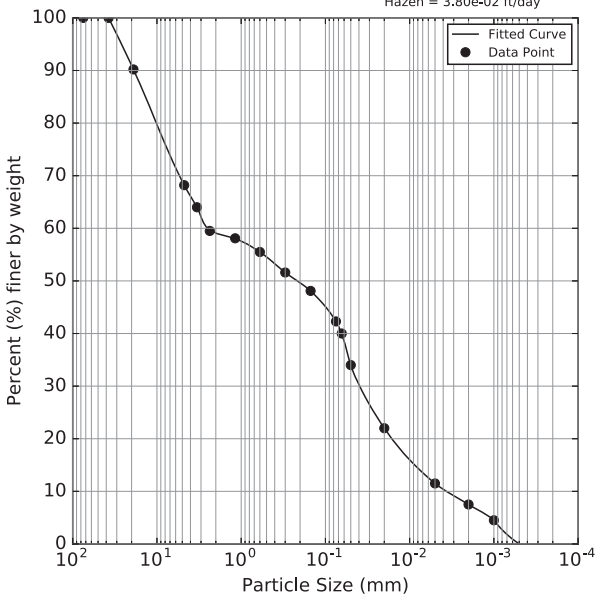
Hydraulic Conductivity Estimates
Barr = 8.73e-01 ft/day
Kozeny-Carman = 1.06e+00 ft/day
Hazen = 2.97e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	2.5
0.02	7.0
0.05	14.0
0.064	17.5
0.075	19.1
0.15	23.6
0.3	27.4
0.6	33.3
1.18	40.1
2.36	46.4
3.35	51.7
4.75	56.5
19.0	76.6
37.5	92.5
75.0	100.0

Sample:
SG3-D07 33-40 feet

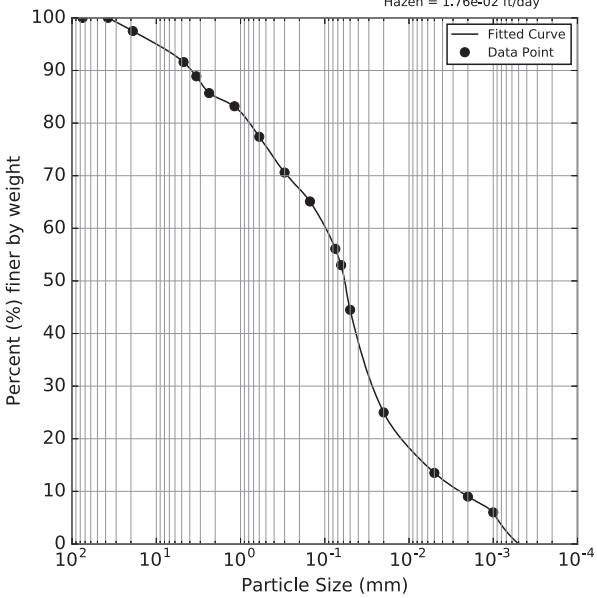
Hydraulic Conductivity Estimates
Barr = 5.32e-02 ft/day
Kozeny-Carman = 6.48e-02 ft/day
Hazen = 3.80e-02 ft/day



(mm)	%
0.001	4.5
0.002	7.5
0.005	11.5
0.02	22.0
0.05	34.0
0.064	40.0
0.075	42.3
0.15	48.1
0.3	51.6
0.6	55.5
1.18	58.1
2.36	59.5
3.35	64.0
4.75	68.2
19.0	90.2
37.5	100.0
75.0	100.0

Sample:
SG3-D07 40-50 feet

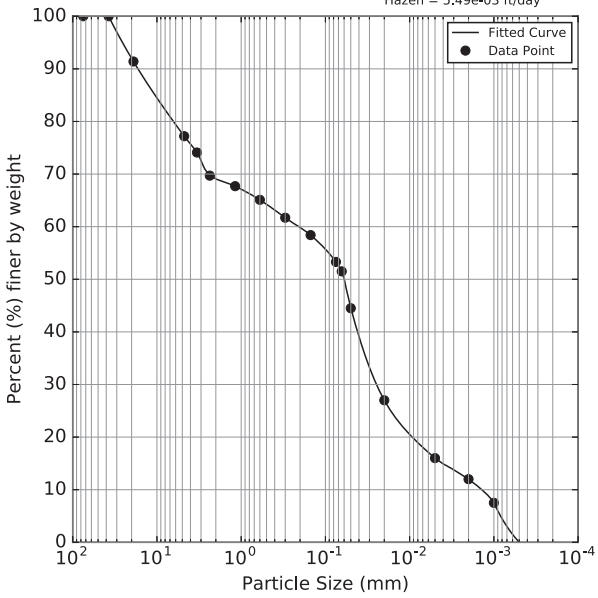
Hydraulic Conductivity Estimates
Barr = 3.50e-02 ft/day
Kozeny-Carman = 4.27e-02 ft/day
Hazen = 1.76e-02 ft/day



(mm)	%
0.001	6.0
0.002	9.0
0.005	13.5
0.02	25.0
0.05	44.5
0.064	53.0
0.075	56.1
0.15	65.1
0.3	70.6
0.6	77.4
1.18	83.2
2.36	85.7
3.35	88.9
4.75	91.6
19.0	97.5
37.5	100.0
75.0	100.0

Sample:
SG3-D07 50-60 feet

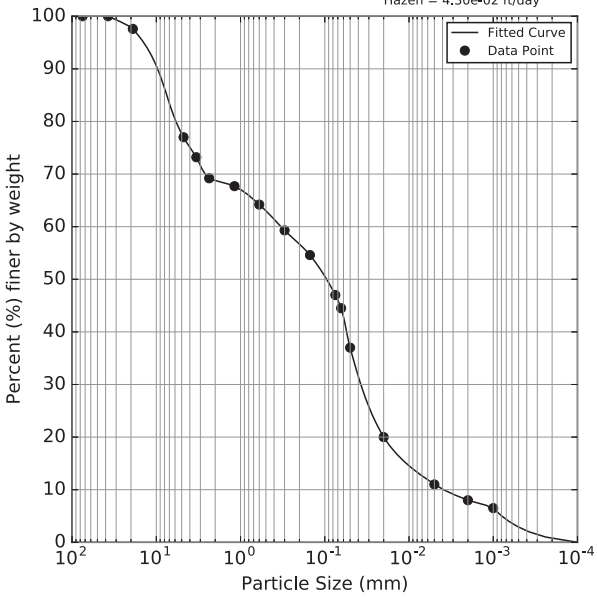
Hydraulic Conductivity Estimates
Barr = 2.42e-02 ft/day
Kozeny-Carman = 2.95e-02 ft/day
Hazen = 5.49e-03 ft/day



(mm)	%
0.001	7.5
0.002	12.0
0.005	16.0
0.02	27.0
0.05	44.5
0.064	51.5
0.075	53.3
0.15	58.4
0.3	61.7
0.6	65.1
1.18	67.7
2.36	69.7
3.35	74.1
4.75	77.2
19.0	91.4
37.5	100.0
75.0	100.0

Sample:
SG3-D07 60-75 feet

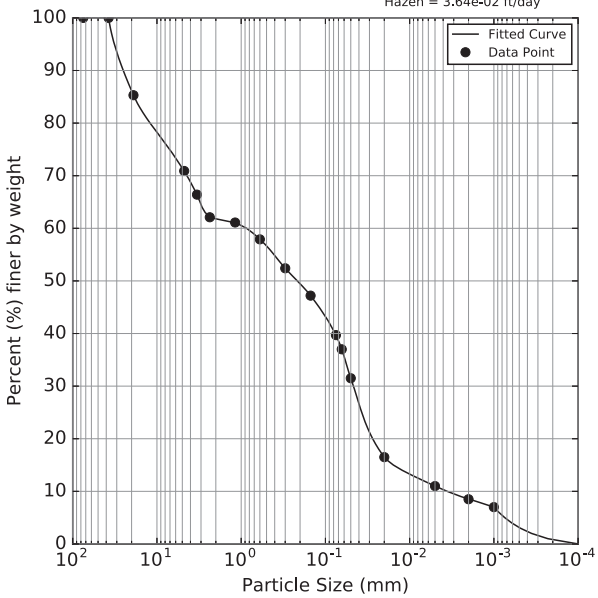
Hydraulic Conductivity Estimates
Barr = 1.52e-02 ft/day
Kozeny-Carman = 1.86e-02 ft/day
Hazen = 4.30e-02 ft/day



(mm)	%
0.001	6.5
0.002	8.0
0.005	11.0
0.02	20.0
0.05	37.0
0.064	44.5
0.075	47.0
0.15	54.6
0.3	59.3
0.6	64.2
1.18	67.7
2.36	69.2
3.35	73.2
4.75	77.0
19.0	97.6
37.5	100.0
75.0	100.0

Sample:
SG3-D07 75-78 feet

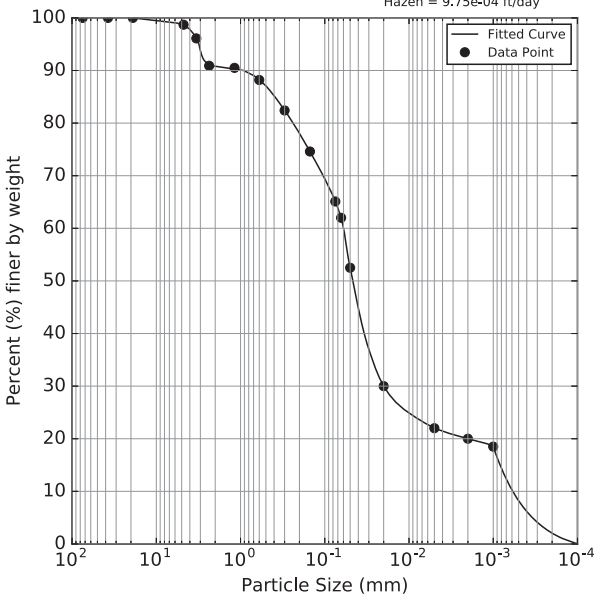
Hydraulic Conductivity Estimates
Barr = 1.44e-02 ft/day
Kozeny-Carman = 1.75e-02 ft/day
Hazen = 3.64e-02 ft/day



(mm)	%
0.001	7.0
0.002	8.5
0.005	11.0
0.02	16.5
0.05	31.5
0.064	37.0
0.075	39.7
0.15	47.2
0.3	52.4
0.6	57.9
1.18	61.1
2.36	62.1
3.35	66.4
4.75	70.9
19.0	85.3
37.5	100.0
75.0	100.0

Sample:
SG3-D07 80-85 feet

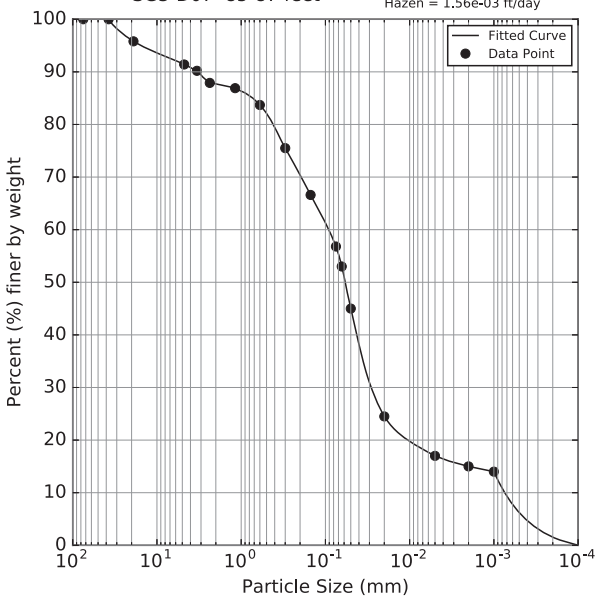
Hydraulic Conductivity Estimates
Barr = 2.65e-03 ft/day
Kozeny-Carman = 3.23e-03 ft/day
Hazen = 9.75e-04 ft/day



(mm)	%
0.001	18.5
0.002	20.0
0.005	22.0
0.02	30.0
0.05	52.5
0.064	62.0
0.075	65.1
0.15	74.6
0.3	82.4
0.6	88.2
1.18	90.5
2.36	90.9
3.35	96.1
4.75	98.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D07 85-87 feet

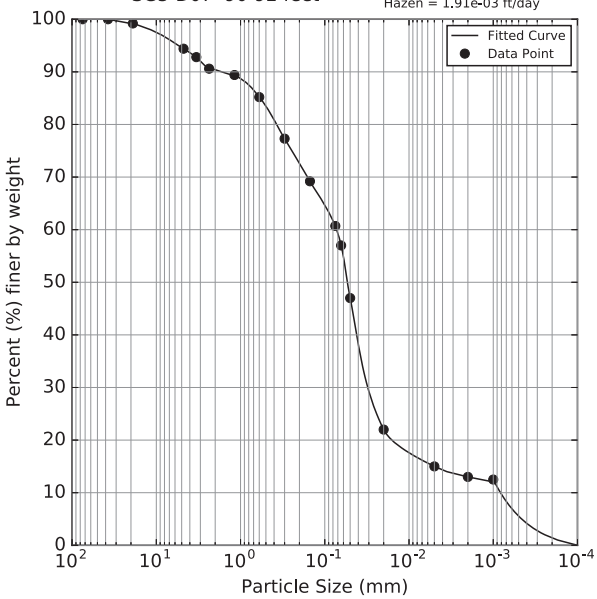
Hydraulic Conductivity Estimates
Barr = 4.49e-03 ft/day
Kozeny-Carman = 5.46e-03 ft/day
Hazen = 1.56e-03 ft/day



(mm)	%
0.001	14.0
0.002	15.0
0.005	17.0
0.02	24.5
0.05	45.0
0.064	53.0
0.075	56.8
0.15	66.6
0.3	75.5
0.6	83.7
1.18	86.9
2.36	87.9
3.35	90.2
4.75	91.4
19.0	95.8
37.5	100.0
75.0	100.0

Sample:
SG3-D07 90-92 feet

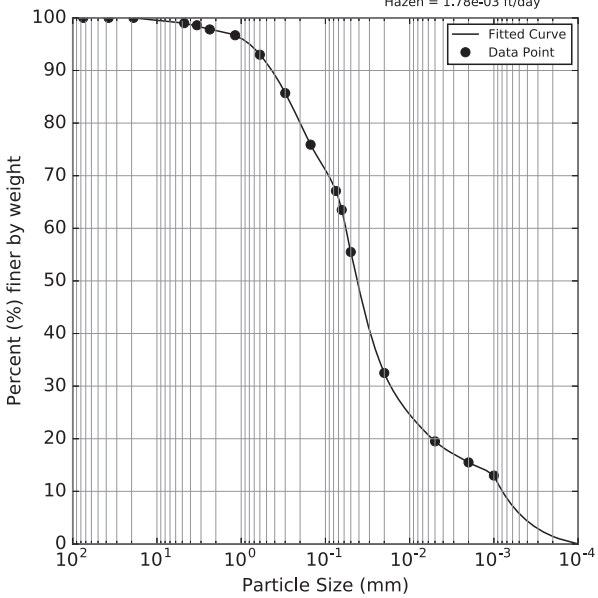
Hydraulic Conductivity Estimates
Barr = 5.62e-03 ft/day
Kozeny-Carman = 6.84e-03 ft/day
Hazen = 1.91e-03 ft/day



(mm)	%
0.001	12.5
0.002	13.0
0.005	15.0
0.02	22.0
0.05	47.0
0.064	57.0
0.075	60.7
0.15	69.2
0.3	77.3
0.6	85.2
1.18	89.4
2.36	90.6
3.35	92.8
4.75	94.4
19.0	99.2
37.5	100.0
75.0	100.0

Sample:
SG3-D07 95-100 feet

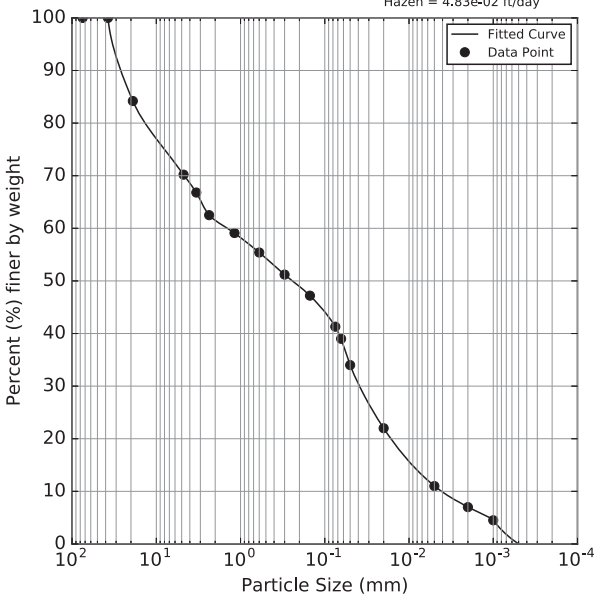
Hydraulic Conductivity Estimates
Barr = 4.52e-03 ft/day
Kozeny-Carman = 5.50e-03 ft/day
Hazen = 1.78e-03 ft/day



(mm)	%
0.001	13.0
0.002	15.5
0.005	19.5
0.02	32.5
0.05	55.5
0.064	63.5
0.075	67.1
0.15	75.9
0.3	85.7
0.6	93.0
1.18	96.7
2.36	97.8
3.35	98.6
4.75	99.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D11 1-20 feet

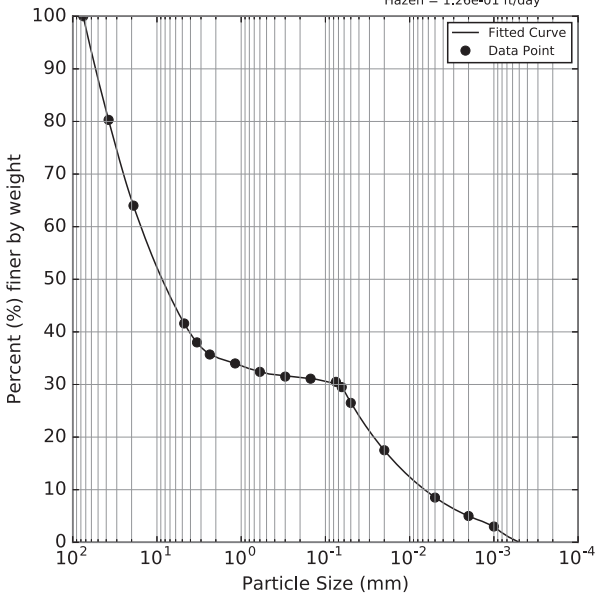
Hydraulic Conductivity Estimates
Barr = 5.65e-02 ft/day
Kozeny-Carman = 6.88e-02 ft/day
Hazen = 4.83e-02 ft/day



(mm)	%
0.001	4.5
0.002	7.0
0.005	11.0
0.02	22.0
0.05	34.0
0.064	39.0
0.075	41.3
0.15	47.2
0.3	51.2
0.6	55.4
1.18	59.1
2.36	62.5
3.35	66.8
4.75	70.2
19.0	84.2
37.5	100.0
75.0	100.0

Sample:
SG3-D11 102-104 feet

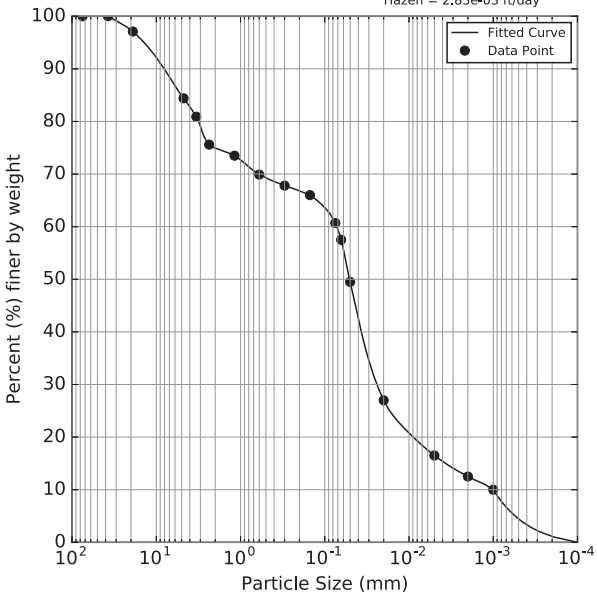
Hydraulic Conductivity Estimates
Barr = 1.07e-01 ft/day
Kozeny-Carman = 1.30e-01 ft/day
Hazen = 1.26e-01 ft/day



(mm)	%
0.001	3.0
0.002	5.0
0.005	8.5
0.02	17.5
0.05	26.5
0.064	29.5
0.075	30.5
0.15	31.1
0.3	31.5
0.6	32.4
1.18	34.0
2.36	35.7
3.35	38.0
4.75	41.6
19.0	64.0
37.5	80.3
75.0	100.0

Sample:
SG3-D11 104-121 feet

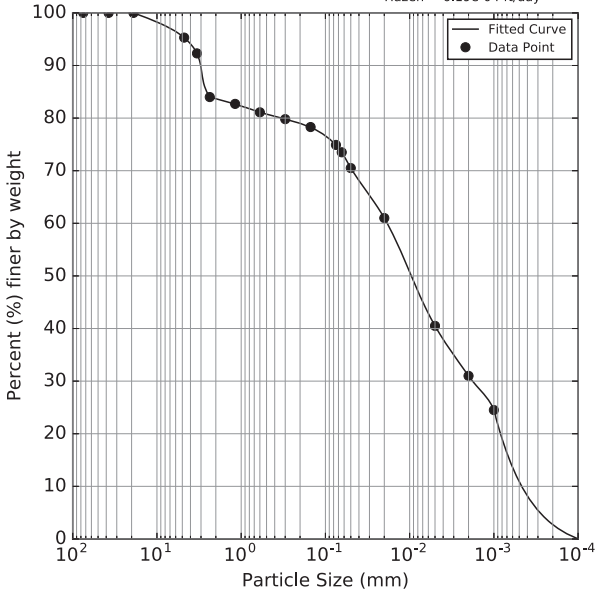
Hydraulic Conductivity Estimates
Barr = 7.07e-03 ft/day
Kozeny-Carman = 8.60e-03 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	12.5
0.005	16.5
0.02	27.0
0.05	49.5
0.064	57.5
0.075	60.7
0.15	66.0
0.3	67.8
0.6	69.9
1.18	73.5
2.36	75.6
3.35	80.9
4.75	84.4
19.0	97.1
37.5	100.0
75.0	100.0

Sample:
SG3-D11 121-123 feet

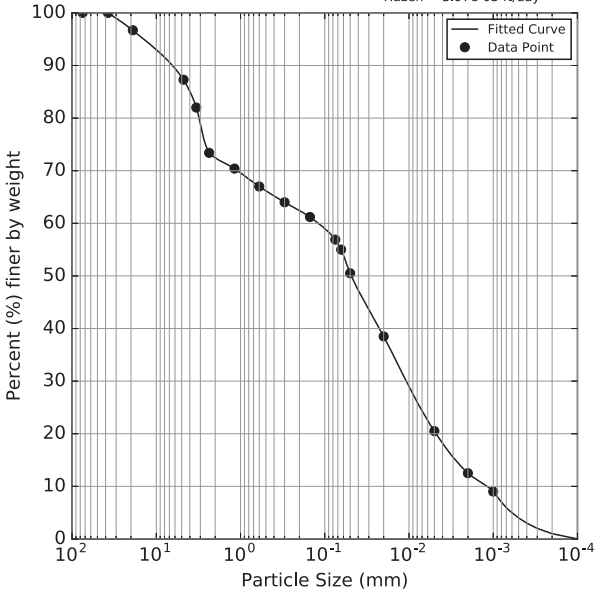
Hydraulic Conductivity Estimates
Barr = 1.29e-03 ft/day
Kozeny-Carman = 1.57e-03 ft/day
Hazen = 6.19e-04 ft/day



(mm)	%
0.001	24.5
0.002	31.0
0.005	40.5
0.02	61.0
0.05	70.5
0.064	73.5
0.075	74.9
0.15	78.3
0.3	79.8
0.6	81.1
1.18	82.7
2.36	84.0
3.35	92.3
4.75	95.3
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D11 123-144 feet

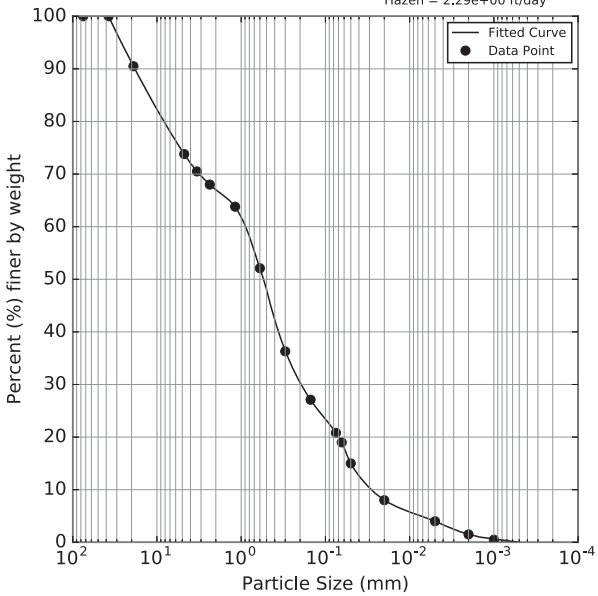
Hydraulic Conductivity Estimates
Barr = 7.11e-03 ft/day
Kozeny-Carman = 8.65e-03 ft/day
Hazen = 3.97e-03 ft/day



(mm)	%
0.001	9.0
0.002	12.5
0.005	20.5
0.02	38.5
0.05	50.5
0.064	55.0
0.075	56.9
0.15	61.2
0.3	64.0
0.6	67.0
1.18	70.4
2.36	73.4
3.35	82.0
4.75	87.3
19.0	96.7
37.5	100.0
75.0	100.0

Sample:
SG3-D11 144-145 feet

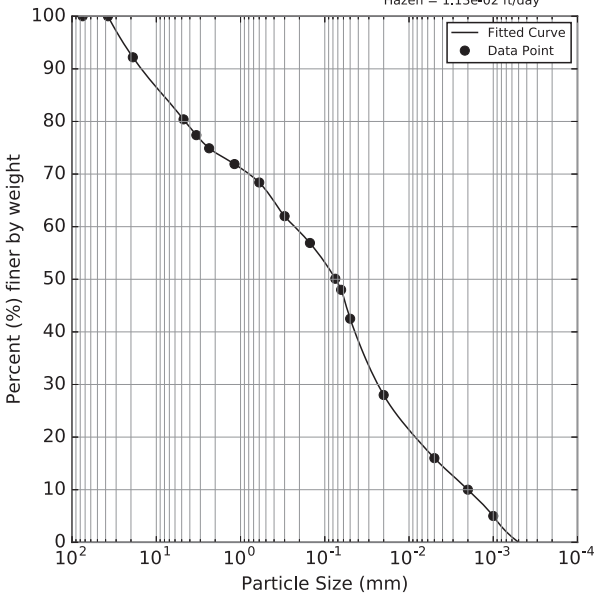
Hydraulic Conductivity Estimates
Barr = 6.24e-01 ft/day
Kozeny-Carman = 7.60e-01 ft/day
Hazen = 2.29e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	4.0
0.02	8.0
0.05	15.0
0.064	19.0
0.075	20.8
0.15	27.1
0.3	36.3
0.6	52.1
1.18	63.8
2.36	68.0
3.35	70.5
4.75	73.8
19.0	90.5
37.5	100.0
75.0	100.0

Sample:
SG3-D11 23-50 feet

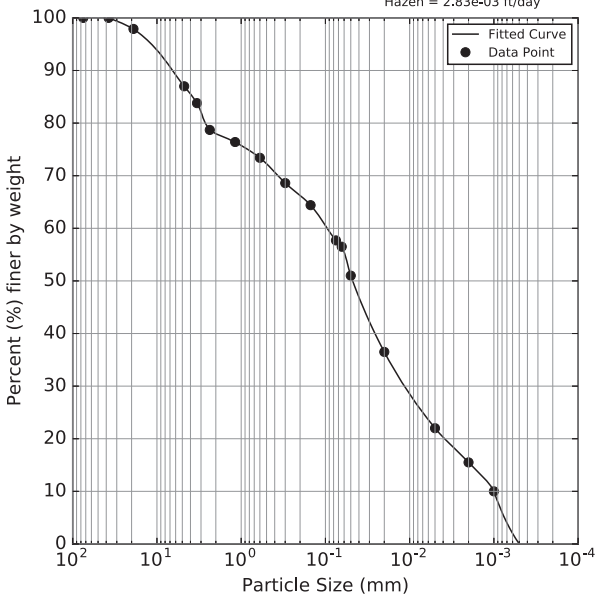
Hydraulic Conductivity Estimates
Barr = 3.31e-02 ft/day
Kozeny-Carman = 4.03e-02 ft/day
Hazen = 1.13e-02 ft/day



(mm)	%
0.001	5.0
0.002	10.0
0.005	16.0
0.02	28.0
0.05	42.5
0.064	48.0
0.075	50.1
0.15	56.9
0.3	62.0
0.6	68.4
1.18	71.9
2.36	74.9
3.35	77.4
4.75	80.4
19.0	92.2
37.5	100.0
75.0	100.0

Sample:
SG3-D11 50-80 feet

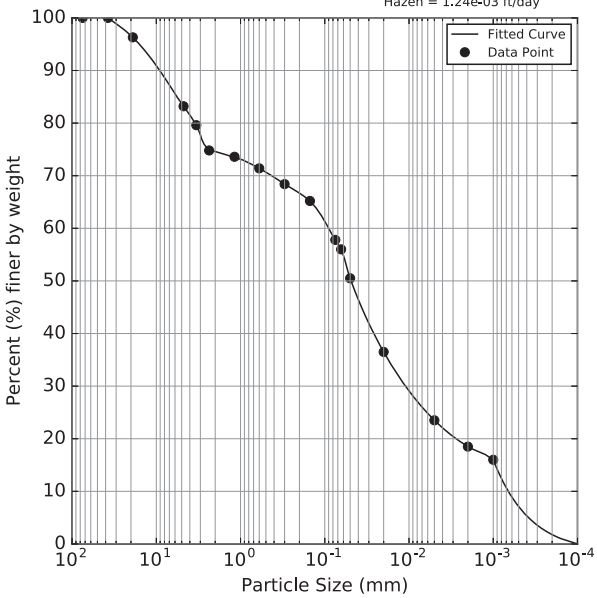
Hydraulic Conductivity Estimates
Barr = 1.41e-02 ft/day
Kozeny-Carman = 1.71e-02 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	15.5
0.005	22.0
0.02	36.5
0.05	51.0
0.064	56.5
0.075	57.7
0.15	64.4
0.3	68.6
0.6	73.4
1.18	76.4
2.36	78.7
3.35	83.8
4.75	87.0
19.0	97.9
37.5	100.0
75.0	100.0

Sample:
SG3-D11 80-89 feet

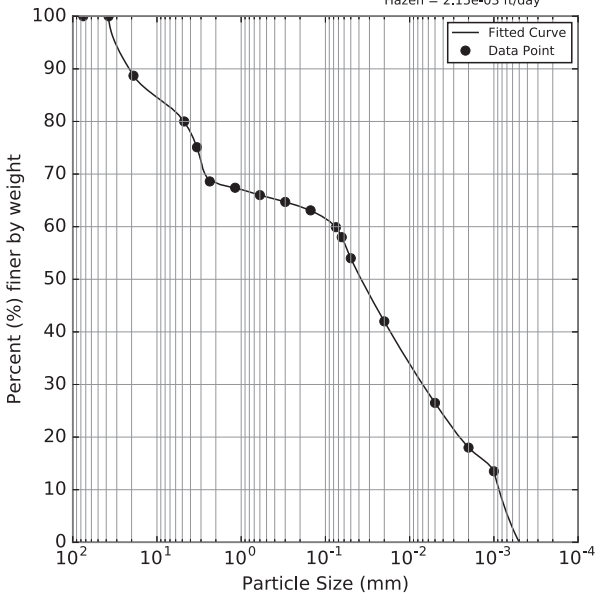
Hydraulic Conductivity Estimates
Barr = 3.18e-03 ft/day
Kozeny-Carman = 3.87e-03 ft/day
Hazen = 1.24e-03 ft/day



(mm)	%
0.001	16.0
0.002	18.5
0.005	23.5
0.02	36.5
0.05	50.5
0.064	56.0
0.075	57.8
0.15	65.2
0.3	68.4
0.6	71.4
1.18	73.6
2.36	74.8
3.35	79.6
4.75	83.2
19.0	96.3
37.5	100.0
75.0	100.0

Sample:
SG3-D11 89-96 feet

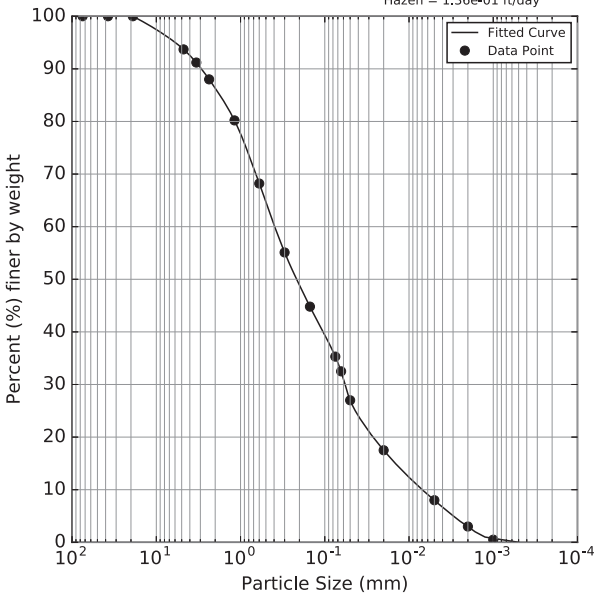
Hydraulic Conductivity Estimates
Barr = 9.59e-03 ft/day
Kozeny-Carman = 1.17e-02 ft/day
Hazen = 2.15e-03 ft/day



(mm)	%
0.001	13.5
0.002	18.0
0.005	26.5
0.02	42.0
0.05	54.0
0.064	58.0
0.075	59.9
0.15	63.1
0.3	64.7
0.6	66.0
1.18	67.4
2.36	68.6
3.35	75.1
4.75	80.0
19.0	88.7
37.5	100.0
75.0	100.0

Sample:
SG3-D13 0-1 feet

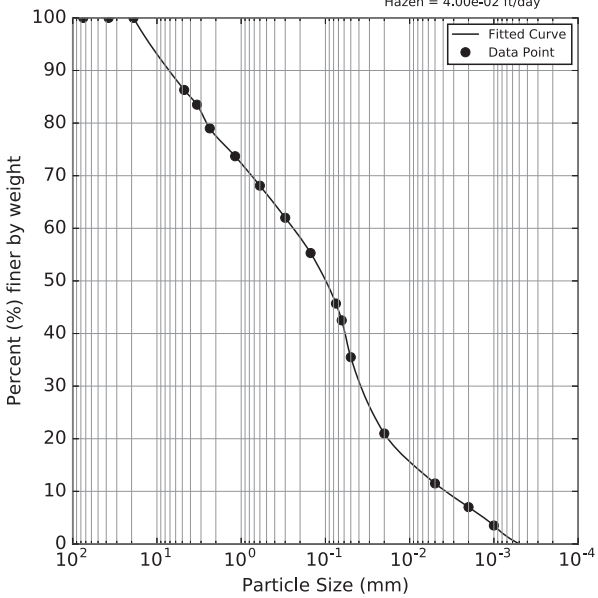
Hydraulic Conductivity Estimates
Barr = 2.02e-01 ft/day
Kozeny-Carman = 2.45e-01 ft/day
Hazen = 1.36e-01 ft/day



(mm)	%
0.001	0.5
0.002	3.0
0.005	8.0
0.02	17.5
0.05	27.0
0.064	32.5
0.075	35.3
0.15	44.8
0.3	55.1
0.6	68.2
1.18	80.2
2.36	88.0
3.35	91.2
4.75	93.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D13 1-10 feet

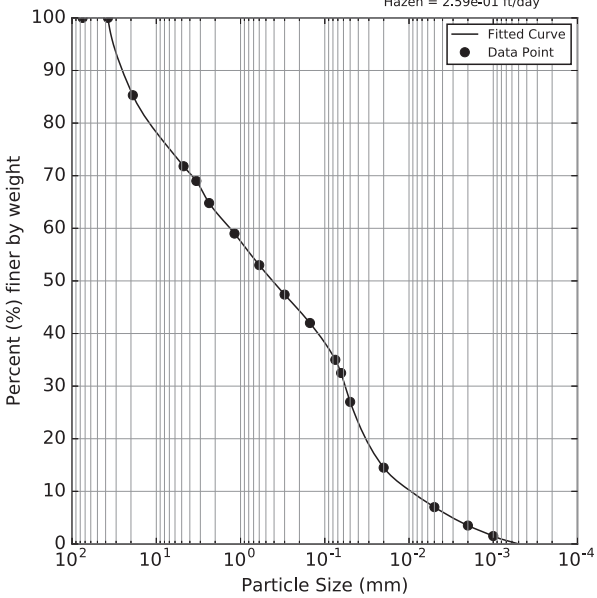
Hydraulic Conductivity Estimates
Barr = 6.14e-02 ft/day
Kozeny-Carman = 7.48e-02 ft/day
Hazen = 4.00e-02 ft/day



(mm)	%
0.001	3.5
0.002	7.0
0.005	11.5
0.02	21.0
0.05	35.5
0.064	42.5
0.075	45.7
0.15	55.3
0.3	62.0
0.6	68.1
1.18	73.7
2.36	79.0
3.35	83.5
4.75	86.3
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D13 10-15 feet

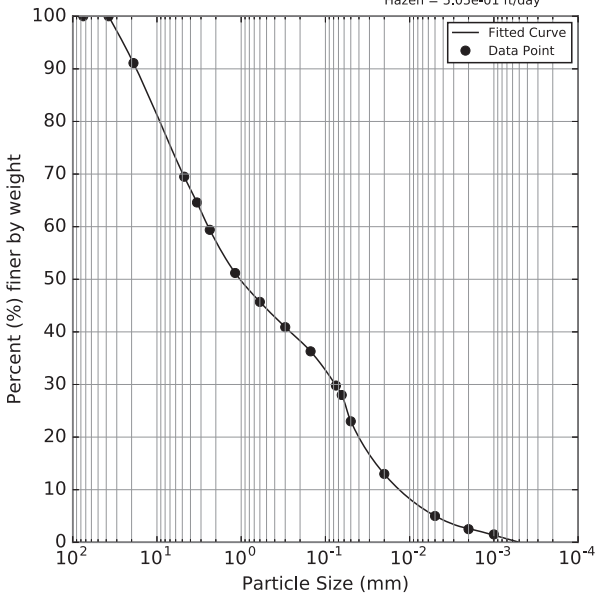
Hydraulic Conductivity Estimates
Barr = 1.85e-01 ft/day
Kozeny-Carman = 2.25e-01 ft/day
Hazen = 2.59e-01 ft/day



(mm)	%
0.001	1.5
0.002	3.5
0.005	7.0
0.02	14.5
0.05	27.0
0.064	32.5
0.075	35.0
0.15	42.0
0.3	47.4
0.6	53.0
1.18	59.0
2.36	64.8
3.35	69.0
4.75	71.8
19.0	85.3
37.5	100.0
75.0	100.0

Sample:
SG3-D13 15-25 feet

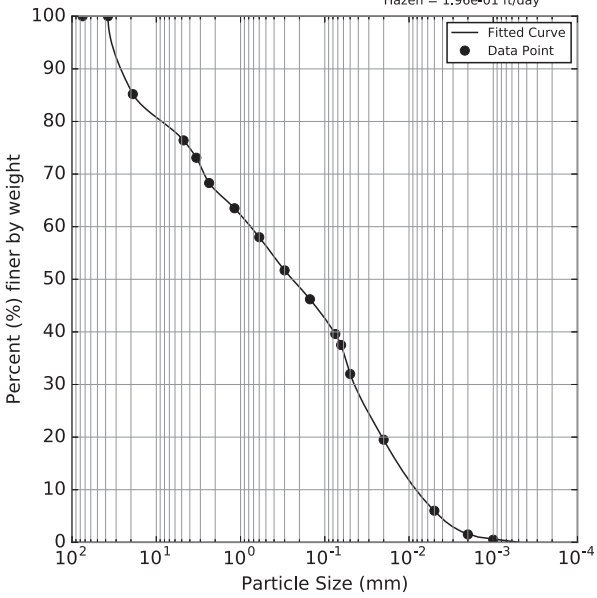
Hydraulic Conductivity Estimates
Barr = 2.77e-01 ft/day
Kozeny-Carman = 3.37e-01 ft/day
Hazen = 5.05e-01 ft/day



(mm)	%
0.001	1.5
0.002	2.5
0.005	5.0
0.02	13.0
0.05	23.0
0.064	28.0
0.075	29.8
0.15	36.3
0.3	40.9
0.6	45.7
1.18	51.2
2.36	59.4
3.35	64.6
4.75	69.5
19.0	91.1
37.5	100.0
75.0	100.0

Sample:
SG3-D14 0-1.3 feet

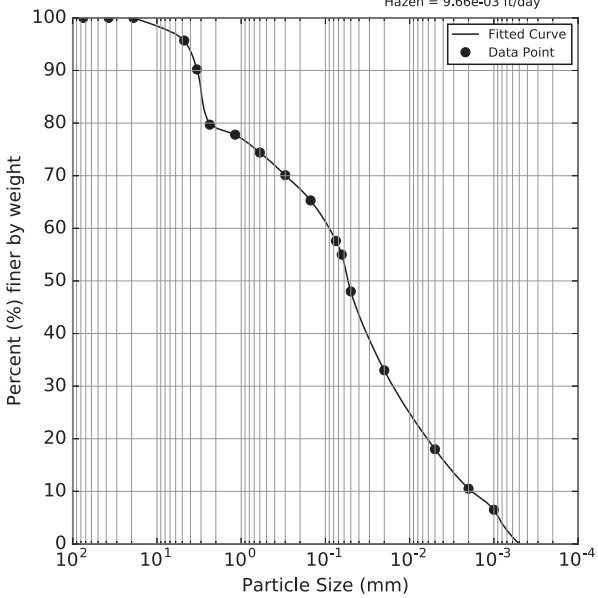
Hydraulic Conductivity Estimates
Barr = 2.77e-01 ft/day
Kozeny-Carman = 3.37e-01 ft/day
Hazen = 1.96e-01 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	6.0
0.02	19.5
0.05	32.0
0.064	37.5
0.075	39.6
0.15	46.2
0.3	51.7
0.6	58.0
1.18	63.5
2.36	68.3
3.35	73.1
4.75	76.4
19.0	85.2
37.5	100.0
75.0	100.0

Sample:
SG3-D14 1.5-3 feet

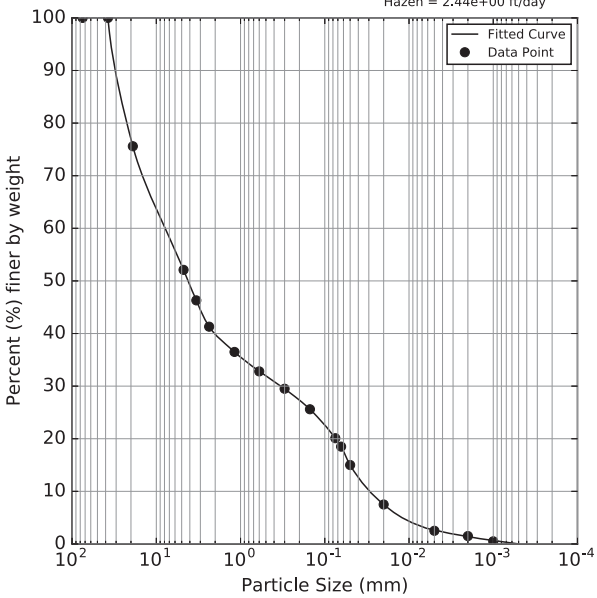
Hydraulic Conductivity Estimates
Barr = 2.51e-02 ft/day
Kozeny-Carman = 3.05e-02 ft/day
Hazen = 9.66e-03 ft/day



(mm)	%
0.001	6.5
0.002	10.5
0.005	18.0
0.02	33.0
0.05	48.0
0.064	55.0
0.075	57.6
0.15	65.3
0.3	70.1
0.6	74.4
1.18	77.8
2.36	79.7
3.35	90.2
4.75	95.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D14 3-9 feet

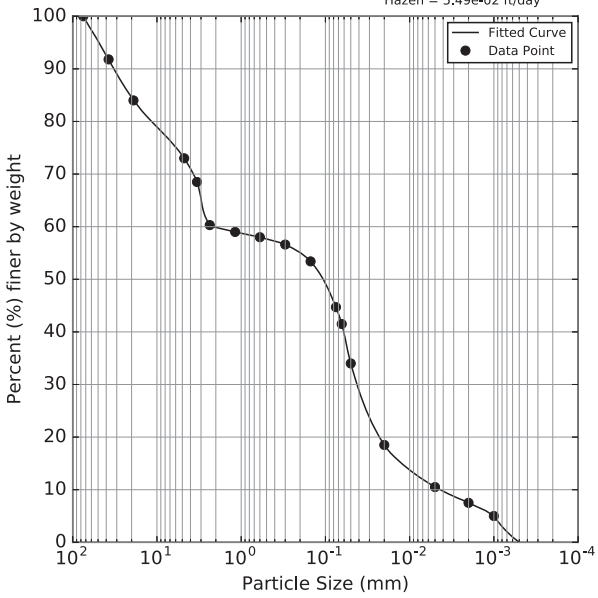
Hydraulic Conductivity Estimates
Barr = 8.37e-01 ft/day
Kozeny-Carman = 1.02e+00 ft/day
Hazen = 2.44e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	2.5
0.02	7.5
0.05	15.0
0.064	18.5
0.075	20.1
0.15	25.6
0.3	29.5
0.6	32.8
1.18	36.5
2.36	41.3
3.35	46.3
4.75	52.1
19.0	75.6
37.5	100.0
75.0	100.0

Sample:
SG3-D14 9-12 feet

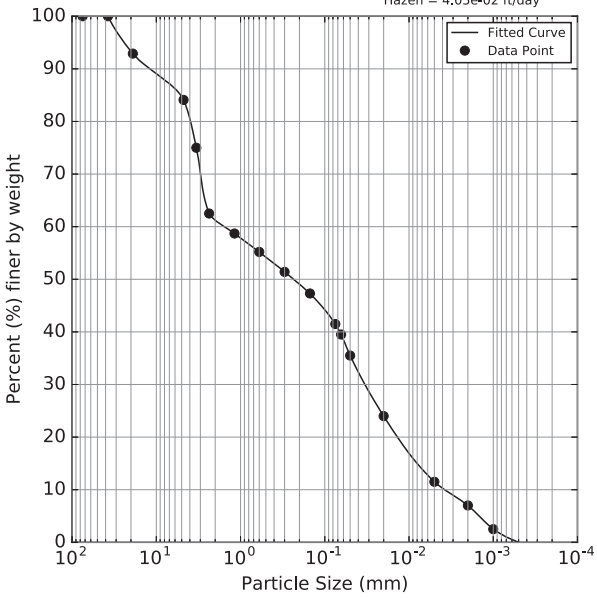
Hydraulic Conductivity Estimates
Barr = 5.40e-02 ft/day
Kozeny-Carman = 6.57e-02 ft/day
Hazen = 5.49e-02 ft/day



(mm)	%
0.001	5.0
0.002	7.5
0.005	10.5
0.02	18.5
0.05	34.0
0.064	41.5
0.075	44.7
0.15	53.4
0.3	56.6
0.6	58.0
1.18	59.0
2.36	60.3
3.35	68.5
4.75	73.0
19.0	84.0
37.5	91.8
75.0	100.0

Sample:
SG3-D16 1.1-8 feet

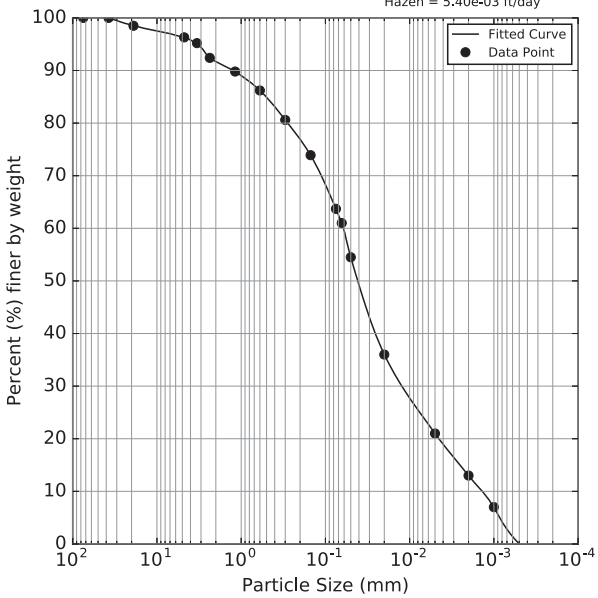
Hydraulic Conductivity Estimates
Barr = 6.88e-02 ft/day
Kozeny-Carman = 8.38e-02 ft/day
Hazen = 4.05e-02 ft/day



(mm)	%
0.001	2.5
0.002	7.0
0.005	11.5
0.02	24.0
0.05	35.5
0.064	39.5
0.075	41.5
0.15	47.3
0.3	51.4
0.6	55.2
1.18	58.7
2.36	62.5
3.35	75.0
4.75	84.1
19.0	92.9
37.5	100.0
75.0	100.0

Sample:
SG3-D16 10-23 feet

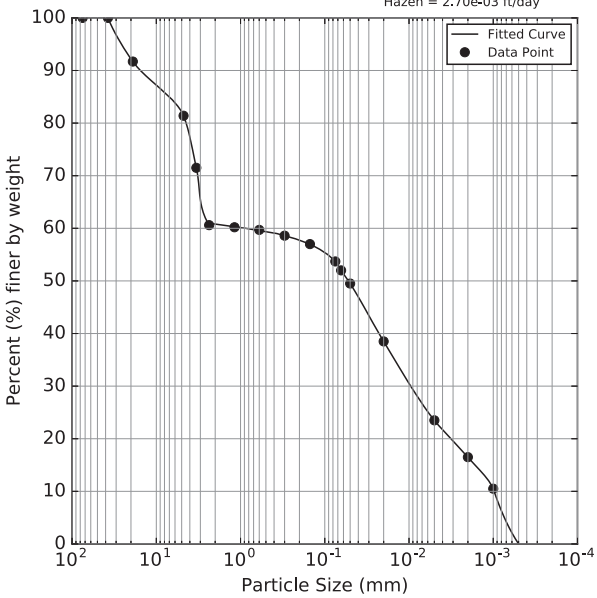
Hydraulic Conductivity Estimates
Barr = 1.90e-02 ft/day
Kozeny-Carman = 2.31e-02 ft/day
Hazen = 5.40e-03 ft/day



(mm)	%
0.001	7.0
0.002	13.0
0.005	21.0
0.02	36.0
0.05	54.5
0.064	61.0
0.075	63.7
0.15	73.9
0.3	80.6
0.6	86.2
1.18	89.8
2.36	92.4
3.35	95.2
4.75	96.3
19.0	98.5
37.5	100.0
75.0	100.0

Sample:
SG3-D16 23-27 feet

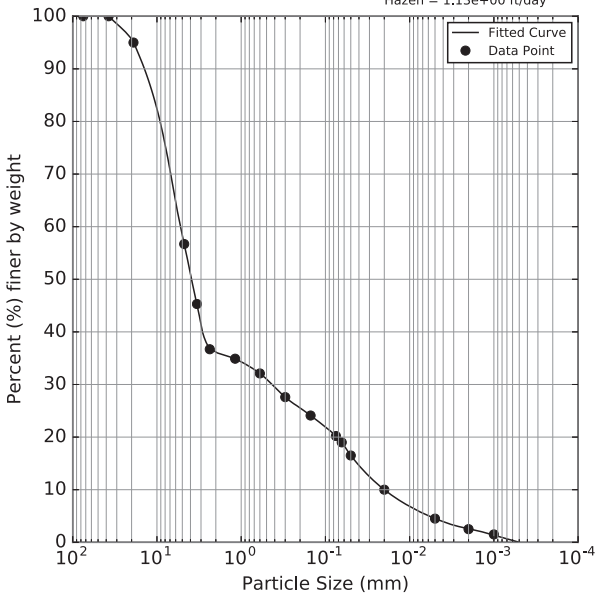
Hydraulic Conductivity Estimates
Barr = 1.28e-02 ft/day
Kozeny-Carman = 1.55e-02 ft/day
Hazen = 2.70e-03 ft/day



(mm)	%
0.001	10.5
0.002	16.5
0.005	23.5
0.02	38.5
0.05	49.5
0.064	52.0
0.075	53.7
0.15	57.0
0.3	58.6
0.6	59.7
1.18	60.2
2.36	60.6
3.35	71.5
4.75	81.4
19.0	91.7
37.5	100.0
75.0	100.0

Sample:
SG3-D16 27-28.5 feet

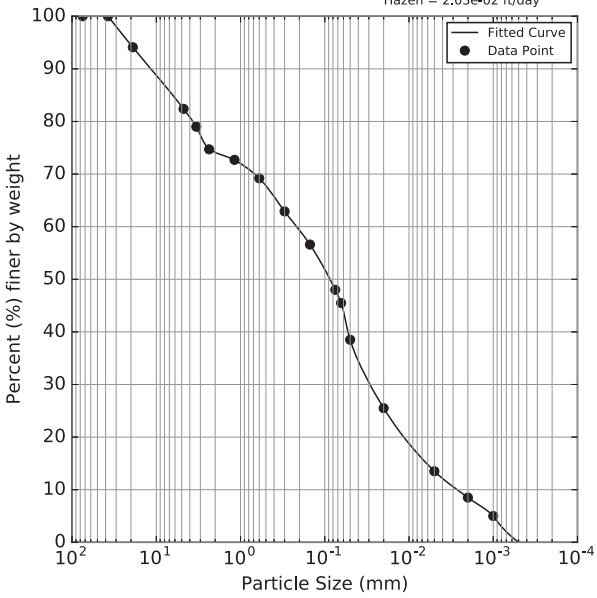
Hydraulic Conductivity Estimates
Barr = 3.54e-01 ft/day
Kozeny-Carman = 4.31e-01 ft/day
Hazen = 1.13e+00 ft/day



(mm)	%
0.001	1.5
0.002	2.5
0.005	4.5
0.02	10.0
0.05	16.5
0.064	19.0
0.075	20.2
0.15	24.1
0.3	27.6
0.6	32.1
1.18	34.9
2.36	36.7
3.35	45.3
4.75	56.7
19.0	95.0
37.5	100.0
75.0	100.0

Sample:
SG3-D16 28.5-30 feet

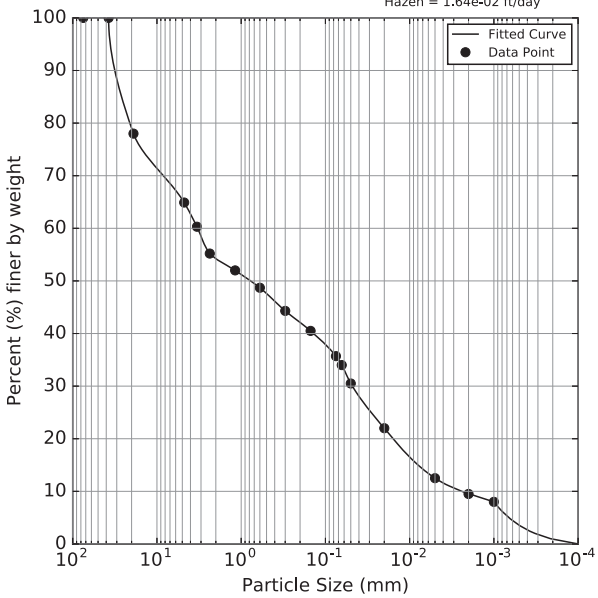
Hydraulic Conductivity Estimates
Barr = 4.07e-02 ft/day
Kozeny-Carman = 4.96e-02 ft/day
Hazen = 2.03e-02 ft/day



(mm)	%
0.001	5.0
0.002	8.5
0.005	13.5
0.02	25.5
0.05	38.5
0.064	45.5
0.075	48.0
0.15	56.6
0.3	62.9
0.6	69.2
1.18	72.7
2.36	74.7
3.35	79.0
4.75	82.4
19.0	94.1
37.5	100.0
75.0	100.0

Sample:
SG3-D16 30-37 feet

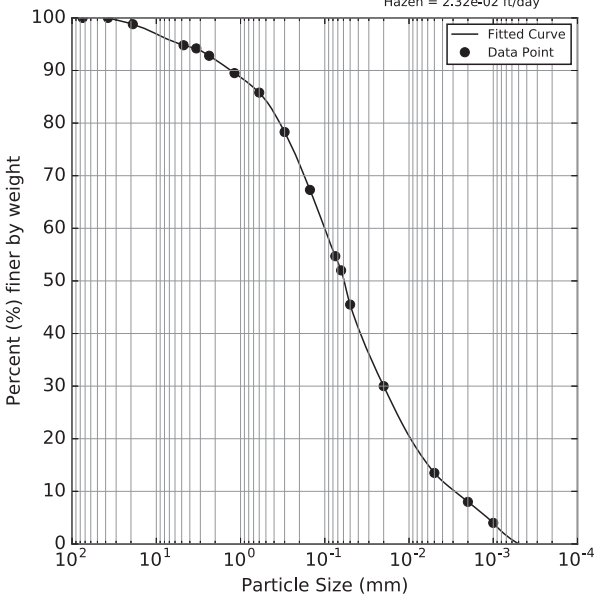
Hydraulic Conductivity Estimates
Barr = 1.14e-02 ft/day
Kozeny-Carman = 1.38e-02 ft/day
Hazen = 1.64e-02 ft/day



(mm)	%
0.001	8.0
0.002	9.5
0.005	12.5
0.02	22.0
0.05	30.5
0.064	34.0
0.075	35.7
0.15	40.5
0.3	44.3
0.6	48.7
1.18	52.0
2.36	55.2
3.35	60.3
4.75	64.9
19.0	78.0
37.5	100.0
75.0	100.0

Sample:
SG3-D16 8-10 feet

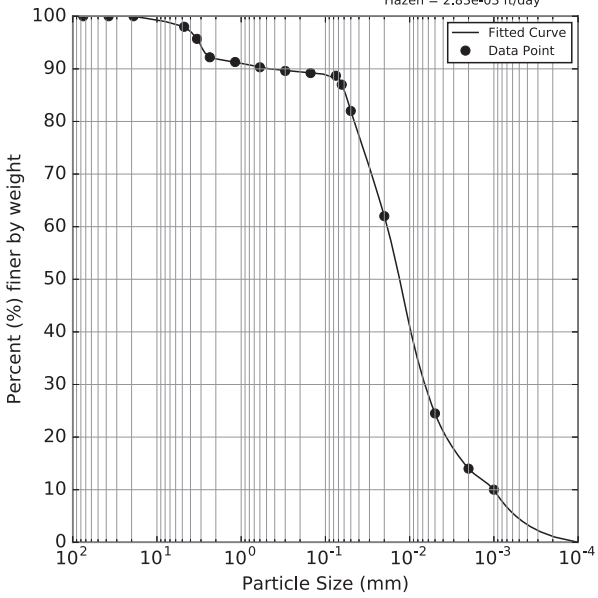
Hydraulic Conductivity Estimates
Barr = 4.27e-02 ft/day
Kozeny-Carman = 5.20e-02 ft/day
Hazen = 2.32e-02 ft/day



(mm)	%
0.001	4.0
0.002	8.0
0.005	13.5
0.02	30.0
0.05	45.5
0.064	52.0
0.075	54.7
0.15	67.3
0.3	78.3
0.6	85.8
1.18	89.5
2.36	92.8
3.35	94.2
4.75	94.8
19.0	98.8
37.5	100.0
75.0	100.0

Sample:
SG3-D18 0-1.7 feet

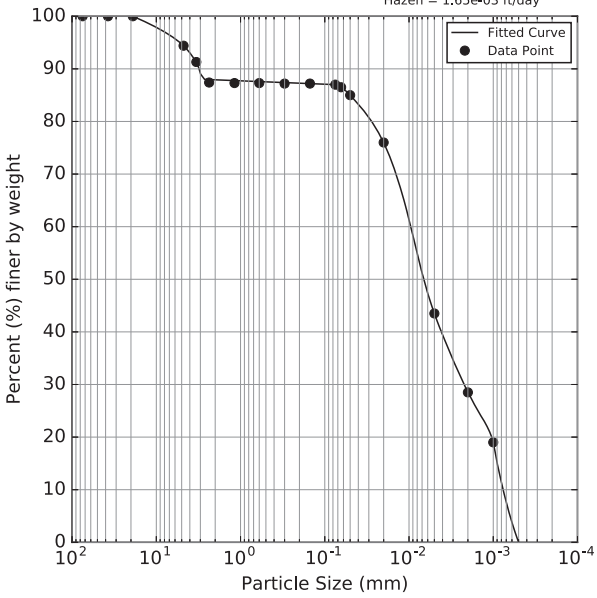
Hydraulic Conductivity Estimates
Barr = 5.08e-03 ft/day
Kozeny-Carman = 6.18e-03 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	14.0
0.005	24.5
0.02	62.0
0.05	82.0
0.064	87.0
0.075	88.7
0.15	89.2
0.3	89.6
0.6	90.3
1.18	91.3
2.36	92.2
3.35	95.7
4.75	98.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D18 1.7-7.5 feet

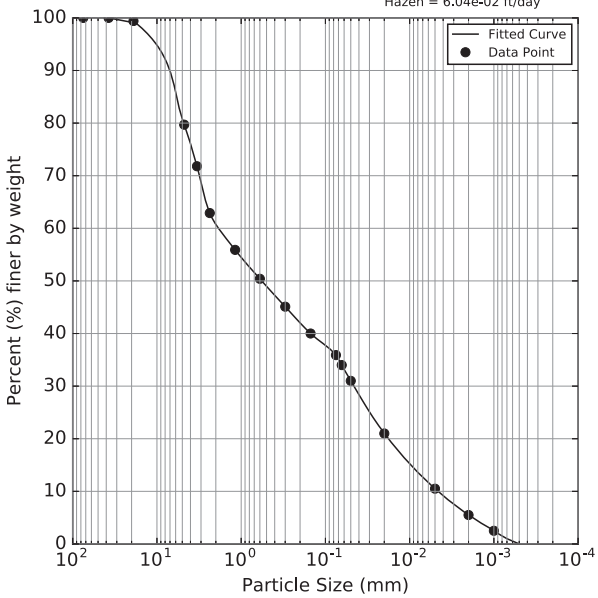
Hydraulic Conductivity Estimates
Barr = 3.92e-03 ft/day
Kozeny-Carman = 4.77e-03 ft/day
Hazen = 1.65e-03 ft/day



(mm)	%
0.001	19.0
0.002	28.5
0.005	43.5
0.02	76.0
0.05	85.0
0.064	86.5
0.075	87.0
0.15	87.2
0.3	87.2
0.6	87.3
1.18	87.3
2.36	87.4
3.35	91.3
4.75	94.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D18 19-25 feet

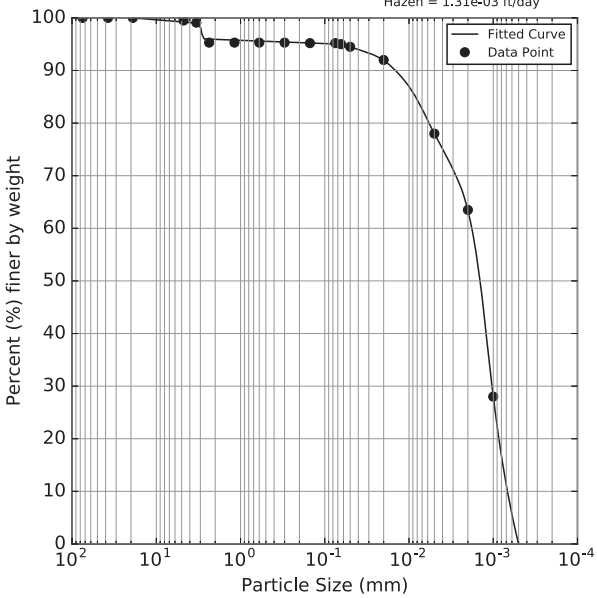
Hydraulic Conductivity Estimates
Barr = 8.84e-02 ft/day
Kozeny-Carman = 1.08e-01 ft/day
Hazen = 6.04e-02 ft/day



(mm)	%
0.001	2.5
0.002	5.5
0.005	10.5
0.02	21.0
0.05	31.0
0.064	34.0
0.075	35.9
0.15	40.0
0.3	45.1
0.6	50.4
1.18	55.9
2.36	62.9
3.35	71.8
4.75	79.7
19.0	99.4
37.5	100.0
75.0	100.0

Sample:
SG3-D18 7.5-8.7 feet

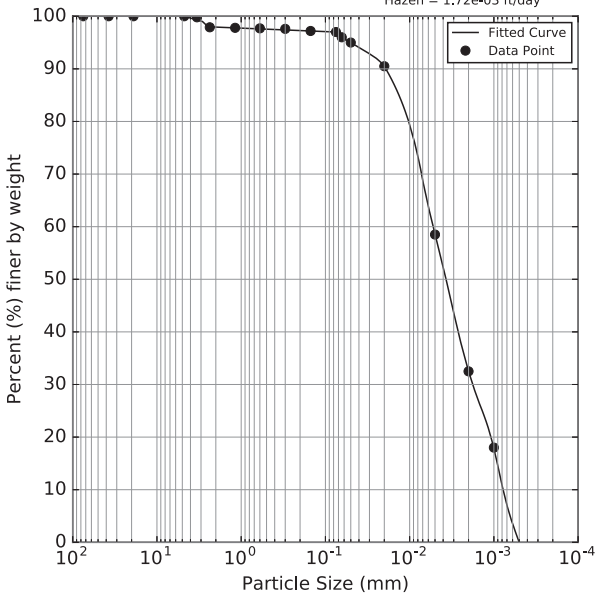
Hydraulic Conductivity Estimates
Barr = 1.34e-03 ft/day
Kozeny-Carman = 1.63e-03 ft/day
Hazen = 1.31e-03 ft/day



(mm)	%
0.001	28.0
0.002	63.5
0.005	78.0
0.02	92.0
0.05	94.5
0.064	95.0
0.075	95.2
0.15	95.2
0.3	95.3
0.6	95.3
1.18	95.3
2.36	95.3
3.35	99.1
4.75	99.5
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D18 8.7-19 feet

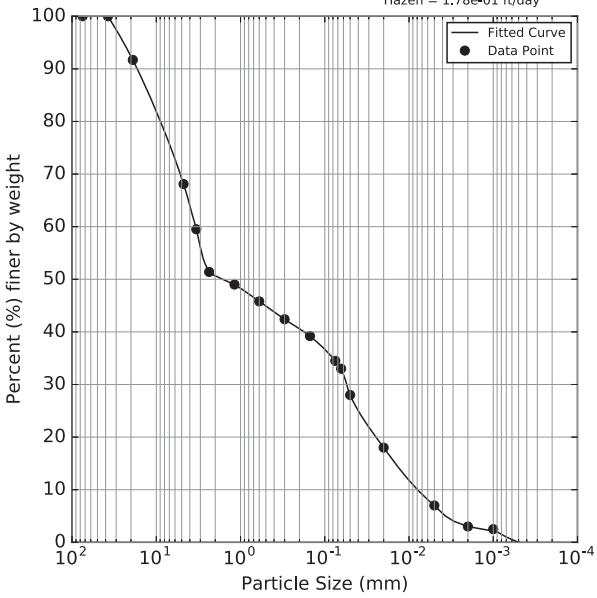
Hydraulic Conductivity Estimates
Barr = 3.02e-03 ft/day
Kozeny-Carman = 3.68e-03 ft/day
Hazen = 1.72e-03 ft/day



(mm)	%
0.001	18.0
0.002	32.5
0.005	58.5
0.02	90.5
0.05	95.0
0.064	96.0
0.075	97.0
0.15	97.2
0.3	97.6
0.6	97.7
1.18	97.8
2.36	97.9
3.35	99.8
4.75	100.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D19 0-1.5 feet

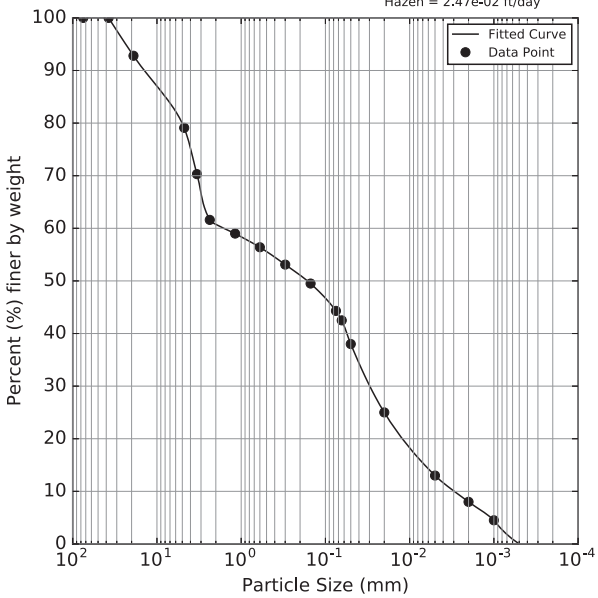
Hydraulic Conductivity Estimates
Barr = 1.59e-01 ft/day
Kozeny-Carman = 1.94e-01 ft/day
Hazen = 1.78e-01 ft/day



(mm)	%
0.001	2.5
0.002	3.0
0.005	7.0
0.02	18.0
0.05	28.0
0.064	33.0
0.075	34.5
0.15	39.2
0.3	42.4
0.6	45.8
1.18	49.0
2.36	51.4
3.35	59.5
4.75	68.1
19.0	91.7
37.5	100.0
75.0	100.0

Sample:
SG3-D19 1.5-3 feet

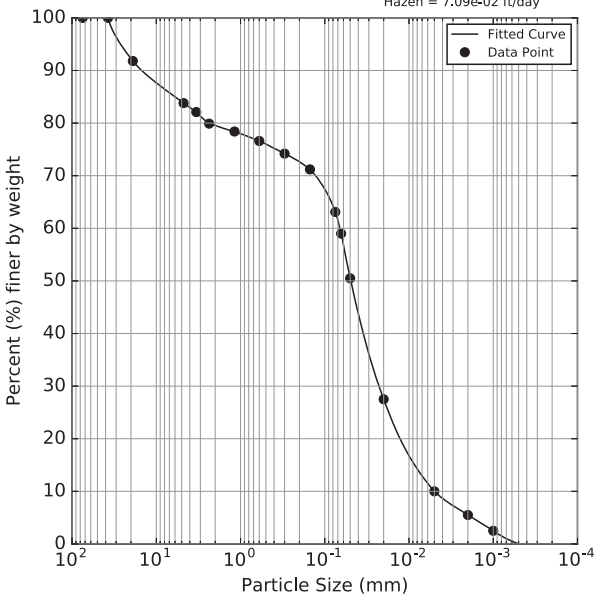
Hydraulic Conductivity Estimates
Barr = 4.62e-02 ft/day
Kozeny-Carman = 5.62e-02 ft/day
Hazen = 2.47e-02 ft/day



(mm)	%
0.001	4.5
0.002	8.0
0.005	13.0
0.02	25.0
0.05	38.0
0.064	42.5
0.075	44.3
0.15	49.5
0.3	53.1
0.6	56.4
1.18	59.0
2.36	61.6
3.35	70.3
4.75	79.1
19.0	92.8
37.5	100.0
75.0	100.0

Sample:
SG3-D20 20-24 feet

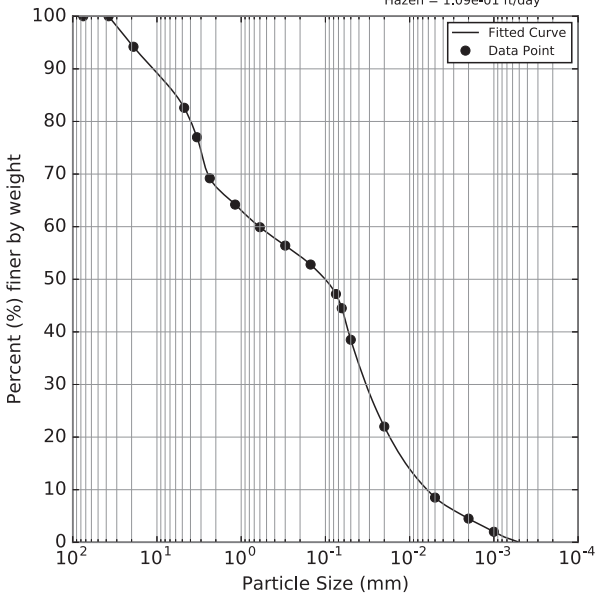
Hydraulic Conductivity Estimates
Barr = 7.16e-02 ft/day
Kozeny-Carman = 8.71e-02 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	2.5
0.002	5.5
0.005	10.0
0.02	27.5
0.05	50.5
0.064	59.0
0.075	63.1
0.15	71.2
0.3	74.2
0.6	76.6
1.18	78.4
2.36	79.9
3.35	82.1
4.75	83.8
19.0	91.8
37.5	100.0
75.0	100.0

Sample:
SG3-D20 24-40 feet

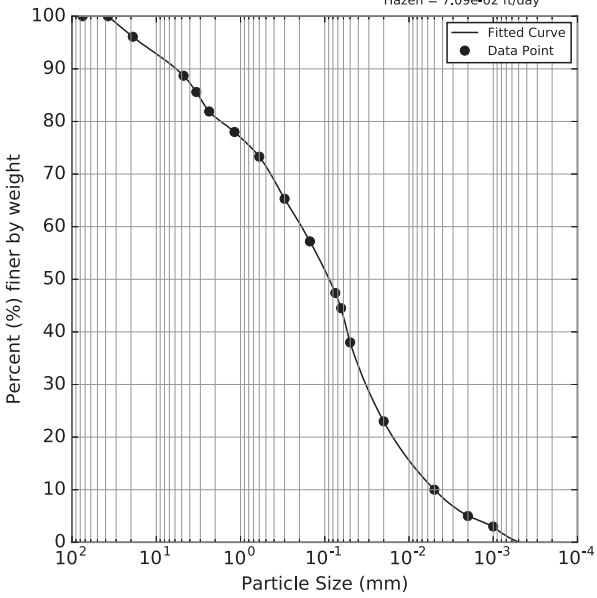
Hydraulic Conductivity Estimates
Barr = 1.08e-01 ft/day
Kozeny-Carman = 1.32e-01 ft/day
Hazen = 1.09e-01 ft/day



(mm)	%
0.001	2.0
0.002	4.5
0.005	8.5
0.02	22.0
0.05	38.5
0.064	44.5
0.075	47.2
0.15	52.8
0.3	56.4
0.6	59.9
1.18	64.2
2.36	69.2
3.35	77.0
4.75	82.6
19.0	94.2
37.5	100.0
75.0	100.0

Sample:
SG3-D20 48-50 feet

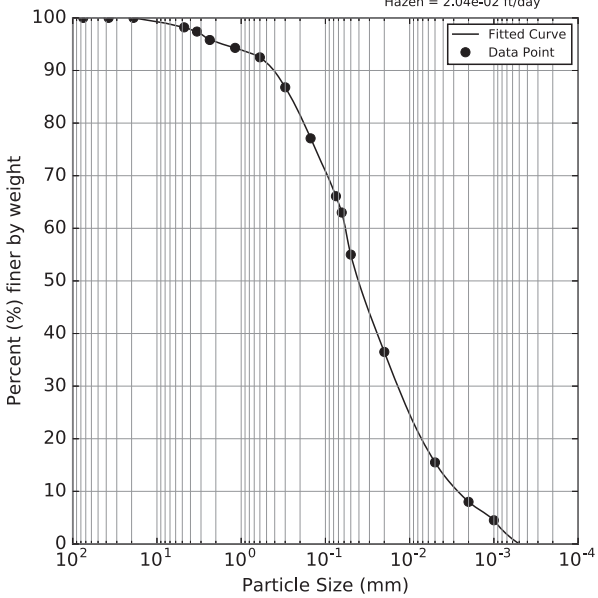
Hydraulic Conductivity Estimates
Barr = 7.98e-02 ft/day
Kozeny-Carman = 9.72e-02 ft/day
Hazen = 7.09e-02 ft/day



(mm)	%
0.001	3.0
0.002	5.0
0.005	10.0
0.02	23.0
0.05	38.0
0.064	44.5
0.075	47.4
0.15	57.2
0.3	65.3
0.6	73.3
1.18	78.0
2.36	81.9
3.35	85.6
4.75	88.7
19.0	96.1
37.5	100.0
75.0	100.0

Sample:
SG3-D20 50-60 feet

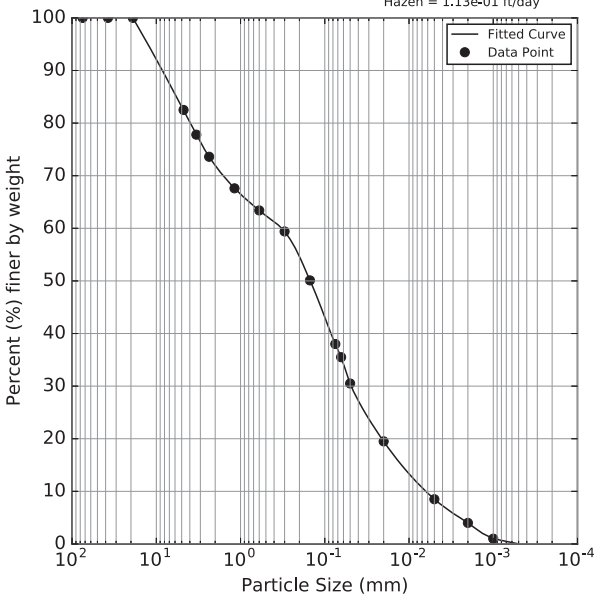
Hydraulic Conductivity Estimates
Barr = 3.43e-02 ft/day
Kozeny-Carman = 4.17e-02 ft/day
Hazen = 2.04e-02 ft/day



(mm)	%
0.001	4.5
0.002	8.0
0.005	15.5
0.02	36.5
0.05	55.0
0.064	63.0
0.075	66.1
0.15	77.1
0.3	86.8
0.6	92.5
1.18	94.3
2.36	95.8
3.35	97.4
4.75	98.2
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D20 60-61 feet

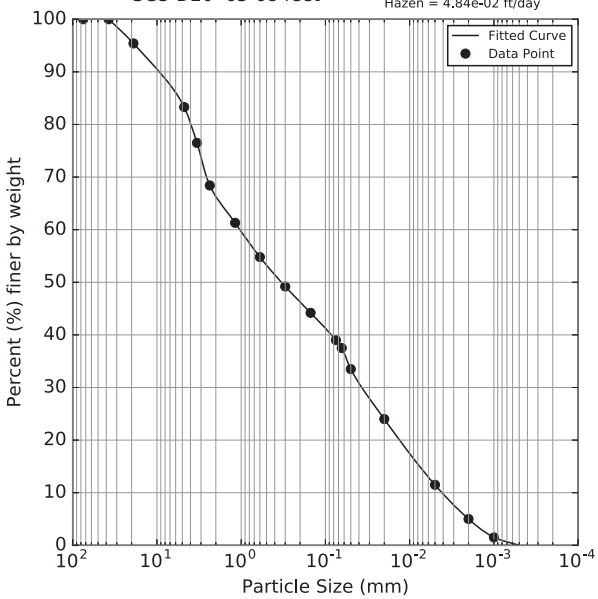
Hydraulic Conductivity Estimates
Barr = 1.49e-01 ft/day
Kozeny-Carman = 1.81e-01 ft/day
Hazen = 1.13e-01 ft/day



(mm)	%
0.001	1.0
0.002	4.0
0.005	8.5
0.02	19.5
0.05	30.5
0.064	35.5
0.075	38.0
0.15	50.1
0.3	59.4
0.6	63.4
1.18	67.6
2.36	73.6
3.35	77.8
4.75	82.5
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D20 63-68 feet

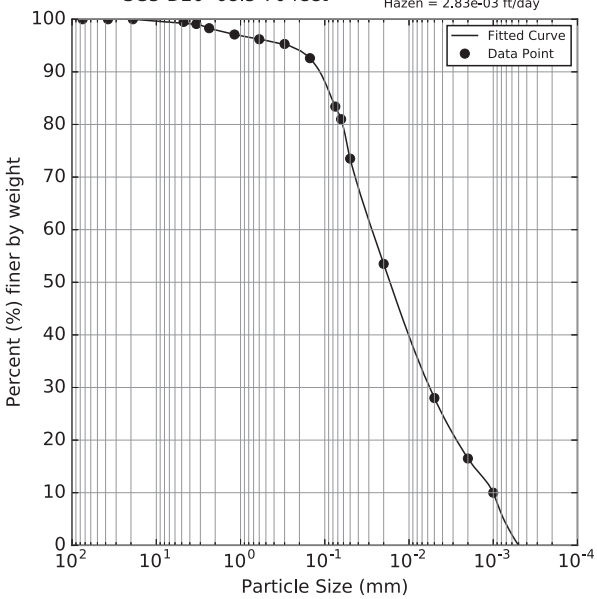
Hydraulic Conductivity Estimates
Barr = 9.57e-02 ft/day
Kozeny-Carman = 1.16e-01 ft/day
Hazen = 4.84e-02 ft/day



(mm)	%
0.001	1.5
0.002	5.0
0.005	11.5
0.02	24.0
0.05	33.5
0.064	37.5
0.075	39.0
0.15	44.2
0.3	49.2
0.6	54.8
1.18	61.3
2.36	68.4
3.35	76.5
4.75	83.3
19.0	95.4
37.5	100.0
75.0	100.0

Sample:
SG3-D20 68.5-70 feet

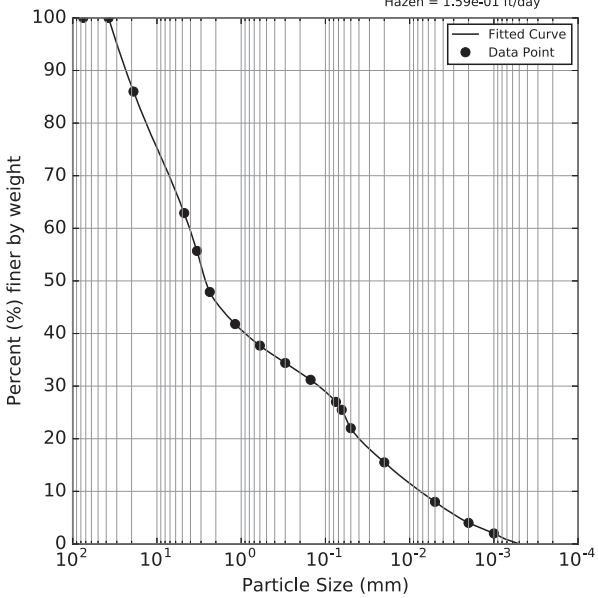
Hydraulic Conductivity Estimates
Barr = 1.04e-02 ft/day
Kozeny-Carman = 1.26e-02 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	16.5
0.005	28.0
0.02	53.5
0.05	73.5
0.064	81.0
0.075	83.4
0.15	92.6
0.3	95.3
0.6	96.2
1.18	97.1
2.36	98.3
3.35	99.1
4.75	99.5
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D20 70-74 feet

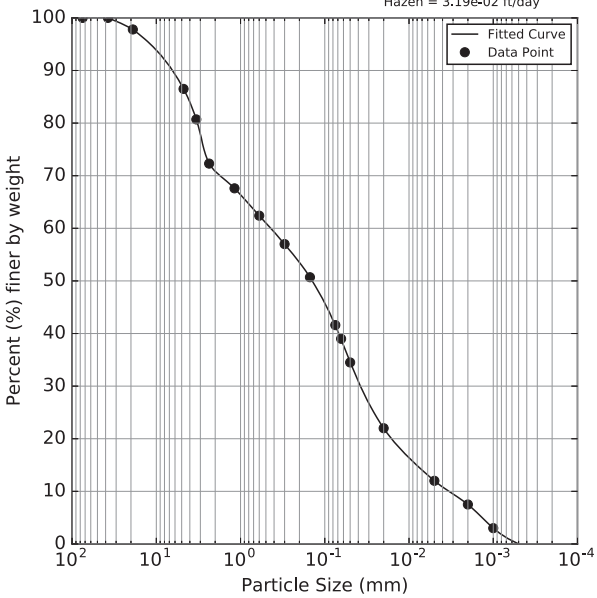
Hydraulic Conductivity Estimates
Barr = 1.54e-01 ft/day
Kozeny-Carman = 1.87e-01 ft/day
Hazen = 1.59e-01 ft/day



(mm)	%
0.001	2.0
0.002	4.0
0.005	8.0
0.02	15.5
0.05	22.0
0.064	25.5
0.075	27.0
0.15	31.2
0.3	34.4
0.6	37.7
1.18	41.8
2.36	47.9
3.35	55.7
4.75	62.9
19.0	86.0
37.5	100.0
75.0	100.0

Sample:
SG3-D20 75-77 feet

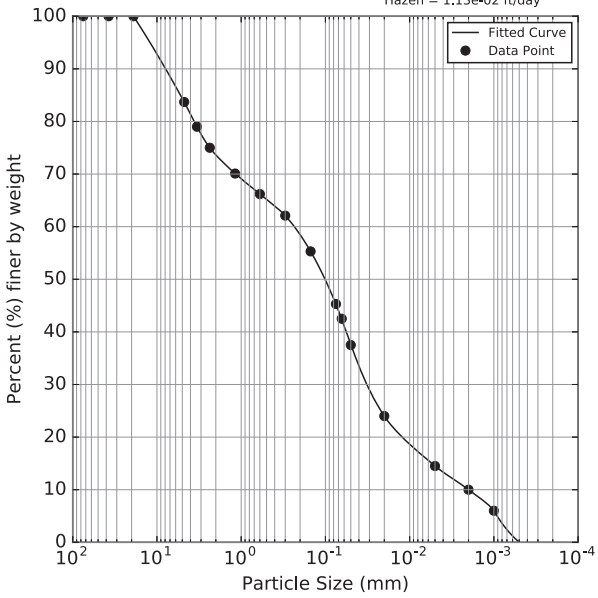
Hydraulic Conductivity Estimates
Barr = 6.18e-02 ft/day
Kozeny-Carman = 7.52e-02 ft/day
Hazen = 3.19e-02 ft/day



(mm)	%
0.001	3.0
0.002	7.5
0.005	12.0
0.02	22.0
0.05	34.5
0.064	39.0
0.075	41.6
0.15	50.7
0.3	57.0
0.6	62.4
1.18	67.6
2.36	72.3
3.35	80.7
4.75	86.5
19.0	97.8
37.5	100.0
75.0	100.0

Sample:
SG3-D20 78-79 feet

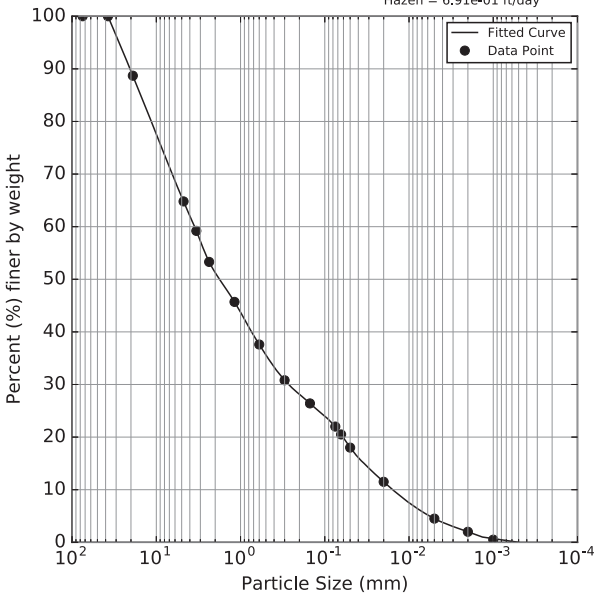
Hydraulic Conductivity Estimates
Barr = 3.34e-02 ft/day
Kozeny-Carman = 4.06e-02 ft/day
Hazen = 1.13e-02 ft/day



(mm)	%
0.001	6.0
0.002	10.0
0.005	14.5
0.02	24.0
0.05	37.5
0.064	42.5
0.075	45.3
0.15	55.3
0.3	62.1
0.6	66.2
1.18	70.1
2.36	75.0
3.35	79.0
4.75	83.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D23 0-2 feet

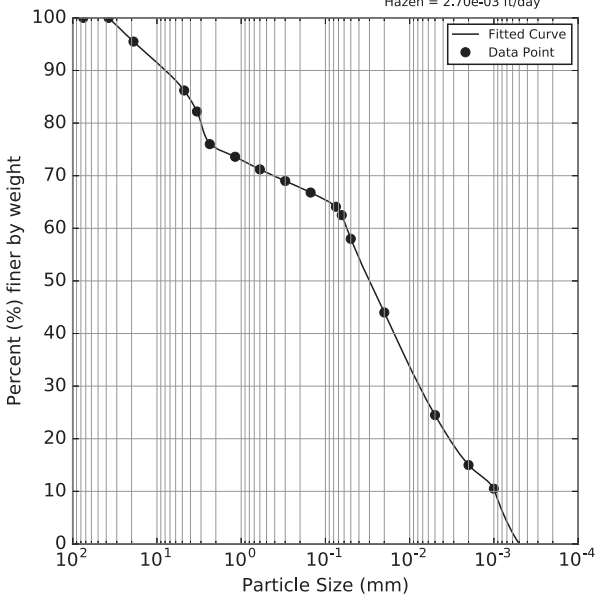
Hydraulic Conductivity Estimates
Barr = 4.61e-01 ft/day
Kozeny-Carman = 5.61e-01 ft/day
Hazen = 6.91e-01 ft/day



(mm)	%
0.001	0.5
0.002	2.0
0.005	4.5
0.02	11.5
0.05	18.0
0.064	20.5
0.075	22.0
0.15	26.4
0.3	30.8
0.6	37.6
1.18	45.7
2.36	53.3
3.35	59.2
4.75	64.8
19.0	88.7
37.5	100.0
75.0	100.0

Sample:
SG3-D23 10-15 feet

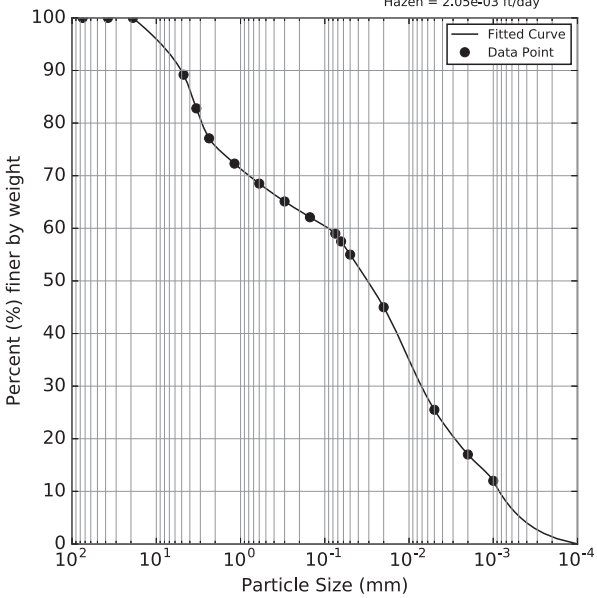
Hydraulic Conductivity Estimates
Barr = 1.26e-02 ft/day
Kozeny-Carman = 1.53e-02 ft/day
Hazen = 2.70e-03 ft/day



(mm)	%
0.001	10.5
0.002	15.0
0.005	24.5
0.02	44.0
0.05	58.0
0.064	62.5
0.075	64.1
0.15	66.8
0.3	69.0
0.6	71.2
1.18	73.6
2.36	76.0
3.35	82.2
4.75	86.2
19.0	95.5
37.5	100.0
75.0	100.0

Sample:
SG3-D23 15-38 feet

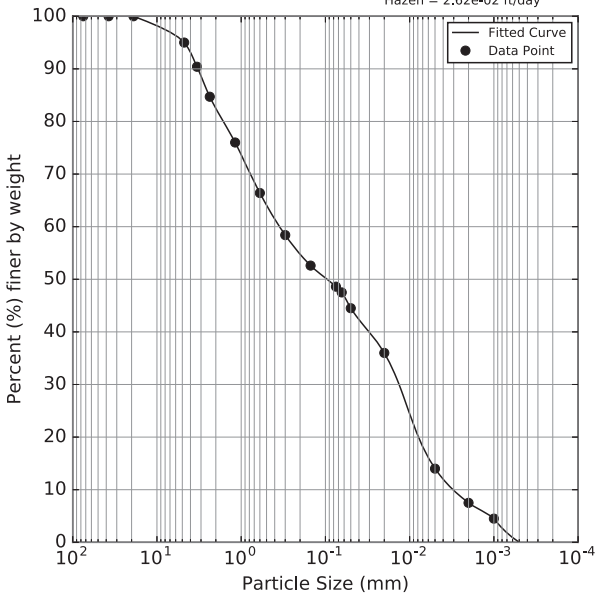
Hydraulic Conductivity Estimates
Barr = 4.32e-03 ft/day
Kozeny-Carman = 5.25e-03 ft/day
Hazen = 2.05e-03 ft/day



(mm)	%
0.001	12.0
0.002	17.0
0.005	25.5
0.02	45.0
0.05	55.0
0.064	57.5
0.075	59.0
0.15	62.1
0.3	65.1
0.6	68.5
1.18	72.3
2.36	77.1
3.35	82.8
4.75	89.2
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D23 38-43 feet

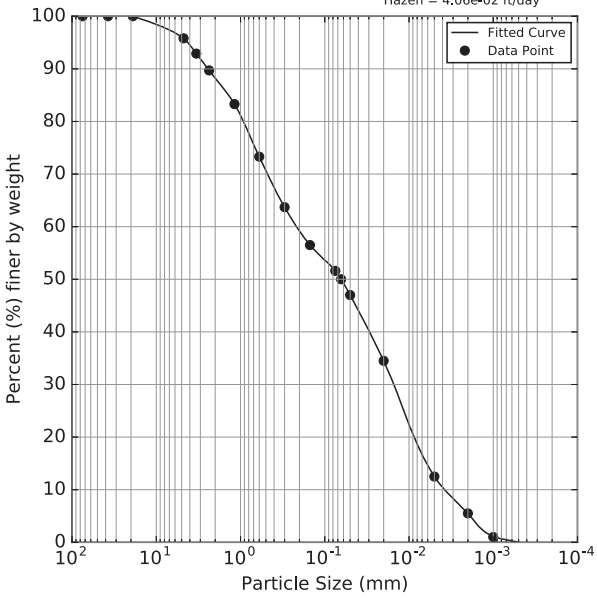
Hydraulic Conductivity Estimates
Barr = 3.97e-02 ft/day
Kozeny-Carman = 4.83e-02 ft/day
Hazen = 2.62e-02 ft/day



(mm)	%
0.001	4.5
0.002	7.5
0.005	14.0
0.02	36.0
0.05	44.5
0.064	47.5
0.075	48.6
0.15	52.6
0.3	58.4
0.6	66.4
1.18	76.0
2.36	84.7
3.35	90.4
4.75	95.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D23 43-50 feet

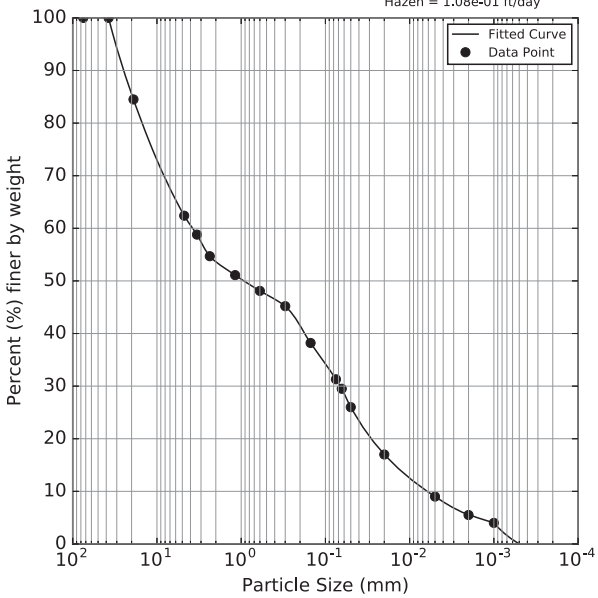
Hydraulic Conductivity Estimates
Barr = 7.41e-02 ft/day
Kozeny-Carman = 9.02e-02 ft/day
Hazen = 4.06e-02 ft/day



(mm)	%
0.001	1.0
0.002	5.5
0.005	12.5
0.02	34.5
0.05	47.0
0.064	50.0
0.075	51.6
0.15	56.5
0.3	63.7
0.6	73.3
1.18	83.3
2.36	89.7
3.35	92.9
4.75	95.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D23 5-10 feet

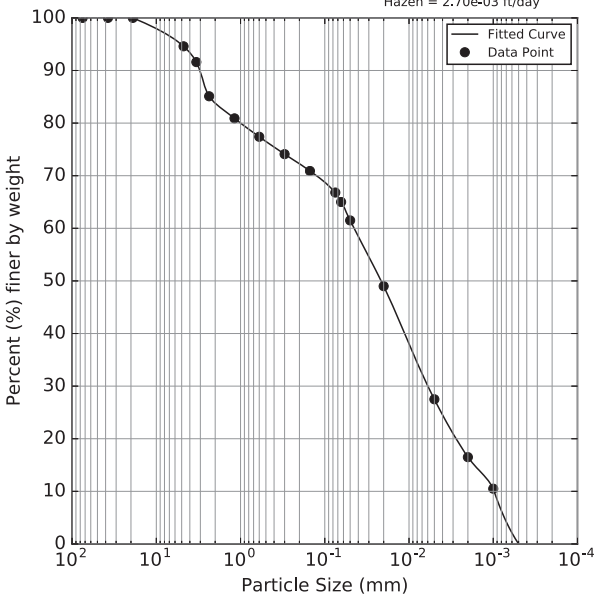
Hydraulic Conductivity Estimates
Barr = 8.40e-02 ft/day
Kozeny-Carman = 1.02e-01 ft/day
Hazen = 1.08e-01 ft/day



(mm)	%
0.001	4.0
0.002	5.5
0.005	9.0
0.02	17.0
0.05	26.0
0.064	29.5
0.075	31.3
0.15	38.2
0.3	45.2
0.6	48.1
1.18	51.1
2.36	54.7
3.35	58.8
4.75	62.4
19.0	84.5
37.5	100.0
75.0	100.0

Sample:
SG3-D24 0-8 feet

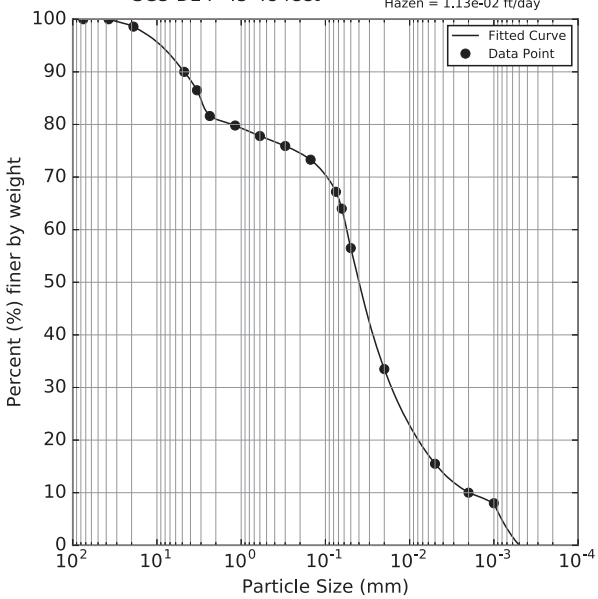
Hydraulic Conductivity Estimates
Barr = 1.08e-02 ft/day
Kozeny-Carman = 1.32e-02 ft/day
Hazen = 2.70e-03 ft/day



(mm)	%
0.001	10.5
0.002	16.5
0.005	27.5
0.02	49.0
0.05	61.5
0.064	65.0
0.075	66.8
0.15	70.9
0.3	74.1
0.6	77.4
1.18	80.9
2.36	85.1
3.35	91.6
4.75	94.6
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D24 45-48 feet

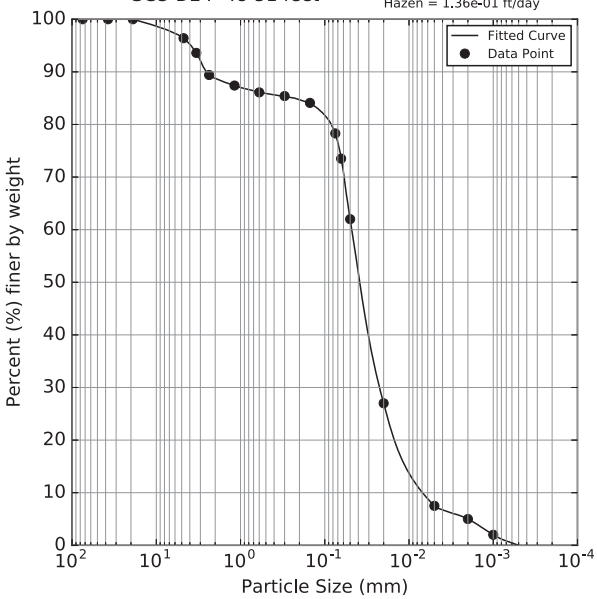
Hydraulic Conductivity Estimates
Barr = 2.39e-02 ft/day
Kozeny-Carman = 2.91e-02 ft/day
Hazen = 1.13e-02 ft/day



(mm)	%
0.001	8.0
0.002	10.0
0.005	15.5
0.02	33.5
0.05	56.5
0.064	64.0
0.075	67.2
0.15	73.3
0.3	75.9
0.6	77.8
1.18	79.8
2.36	81.6
3.35	86.5
4.75	90.0
19.0	98.6
37.5	100.0
75.0	100.0

Sample:
SG3-D24 48-51 feet

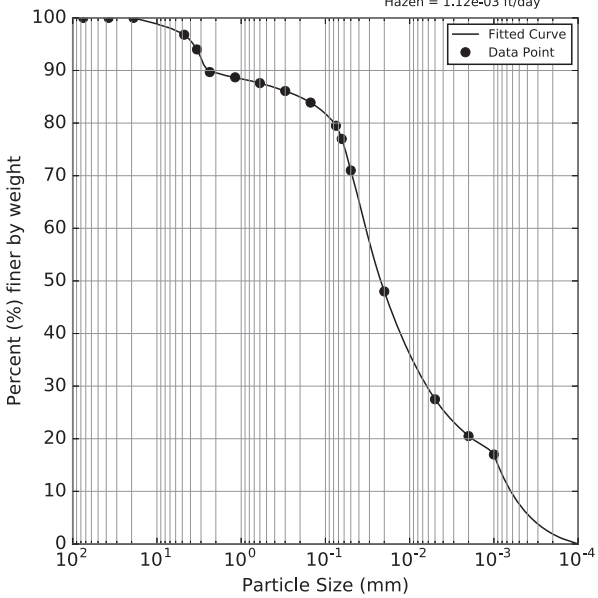
Hydraulic Conductivity Estimates
Barr = 8.51e-02 ft/day
Kozeny-Carman = 1.04e-01 ft/day
Hazen = 1.36e-01 ft/day



(mm)	%
0.001	2.0
0.002	5.0
0.005	7.5
0.02	27.0
0.05	62.0
0.064	73.5
0.075	78.3
0.15	84.1
0.3	85.4
0.6	86.1
1.18	87.4
2.36	89.4
3.35	93.6
4.75	96.4
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D24 51-70 feet

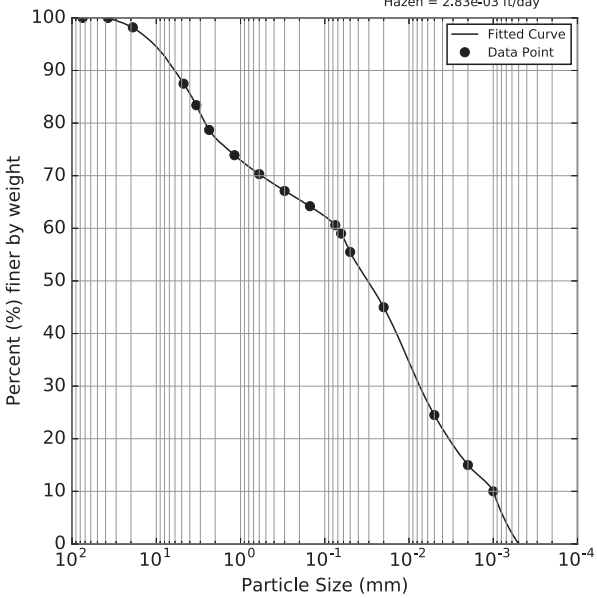
Hydraulic Conductivity Estimates
Barr = 2.61e-03 ft/day
Kozeny-Carman = 3.17e-03 ft/day
Hazen = 1.12e-03 ft/day



(mm)	%
0.001	17.0
0.002	20.5
0.005	27.5
0.02	48.0
0.05	71.0
0.064	77.0
0.075	79.5
0.15	83.9
0.3	86.1
0.6	87.6
1.18	88.7
2.36	89.7
3.35	94.0
4.75	96.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-D24 9-45 feet

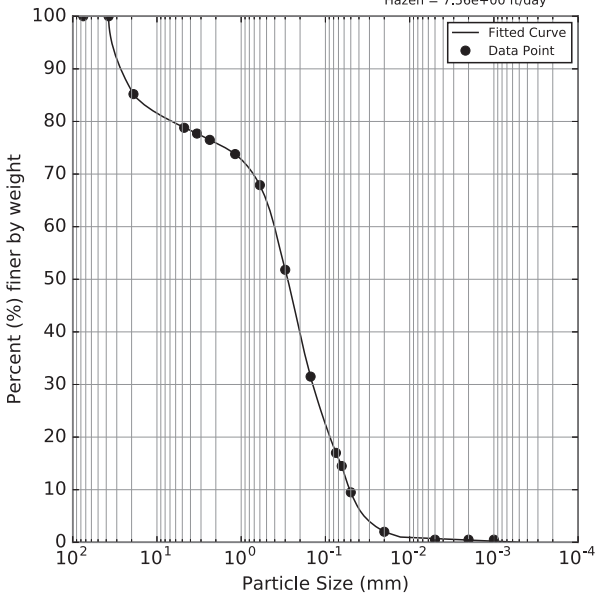
Hydraulic Conductivity Estimates
Barr = 1.29e-02 ft/day
Kozeny-Carman = 1.57e-02 ft/day
Hazen = 2.83e-03 ft/day



(mm)	%
0.001	10.0
0.002	15.0
0.005	24.5
0.02	45.0
0.05	55.5
0.064	59.0
0.075	60.6
0.15	64.2
0.3	67.1
0.6	70.3
1.18	73.9
2.36	78.7
3.35	83.4
4.75	87.5
19.0	98.2
37.5	100.0
75.0	100.0

Sample:
SG3-D25 1.1-5 feet

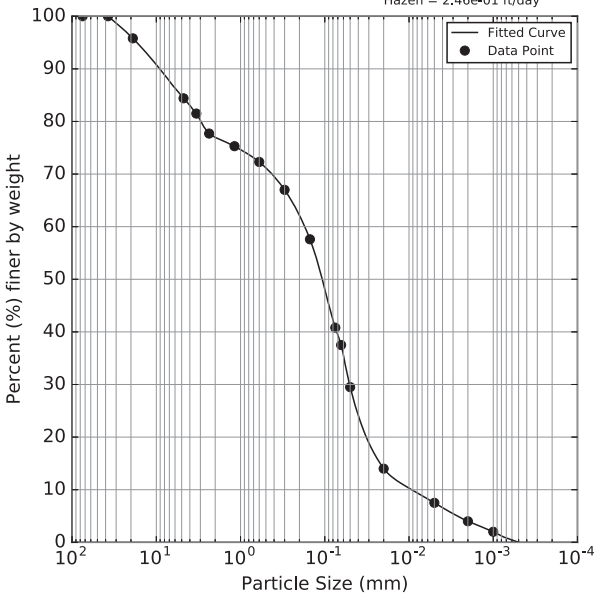
Hydraulic Conductivity Estimates
Barr = 2.33e+00 ft/day
Kozeny-Carman = 2.84e+00 ft/day
Hazen = 7.56e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	0.5
0.02	2.0
0.05	9.5
0.064	14.5
0.075	17.0
0.15	31.5
0.3	51.8
0.6	67.9
1.18	73.8
2.36	76.5
3.35	77.7
4.75	78.8
19.0	85.2
37.5	100.0
75.0	100.0

Sample:
SG3-D25 15-20 feet

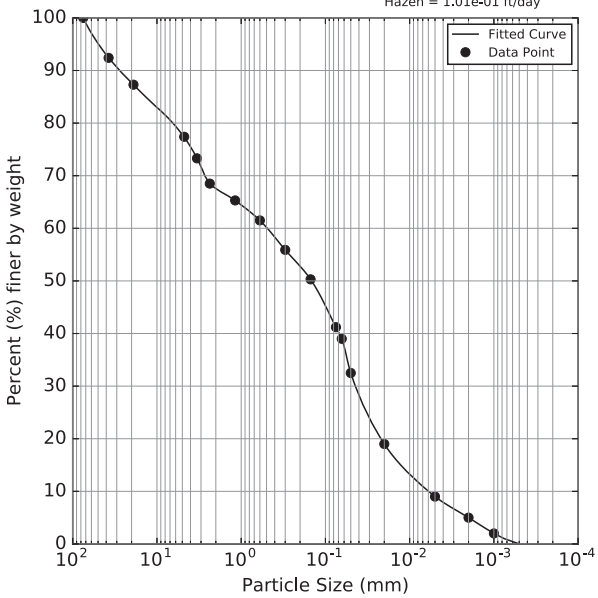
Hydraulic Conductivity Estimates
Barr = 1.43e-01 ft/day
Kozeny-Carman = 1.74e-01 ft/day
Hazen = 2.46e-01 ft/day



(mm)	%
0.001	2.0
0.002	4.0
0.005	7.5
0.02	14.0
0.05	29.5
0.064	37.5
0.075	40.8
0.15	57.6
0.3	67.0
0.6	72.3
1.18	75.3
2.36	77.7
3.35	81.5
4.75	84.4
19.0	95.8
37.5	100.0
75.0	100.0

Sample:
SG3-D25 5-9.5 feet

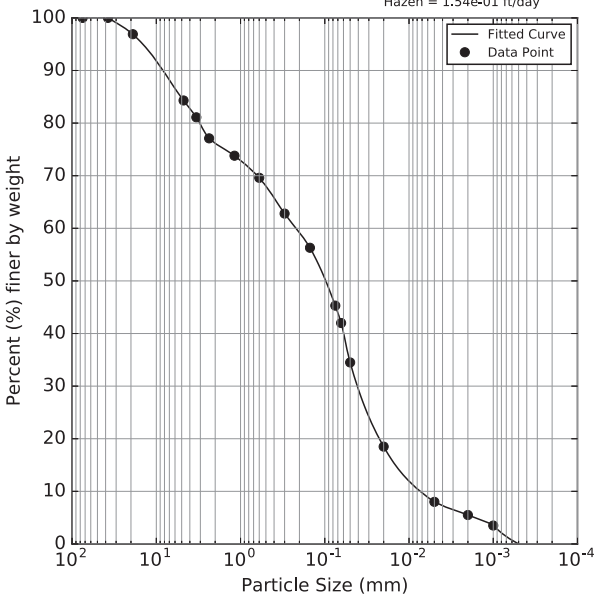
Hydraulic Conductivity Estimates
Barr = 1.09e-01 ft/day
Kozeny-Carman = 1.32e-01 ft/day
Hazen = 1.01e-01 ft/day



(mm)	%
0.001	2.0
0.002	5.0
0.005	9.0
0.02	19.0
0.05	32.5
0.064	39.0
0.075	41.2
0.15	50.3
0.3	55.9
0.6	61.5
1.18	65.3
2.36	68.5
3.35	73.3
4.75	77.4
19.0	87.3
37.5	92.4
75.0	100.0

Sample:
SG3-D25 9.5-13 feet

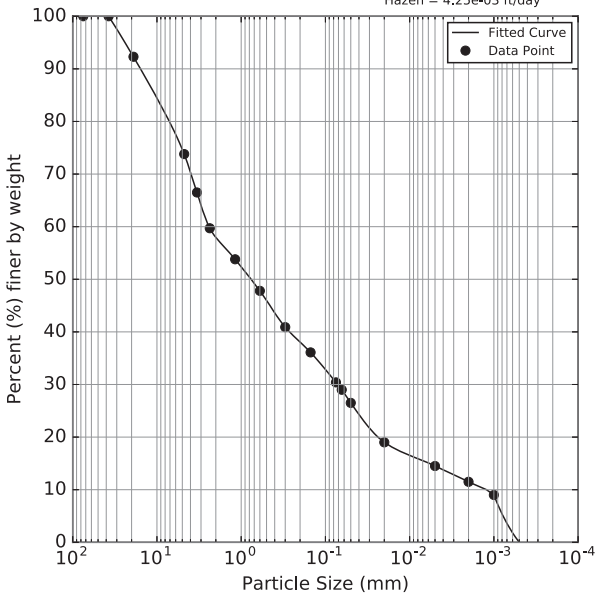
Hydraulic Conductivity Estimates
Barr = 8.54e-02 ft/day
Kozeny-Carman = 1.04e-01 ft/day
Hazen = 1.54e-01 ft/day



(mm)	%
0.001	3.5
0.002	5.5
0.005	8.0
0.02	18.5
0.05	34.5
0.064	42.0
0.075	45.3
0.15	56.3
0.3	62.8
0.6	69.6
1.18	73.8
2.36	77.1
3.35	81.1
4.75	84.3
19.0	96.9
37.5	100.0
75.0	100.0

Sample:
SG3-MW17-BR1 130-137 feet

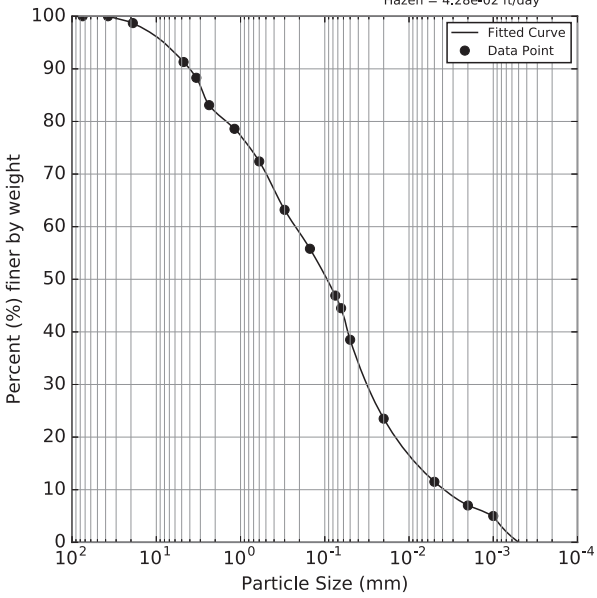
Hydraulic Conductivity Estimates
Barr = 2.64e-02 ft/day
Kozeny-Carman = 3.22e-02 ft/day
Hazen = 4.25e-03 ft/day



(mm)	%
0.001	9.0
0.002	11.5
0.005	14.5
0.02	19.0
0.05	26.5
0.064	29.0
0.075	30.4
0.15	36.1
0.3	40.9
0.6	47.8
1.18	53.8
2.36	59.7
3.35	66.5
4.75	73.8
19.0	92.3
37.5	100.0
75.0	100.0

Sample:
SG3-MW17-BR1 21-30.5 feet

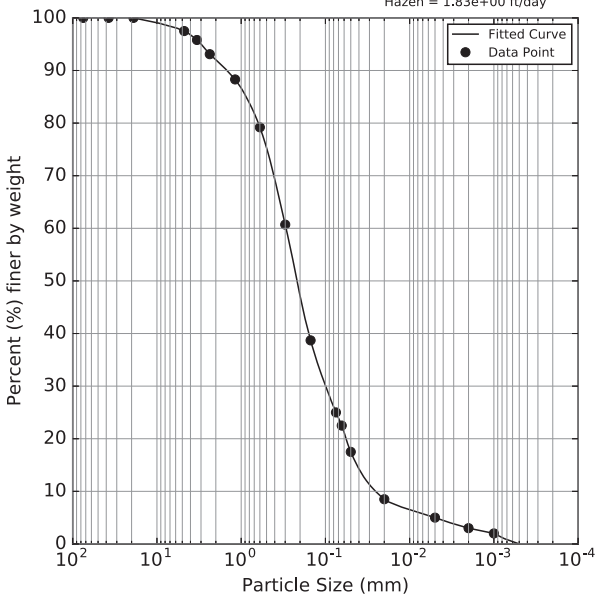
Hydraulic Conductivity Estimates
Barr = 4.98e-02 ft/day
Kozeny-Carman = 6.06e-02 ft/day
Hazen = 4.28e-02 ft/day



(mm)	%
0.001	5.0
0.002	7.0
0.005	11.5
0.02	23.5
0.05	38.5
0.064	44.5
0.075	46.9
0.15	55.8
0.3	63.2
0.6	72.4
1.18	78.6
2.36	83.1
3.35	88.3
4.75	91.3
19.0	98.7
37.5	100.0
75.0	100.0

Sample:
SG3-MW17-BR1 30.5-33 feet

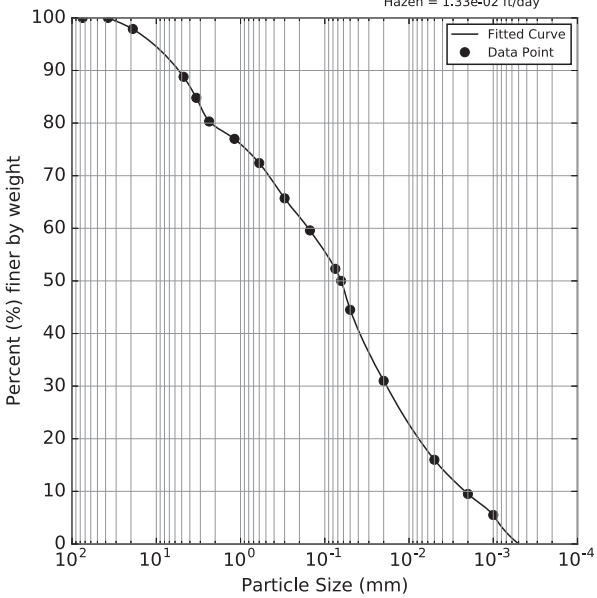
Hydraulic Conductivity Estimates
Barr = 2.49e-01 ft/day
Kozeny-Carman = 3.03e-01 ft/day
Hazen = 1.83e+00 ft/day



(mm)	%
0.001	2.0
0.002	3.0
0.005	5.0
0.02	8.5
0.05	17.5
0.064	22.5
0.075	25.0
0.15	38.7
0.3	60.7
0.6	79.2
1.18	88.3
2.36	93.1
3.35	95.8
4.75	97.5
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW17-BR1 33-130 feet

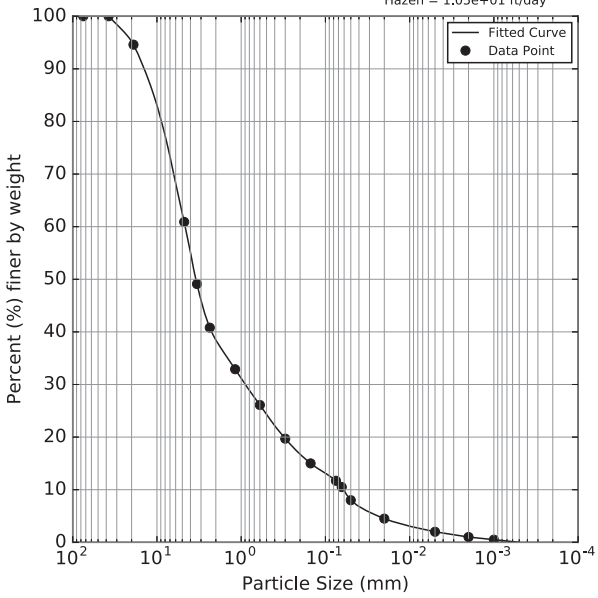
Hydraulic Conductivity Estimates
Barr = 3.14e-02 ft/day
Kozeny-Carman = 3.82e-02 ft/day
Hazen = 1.33e-02 ft/day



(mm)	%
0.001	5.5
0.002	9.5
0.005	16.0
0.02	31.0
0.05	44.5
0.064	50.0
0.075	52.3
0.15	59.6
0.3	65.7
0.6	72.4
1.18	77.0
2.36	80.3
3.35	84.8
4.75	88.8
19.0	97.9
37.5	100.0
75.0	100.0

Sample:
SG3-S02 0.5-1 feet

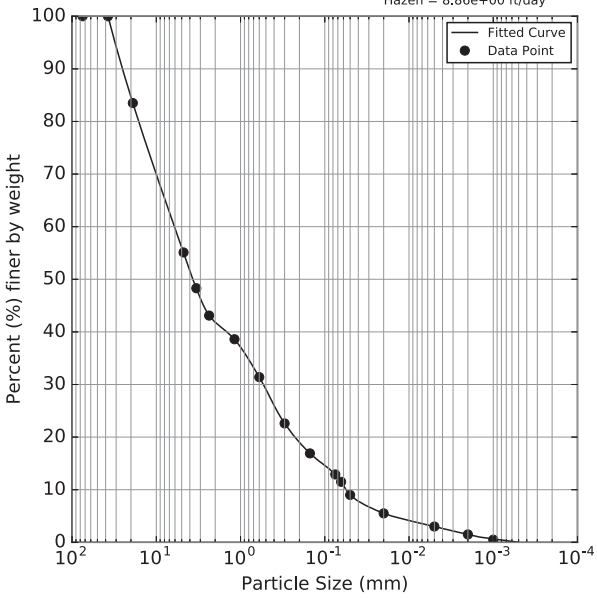
Hydraulic Conductivity Estimates
Barr = 1.54e+00 ft/day
Kozeny-Carman = 1.88e+00 ft/day
Hazen = 1.05e+01 ft/day



(mm)	%
0.001	0.5
0.002	1.0
0.005	2.0
0.02	4.5
0.05	8.0
0.064	10.5
0.075	11.7
0.15	15.0
0.3	19.7
0.6	26.1
1.18	32.9
2.36	40.8
3.35	49.1
4.75	60.9
19.0	94.6
37.5	100.0
75.0	100.0

Sample:
SG3-S02 1-1.5 feet

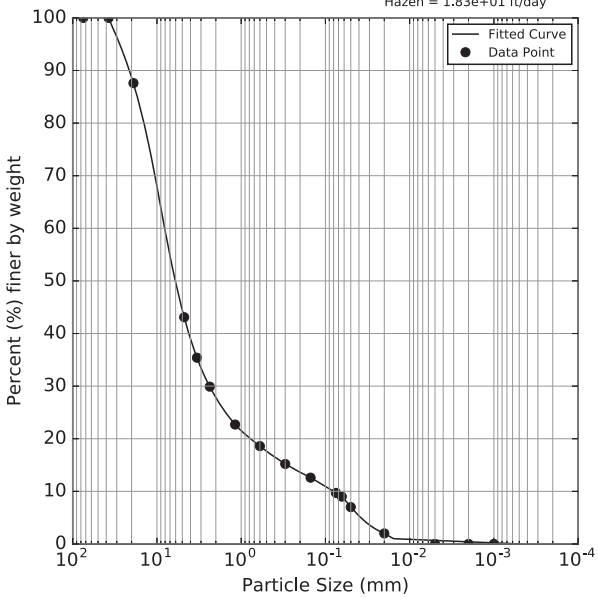
Hydraulic Conductivity Estimates
Barr = 9.59e-01 ft/day
Kozeny-Carman = 1.17e+00 ft/day
Hazen = 8.86e+00 ft/day



(mm)	%
0.001	0.5
0.002	1.5
0.005	3.0
0.02	5.5
0.05	9.0
0.064	11.5
0.075	12.9
0.15	16.9
0.3	22.6
0.6	31.4
1.18	38.6
2.36	43.1
3.35	48.3
4.75	55.1
19.0	83.5
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 0.3-2.2 feet

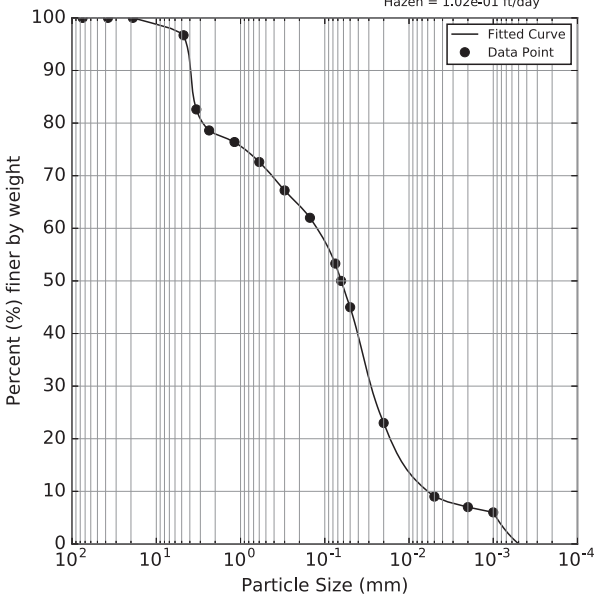
Hydraulic Conductivity Estimates
Barr = 3.80e+00 ft/day
Kozeny-Carman = 4.62e+00 ft/day
Hazen = 1.83e+01 ft/day



(mm)	%
0.001	1e-05
0.002	0.0001
0.005	0.001
0.02	2.0
0.05	7.0
0.064	9.0
0.075	9.7
0.15	12.6
0.3	15.2
0.6	18.6
1.18	22.7
2.36	29.9
3.35	35.4
4.75	43.1
19.0	87.6
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 29-67 feet

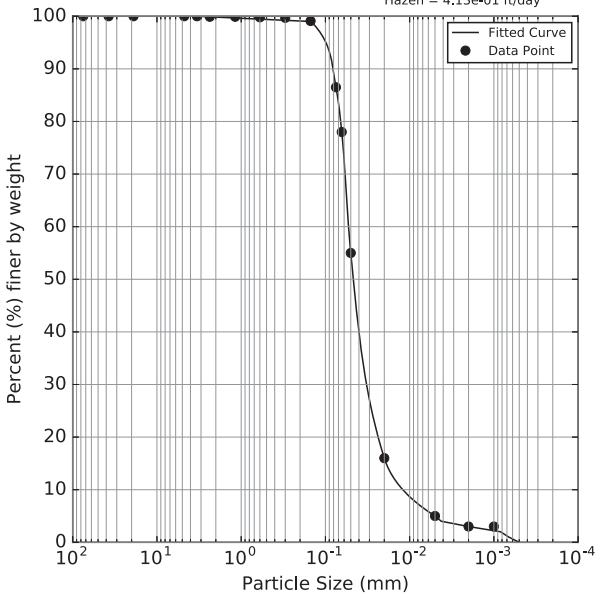
Hydraulic Conductivity Estimates
Barr = 4.85e-02 ft/day
Kozeny-Carman = 5.90e-02 ft/day
Hazen = 1.02e-01 ft/day



(mm)	%
0.001	6.0
0.002	7.0
0.005	9.0
0.02	23.0
0.05	45.0
0.064	50.0
0.075	53.3
0.15	62.0
0.3	67.2
0.6	72.6
1.18	76.4
2.36	78.6
3.35	82.6
4.75	96.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 67-80 feet

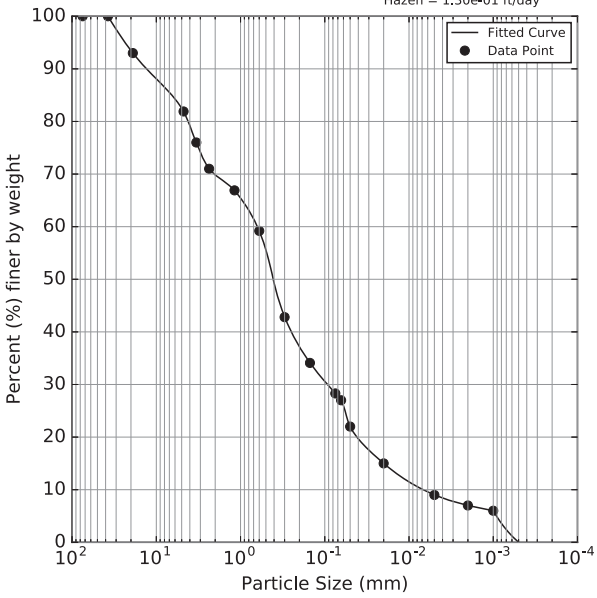
Hydraulic Conductivity Estimates
Barr = 1.28e-01 ft/day
Kozeny-Carman = 1.56e-01 ft/day
Hazen = 4.13e-01 ft/day



(mm)	%
0.001	3.0
0.002	3.0
0.005	5.0
0.02	16.0
0.05	55.0
0.064	78.0
0.075	86.5
0.15	99.1
0.3	99.7
0.6	99.8
1.18	99.9
2.36	99.9
3.35	100.0
4.75	100.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 84-92 feet

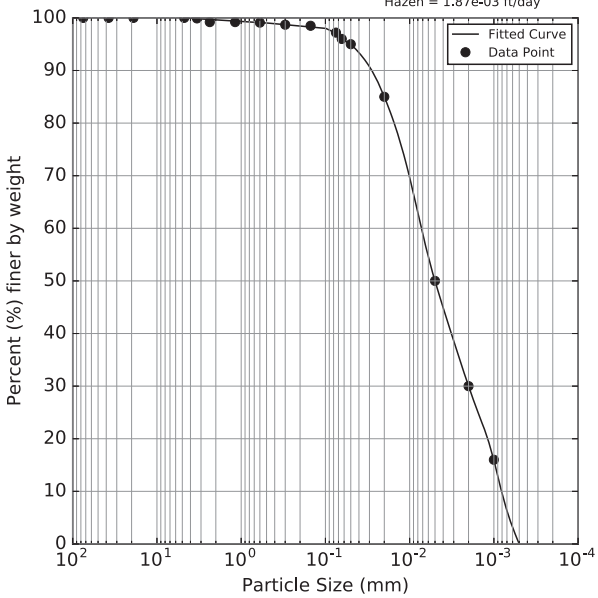
Hydraulic Conductivity Estimates
Barr = 5.96e-02 ft/day
Kozeny-Carman = 7.26e-02 ft/day
Hazen = 1.30e-01 ft/day



(mm)	%
0.001	6.0
0.002	7.0
0.005	9.0
0.02	15.0
0.05	22.0
0.064	27.0
0.075	28.3
0.15	34.1
0.3	42.8
0.6	59.2
1.18	66.9
2.36	71.0
3.35	76.0
4.75	81.9
19.0	93.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 92-97 feet

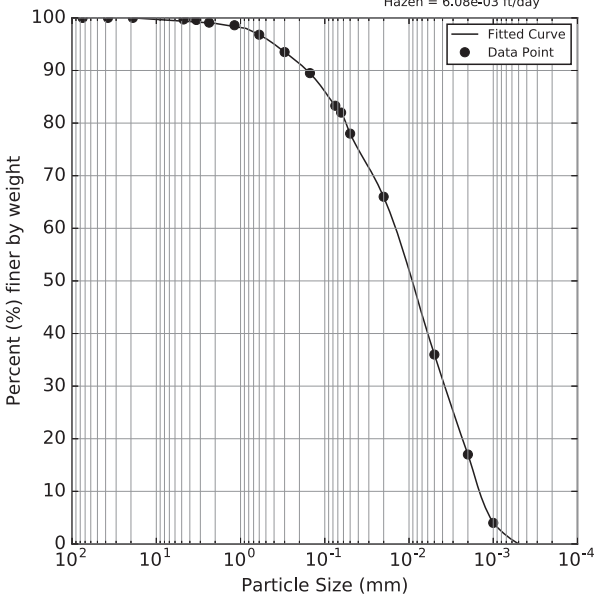
Hydraulic Conductivity Estimates
Barr = 3.73e-03 ft/day
Kozeny-Carman = 4.53e-03 ft/day
Hazen = 1.87e-03 ft/day



(mm)	%
0.001	16.0
0.002	30.0
0.005	50.0
0.02	85.0
0.05	95.0
0.064	96.0
0.075	97.2
0.15	98.5
0.3	98.7
0.6	99.1
1.18	99.2
2.36	99.2
3.35	99.9
4.75	100.0
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 97-167 feet

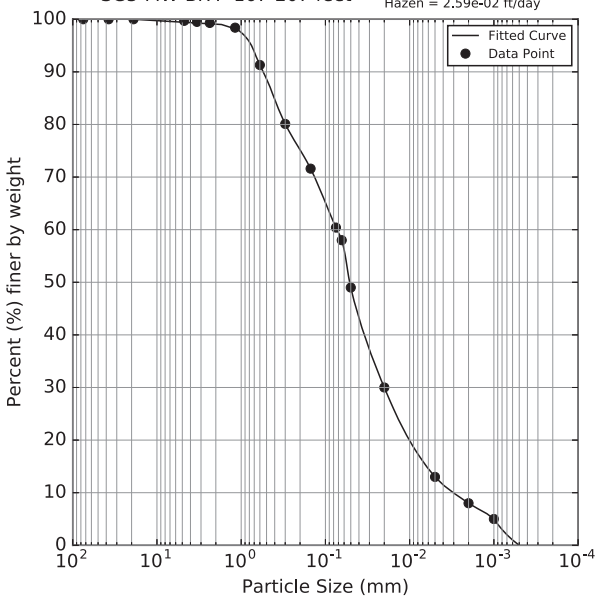
Hydraulic Conductivity Estimates
Barr = 1.15e-02 ft/day
Kozeny-Carman = 1.39e-02 ft/day
Hazen = 6.08e-03 ft/day



(mm)	%
0.001	4.0
0.002	17.0
0.005	36.0
0.02	66.0
0.05	78.0
0.064	82.0
0.075	83.3
0.15	89.5
0.3	93.5
0.6	96.8
1.18	98.6
2.36	99.1
3.35	99.6
4.75	99.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 167-207 feet

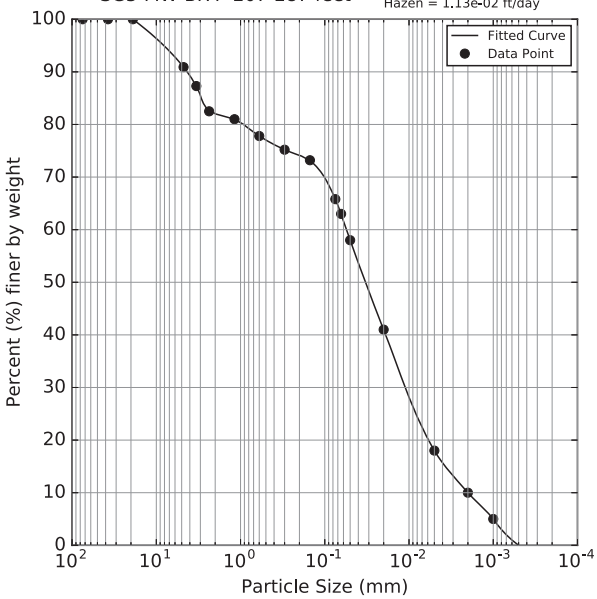
Hydraulic Conductivity Estimates
Barr = 3.87e-02 ft/day
Kozeny-Carman = 4.71e-02 ft/day
Hazen = 2.59e-02 ft/day



(mm)	%
0.001	5.0
0.002	8.0
0.005	13.0
0.02	30.0
0.05	49.0
0.064	58.0
0.075	60.4
0.15	71.6
0.3	80.1
0.6	91.3
1.18	98.4
2.36	99.3
3.35	99.5
4.75	99.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MW-BR4 207-287 feet

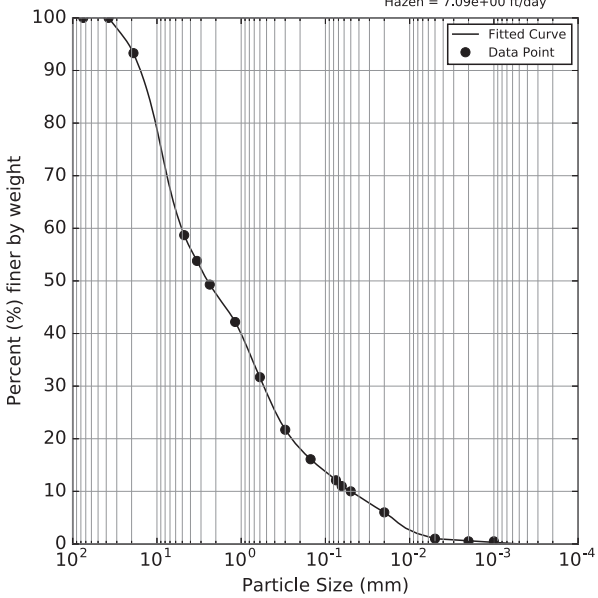
Hydraulic Conductivity Estimates
Barr = 2.63e-02 ft/day
Kozeny-Carman = 3.20e-02 ft/day
Hazen = 1.13e-02 ft/day



(mm)	%
0.001	5.0
0.002	10.0
0.005	18.0
0.02	41.0
0.05	58.0
0.064	63.0
0.075	65.8
0.15	73.2
0.3	75.2
0.6	77.8
1.18	81.0
2.36	82.5
3.35	87.3
4.75	90.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 0-7.5 feet

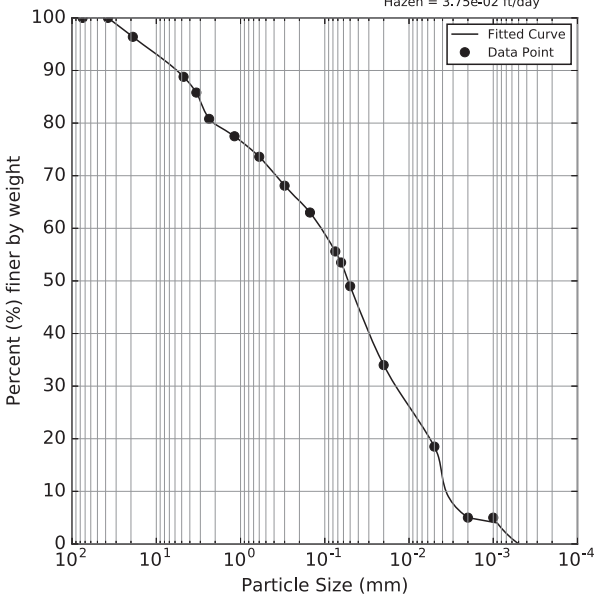
Hydraulic Conductivity Estimates
Barr = 2.04e+00 ft/day
Kozeny-Carman = 2.48e+00 ft/day
Hazen = 7.09e+00 ft/day



(mm)	%
0.001	0.5
0.002	0.5
0.005	1.0
0.02	6.0
0.05	10.0
0.064	11.0
0.075	12.1
0.15	16.1
0.3	21.7
0.6	31.7
1.18	42.2
2.36	49.3
3.35	53.8
4.75	58.7
19.0	93.3
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 7.5-40 feet

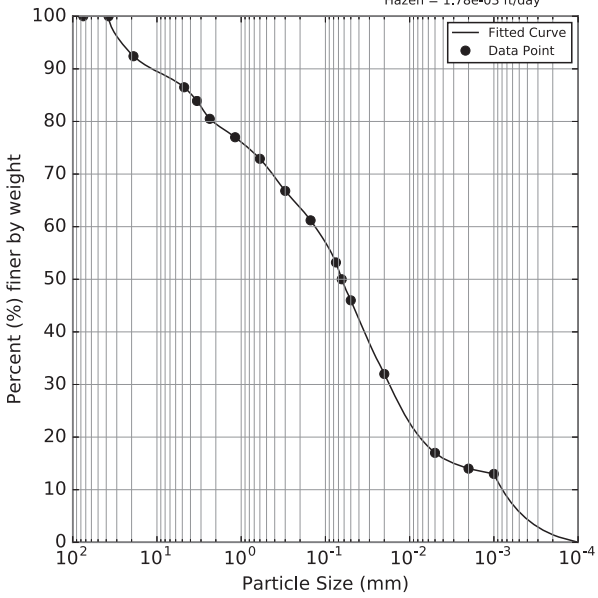
Hydraulic Conductivity Estimates
Barr = 4.19e-02 ft/day
Kozeny-Carman = 5.10e-02 ft/day
Hazen = 3.75e-02 ft/day



(mm)	%
0.001	5.0
0.002	5.0
0.005	18.5
0.02	34.0
0.05	49.0
0.064	53.5
0.075	55.6
0.15	63.0
0.3	68.1
0.6	73.6
1.18	77.5
2.36	80.8
3.35	85.8
4.75	88.8
19.0	96.4
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 40-83 feet

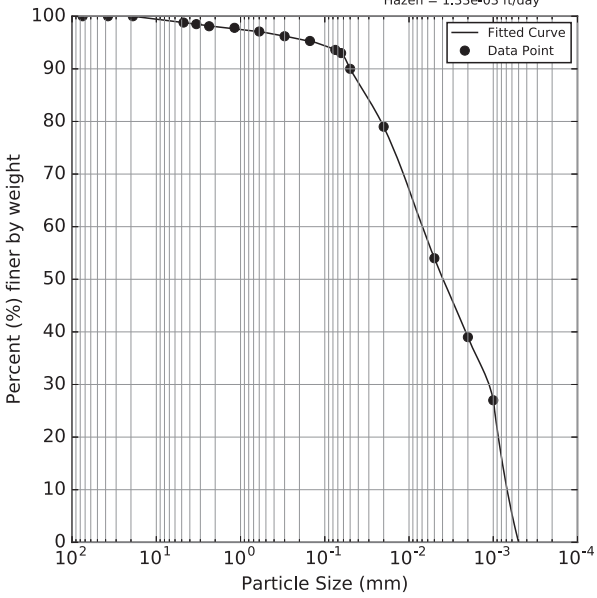
Hydraulic Conductivity Estimates
Barr = 4.93e-03 ft/day
Kozeny-Carman = 6.00e-03 ft/day
Hazen = 1.78e-03 ft/day



(mm)	%
0.001	13.0
0.002	14.0
0.005	17.0
0.02	32.0
0.05	46.0
0.064	50.0
0.075	53.2
0.15	61.2
0.3	66.8
0.6	72.9
1.18	77.0
2.36	80.5
3.35	83.9
4.75	86.5
19.0	92.4
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 83-90 feet

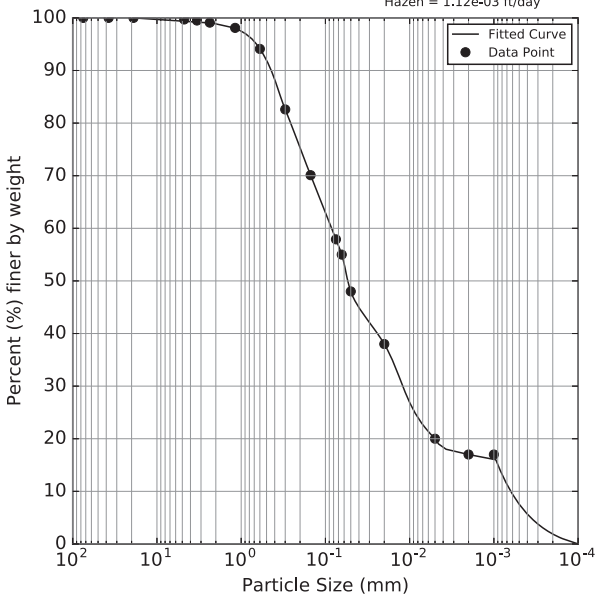
Hydraulic Conductivity Estimates
Barr = 2.35e-03 ft/day
Kozeny-Carman = 2.86e-03 ft/day
Hazen = 1.33e-03 ft/day



(mm)	%
0.001	27.0
0.002	39.0
0.005	54.0
0.02	79.0
0.05	90.0
0.064	93.0
0.075	93.6
0.15	95.3
0.3	96.2
0.6	97.1
1.18	97.8
2.36	98.1
3.35	98.5
4.75	98.8
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 90-96 feet

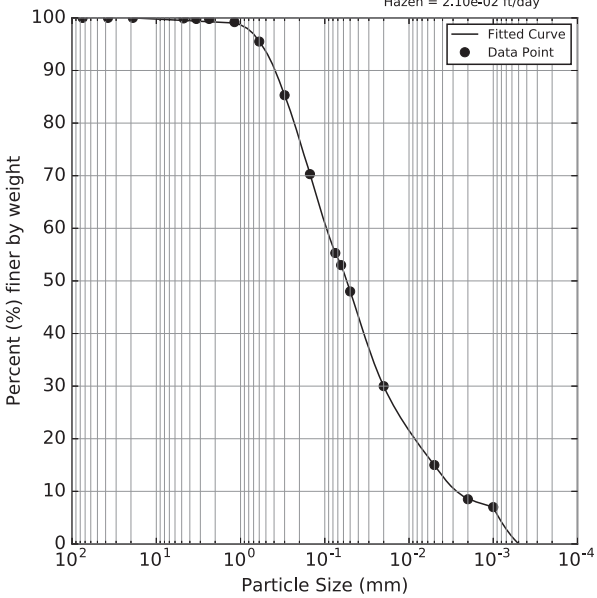
Hydraulic Conductivity Estimates
Barr = 3.16e-03 ft/day
Kozeny-Carman = 3.85e-03 ft/day
Hazen = 1.12e-03 ft/day



(mm)	%
0.001	17.0
0.002	17.0
0.005	20.0
0.02	38.0
0.05	48.0
0.064	55.0
0.075	57.9
0.15	70.1
0.3	82.6
0.6	94.1
1.18	98.1
2.36	99.1
3.35	99.5
4.75	99.7
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR3 96-106 feet

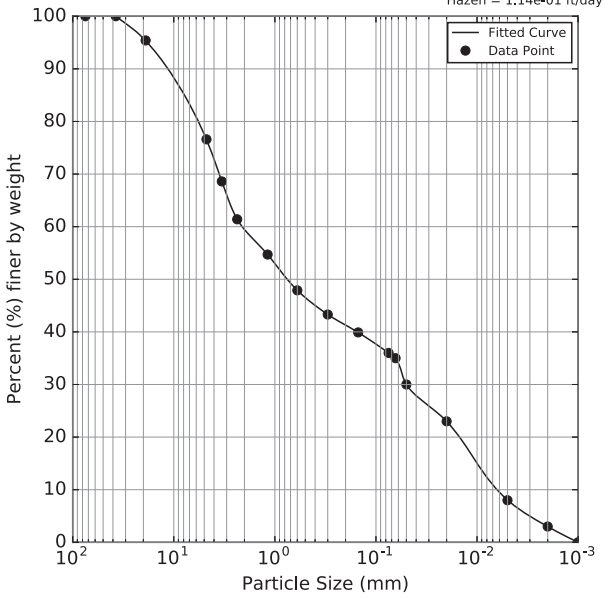
Hydraulic Conductivity Estimates
Barr = 2.98e-02 ft/day
Kozeny-Carman = 3.63e-02 ft/day
Hazen = 2.10e-02 ft/day



(mm)	%
0.001	7.0
0.002	8.5
0.005	15.0
0.02	30.0
0.05	48.0
0.064	53.0
0.075	55.3
0.15	70.3
0.3	85.3
0.6	95.5
1.18	99.2
2.36	99.8
3.35	99.8
4.75	99.9
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR4 334-335 feet

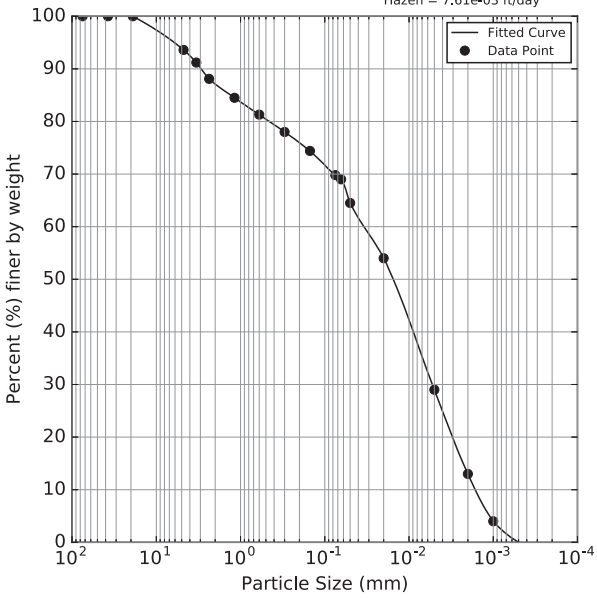
Hydraulic Conductivity Estimates
Barr = 2.12e-01 ft/day
Kozeny-Carman = 2.58e-01 ft/day
Hazen = 1.14e-01 ft/day



(mm)	%
0.001	0.0
0.002	3.0
0.005	8.0
0.02	23.0
0.05	30.0
0.064	35.0
0.075	36.0
0.15	39.9
0.3	43.3
0.6	47.9
1.18	54.7
2.36	61.4
3.35	68.6
4.75	76.6
19.0	95.4
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR4 353-354 feet

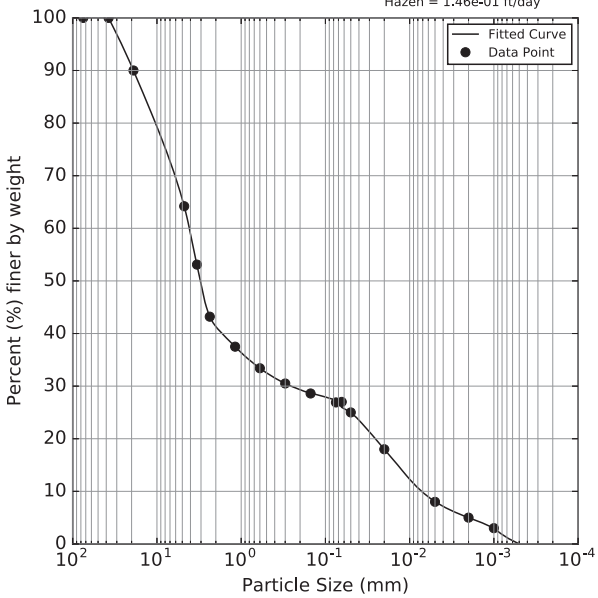
Hydraulic Conductivity Estimates
Barr = 1.69e-02 ft/day
Kozeny-Carman = 2.05e-02 ft/day
Hazen = 7.61e-03 ft/day



(mm)	%
0.001	4.0
0.002	13.0
0.005	29.0
0.02	54.0
0.05	64.5
0.064	69.0
0.075	69.8
0.15	74.4
0.3	78.0
0.6	81.3
1.18	84.5
2.36	88.1
3.35	91.2
4.75	93.6
19.0	100.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR4 374-375 feet

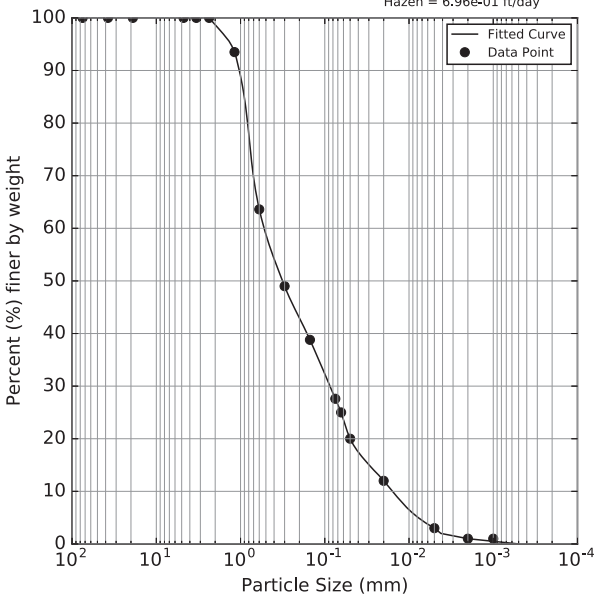
Hydraulic Conductivity Estimates
Barr = 1.10e-01 ft/day
Kozeny-Carman = 1.33e-01 ft/day
Hazen = 1.46e-01 ft/day



(mm)	%
0.001	3.0
0.002	5.0
0.005	8.0
0.02	18.0
0.05	25.0
0.075	26.9
0.064	27.0
0.15	28.6
0.3	30.5
0.6	33.4
1.18	37.5
2.36	43.2
3.35	53.1
4.75	64.2
19.0	90.0
37.5	100.0
75.0	100.0

Sample:
SG3-MWBR4 394-395 feet

Hydraulic Conductivity Estimates
Barr = 6.28e-01 ft/day
Kozeny-Carman = 7.64e-01 ft/day
Hazen = 6.96e-01 ft/day



(mm)	%
0.001	1.0
0.002	1.0
0.005	3.0
0.02	12.0
0.05	20.0
0.064	25.0
0.075	27.6
0.15	38.8
0.3	49.0
0.6	63.6
1.18	93.5
2.36	100.0
3.35	100.0
4.75	100.0
19.0	100.0
37.5	100.0
75.0	100.0

Appendix G.4

Specific Capacity Analysis

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BARR

Technical Memorandum

To: Project File
From: Evan Christianson
Subject: SGPP Vermont Specific Capacity Analysis
Date: January 26, 2018
Project: 45021004.00

Hydraulic conductivity and transmissivity for bedrock near the Bennington Landfill were estimated using the method of Bradbury and Rothschild (1985). The method uses the Cooper-Jacob approximation of the Theis equation and specific capacity information. The method has the following assumptions:

1) The aquifer is confined, non-leaky, homogeneous and isotropic
2) The storage coefficient is known (assumed to be 0.005 for this analysis)
3) The well loss is known (assumed to be 0.0 for this analysis)
4) The effective aquifer thickness is known (assumed to be equal to the well open interval for this analysis).

Specific capacity data were collected during dynamic flow logging. Water levels and pumping rates were continuously recorded during the tests, which were conducted over a period of 2 to 4.5 hours. During the tests the pumping rate was maintained at a near-constant flow and ranged from 5.1 to 20.1 gallons per minute depending on the performance of each well. Total drawdown at the end of the test and the mean pumping rate were used to calculate specific capacity for use in the analysis. The solution integrity was evaluated by comparing the difference between calculated drawdown and measured drawdown. Also, to evaluate if the pumping rate and test duration were sufficient to negate well-bore storage, methods from ASTM D5472 (ASTM, 2014) were applied. The results of the analysis are presented in Table G.4.1 below.

References

ASTM International, 2014. ASTM D5472 / D5472M-14, Standard Test Method for Determining Specific Capacity and Estimating Transmissivity at the Control Well. West Conshohocken, PA, www.astm.org.

Bradbury, K.B., and E.R. Rothschild, 1985. A computerized technique for estimating the hydraulic conductivity of aquifer from specific capacity data: Ground Water vol. 23, No. 2, pp. 240-246

Table G.4.1 Hydraulic Conductivity Estimates from Specific Capacity

Location	Well Diam. (in)	Test Length (min)	Mean Rate (gpm)	Interval Depth to Top (ft)	Interval Depth to Bottom (ft)	Storage Coeff.	Well loss Coeff.	Aquifer Thickness (ft)	Measured Drawdown (ft)	Saturated Screen Length (ft)	Specific Capacity (gpm/ft)	Trans. (ft^2/sec)	Hydraulic Conductivity (ft/day)
SG3-MW17-BR1	4	120	20.1	299.0	369.0	0.0005	0.0	70.0	1.44	70.0	13.96	4.4E-02	54.2
SG3-MW17-BR2	6	148	5.1	147.0	263.0	0.0005	0.0	116.0	15.06	116.0	0.34	7.9E-04	0.6
SG3-MW17-BR3	6	270	10.6	115.0	273.5	0.0005	0.0	144.1	1.17	144.1	9.06	2.8E-02	16.7
SG3-MW17-BR4	4	203	5.1	406.7	447.5	0.0005	0.0	40.8	1.63	40.8	3.13	9.3E-03	19.7

Appendix H

Desktop Evaluation of Other Sources

Appendix H.1 Preliminary Evaluation of Other Potential PFAS Sources
Appendix H.2 Potential PFAS Contributions to Bennington Landfill Memo
Appendix H.3 Groundwater PFAS Distribution for Source Identification

Appendix H.1

Preliminary Evaluation of Other Potential PFAS Sources

December 14, 2017
Revised March 5, 2018

Project No.: 177-8327

RE: PRELIMINARY EVALUATION TO IDENTIFY POTENTIAL PFAS SOURCES IN CORRECTIVE ACTION AREAS I AND II
SAINT-GOBAIN PERFORMANCE PLASTICS
BENNINGTON, VERMONT
VT DEC SITE #199712055

Golder Associates Inc. (Golder), on behalf of Saint-Gobain Performance Plastics (SGPP), has performed a preliminary desktop evaluation to identify potential sources of per- and polyfluoroalkyl substances (PFAS) in Corrective Action Areas I and II (CAAI and CAAII) in Bennington, Vermont. Golder's initial review of CAAI and CAAII groundwater analytical data and current and historical property uses in the area indicates that there are multiple sources of PFAS contributing to the concentrations of PFAS measured in soil and groundwater in the study areas. This evaluation may be updated as additional data become available.

1.0 BACKGROUND

In 2000, SGPP acquired Chemfab, a manufacturer of coated fiberglass cloth. Historically, Chemfab operated at two locations in the Bennington, Vermont area over a period of approximately 33 years: the Northside Drive facility in the Town of Bennington (from 1969 to 1978), and the Water Street facility in the Village of North Bennington (1978 to 2002). Operations at the former Chemfab facilities included the application of PTFE coatings to some fiberglass fabrics. During the process of drying/curing the PTFE, perfluorooctanoic acid (PFOA) may have been emitted from the facilities' stacks. PFOA is understood to be the only PFAS compound in the air emissions from the former Chemfab facilities.

Two areas of investigation have been established as part of the on-going PFAS hydrogeological investigation in the Bennington, Vermont area:

- Corrective Action Area I (CAAI), which generally consists of a bounded area west of Route 7.
- Corrective Action Area II (CAAII), which generally consists of a bounded area east of Route 7.

2.0 POTENTIAL PFAS SOURCES

PFAS have been widely used in industry and consumer products resulting in many potential sources. The following provides a summary of known uses and applications for PFAS, which may have occurred in the Bennington area.

2.1 Surface Treatments

PFAS were used to impart grease, oil, and/or water resistance to various products; industries known to have used PFAS compounds for surface treatments include:

- Carpet manufacturers and fiber producers for residential, commercial, and transportation flooring (3M, 1999)
- Manufacturers of upholstery fabric for residential furniture, home decor items such as slipcovers, mattress pads and shower curtains, and automotive, truck and van interiors (3M, 1999)

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- Textile mills, leather tanneries, finishers and chemical formulators who treat fabric and leather used for garments, footwear, accessories and non-garment functional fabrics (3M, 1999)
- Paper mills and packaging companies which treat paper and/or paperboard to impart grease, oil, and/or water resistance to paper products for:
  - Food contact applications (e.g., plates, food containers, bags, or wraps) and
  - Non-food contact applications (e.g., folding cartons, carbonless forms). (3M, 1999)
- Carpet cleaning operations, which use PFAS-containing carpet/upholstery cleaning solutions, stain protectants and water-resistant solutions. 3M supplied a carpet spot cleaner to consumers in pump and aerosol cans (3M, 1999).
- Granite, stone, and tile finishing operations, which used PFAS-containing sealants for granite, stone and tile sealing/finishing (3M, 1999), and potentially in the wet saw process (NJDEP, 2015). PFAS were detected in connection with stone finishing operations in the following studies:
  - Sealing materials for granite, stone, and tile were sampled as part of an EPA study. PFOA was detected in the 400-800 nanograms per gram (ng/g) range for both samples. (EPA, 2009)
  - NJDEP has been investigating sources of PFAS to the Metedeconk River watershed (NJDEP, 2015). As part of the NJDEP study, PFAS were detected in stormwater associated with an "illicit discharge from a granite countertop manufacturer."
- Painting and coating operations. The following references indicate that PFAS (fluorinated surfactants) are known additives in paints and other coatings:
  - "Fluorinated surfactants impart valuable properties to paints and coatings" (Knepper and Langue, 2012)
  - "Fluoro-surfactants are useful additives in solving low-VOC coating-related problems in architectural coatings, such as anti-crater, anti-block and shorter open times in addition to their traditional role as wetting agents" (Meng, 2007)

The types of facilities where PFAS-containing surface treatments may have been used or stored include:

- Carpet manufacturing, treatment, or cleaning facilities
- Furniture upholstery manufacturing, treatment, or cleaning facilities
- Dry cleaners
- Paper mills
- Stone and tile manufacture, fabrication, or cleaning facilities
- Residences where cleaning, stain guarding, and/or waterproofing of carpets, upholstery, fabrics, granite countertops, stone, and/or tile occurred

2.2 Surfactants or Wetting Agents

Because of their exceptional capacity for lowering surface tension, PFAS were used in a number of products or processes as surfactants, emulsifiers, and/or wetting agents, including:

- Electronics: PFAS were used as wetting agents and surfactants in solders for electronic parts and cleaning of electronic components (Kissa, 2001)
- Chrome plating: PFAS were used as a mist suppressant in chrome plating processes (3M, 1999)

- Car washes: "Fluorinated surfactants in automotive waxes aid spreading and improve the resistance of the polish to water and oil. Fluorinated surfactants are used in other car-care products as well: in cleaners for spray washing automobiles… and shampoos for fabrics and vinyl surfaces" (Kissa, 2001)
- Herbicides/Pesticides: PFAS were used as wetting agents for herbicide and pesticide applications (Kissa, 2001)
- Mining and Oil Extraction: PFAS were used as surfactants for mining and oil extraction processes (3M, 1999)
- Fire Suppression: PFAS were potentially used as wetting agents for Class A fires (see Fire Fighting Foam below)

Types of facilities where PFAS surfactants may have been used or stored include:

- Electronics manufacturing or recycling facilities
- Chrome plating facilities
- Car washes
- Facilities with pesticide and herbicide use or storage
- Fire stations

2.3 Fire Fighting Foam

PFAS were used to manufacture Aqueous Film Forming Foam (AFFF) until 2001. AFFF based on perfluorooctane sulfonic acid (PFOS) was used to extinguish Class B flammable liquid fires (EPA, 2014). In addition, AFFF was used to suppress vapors at hazardous/flammable liquid spills (USEPA, 1986) and potentially as a wetting agent for Class A fires (National Foam, 1999; NFPA, 2010; Angus Fire, 2016). "AFFF produced after 2002 may also contain PFOA and/or precursor PFC/PFAS, which can degrade to PFOA." (NYSDEC, undated). Example sites where AFFF may have been used or stored include:

- Fire stations,
- Airports,
- Hangars,
- Fire or emergency response sites or training sites where AFFF was applied, or
- Companies who install or maintain AFFF systems associated with the above.

2.4 Wastewater Treatment and Biosolids

Because of their ubiquity in consumer products (i.e., cleaning products, food wrappers/containers, Teflon®-coated housewares, etc.), PFAS are present in wastewater treatment plant (WWTP) influent, effluent, and sludge (biosolids) (Schultz et al., 2006; Guerra et al., 2014). WWTP processes can also increase mass of some PFAS through conversion of precursors present in the influent (Schultz et al., 2006; Guerra et al., 2014).

Biosolids from the wastewater treatment process are known to contain PFAS (Sepulvado et al., 2011). PFOS was present in biosolids-amended soils, at concentrations between 2 and 11 ng/g in plots amended for 3 years, and at up to 483 ng/g in longer term plots. Sepulvado et. al. estimated that application rates of 44 to 178 mega grams per hectare (Mg/ha) would result in pore water concentrations over 200 nanograms of per liter (ng/l, equivalent to ppt) of PFOS and over 400 ng/l (ppt) for PFOA.

Biosolids are known to have been land-applied for the following beneficial re-uses (NEBRA, 2014):

- Agriculture (including feed corn for livestock, hay fields, and pasture)
- Forestry
- Land reclamation (including gravel pits/surface mines)
- Horticulture/landscaping
- Turf farms
- Athletic fields (including golf courses)
- Highways (constructed wetlands and wildflower cultivation along highways)

Land uses potentially associated with biosolids application include:

- Agricultural fields
- Athletic fields
- Turf farms
- Landscaped areas
- Greenhouses
- Nurseries
- Landscaping and topsoil supply facilities

2.5 Landfills

Wastes disposed of in landfills and dumps typically contain consumer and commercial goods that have varying amounts of PFAS, such as treated carpeting, fast-food wrapping, floor wax, composted materials, WWTP sludge, dyes, textiles, tape, batteries, and furniture (Schaider et al., 2017). In addition, landfills and dumps may have received wastes from specific industries like those described above that can contain PFAS. Leachate generated from the waste materials can result in impacts to soil and groundwater. Appendix H-2 provides additional information specific to potential PFAS contributions to the Bennington Landfill.

2.6 Other Uses

Other applications, industries, or products known to use/contain PFAS include:

- Fluoropolymer application (e.g., application of Teflon® coating).
- Aviation hydraulic fluids, to which PFAS were added as an anti-erosion additive (Boeing, 2002).
- Photographic films, in which PFAS were used to reduce static buildup during manufacture and use, as well as during photofinishing processes (Knepper and Langue, 2012).
- Printing Inks, in which PFAS were used to aid wetting and pigment dispersion, especially for “difficult-to-wet” surfaces (e.g. plastics and metals). PFAS were also added to ballpoint pens, marking pens (Kissa, 2001), and ink jet printers (Knepper and Langue, 2012).
- The insecticide sulfluramid (N-ethyl perfluorooctancesulfonamide), which is known to degrade to form PFOS (Knepper and Langue, 2012).

3.0 PRELIMINARY IDENTIFICATION OF POTENTIAL SOURCES IN CAAI AND CAAII

For this preliminary evaluation of potential sources of PFAS in the study area, Golder first reviewed available PFAS groundwater results in CAAI and CAAII, to identify areas where PFAS sampling results are

inconsistent with the former Chemfab facility air emissions fingerprint. Specifically, Golder focused on areas where in addition to PFOA, one or more sulfonate compounds (e.g., PFOS, perfluorobutane sulfonate [PFBS], and/or perfluorohexane sulfonate [PFHxS]; collectively, a sulfonate signature) were also detected in groundwater. Golder then performed a desktop review of potential industrial and commercial users of PFAS in the areas where one or more sulfonate compounds have been detected in groundwater. Additionally, Golder performed a broader desktop review of Bennington's industrial footprint, to identify operations that are generally known to use PFAS in manufacturing or other processes (as described in Section 2). This evaluation does not include discussion of the Bennington Landfill, which has already been identified as generating PFAS-containing leachate. Nor does this evaluation include the most recent data collected as part of the on-going Conceptual Site Model Site Investigation (CSM SI). This evaluation may be updated when the CSM SI is completed.

The following sections summarize potential PFAS sources identified by Golder during this preliminary evaluation.

3.1 Potential PFAS Sources in Corrective Action Area I

Figure 1 illustrates locations where a sulfonate signature (PFOS, PFBS, and/or PFHxS) has been detected in groundwater, which is inconsistent with the air emission source, and/or locations where a specific commercial/industrial facility (e.g., wastewater treatment plants, landfills) represents a potential PFAS source. In CAAI, Golder focused on five of these areas to identify potential PFAS sources as illustrated on Figure 1. Figure 2 identifies properties/facilities within these areas that represent potential PFAS sources. During its desktop evaluation, Golder identified other properties and facilities in CAAI outside of the focus areas that also represent potential PFAS sources. SGPP has yet to fully evaluate/research these properties/facilities.

3.1.1 Water Street Area

Water Street is located in the Paran Creek valley and extends south from the North Bennington village toward the Walloomsac River. Water Street is an area of focus because it is a developed area with a mixture of industrial and residential properties, with agricultural fields at the northern end of the street (see Figures 1 and 2); the former Chemfab facility is located at the southern end of Water Street. Industrial development in this area dates back to at least the early 1900s.

Potential sources of PFAS in the Water Street area include:

- ADC Optical Systems (ADC), located at 441 Water Street (north of the former Chemfab facility), reported fluoropolymer and thermoplastic pellets on their 2011 Tier II Chemical Inventory. ADC was a manufacturer of electronic connectors (i.e., cables/wire); according to the Vermont Secretary of State Corporations Divisions website, ADC may have operated from 2004 through 2011. Prior to ADC Optical Systems, this property was occupied by fiber optic cable manufacturer Northern Lights Cable, Inc., Furon (a plastics manufacturer specializing in high performance insulation products), and the PRO-FAB machine shop. TE Connectivity, another manufacturer of fiber optic cable, occupied the property as recently as 2014.

  The property was initially developed to operate as a furniture finishing facility, and was operated by the H.T. Cushman Company and Green Mountain Furniture prior to 1977. Paints and other coatings may contain PFAS (Knepper and Langue, 2012).

- Polygraphic Company of America (PCA), and later Garrison Printing Division (GPD), was formerly located at 940 Water Street and operated as a lithographic printing company from 1937 to the early 1970s (Lincoln Applied Geology, 2002; VTDEC, 2011; Sanborn Maps, 1921, 1928, 1941,and 1959). Prior to 1937, the property was occupied by the H.C. White Company, which manufactured stereoscopes and children's toys and furniture. PFAS are known to have been used in printing inks to aid in wetting and pigment dispersion, to reduce

static buildup during the manufacture of photographic films, and during photo-finishing processes. Paints and other coatings may contain PFAS.

An Environmental Site Investigation and Remedial Activity report (The Johnson Company, 1996) indicates that an incinerator was formerly located on the property, between the site building and Paran Creek. The history of operation and types of wastes potentially incinerated are unknown; however, because materials used at the property may have contained PFAS (e.g., inks, films, etc.) and many consumer products contain PFAS, the incinerator represents a potential PFAS emission source.

- Allen's Cleaning Service and SNJ Janitorial Services were formerly located at 713 and 889 Water Street, respectively. Many consumer cleaning and stain-guard products are known to contain PFAS.
- Agricultural fields at the northern end of Water Street may have been treated with herbicides or pesticides. In addition, biosolids may have been applied to these areas. Herbicides, pesticides, and biosolids are known to contain PFAS.

Numerous other businesses are currently or were previously located along Water Street, including: Bennington Leather, Bouchard Steel Erectors, National Hanger Company, and Slade Glass Specialists. However, the operations associated with these business and/or their historical locations are not known at this time.

3.1.2 North Bennington Road/Murphy Road Area

The North Bennington Road/Murphy Road area is approximately 0.7 miles east of the former Chemfab facility and extends to the north along Matteson Road (see Figures 1 and 2). This area is developed with a mix of residential, commercial, and industrial properties. Additionally, there are extensive agricultural fields to the south of North Bennington Road, and Bennington College is located north of North Bennington Road.

The following sulfonates, which are not consistent with the former Chemfab facility air emissions, were detected in groundwater at the intersection of North Bennington Road and Murphy Road:

- up to 58 ppt PFOS
- up to 25 ppt PFBS
- up to 2.3 ppt PFHxS

Potential sources of PFAS in the North Bennington Road/Murphy Road area include:

- The Vermont Tissue Company, formerly located at 1514 North Bennington Road, produced various paper products from 1900 to 1940, and produced tissue paper from 1940 to 1986; paper cutting operations continued at the property until 2006 (NUS Corporation, 1990). Printed paper for the floral industry was also reportedly produced on a limit basis (dates unknown), and virgin inks were among hazardous materials characterized and disposed of during remedial activities at the property (VTDEC, 2012).

  The paper mill building is located on the south site of North Bennington Road and abuts the Walloomsac River. Three warehouses, a storage building, an office building, and two lagoons were located north of North Bennington Road. The lagoons were constructed in the early- to mid-1960s, and received wastewater from the paper-making process. Reportedly, Vermont Tissue had a permit for discharge to the Bennington Wastewater Treatment Plant for approximately 1.5 years in the early 1970s, but eventually resumed discharge to the lagoons. At least two "overflow" events were noted, in which sludge from the lagoons broke through the lagoon berms and drained into a nearby swamp and small stream. All discharge was reportedly discontinued in 1986.

In addition, an interview with a former employee of the mill (from 1940 to 1956) documented that "it was customary practice during his employment to dump drums of waste caustic, soda ash and other waste products on the ground surface throughout the site," (URS, 2007). Aerial photographs of the northern portion of this property dating from 1942 to 1951 show areas of disturbed soils or stockpiled materials. These disturbed areas may have received waste prior to the development of the warehouses (mid-1950's) and lagoons. The interview also notes that wastewater from paper making was primarily discharged to the Walloomsac River.

The paper mill building portion of the property is currently operated as a distillery and hydro-electric dam, and is under separate ownership from the northern portion of the former Vermont Tissue property (i.e., the former storage buildings and lagoons). A 2011 draft Corrective Action Plan (CAP) for the northern property indicates the preferred remedial outcome for the lagoons was capping (The Johnson Company, 2011); however, it is unclear whether this work was completed. Consistent with information provided during the former employee's interview, the CAP notes miscellaneous debris throughout the northern property.

Paper mills are known to have used/stored PFAS-containing material for imparting grease, oil, or water resistance to paper products. Additionally, PFAS are known to have been used in printing inks to aid in wetting and pigment dispersion. Recently, the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) discovered the presence of six PFAS compounds, including PFOA and PFOS, in paper mill sludge as well as in the sludge facility's groundwater monitoring well and storm water collection pond (NYSDOH, 2017).

The highest concentration of PFOS (58 ng/l) in the North Bennington Road/Murphy Road area was detected at a residential well located between the mill building and the lagoons to the north.

- Three automotive repair businesses: Art's Body Shop, K&D Autobody (formerly Prouty's Automotive), and Walt Smith's. Car care products such as automotive waxes, spray wash cleaners, and shampoos for fabrics and vinyl surfaces are known to contain fluorinated surfactants. In addition, PFAS are used in certain under-hood wiring and components to make them heat and fluid resistant (OECD, 2013).
- A private residence located at 1360 North Bennington Road appears to have a greenhouse-like structure in the southeastern corner of the property. Herbicides, pesticides, and/or biosolids may have been used at this property. In addition, sampling results at this location report one of the highest concentrations of PFBS in the North Bennington Road/Murphy Road area. Concentrations of PFBS in this area decrease to the west of this property.
- Areas of disturbance identified in historical aerial photographs of Bennington College campus may represent areas formerly used for landfilling. In addition, the Burlington Free Press indicated in their April 23, 1988 edition that a landfill located "east of the [Bennington] college maintenance building [had] been used to dump construction debris and brush" and that the college "dumped construction materials from a renovation project there after the Bennington landfill closed." PFAS are often detected in landfill leachate and groundwater, and based on the use of PFAS in building materials (e.g., paints, coatings, and wire casing), it is reasonable to assume that PFAS would be present in construction and demolition debris landfills.
- Agricultural fields located south of North Bennington Road may have been treated with herbicides or pesticides. In addition, biosolids may have been applied to these areas. Herbicides, pesticides, and biosolids are known to contain PFAS.

3.1.3 Harrington Road/Murphy Road Area

This area is located on Harrington Road and Murphy Road, approximately 0.6 miles west of the former Chemfab facility. A sulfonate signature was detected in the southern part of this area along Murphy Road, and the Bennington WWTP is located in the northern part of this area on Harrington Road. Groundwater sampling results in the Harrington Road/Murphy Road area include detections of the following sulfonates:

- up to 56 ppt PFOS
- up to 15 ppt PFBS

Potential sources of PFAS in the vicinity of Harrington Road/Murphy Road include:

- The Town of Bennington WWTP. As previously noted, PFAS are known to often be present in WWTP influent, effluent, and sludge, and WWTP processes can increase the mass of some PFAS through conversion of precursors present in the influent.
- Pembroke landscaping is located immediately south of the WWTP on Harrington Road. Landscaping facilities may use or store biosolids-containing soil amendments, herbicides, and/or pesticides. Biosolids, herbicides, and pesticides are known to contain PFAS.
- Agricultural fields are present along the length of Harrington Road. Biosolids, herbicides, and/or pesticides may have been applied to these fields.

3.1.4 Gypsy Lane Area

Gypsy Lane is located approximately 2.3 miles south of the former Chemfab facility and includes a portion of CAAII. This area is a mix of residential and commercial development, with agricultural fields to the south and west. A sulfonate signature was detected along Jennings Drive to the south and Walloomsac Road to the north. Groundwater sampling results in the Gypsy Lane area include detections of the following sulfonates:

- up to 6.7 ppt PFOS
- up to 23 ppt PFBS

Potential sources of PFAS in the vicinity of Gypsy Lane include:

- Bennington Rural Fire Station, located at 900 West Road, south of Gypsy Lane. PFAS are used in the manufacture of AFFF, which is used to extinguish Class B fires, suppress vapors at hazardous/flammable liquid spills, and potentially as a wetting agent for Class A fires. AFFF may have been used or stored at the fire station.
- Agricultural fields are present to the south and west of the Gypsy Lane area. Biosolids, herbicides, and/or pesticides may have been applied to these fields.

3.1.5 Vail Road/Bard Road Area

The Vail Road/Bard Road area is located approximately 1 mile south of the former Chemfab facility. A sulfonate signature was detected along Bard Road, Red Pine Road, and Vail Road in this area. Groundwater sampling results in the Vail Road/Bard Road area include detections of the following sulfonates:

- up to 130 ppt PFOS
- up to 12 ppt PFBS

Potential sources of PFAS in the Vail Road/Bard Road area include:

- James A Dulin Restorations, located at 100 Bard Road. It is unclear what sort of restorations were performed; however, as previously noted, constructions materials, various paints, coatings, and surface treatments, and other surface treatments are known to contain PFAS.
- Proutys Service Station was located in the southwestern portion of this area, on Airport Road. Car care products such as automotive waxes, spray wash cleaners, and shampoos for fabrics and vinyl surfaces are known to contain fluorinated surfactants. In addition, PFAS are used in certain under-hood wiring and components to make them heat and fluid resistant.
- Greenhouses were formerly located in the eastern portion of this area on Vail Road, and current agricultural fields are present in the southwestern portion of this area, south of Vail Road. Additionally, historical aerial photographs indicate that the eastern portion of this area, and lands to the south, were formerly used more extensively for agriculture. Biosolids, herbicides, and/or pesticides may have been used in the greenhouse operations, or applied to agricultural fields.

3.2 Corrective Action Area II (CAAII)

The lines of evidence supporting the presence of potential sources of PFAS in the CAAII vicinity are summarized below for twelve areas of interest identified by Golder. Areas of interest were identified based on the presence of the sulfonate signature, or the presence of industries known or suspected to use PFAS in manufacturing or other processes. SGPP has yet to fully evaluate/research these properties/facilities.

3.2.1 Willow Road/East Road Area

The intersection of Willow Road and East Road is located approximately 2.9 miles east of the Saint-Gobain former Chemfab facility, beyond the modeled extent of air deposition from the former Chemfab facility that would result in the measured PFOA groundwater concentrations at or above 20 ppt. This area is a mixture of commercial and residential development. The following sulfonates were detected in groundwater near the intersection of Willow Road and East Road:

- up to 13 ppt PFOS
- up to 6.2 ppt PFHxS
- up to 3.1 ppt PFBS

Potential sources of PFAS in the vicinity of Willow Road and East Road include:

- LeBlanc's Auto Recycling, an approximately 3 acre Tier IV auto salvage yard (i.e., a facility permitted to accept vehicles for parts and dismantling, and conduct vehicle crushing on site) and auto repair facility, is located at 37 Willow Road. LeBlanc's Auto Recycling has used this location as a storage lot since 1962, and consolidated their operations to this location in 1973. Car care products such as automotive waxes, spray wash cleaners, and shampoos for fabrics and vinyl surfaces are known to contain fluorinated surfactants. In addition, PFAS are used in certain under-hood wiring and components to make them heat and fluid resistant. Storage, handling and/or disposal of these products/materials (or vehicles that have been treated with them) in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater.

  The sulfonate signature compounds were detected in groundwater immediately south of this facility.
- Badson's Auto, an automotive repair center, is located at 1323 East Road. PFAS-containing car-care products or parts may have been used or stored at this location.

3.2.2 Chapel Mobile Home Park Area

The Chapel Mobile Home Park area is located on Chapel Road approximately 3.6 miles east of the former Chemfab facility. The area is predominantly residential development, with potential agricultural development to the west, and an unknown commercial or industrial building in the eastern portion of the area. The following sulfonates were detected in groundwater in the Chapel Mobil Home Park area:

- up to 28 ppt PFOS
- up to 3.7 ppt PFHxS
- up to 3.5 ppt PFBS

Potential sources of PFAS in the vicinity of the Chapel Mobile Home Park area include:

- A potential agricultural field to the west of Chapel Road. Biosolids, herbicides, and/or pesticides may have been applied to these fields.
- Carrol's Offset Camera was formerly located adjacent to the mobile home park. A small camera business operated at this location from 1972 to 1992. PFAS are known to have been used in the manufacture and use of photographic films, as well as during photo-finishing processes. Golder did not review information regarding chemical disposal associated with this business.
- Recent aerial photography of the Chapel Mobile Home Park area shows the presence of a large building with small equipment and debris stored, handled, and/or disposed of in the wooded area immediately to the east of the mobile home park. Many consumer products contain PFAS and storage, handling and/or disposal of these products in an exposed/outdoor environment, even in small concentrations, can cause PFAS impacts to soil and/or groundwater.
- The Chapel Mobile Home Park sewage system is of unknown age and condition. Neighboring East Mountain Mobile Home Park (located to the east) is reported to have had a formal administrative enforcement action with respect to the Safe Drinking Water Act (SWDA) in 2010; the nature of the administrative enforcement action is unknown. Because many consumer products contain PFAS, a past or present failure of community septic systems may result in the release of PFAS to the environment.

3.2.3 Harwood Hill Road Area

Harwood Hill Road is a north-south trending road located approximately 2 miles east of the former Chemfab facility. The area is a mixture of commercial and residential development, with agricultural fields present in the northern and southern portions of this area. The ground surface in the vicinity of Harwood Hill Road slopes from north to south, and surface water and shallow groundwater flow are assumed to follow the local topography.

The PFOA concentrations detected in groundwater along Harwood Hill Road are inconsistent with lower PFOA concentrations detected immediately to the west (i.e., along Settlers Road, Springhill Road, and Rice Lane), which are located closer to the former Chemfab facility. The following sulfonates were detected in groundwater in the Harwood Hill Road area:

- up to 8.1 ppt PFOS
- up to 7.3 ppt PFHxS
- up to 60 ppt PFBS

Potential sources of PFAS in the Harwood Hill Road area (i.e., between Beaudoin Lane to the north and Houghton Lane to the south) include:

- Bennington House of Tile and Carpet, a flooring services business located at 1267 Harwood Hill Road. PFAS are known to have been used in carpet cleaning solutions, and stain protectants and water resistant solutions applied to carpet and other flooring materials. Additionally, PFAS is also known to have been used in stone and tile sealants.
- Several agricultural fields are located along Harwood Hill Road, including an orchard at the intersection of Harwood Hill Road and Houghton Lane to the south, and a commercial farming operation across from Beaudoin Lane to the north. Biosolids, herbicides, and/or pesticides may have been applied to these fields.
- Recent aerial photography of 24 Settlers Road shows the presence of stockpiles of debris stored, handled, and/or disposed of in the yard surrounding the residence on this property (see Exhibit 8, Attachment A). Many consumer products contain PFAS, and construction materials and demolition debris are also known sources of PFAS. Storage, handling and/or disposal of even small quantities of these products/materials in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater at the concentrations observed.
- Sunset Farm Mobile Home Park, located at 1869 Harwood Hill Road and just north of this area, has a history of sewage system failure. Many consumer products contain PFAS, and faulty septic systems may represent a source of PFAS in the environment.
- Bennington Furniture, a furniture sales business, is located at 1371 Harwood Hill Road. PFAS are known to be present in certain products used to impart stain-resistant qualities to upholstery fabrics, and may be present in paints or other coatings.
- Vermont Roofing Company is located at 1325 Harwood Hill Road. Construction materials and demolition debris are also known sources of PFAS.

3.2.4 Chapel Road/Bradley Drive Area

The Chapel Road/Bradley Drive area is located approximately 3.6 miles southeast of the former Chemfab facility, and is a mixture of commercial and residential development. A sulfonate signature was detected in the northern portion of this area. Additionally, the concentrations of PFOA observed in groundwater at 311 Chapel Road are higher than PFOA concentrations in groundwater observed to the north and west along Chapel Road, Carpenter Lane, Willow Road, and East Road. The following sulfonates were detected in groundwater in the Chapel Road/Bradley Drive area:

- up to 4.8 ppt PFOS
- up to 2.3 ppt PFBS

Potential sources of PFAS in the vicinity of the Chapel Road/Bradley Drive area include:

- B&J Enterprises, a Tier IV auto salvage yard (i.e., a facility permitted to accept vehicles for parts and dismantling, and conduct vehicle crushing on site) is located at 471 Chapel Road. B&J Enterprises has operated at this location since 2009. Car care products such as automotive waxes, spray wash cleaners, and shampoos for fabrics and vinyl surfaces are known to contain fluorinated surfactants. In addition, PFAS are used in certain under-hood wiring and components to make them heat and fluid resistant. Storage, handling and/or disposal of these products/materials (or vehicles that have been treated with them) in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater.
- Shane's Carpets, a flooring contractor business, is located at 36 Chapel Road. Recent aerial photography of the property shows the presence of a large storage building adjacent to the residence. PFAS are known to have been used in carpet cleaning solutions, and stain protectants and water resistant solutions applied to carpet and other flooring materials.

- Kim's Cleaning Service is located at 161 Laura Lane, off Bradley Drive. Many consumer cleaning and stain-guard products are known to contain PFAS.

Several other small businesses, including Cutler's Creations Taxidermy and S&S Fence Company, are currently or were formerly located in this area. It is unknown if PFAS-containing materials were used or stored as part of their operations. In addition, this area is adjacent to the Kocher Drive/Shields Drive/East Road industrial area, discussed further below.

3.2.5 Jacks Drive/Walts Way Area

The Jacks Drive/Walts Way area is located approximately 3.5 miles east of the former Chemfab facility. This area is predominantly residential development, with potential agricultural development in the southern portion of the area. A sulfonate signature was detected at two residential wells in this area. The following sulfonates were detected in groundwater in the Jacks Drive/Walts Way area:

- up to 4.8 ppt PFOS
- up to 3.2 ppt PFHxS
- up to 5.0 ppt PFBS

Potential sources of PFAS in the vicinity of the Jacks Drive/Walts Way area include:

- Several apparent agricultural fields are located to the south of Jacks Drive/Walts Way area. Biosolids, herbicides, and/or pesticides may have been applied to these fields.
- Recent aerial photography of 1936 Chapel Road (west of Jacks Drive/Walts Way) shows the presence of two large sheds and small equipment and debris stored, handled, and/or disposed of in the backyard of this property. Many consumer products contain PFAS and storage, handling and/or disposal of these products in even small quantities in an exposed/outdoor environment can cause PFAS impacts to soil and/or groundwater.
- An area of disturbed soils in the western portion of this area is apparent in recent aerial photography, and dates back to at least the early 1990s. The purpose/use of this area is unknown.

3.2.6 East Road/Chapel Road Area

The East Road/Chapel Road area is located approximately 3.5 miles northeast of the former Chemfab facility, and is predominantly a residential area. A sulfonate signature is detected along Chapel Road in this area. The following sulfonates were detected in groundwater in the East Road/Chapel Road area:

- up to 6.0 ppt PFOS
- up to 4.3 ppt PFBS

Potential sources of PFAS in the vicinity of the East Road/Chapel Road area include:

- Greenland Custom Embroidery, which specializes in custom embroiders, screen printing, and applique, is located at 72 Outwater Road, off of East Road. Stain-resistant fabrics are offered in their online catalog. It is unknown whether PFAS compounds are associated with screen printing processes.
- J&H Windows, a window cleaning service, located at 2761 Chapel Road. Many consumer cleaning and stain-guard products are known to contain PFAS.
- Several residential properties along Chapel Road appear to have extensive outdoor storage areas in recent aerial photography. Many consumer products contain PFAS and storage, handling, and/or disposal of these products in even small quantities in an exposed/outdoor environment can cause PFAS impacts to soil and/or groundwater.

3.2.7 Overlea Road Area

The Overlea Road area is located approximately 1.5 miles northeast of the former Chemfab facility, and is predominantly a residential development, with areas of potential agricultural use in the middle/northern portion of the area. PFOS was detected in groundwater at concentrations up to 4.1 ppt in the Overlea Road area.

Potential sources of PFAS in the vicinity of the Overlea Road area include:

- Davison Painters formerly operated on Overlea Road (location approximate). Certain paints and coatings are known to contain PFAS.
- Several apparent agricultural fields are located to the north of Overlea Road. Biosolids, herbicides, and/or pesticides may have been applied to these fields.
- Railroad tracks cross Overlea Road east of Matts Drive; railroad maintenance is known to include spraying of herbicides to clear vegetation from the vicinity of the tracks.
- Ken Corey & Son, a construction/development business, is located at the end of Corey Acres. The property includes a large storage building that may house construction equipment and materials. Many consumer products contain PFAS, and construction materials and demolition debris are also known sources of PFAS. Storage, handling and/or disposal of even small quantities of these products/materials in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater at the concentrations observed.
- J & M Trucking was formerly located at 675 Overlea Road, and recent aerial photography shows multiple vehicles, small equipment, and/or debris stored on this property. Many consumer products contain PFAS. Storage, handling and/or disposal of these products/materials in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater.
- Bob's Carpet Service was formerly located in the southwestern portion of this area on Matteson Road. PFAS are known to have been used in carpet cleaning solutions, and stain protectants and water resistant solutions applied to carpet and other flooring materials.

3.2.8 Houghton Lane/Apple Hill Road

The Houghton Lane/Apple Hill Road area is located approximately 2.2 miles east of the former Chemfab facility, and immediately south/southwest of the Bennington Landfill. The area is predominantly residential, with agricultural fields to the south and west of this area. A sulfonate signature is detected at multiple locations in this area. The following sulfonates were detected in groundwater in the Houghton Lane/Apple Hill Road area:

- up to 12 ppt PFOS
- up to 2.8 ppt PFHxS
- up to 4.1 ppt PFBS

Potential sources of PFAS in the vicinity of the Houghton Lane/Apple Hill Road area include:

- The Houghton Lane/Apple Hill Road area is located southwest, and potentially hydraulically downgradient, of the Bennington Landfill. The Bennington Landfill received commercial and industrial waste prior to its closure in 1987, and PFOA and PFOS have been detected in groundwater and leachate at the landfill.
- Agricultural fields are located south and west of the Houghton Lane/Apple Hill Road area. Biosolids, herbicides, and/or pesticides may have been applied to these fields.

- Several residential properties in this area are associated with construction/contractor businesses (Bates Builders, JTG Construction, and Carroll Construction). Construction materials and demolition debris are also known sources of PFAS.

3.2.9 Morse Road/Buckley Drive Area

The Morse Road/Buckley Drive area is located approximately 1.8 miles southeast of the Saint-Gobain Water Street facility. The area is a mixture of industrial, commercial, and residential development. Limited groundwater samples have been collected in the immediate vicinity of Morse Road in CAAII (this area is connected to public water); however, groundwater samples collected west of Morse Road in CAAI (i.e., along Cardinal Lane and Silk Road) have elevated concentrations of PFOA.

Potential sources of PFAS in the vicinity of the Morse Road/Buckley Drive area include:

- JBM Sherman Carmel (formerly known as JBM Carmel and Spraytech), previously located on Water Street and currently located on Morse Road[1], is a metal fabricator and spray coat painter which reported fluoropolymer pellets in their waste stream when located on Water Street. Their website indicates that they offer Chemical Agent Resistant Coatings.
- K & E Plastics, located on Morse Road, which specializes in plastics fabrication and machining, works with Teflon® and other thermoplastics.
- Timberline Panel Company, a structural insulated panel manufacturer. Potential waste construction materials appear to be stockpiled outside the building in recent aerial photographs. Miller Structures, a modular commercial builder formerly occupied this property. Construction materials and demolition debris are also known sources of PFAS.
- Doxsee Roofing, a roofing contractor. Potential virgin or waste construction materials appear to be stored behind the building in recent aerial photography. Construction materials and demolition debris are also known sources of PFAS.
- Campbell Builders, a construction company with soil stockpiles, potential construction debris, and construction vehicles/equipment stored onsite. Construction materials and demolition debris are also known sources of PFAS.
- Uncle Zippy's Performance, Inc., an auto repair service. Certain car-care products and automotive parts may contain PFAS.
- Martin's Autobody, an auto repair service. Certain car-care products and automotive parts may contain PFAS.
- Guyette Restorations, an auto restoration business. Certain car-care products and automotive parts may contain PFAS.
- The Bennington Iron Works (BIW) and Arken Industries (a machine shop) were also formerly located in the Morse Road Industrial Park. It is unknown if BIW or Arken Industries used/stored PFAS containing materials for their iron-working or machining operations, respectively.

[1] An EDR obtained for the Water Street area indicated that JBM Carmel was located on Water Street and that a 2010 Vermont Tier II chemical inventory associated with that operation included fluoropolymer pellets. However, the alternative facility names provided as part of the Tier II documentation were listed as ADC Optical Systems and Tyco Electric, which we understand to be separate business entities. Golder was unable to independently confirm JBM Carmel operated at a Water Street location.

3.2.10 Phyllis Lane/Harwood Hill Road:

The Phyllis Lane/Harwood Hill Road area is located approximately 1.8 miles southeast of the former Chemfab facility. This area is a mixture of commercial and industrial development, located immediately north of the of the Morse Road/Buckley Drive area.

Potential sources of PFAS in the vicinity of the Phyllis Lane/Harwood Hill Road area include:

- Monument Industries, formerly located on Phyllis Lane, manufactured plastic bags and machined plastic parts (such as fittings and bushings used for electronics).
- Morse Block, Inc., a masonry, concrete, and landscaping materials business located on Harwood Hill Road. PFAS is known to have been used in stone and tile sealants, and as a cement additive (Kissa, 2001).
- Graphitek/i3 Imaging, a printing business located on Harwood Hill Road. PFAS are known to have been used in printing inks to aid in wetting and pigment dispersion.
- Johnson Controls, an automotive battery manufacturer, was formerly located just north of this area off North Bennington Road and manufactured lead batteries. Lead batteries are known to contain PFAS in the oxide paste plates. Additionally, Johnson Controls reported that a "mold coat compound" was one of the wastes they disposed of at the Bennington Landfill. Mold-release compounds are known to contain fluoropolymer compounds. See Appendix H-2 for more details.
- Reif's R&R and the former B&B Auto Repair, auto repair services. Certain car-care products and automotive parts may contain PFAS.
- Petricca Construction was formerly located on Harwood Hill Road in the northern portion of this area; construction materials used for their operations may have included pre-cast concrete.

Several other businesses are currently or were formerly located in this area, including: L&G Fabricators (welding and steel fabrication), Merrill Transport (a trucking company), and McGill Air Flow (a duct manufacturer). It is unknown whether the operations associated with these business included use or storage of PFAS containing materials.

3.2.11 Kocher Drive/Shields Drive/East Road Area

The Kocher Drive/Shields Drive/East Road area is located approximately 3.0 miles southeast of the former Chemfab facility, and is a predominantly industrial area with few residential and commercial properties. The former Kocher Drive landfill was located in the western portion of this area, and has been redeveloped as a public park.

Potential sources of PFAS in the vicinity of the Kocher Drive/Shields Drive/East Road area include:

- The Kocher Drive Dump, which received industrial wastes from businesses including dyers, electronics manufacturers, battery manufacturers, machine tool companies, and paper and printing companies. In addition, "junk" vehicles were stored at the site. As previously noted, PFAS are known to have been used in printing inks to aid in wetting and pigment dispersion, and some textile treatments are known to contain PFAS. Additionally, lithium ion batteries are known to contain PFAS. Finally, car care products such as automotive waxes, spray wash cleaners, and shampoos for fabrics and vinyl surfaces are known to contain fluorinated surfactants. Vehicles that have been treated with these materials and then stored in an exposed outdoor environment can cause PFAS impacts to soil and/or groundwater. VTDEC has also indicated that PFOA has been detected in monitoring wells at the Kocher Drive Dump.

- Courtaulds Structural Composites, formerly located on Shields Drive, was a manufacturer of composite materials for aerospace, defense, and commercial markets. Teflon® is listed among the waste materials the company disposed of at the Bennington Landfill. Based on publicly available records, Courtaulds Structural Composites later became Vermont Composites (also previously located at Shields Drive), which was later acquired by Kaman Composites (currently located on Kocher Drive).

  Kaman Composites currently maintains an Air Pollution Control Permit relating to the emission of dust from machining equipment, paint/surface coatings from spray booths, composite curing ovens, and solvents from metal cleaning activities.
- Willow Park is located on and adjacent to the Kocher Drive Dump west of East Road, and has multiple sports fields. Biosolids and/or herbicides/pesticides may have been applied on these fields.
- Several auto repair services are located in this area, including: Bennington Auto Tech, Triple J Auto Care, Langway of Bennington, and Morse Repair. Certain car-care products and automotive parts may contain PFAS.
- FW Webb, a wholesale distributor of plumbing fixtures and supplies, including Teflon® tape and fittings.
- Sit 'n' Spin Laundromat; fabric treatments used to impart stain resistant qualities to fabrics are known to contain PFAS.

Several other industrial and/or commercial operations are currently or were formerly located in this area, including: NSK Steering Systems America (automotive components manufacturer), Plasan Carbon Composites (manufacturer of carbon fiber parts), Bijur Lubricating Corporation (former manufacturer of lubrication systems and mist coolant equipment), Abacus Automation (manufacturer of custom automation equipment), and Maple Brook Farm (commercial cheese production facility). It is unknown whether the operations associated with these business included use or storage of PFAS containing materials.

3.3 Potential Sources Summary

Golder focused its evaluation of potential sources in areas where one or more sulfonate compounds were detected in groundwater, or areas where its desktop review suggested industrial and commercial users or storage of PFAS-containing materials. In addition to the potential sources identified in these focus areas, Golder identified numerous other industrial, commercial, and agricultural facilities that may represent PFAS sources in the Corrective Action Areas, as illustrated in Figure 2. The potential sources located outside of the focus areas require additional evaluation of facility history and operational practices. In addition, this evaluation may be updated once the CSM SI is completed.

GOLDER ASSOCIATES INC.

Hannah Elkinton
Staff Geologist

Alistair P.T. Macdonald, P.G., LSP
Program Leader and Principal

HDE/APTM/drb

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ATTACHMENTS

List of Figures

Figure 1 Sulfonate Signature Detections in Corrective Action Areas 1 and 2
Figure 2 Potential PFAS Sources in Corrective Action Areas 1 and 2

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FIGURES

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NEW YORK

Water St Area

North Bennington Rd/ Murphy Rd Area

Overlea Rd Area

East Rd/ Chapel Rd Area

Chapel Mobile Home Park Area

Willow Rd/ East Rd Area

Jack's Dr/ Walt's Way Area

Rice Ln Area

Harwood Hill Area

Houghton Ln/ Apple Hill Rd Area

Harrington Rd / Murphy Rd Area

Phyllis Ln/ Harwood Hill Rd Area

Vail Rd / Bard Rd Area

Morse Rd/ Buckley Dr Area

Chapel Rd/ Bradley Dr Area

Kocher Dr/ Shields Dr/ East Rd Area

Gypsy Ln Area

LEGEND

- Former Chemfab Facility
- Study Areas
- Sampling Boundary
- Corrective Action Area 1 (CAA1)
- Corrective Action Area 2 (CAA2)
- Town Boundary
- Parcel Boundary
- Railroads
- Waterbody
- Wetland

NOTES

1) SAMPLING BOUNDARY AND CCA 2 BOUNDARY DIGITIZED FROM VTANR FIGURE TITLED "CORRECTIVE ACTION AREA 1" PROVIDED BY C.T MALE ASSOCIATES.
2) PFOS DATASET BASED ON ENVIRONMENTAL STANDARD INC. DATA PROVIDED BY C.T MALE ASSOCIATES ON 04/10/2017 AND VT DEC DATA PROVIDED BY BARR ENGINEERING ON 04/12/2017.

REFERENCE

1) BASEMAP DATA DOWNLOADED FROM VCGI'S VT OPEN GEODATA PORTAL.

CLIENT

SAINT GOBAIN VERMONT

PROJECT

BENNINGTON, VT

TITLE

SULFONATE SIGNATURE DETECTIONS IN CORRECTIVE ACTION AREAS 1 AND 2

CONSULTANT

Golder Associates

YYYY-MM-DD	2017-12-14
PREPARED	SHL
DESIGN	HDE
REVIEW	JSP
APPROVED	APTM

PROJECT No.	CONTROL	Rev.	FIGURE
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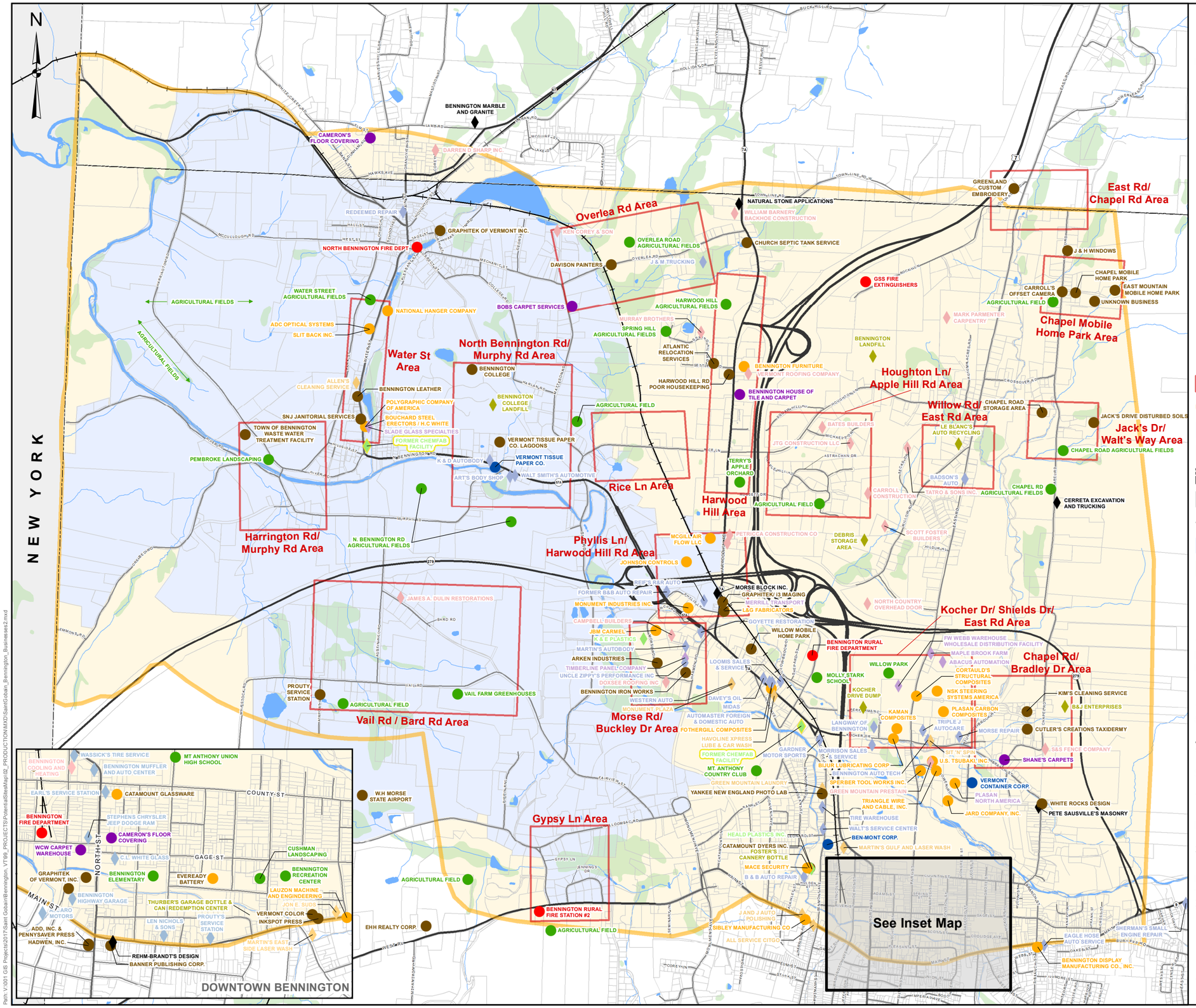

LEGEND

- Former Chemfab Facility

Potential PFAS Source Categories

- Automotive
- Processing/Packaging
- Chemical Manufacturing
- Greenhouse/Golf Course/Landscaping/Agricultural Fields
- Construction/Paving
- Fire Station
- Laundromat/Dry Cleaner/Car Detailer/Car Wash
- Manufacturing
- Distributor
- Carpet and Flooring Services
- Landfill/Junkyard/Recycling/Transfer Station
- Other
- Stonework
- Study Areas
- Sampling Boundary
- Corrective Action Area 1
- Corrective Action Area 2
- Town Boundary
- Parcel Boundary
- Railroads
- Waterbody
- Wetland

NOTES

1) SAMPLING BOUNDARY AND CCA 2 BOUNDARY DIGITIZED FROM VTANR FIGURE TITLED "CORRECTIVE ACTION AREA 1" PROVIDED BY C.T MALE ASSOCIATES.

REFERENCE

1) BASEMAP DATA DOWNLOADED FROM VCGI'S VT OPEN GEODATA PORTAL.

CLIENT

SAINT GOBAIN VERMONT

PROJECT

BENNINGTON, VT

TITLE

POTENTIAL PFAS SOURCES IN CORRECTIVE ACTION AREAS 1 AND 2

CONSULTANT

Golder Associates

YYYY-MM-DD	2017-12-14
PREPARED	SHL
DESIGN	HDE
REVIEW	JSP
APPROVED	APTM

PROJECT No. 1778327 | CONTROL - | Rev. - | FIGURE 2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM: ANSI B

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Appendix H.2

Potential PFAS Contributions to Bennington Landfill Memo

Technical Memorandum

To: File
From: Abby Morrisette, P.E.
Subject: Potential PFAS Contributions to Bennington Landfill
Date: March 6, 2018
Project: 45021004

The following memo summarizes an evaluation of some potential per- and polyfluoroalkyl substances (PFAS) contributors to the Bennington Landfill Superfund Site (landfill) in Bennington, Vermont. The evaluation was completed by Barr Engineering Company on behalf of Saint-Gobain Performance Plastics (Saint-Gobain). Barr used investigative work previously conducted by the U.S. Environmental Protection Agency (EPA) to identify industrial landfill users that may have contributed PFAS containing waste to the landfill. The *Explanation of PRP Waste Contribution Estimates*, from the EPA's 1997 Memorandum to the Bennington Landfill Superfund Site File titled*, PRP Hazardous Waste Volumes Sent to the Bennington Landfill Superfund Site in Bennington, VT and Determination of Eligibility for De Minimus Settlement*[1] is included in this memo as Attachment A.

In addition, Barr completed an inventory of PFAS-containing products commercially available to the manufacturing industry that included the following information: product name; manufacturer; fractional contents; physical properties; and uses and incorporations into other products. Seven manufacturers, 48 product lines, and 958 discrete PFAS-containing products were identified and catalogued. The resources used to create the inventory included manufacturer websites, product brochures, material safety data sheets, safety data sheets, chemical safety databases, and scholastic literature. The level of available information about the products was highly variable; therefore, some products have more complete information than others. Due to the size of the inventory and the purpose of this memo, the inventory is not included as an attachment; however, relevant products from the inventory are summarized, as discussed below.

For the purpose of this memo, the "uses and incorporations" field of the PFAS product inventory was evaluated against products manufactured by potentially responsible party (PRP) contributors to the Bennington Landfill Superfund Site. Inventoried PFAS products (e.g., "Capstone P Series") associated with a product type (e.g., paper coatings) manufactured by a contributor to the landfill were summarized, along with the PFAS product manufacturer and the product's uses and incorporation (e.g., "oil and grease repellant for paper and paperboard").

The names of major landfill contributors potentially using PFAS-containing compounds in their manufacturing process (based on end products manufactured) are summarized in Table 1 along with the volume of material reportedly sent to the landfill and the manufactured product. Neither Barr nor Saint-Gobain have attempted to verify the information contained in EPA's 1997 Memorandum. Rather this

[1] Edward M. Hathaway, 1997. *PRP Hazardous Waste Volumes Sent to the Bennington Landfill Superfund Site in Bennington, VT and Determinations of Eligibility for De Minimis Settlement*. U.S. Environmental Protection Agency - Region 1, Office of Site Remediation and Restoration.

information was used as a general indicator of the types of operations of the generators that sent materials to the landfill and the relative contributions to the landfill by those generators.

Table 1 Potential Significant PFAS-Sources to the Bennington Landfill Superfund Site from Landfill PRPs (as described in the EPA's "Explanation of PRP Waste Contribution Estimates, Bennington Landfill Superfund Site")

Company Name	Reported Manufactured Product(s) and/or Waste Product(s)	Volume Reportedly Sent to Bennington Landfill Superfund Site (gallons)
Ben-mount Corporation	Paper printing, ink cleaning solvents	772,200
Jard Company	Capacitors	759,060
Johnson Controls Battery Group, Inc.	Batteries	576,240
Bijur Lubricating Company	Lubricants	290,160
Catamount Dyers	Dying and finishing knit fabric	167,251
Eveready Battery Company, Inc.	Batteries	335,743
Triangle Wire and Cable Inc.	Cord set (extension cord) assembly	17,535

Additionally, literature research was used to corroborate the applications noted in the PFAS product catalogues. All applications listed above except capacitor manufacturing are specifically discussed in Kissa's *Fluorinated Surfactants: Synthesis, Properties, Applications*[2] Section 8.3. However, Kissa discusses several electronics manufacturing applications for PFAS. As capacitor manufacture is a specific use for two products in the PFAS catalogue, PFAS use in capacitor manufacture is plausible even though not specifically mentioned by Kissa.

Johnson Controls Battery Group was investigated further due to the nature of battery manufacturing. Additional information about that company can be found in Attachment B. Due to the large volume of waste contributed from the factory and the likelihood of PFAS presence in that waste, the Johnson Controls facility should be further investigated as a contributor of PFAS to Bennington Landfill.

Table 2, below, includes, in addition to the Bennington Landfill Superfund Site PRP name and manufactured product(s), the potentially-associated PFAS-containing product inventory information.

[2] Kissa, Erik. *Fluorinated surfactants: synthesis, properties, applications*. Dekker, 1994.

Table 2 Summary of Potential PFAS Containing Products Used at Companies Contributing to the Bennington Landfill

Bennington Landfill Superfund Site		Potential PFAS-Containing Product Inventory Information		
Reported Manufactured Product	**PRP Contributor (reported volume disposed)**	**Name**	**Manufacturer**	**Uses and Incorporation into Other Products**
Paper Coatings	Ben-mount Corporation (772,200 Gallons to Landfill)	Capstone P Series	DuPont	Oil and grease repellant for paper and paperboard
		AsahiGuard-E060	Asahi Glass Co., Ltd., AGS	Water and oil proofing properties to paper products
		Solvera PFPE PT	Solvay Polymers	Grease resistant properties for food packaging and disposal dishes
		Dyneon Peroxide Cure Perfluoroelastomer PFE	3M	Mechanical seals, valves, pumps, reactors, mixers, ink/printing systems, painting systems, rubber-metal bonding parts, among others
Ink and Ink Cleaning Solvents	Ben-mount Corporation (772,200 Gallons to Landfill)	Capstone FS fluorosurfactants	DuPont	Used in paints, inks, coatings, waxes, polishes, cleaning products, and fluoropolymer dispersion
		Dyneon Peroxide Cure Perfluoroelastomer PFE	3M	Mechanical seals, valves, pumps, reactors, mixers, ink/printing systems, painting systems, rubber-metal bonding parts, among others
Lubricants	Bijur Lubricating Company (290,160 gallons to Landfill)	Capstone 4-I intermediate	DuPont	Surfactants, lubricants, liquid crystalline materials and devices, medical and biological applications and repellent coatings
		Novec 7100	3M	Cleaning and rinsing agent, lubricant carrier, specialty solvent, heat transfer fluid
		Fomblin PFPE Lubricants - Several Possible Varieties	Solvay Polymers	Lubricant in many different industries
Textile oils and dyes	Catamount Dyers (167,251 gallons to Landfill)	Capstone LPA leather protector	DuPont	Spray finishing of leathers and textiles
		AsahiGuard-E Series	Asahi Glass Co., Ltd., AGS	Water and oil repellency, and stain resistance
Batteries	Eveready Battery Company, Inc. (335,743 Gallons to Landfill) Johnson Controls Battery Group, Inc. (576,240 gallons to Landfill)	Teflon PTFE	DuPont	Coated woven fiber-glass fabric. Cast film for capacitor dielectrics. Surface coatings for metallic or other high-temperature substrates. Anti-drip additive for plastics. Binder for battery anode or cathode matrixes.
		Tefzel ETFE HT-2202 Fluoroplastic films	DuPont	Tubing, valves, containers, and fasteners. Battery or instrument components. Designed to promote adhesion between polyamide resins and ETFE resins
		Solef Series	Solvay	Automotive fuel systems, films, fuel cells, battery binder, membranes
Capacitors	Jard Company (759,060 Gallons to Landfill)	Teflon FEPD 121	DuPont	Heat sealable top coatings for PTFE-coated fabrics for belting, circuit boards, architectural fabrics, and electrical insulation. Cast film for capacitor dielectrics or chemical barriers. Hot melt adhesive for PTFE, PFA, and FEP parts. Metal coatings.
		Teflon PFAD 335D	DuPont	Heat-sealable top coatings for PTFE-coated fabrics for belting, circuit boards, electrical insulation. Cast film for capacitor dielectrics or chemical barriers. Metal coatings
		Teflon PTFE	DuPont	Coated woven fiber-glass fabric. Cast film for capacitor dielectrics. Surface coatings for metallic or other high-temperature substrates. Anti-drip additive for plastics. Binder for battery anode or cathode matrixes.

Table 2 continued

Bennington Landfill Superfund Site		Potential PFAS-Containing Product Inventory Information		
Reported Manufactured Product	**PRP Contributor (reported volume disposed)**	**Name**	**Manufacturer**	**Uses and Incorporation into Other Products**
Wire Assembly	Triangle Wire and Cable Inc. (17,535 Gallons to Landfill)	Dyneon Fluoroplastics	3M	Used to prepare molded parts and extruded film, tubes, profiles and wire coatings.
		AFLAS Flouroeleastomers	Asahi Glass Co., Ltd., AGS	Excellent thermal stability, chemical resistance to strong acids and bases at high temperatures and electrical resistances, Used in extrusion where rubber components come into contact with harsh environments (examples: packing and o-rings, engine gaskets, wire & cable, shaft seals, thin sheet, AFLAS Sponge, AFLAS Latex)
		Fluon ETFE Resins	Asahi Glass Co., Ltd., AGS	Electrostatic coatings, extrusion / injection molding, high heat resistance, chemical resistance, non-stick, (examples: wire & cable, film & sheets, tubing & pipe, electronic components, electrostatic and rotomolded vessel linings, valves, fitting, and pump housings)
		Fluon FC 15 MIN	Asahi Glass Co., Ltd., AGS	Added to PTFE to improve the wear properties, abrasion, compressive strength, and creep resistance of PTFE without sacrificing the chemical and thermal resistance of the polymer.
		Fluon FPA Resins	Asahi Glass Co., Ltd., AGS	Extrusion / injection molding, high heat resistance, chemical resistance, non-stick, (examples: tubing & pipe, film & sheets, valves, fittings, housing, wire & cable)
		Fluon LM ETFE Resins - LM-2300N	Asahi Glass Co., Ltd., AGS	Rotomolding and rotolining, high heat resistance, chemical resistance, non-stick, (examples: film & sheets, valves, fittings, & housing, tubing & piping, wire & cable, filter media, vessel linings)
		Fluon Color Concentrates	Asahi Glass Co., Ltd., AGS	A full range of color concentrates designed for use in pigmentation. Colored injection molded parts, film, tubing, colored wire or jacket insulation where a pigmented appearance is required.
		Fluon® FC Series	Asahi Glass Co., Ltd., AGS	Additives to improve the wear properties, compressive strength, and creep resistance without sacrificing the chemical and thermal resistance of the polymer.
		Fluon® FP-AR-Series	Asahi Glass Co., Ltd., AGS	Extruded wire and cable insulation where good flexibility is required. They are also suitable for molded and extruded parts, including tubing, sheet and film.
		Fluon® FP-EF-Series	Asahi Glass Co., Ltd., AGS	Added to improve the physical properties of ETFE. Demanding applications where the thermal and chemical resistance of ETFE is required with additional mechanical toughness provided by glass-fiber reinforcement.
		Fluon® FR 22	Asahi Glass Co., Ltd., AGS	Added to PTFE to improve the lubricity and wear properties of PTFE especially against soft metals.
		Fluon® LM-ETFE AH-600	Asahi Glass Co., Ltd., AGS	Designed for use in automotive fuel hose. This group of products is ideal for hose constructions which require chemical resistance, permeation resistance, and an unsurpassed bond to polyamide materials.
		Fluon® Micropowder TL – 120	Asahi Glass Co., Ltd., AGS	Excellent thickening power when used as an extreme pressure (EP) agent in hydrocarbon and fluorosilicone fluids, and is used to meet MLGI Class 2 Specifications. Fluon® TL-120 is ideally suited as an additive to all solid and liquid media
		Fluon® PTFE Micropowder TL – Series	Asahi Glass Co., Ltd., AGS	Easy to disperse in a wide range of liquids. The reduced total surface areas of Fluon® TL-Series minimizes viscosity increase during mixing.
		Fluon® PTFE Micropowder TL – 368	Asahi Glass Co., Ltd., AGS	A PTFE (polytetrafluoroethylene) micropowder, suitable for compounding in rubber and plastics.
		Halar 500LC	Solvay	Used for wire and cable applications

The EPA's "Explanation of PRP Waste Contribution Estimates, Bennington Landfill Superfund Site" (Attachment A) also included several landfill customers that may have sent smaller amounts of PFAS containing materials to the landfill. These smaller contributors are summarized in Table 3 below.

Table 3 Potential Minor PFAS-Sources to the Bennington Landfill Superfund Site from Landfill PRPs (as described in the EPA's "Explanation of PRP Waste Contribution Estimates, Bennington Landfill Superfund Site")

Company Name	Reported Manufactured Product(s)	Volume Reportedly Sent to Bennington Landfill Superfund Site (gallons)
Add, Inc./Hadwen	Publisher and printer	2,781
Chemfab Corporation	Applied Teflon to consumer and commercial products	14,040
Courtauld Structural Composites	Fabricator of composite materials for aerospace, defense, and commercial markets	7,080
Lauzon Machine and Engineering	Machine job shop involved in machine design and building	5,148
Monument Industries	Manufacturer and sale of plastic bags	625
Monument Plastics Machining	Operates screw machines and shapes plastic into products such as fittings and bushings for the electronics industry	4,625
Vermont Bag and Film	Plastic extrusion company which manufactures low density polyethylene (LDPE) bags from granulated plastic	1,125

Attachment A

PRP Waste Streams

SDMS DocID 451828

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ATTACHMENT B

EXPLANATION OF PRP WASTE CONTRIBUTION ESTIMATES

BENNINGTON LANDFILL SUPERFUND SITE

Add, Inc./Hadwen (publisher of the Pennysaver Press):

Best Estimate of Waste Volume: 2,781 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Attorney correspondence; Morgan Spring Contamination Study (VT, 1985); Information submitted by PRP representatives through the PRP Coalition

Type of Business: Publishes and prints a weekly shopper newspaper in addition to other publications,

26 full time and 7 part time employees.

In business in Bennington since 1958 and use of the Landfill was assumed to be from 1969 through date of Landfill closure. Used Wilson Trucking d.b.a East Mountain Transportation.

Waste Quantity: No specific waste disposal information is identified in 104(e) response. A similar business, however, the Bennington Banner, is also a PRP at the Site. In terms of relative size, Banner is a daily newspaper with 120 employees.

Accordingly, it is assumed that Add/Hadwen waste production would be 1/4 - 1/7 the waste production of Banner since the former is less than half the size of, and published at 1/7 of the frequency of, the Bennington Banner.

Banner estimates were 6 full barrels of waste ink, photographic chemicals, and solvents (combined) per year and 6 empty ink barrels and 6 empty solvent barrels per month. Full barrels are assumed to contain 55 gallons and empty barrels are assumed to contain 2 gallons.

Waste volume was estimated using a low end adjustment and assuming that Add/Hadwen's waste would be one-quarter that of Banner. This resulted in an estimate of 1.5 full barrels of waste ink, photographic chemicals, and solvents (combined) per year and 1.5 empty ink barrels and 1.5 empty solvent barrels per month. All amount were multiplied by the 18 years of landfill usage.

Arken Industries, Inc.

Best Estimate of Waste Volume: 30,030 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Morgan Spring Contamination Study

Type of business: Metal job shop doing turning, drilling and milling. Believed to be a defunct entity.

In business since 1976 (incorporated in 1976) and use of the Landfill was assumed to be from 1976 through date of Landfill closure. Bernie's Trucking and Environmental Action were transporters.

Employees 4-10.

Similar Business: Lauzon

Waste Quantity: Approximately 1 barrel per week of metals chips went to the Landfill (104(e)). Assumed that each barrel also contained cutting oils and solvents and that each barrel was full.

Banner Publishing

Best Estimate of Waste Volume: 11,124 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Morgan Spring Contamination Study

Type of business: Publishes the Bennington Banner

In business in Bennington for over 100 years. Assumed use of the Landfill from 1969 through the date of Landfill closure. Tom Sweet transported some of the Banner Wastes.

120 employees.

Similar business: Add/Hadwen (Pennysaver Press)

Waste Quantity:

Estimated waste production at 6 empty barrels per month of waste ink and 6 empty barrels per month of waste solvents (Morgan Springs Contamination Study). Also produced an estimated 6 full barrels per year of mixed liquids (e.g., solvents, photographic chemicals, and waste ink) based upon best professional judgement of Site information regarding unquantified waste streams.

Assumed that the empty solvent and empty ink barrels contained 2 gallons of residue and that the solvent barrels contained 55 gallons each. Also assumed that the solvent barrel estimate included any additional miscellaneous liquid wastes.

Ben-mont Corporation (Textron, Inc.)

Best Estimate of Waste Volume: 772,200 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Company correspondence; Morgan Spring Contamination Study; Letter from Town regarding liquid waste dumping in Landfill lagoon; VT AEC company waste survey

Type of business:

Gift wrappings, paper printing, icicles, tissue, and custom printing.

Unknown number of employees.

In business and using the Landfill from 1969 until at least 1975. Several of the above references indicate landfill usage for disposal of liquid industrial wastes from 1969 through 1975. One of six companies that received a notice from the Town of Bennington to stop dumping liquids in the lagoon.

Waste Quantity:

2-15 barrels per day of ink cleaning solvents (interview).

Assumed average of 9 barrels per day with 55 gallons in each.

Bennington College

Best Estimate of Waste Volume: 4,262 gals.

Source(s) of Information: 104(e) response(s); PRP Coalition correspondence; Information submitted by PRP representatives through the PRP Coalition

Type of business:

Liberal arts college.

Incorporated in 1925. Assumed use of Landfill from 1969 through the date of Landfill closure. Bernie's Trucking and Environmental Action were transporters.

Unknown number of employees.

Waste Quantity:

5 lbs asbestos per year (from 1969 until 1981); 13 pounds per month of adsorbents; 1400 pounds of oil filters; 15 gallons year of lab waste; 3 gallons per month of waste paint and solvents (104(e)).

All estimated volumes were converted to their liquid equivalent in gallons.

Bennington Iron Works

Best Estimate of Waste Volume: 11,880 gals.

Source(s) of Information: 104(e) response(s); Correspondence with VT ANR; Morgan Spring Contamination Study; RCRA inspection report; Correspondence from PRP Coalition; Information submitted by PRP representatives through the PRP Coalition

Type of business:

Structural steel and miscellaneous iron fabricator.

Employees: 3 in 1968, 14 in 1975, and 75 in 1988.

In business from 1968 (104(e)). Assumed use of the Landfill from 1969 through the date of Landfill closure (104(e)).

Waste Quantity:

For 1989, waste estimate includes 12-15 drums of paint/sand/oil twice per year which equals 30 drums per year (VT RCRA Inspection Report and Company Statement). Assuming 55 gallons per drum, that totals 1650 gallons per year.

The volume of waste was adjusted for the variable employee levels with a linear growth assumed. Accordingly, the average waste production is estimated at 22 gallons per employee. The average number of employees per year is 30. Therefore, 22 X 30 = 660 gallons per year (essentially, one barrel per month).

It is assumed that steel chips were recycled, waste oil burned, and solvent barrels returned to distributor (Company Statements).

Bennington Potters

Best Estimate of Waste Volume: 114 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Morgan Spring Contamination Study

Type of business:

Manufacturer of hand finished stoneware, ceramic dinner wares and terra cotta planters.

Employees: 85

In business for 42 years. Assumed use of the Landfill from 1969 through date of Landfill closure (104(e)). Environmental Action was transporter.

Waste assumptions:

50 pounds per year of tremolitic clay (104(e))
1 pound per year of 5151 brown (104(e))

All estimated volumes were converted to their liquid equivalent in gallons.

B.Co. (f/k/a Bijur Lubricating Corp.)

Best Estimate of Waste Volume: 290,160 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Letter from Town regarding liquid waste dumping in Landfill lagoon; VT AEC hazardous waste inspection sheet; VT AEC preliminary assessment; Morgan Spring Contamination Study; Correspondence from company.

Type of business:

Manufacturer of lubricating systems and mist coolant equipment.

In business and using the Landfill from 1969 through date of Landfill closure.

Unknown number of employees.

Waste estimate of 200 gallons per week of waste solvents (Company correspondence) and 2 barrels a week of grinding sludge (Witness Interview).

Catamount Dyers

Best Estimate of Waste Volume: 1,608,925 gals. (unadjusted)
167,251 gals. (adjusted)

Source(s) of Information: Witness interview(s); Transporter log; Letter from Town regarding liquid waste dumping in Landfill lagoon; VT AEC trip reports; VT AEC company waste profile; Morgan Spring Contamination Study; Correspondence from company; Special load permit from Town

Type of business:

Company engaged in dying and finishing knit fabric; Believed to be a defunct entity.

Employees: 150

Incorporated in 1970. Believed to have been in business and using the Landfill from 8/70 through 11/85. Bernie's Trucking was a transporter.

Waste estimates include 600 gallons per year of waste oils (Industrial Waste Survey, State of Vermont) and 60 gallons per year of waste dyes ("small quantities" of dye are assumed to be one-tenth the waste oil volume based upon best professional judgement). Waste estimates also include 10 cubic yards per week of cloth strips with solvents based on the assumption that a full one-quarter of the plant waste volume consisted of this cloth waste (Interview provided estimate of 40 yard roll-off and best professional judgement was used to determined adjustments). For such cloth waste volume, an adjustment factor of 0.1 was applied based on the effect of evaporation on the solvents contained therein and that the bulk cloth volume greatly exceeded the volume of solvents therein.

* All estimated volumes were converted to their liquid equivalent in gallons.

Central Vermont Public Service Corporation

Best Estimate of Waste Volume: 23,760 gals. (unadjusted)
13,068 gals. (adjusted)

Source(s) of Information: 104(e) response(s); Witness interview(s); Correspondence and affidavit from company; Morgan Spring Contamination Study; Correspondence from PRP Coalition

Type of business:

Garage facility run as part of regional utility company.

In business and using the Landfill from 1969 through date of Landfill closure (104(e)). Ted Senecal was the transporter.

Unknown number of employees.

Interview information shows barrels sent to Landfill. Assumed one barrel per month for each waste stream based on best professional judgment that such hazardous waste comprised not more than between 5 and 10 percent of total plant waste generated. Waste estimate includes 1 barrel per month of speedi-dry, waste oil and solvent (mixed) and 1 barrel per month of scrap metal and wire.

An adjustment factor of 0.1 was applied to the scrap metal and wire waste due to its low mobility and solubility in comparison to other wastes disposed of at the Landfill.

Chemfab Corporation

Best Estimate of Waste Volume: 14,040 gals.

Source(s) of Information: 104(e) response(s); Witness interview(s); Morgan Spring Contamination Study; VT AEC trip report; VT AEC letter; Information submitted by PRP representatives through the PRP Coalition

Type of business:

Applies Teflon to consumer and commercial products.

In business and using the Landfill from 1969 through date of Landfill closure (104(e)).

Unknown number of employees.

Waste estimate includes 1 gallon per month of degreasers, 6 gallons per month of lubricating and hydraulic oils, 3 gallons per month of settling basin sludge, (104(e))and 1 barrel per month of speedi-dry soaked with waste oil and solvents (mixed) based upon best professional judgement after reviewing the available information.

Courtauld Structural Composites, Inc.

Best Estimate of Waste Volume: 7,080 gals.

Source(s) of Information: 104(e) response(s); Correspondence from company; Morgan Spring Contamination Study

Type of business:

Fabricator of composite materials for aerospace, defense, and commercial markets.

In business and using the Landfill from 1969 through 1983 based upon 104(e)). Transporter was Environmental Action.

Employees: 78

Waste estimate includes 2 gallons per year of adhesive film, 2 gallons per year of adhesive resins, 1 gallon per year of cutting oil, 2 gallons per year of speedi-dry soaked with hydraulic waste oil and 300 gallons per year of waste paint (company correspondence, 104(e), and Morgan Spring Study).

Creative Products, Inc. (Creative Tools)

Best Estimate of Waste Volume: 6,225 gals.

Source(s) of Information: 104(e) response(s); Correspondence to EPA; Morgan Spring Contamination Study; VT AEC trip report; VT AEC Hazardous Waste Notification Report

Type of business:

Manufacturer of ratchet screwdriver known as the "Easydriver."

Creative Tools was founded in 1971 (104(e)). Both Creative Tools and Creative Products used the Landfill from 10/71 until date of Landfill closed (104(e)).

Employees: 60

Waste estimate includes 250 pounds per month of cutting oil wastes. Assumed that metal shavings were salvaged and other wastes went to Fire Department for training purposes (VT Hazardous Waste Notification Report).

All estimated volumes were converted to their liquid equivalent in gallons.

EHH Realty Corporation, f/k/a Fairdale Farms, Inc.

Best Estimate of Waste Volume: 648 gals.

Source(s) of Information: 104(e) response; Bennington County Land Survey; Witness affidavit; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Pasteurization, processing, packaging, and delivery of fluid milk and other dairy products.

Company began business in 1969 and is assumed to have used the Landfill from that time through date of Landfill closure.

Number of employees is unknown.

Waste estimate includes disposal of 12 used oil filters per month. It is assumed that each oil filter contained one quart used oil.

Eveready Battery Company, Inc.

Best Estimate of Waste Volume: 335,743 gals.

Source(s) of Information: 104(e) response(s); Letter from Town regarding liquid waste dumping in Landfill lagoon; Internal company correspondence; VT AEC notification of hazardous waste activity; Witness interview(s)

Type of business:
Manufacturer of small chemical batteries, flask lights, and other lighting products. Successor to Union Carbide.

In business and using the Landfill from 1969 through date of Landfill closure (interviews, 104(e)).

Unknown number of employees.

Waste estimate includes: 15 pounds per day of form cakes; 19 pounds per day of battery assemblies; 300 gallons per year waste oil; 50 gallons per year solvents; 556 pounds per day metal wastes and salts;(5 previous wastes based upon 104(e)) 70 pounds per year of PCBs based upon above sources and best professional judgement.

All estimated volumes were converted to their liquid equivalent in gallons.

Graphitek, Inc.

Best Estimate of Waste Volume: 156 gals.

Source(s) of Information: VT AEC trip report; VT AEC Hazardous Waste Notification Report; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Produces photosensitive aluminum plate used, for example, on plaques, machine panels, nameplates, and warning signs.

Company began photoplating business in 1983 and is assumed to have used the Landfill from that time through date of Landfill closure.

Number of employees: 14

Waste estimate includes disposal of 3 gallons of anoscreen ink (similar to oil-based paint) per month to the Landfill.

H.M. Tuttle Co., Inc.

Best Estimate of Waste Volume: 1,539 gals.

Source(s) of Information: 104(e) response(s); Witness affidavit(s)/interview(s); Correspondence from company lawyer

Type of Business:

Retail sale of building supplies, retail sale and distribution of fuel oil.

Company was incorporated in 1938 (104(e)) and is assumed to have used the Landfill from 1969 through date of Landfill closure.

Unknown number of employees.

Waste estimate includes 8 used oil filters per month, 25 pounds per month metal grindings, and 2 gallons per month of paint waste (Company correspondence).

All estimated volumes were converted to their liquid equivalent in gallons.

Jard Company, Inc.

Best Estimate of Waste Volume: 759,060 gals.

Source(s) of Information: 104(e) response(s); Letter from Town regarding liquid waste dumping in Landfill lagoon; EPA trip report; VT AEC trip report; Witness interview(s); Morgan Spring Contamination Study

Type of Business:

1969 Town of Bennington Annual Report indicated that Jard was a new company in Town. Defunct entity underwent bankruptcy in 1992. Former manufacturer of, among other things, capacitors using PCBs.

In business and using the Landfill from at least 1970 through date of Landfill closure.

Employees: 200

Waste estimate includes 6 barrels per week of waste oils, 2 barrels per month paint waste (assumed this is twice Triangle's output, based on best professional judgement), 600 gallons of waste liquids every 2 months (US EPA TSCA Trip Report), 300 pounds of speedi-dry per month (assumed this is twice Triangle's output, based on best professional judgement), and 20,000 pounds per month of reject capacitors(VT AEC Hazardous Waste Notification of Hazardous Waste Activity by the Jard Company). Disposal of hazardous waste at Landfill is believed to have occurred from 1970 through 1980 and disposal of PCBs from 1971 through 1974 .

All estimated volumes were converted to their liquid equivalent in gallons.

Johnson Controls Battery Group, Inc.

Best Estimate of Waste Volume: 576,240 gals.

Source(s) of Information: 104(e) response(s); Letter from Town regarding liquid waste dumping in Landfill lagoon; VT AEC preliminary assessment; VT AEC correspondence; Witness interview(s); Morgan Spring Contamination Study; Master Plan Survey and Evaluation for the Town of Bennington (circa 1965)

Type of Business:

Successor to Globe Union, manufacturer of lead acid batteries.

In business and using the Landfill from 1969 through date of Landfill closure (104(e)).

Unknown number of employees.

Waste estimate includes 30 gallons of floor scrubbings per day, 55 gallons of waste liquid (oil and solvent) per week (Company correspondence) , 110 gallons per month of other waste oils, 55 gallons per month of mold coat compound (Company correspondence), 5,000 gallons per month of waste water treatment plant sludge (VT Industrial Waste Survey), and 10 scrap batteries per day based upon best professional judgement and the 3600 battery per day plant capacity cited in the Master Plan Survey and Evaluation for the Town of Bennington (circa 1965).

Battery volume was estimated by applying the following factors: 1) Plant's daily battery production capacity is believed to be 3,600 batteries; 2) Assume that one-third of one percent of batteries produced fail (this would mean 5-10 batteries); 3) Assume that 1½ gallons of hazardous waste is contained in each battery.

Years of battery disposal at the Site are assumed to include only those before hazardous waste manifesting and disposal requirements were in place (i.e., up through 1981).

Lauzon Machine & Engineering, Inc.

Best Estimate of Waste Volume: 5,148 gals.

Source(s) of Information: 104(e) response(s); VT ANR trip report; Witness interview(s); Morgan Spring Contamination Study; Correspondence from company.

Type of Business:

Machine job shop involved in machine design and building.

Business was founded 31 years prior to 104(e) response and use of the Landfill was assumed to be from 1969 through date of Landfill closure.

Employees: 17

Initial waste estimate included 1 barrel per month of metal chips and oil, waste paint, solvent and speedi-dry (104(e)). However, detailed information obtained from the source suggests Lauzon used and disposed of a small amount of water-soluble cutting oil (i.e., about one cup of oil cut with 5 gallons of water) in each such 55 gallon drum only. Because the volume of the cutting oil was greatly exceeded by the volume of metal chips, based on best professional judgment, an adjustment factor of 0.1 was applied.

Depepa Corp. (f/k/a Merrill Transport Company)

Best Estimate of Waste Volume: 7,920 gals.

Source(s) of Information: 104(e) response(s); Town records; VT AEC correspondence; Witness interview(s) and affidavit(s)

Type of Business:

Defunct entity; Transporter specializing in liquid and dry bulk hauling.

Business originated in 1929. Assumed use of the Landfill from 1969 through date of Landfill closure.

Employees: 130

Waste estimate includes 3 gallons per month of paint and waste solvent, 30 oil filters per year, 25 pounds per month of speedi-dry, ½ barrel per month junk parts, and 1 barrel per year of metal and oil. All estimates based upon best professional judgement. Assume each oil filter contains one quart used oil.

All estimated volumes were converted to their liquid equivalent in gallons. Waste volumes for paints and solvents as well as speedi-dry are assumed to be equivalent to Bennington College's volumes. Oil filter wastes are assumed to be twice the volume generated by the VT Agency of Transportation.

Monument Industries, Inc.

Best Estimate of Waste Volume: 625 gals.

Source(s) of Information: 104(e) response(s); Company waste profile form

Type of Business:

Manufacturer and sale of plastic bags.

In business and using the Landfill from late 1970's to date of Landfill closure.

Unknown number of employees.

Waste estimate includes 500 pounds of speedi-dry with oils and solvents per year. This business was assumed to be comparable to that of Vermont Bag & Film with assumed to produce a comparable waste volume (see VT Bag and Film).

All estimated volumes were converted to their liquid equivalent in gallons.

Monument Plastics Machining, Inc.

Best Estimate of Waste Volume: 4,625 gals.

Source(s) of Information: VT ANR trip report; VT AEC trip report; VT AEC correspondence; 104(e) response(s); Morgan Spring Contamination Study; VT AEC notification of hazardous waste activity

Type of Business:

Operates screw machines and shapes plastic into products such as fittings and bushings for the electronics industry.

In business and using the Landfill from 1978 through the date of Landfill closure (104(e)).

Employees: 7

Waste estimate includes 25 gallons per month of speedi-dry with oil (VT ANR Trip Report) and 25 pounds per week of plastic chips with oil (104(e)).

All estimated volumes were converted to their liquid equivalent in gallons.

MascoTech Controls, Inc. (f/k/a Schmelzer Corporation)

Best Estimate of Waste Volume: 17,280 gals.

Source(s) of Information: 104(e) response(s); VT site inspection interview; Witness affidavit(s); VT AEC hazardous materials management program form; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Assembles product known as a "vacuum brake assembly."

In business and using the Landfill from 1979 through the date of Landfill closure (104(e)).

Employees: 1-300

Waste estimate includes 240 pounds per month of speedi-dry with oil and solvents (Witness affidavit for speedi-dry usage and best professional judgement for oil and solvents), 70 gallons per month of waste oil, 30 gallons per month of waste hydraulic oil (VT AEC Hazardous Materials Management Program Form) and 20 30-gallon barrels per year of metal waste (affidavit).

All estimated volumes were converted to their liquid equivalent in gallons.

Sibley Manufacturing Co., Inc./CLR Corporation,

Best Estimate of Waste Volume: 28,600 gals.

Source(s) of Information: VT AEC industrial waste survey; Witness interview(s); Master Plan Survey and Evaluation for the Town of Bennington (circa 1965); Transporter records; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Machine tool company.

In business as of 1964 (Master Plan Survey and Evaluation for the Town of Bennington) and assumed use of the Landfill from 1969 through 1979.

Employees: 35

Waste estimate includes 1 barrel per week of metal chips with cutting oils based upon best profession judgement of all source material including witness interviews and information provided by Sibley. Waste oils and solvents were given to Fire Department (VT AEC, Industrial Waste Survey)

Southwestern Vermont Medical Center, Inc.

Best Estimate of Waste Volume: 990 gals.

Source(s) of Information: 104(e) response(s); Company correspondence; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Non-profit hospital.

In business and using the Landfill from 1969 through the date of Landfill closure.

Unknown number of employees.

Waste estimate of minimal volume includes 1 barrel per year of medical waste with oil and solvent, based on best professional judgment considering all source materials.

Triangle Wire & Cable, Inc.

Best Estimate of Waste Volume: 17,535 gals.

Source(s) of Information: 104(e) response(s); VT AEC RCRA trip report; Witness affidavit(s); VT ANR RCRA inspection report; Correspondence from company and its legal counsel; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Cord set (extension cord) assembly plant.

In business and using the Landfill from 1981 through the date of Landfill closure (104(e)).

Employees: 115

Waste estimate includes 25 gallons per month waste oil (104(e)), 2 barrels per month rags with solvents (best professional judgement based upon evaluation of all information), 150 pounds per month of speedi-dry with oil and solvent (affidavit for speedi-dry usage and best professional judgement for oil and solvent), and 1 barrel per month of waste paints and adhesives based upon best professional judgement.

All estimated volumes were converted to their liquid equivalent in gallons.

U.S. Tsubaki, Inc.

Best Estimate of Waste Volume: 9,118 gals.

Source(s) of Information: 104(e) response(s); VT AEC trip report; Morgan Spring Contamination Study; Correspondence from company legal counsel; Information submitted by PRP representatives through the PRP Coalition

Type of Business:

Manufacturer of sprockets.

In business and using the Landfill from 1977 through the date of Landfill closure (VT AEC Trip Report).

Employees: 125

Waste estimate includes 1,800 pounds per year speedi-dry with oil, 214 pounds per year other liquid hazardous waste, and 1 barrel per month grinding sludge.

All estimated volumes were converted to their liquid equivalent in gallons.

Vermont Agency of Transportation

Best Estimate of Waste Volume: 2,997 gals.

Source(s) of Information: 104(e) responses; Information submitted by PRP representatives through the PRP Coalition; Witness affidavit(s); VT ANR hazardous waste management program's notification of hazardous waste activity.

Type of Business:

State agency responsible for maintaining state owned transportation system. Operates facility in Bennington used primarily for vehicle and equipment storage, maintenance and repair.

In operation and using the Landfill from 1969 through the date of Landfill closure (104(e)).

Employees: 40

Waste estimate includes 25 pounds per month of speedi-dry and oil, 16 oil filters per year, 10 pounds per month of waste paint (Hazardous Waste Management program, Notification of Hazardous Waste Activity), and 2 barrels per year of rags with oil and solvents. Assume each oil filter contains one quart used oil. Assumed volume of speedi-dry and oil as about twice that of Bennington College.

All estimated volumes were converted to their liquid equivalent in gallons.

Vermont Bag & Film, Inc.

Best Estimate of Waste Volume: 1,125 gals.

Source(s) of Information: 104(e) response(s); Information submitted by PRP representatives through the PRP Coalition; VT ANR trip report; transporter journals; Morgan Spring Contamination Study; Witness interview(s); VT ANR inspection checklist

Type of Business:

Plastic extrusion company which manufactures low density polyethylene bags from granulated plastic.

Doing business in Bennington in early 1960's and assumed use of the Landfill from 1969 through the date of Landfill closure(104(e)).

Employees: 12

Waste estimate includes 500 pounds per year of grease and degreasers.

All estimated volumes were converted to their liquid equivalent in gallons.

Vermont Tissue

Best Estimate of Waste Volume: 160 gals.

Source(s) of Information: 104(e) response(s); VT ANR trip report; VT AEC hazardous waste management program information

Type of Business:

Manufacturer of stuffing and packing tissue.

In business for 47 years (Trip Report VT ANR). Assumed use of the Landfill from 1969 through about 1980.

Employees: 5

Waste estimate includes 16 gallons per year of hazardous waste as part of company's paper sludge known as "white water." Paper mill white water may contain trace levels of solvents. Assumed 1 percent of white water consisted of hazardous waste based upon best professional judgement.

Attachment B

Johnson Controls Summary

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: File
From: Abby Morrisette, P.E.
Subject: Johnson Controls, Inc. Potential PFAS Contributions to Bennington Landfill
Date: March 6, 2018
Project: 45021004

The following memo summarizes an evaluation of Johnson Controls, Inc. as a potential per- and polyfluoroalkyl substances (PFAS) contributor to the Bennington Landfill Superfund Site (landfill) in Bennington, Vermont. The evaluation was completed by Barr Engineering Company on behalf of Saint-Gobain Performance Plastics (Saint-Gobain). The conclusion of the evaluation was that the Johnson Controls factory could have potentially contributed significant PFAS to the Bennington landfill.

The Johnson Controls, Inc. factory in Bennington produced lead batteries for automobiles. The manufacturing process included grinding raw lead ingots, producing the various required lead compounds, mixing them in to paste, molding charge plates, and assembling the finished batteries.[1]

The actual formulation of the materials in lead automotive batteries is a closely guarded trade secret. However, patents held by Globe Union (precursor to Johnson Controls) indicate that PFAS could have been used at the factory during the time period material was being sent to the landfill. A Globe Union patent from 1968 states "…the foam producing agent and stabilizing agent selected for use in mixing the slurry may be of various types…Generally speaking, it has been found that both anionic and nonionic type foam producing agents and ***fluorinated** agents* are suitable for use in the process. [emphasis added]" [2] One of Johnson Control's competitors, Exide Corp, also filed for patents for lead automotive batteries that specifically reference fluorinated materials during the time period that Johnson Controls was actively contributing to the Bennington landfill.[3]

The United States Environmental Protection Agency (EPA) 1997 Memorandum to the Bennington Landfill Superfund Site File titled*, PRP Hazardous Waste Volumes Sent to the Bennington Landfill Superfund Site in*

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[1] Kilborn, Peter T. 1990, September 2. *Who Decides Who Works at Jobs Imperiling Fetuses?* Retrieved from http://www.nytimes.com/1990/09/02/us/who-decides-who-works-at-jobs-imperiling-fetuses.html?pagewanted=all

[2] Lead-acid Battery Plate Having a Network of Plastic Material throughout the Porous Structure. Globe-Union Inc, assignee. Patent US3496020A. 03 July 1968. Print.

[3] Method of Preparing a Battery Paste Containing Fibrous Polyfluoroethylene for Use in the Plates of a Lead-acid Storage Battery. Exide Corp, assignee. Patent US4315829A. 27 Jan. 1978. Print.

Bennington, VT and Determination of Eligibility for De Minimus Settlement[4] is included in Appendix H-2 as Attachment A. The EPA's summary of waste contributed to the landfill from the Johnson Controls facility is provided below:

> *"Best Estimate of Waste Volume: 576,240 gallons*
>
> *Waste estimate includes 30 gallons of floor scrubbings per day, 55 gallons of waste liquid (oil and solvent) per week (Company correspondence) , 110 gallons per month of other waste oils, 55 gallons per month of mold coat compound (Company correspondence), 5,000 gallons per month of waste water treatment plant sludge (VT Industrial Waste Survey), and 10 scrap batteries per day based upon best professional judgement and the 3600 battery per day plant capacity cited in the Master Plan Survey and Evaluation for the Town of Bennington (circa 1965)."*

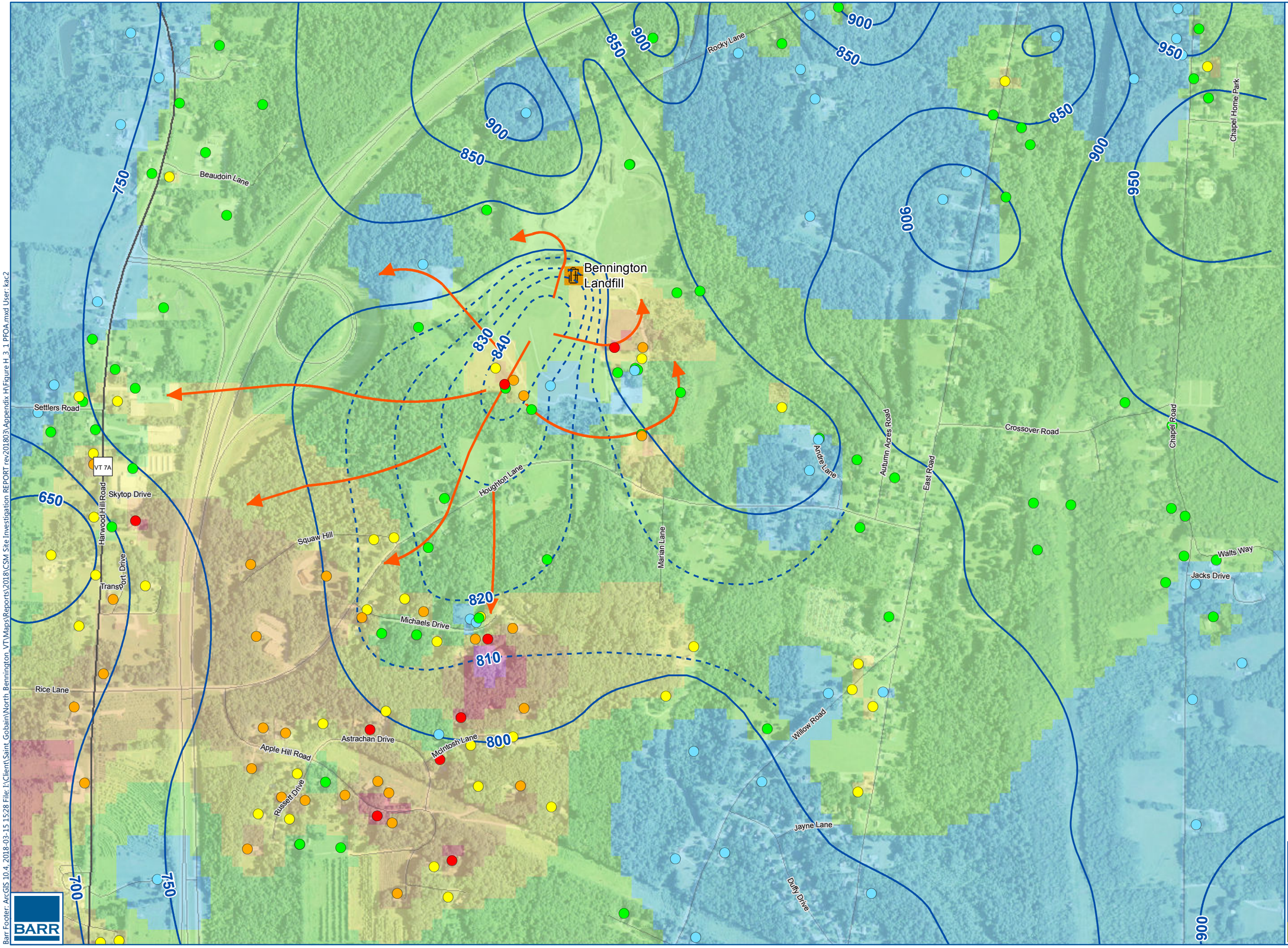
While PFAS are not specifically mentioned in the waste description, PFAS were not a focus of the 1997 EPA study - none of the landfill contributors in the PRP study specifically listed PFAS containing products as a waste stream. It is plausible, based on the factory's operations and the documented widespread use of fluorinated compounds in the automotive battery industry, that any of the described Johnson Controls waste streams could have contained PFAS. Due to the large volume of waste contributed from the factory and the likelihood of PFAS presence in that waste, the Johnson Controls facility should be further investigated as a contributor of PFAS to the Bennington landfill.

Additionally, the Johnson Controls factory included an air exchange system and a plate curing system.[4] Both air exchange and plate curing could be significant air pollution sources. In addition to evaluation for landfill contributions, the factory should be evaluated for PFAS contribution to air emissions and subsequent groundwater contamination.

[4] Edward M. Hathaway, 1997. *PRP Hazardous Waste Volumes Sent to the Bennington Landfill Superfund Site in Bennington, VT and Determinations of Eligibility for De Minimis Settlement*. U.S. Environmental Protection Agency - Region 1, Office of Site Remediation and Restoration.

Appendix H.3

Groundwater PFAS Distribution for Source Identification



Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

PFOA IN GROUNDWATER
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE H.3.1

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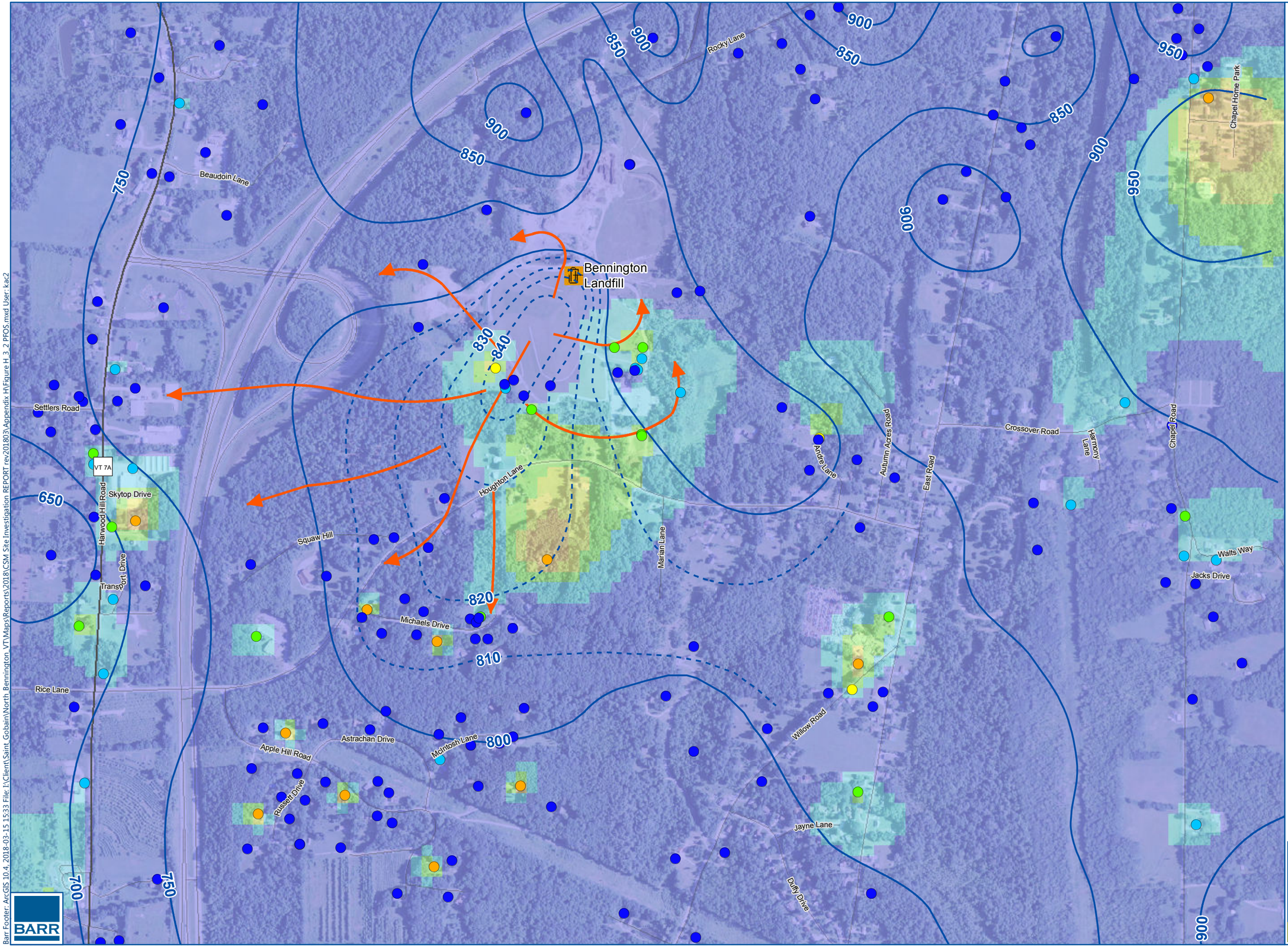

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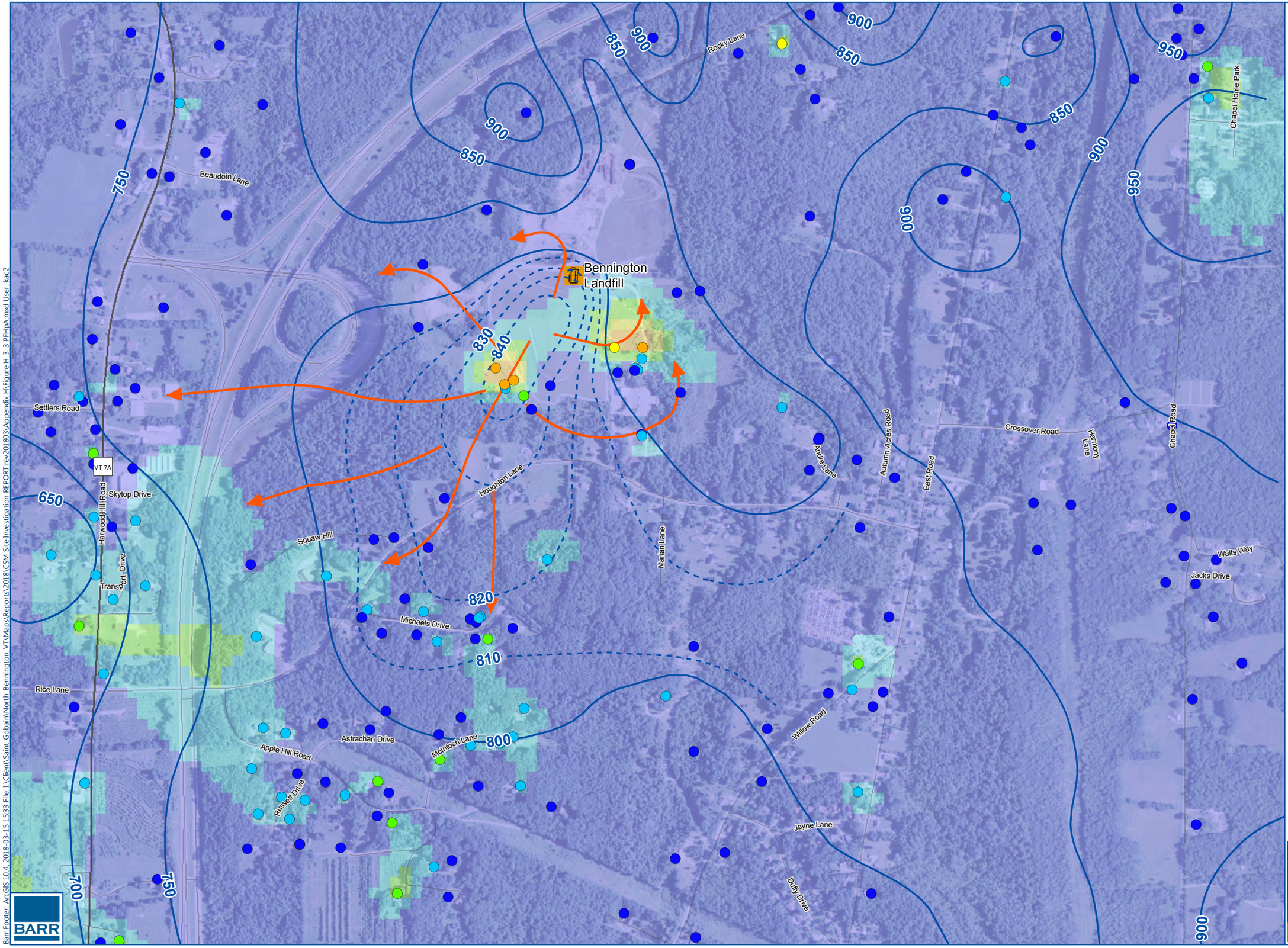

Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

PFHpA IN GROUNDWATER
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE H.3.3

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Bennington Landfill

Beaudoin Lane
Rocky Lane
Chapel Home Park
Settlers Road
VT 7A
Harwood Hill Road
Skytop Drive
Transport Drive
Houghton Lane
Squaw Hill
Michaels Drive
Marian Lane
Andre Lane
Autumn Acres Road
East Road
Crossover Road
Chapel Road
Walts Way
Jacks Drive
Rice Lane
Astrachan Drive
Apple Hill Road
McIntosh Lane
Russell Drive
Willow Road
Jayne Lane
Duffy Drive

750
900
850
900
850
900
950
850
900
950
900
830
840
820
810
800
650
700
750
900

PFHxA (ppt)
- 12 - 42
- 9 - 12
- 6 - 9
- 3 - 6
- < 3

PFHxA (ppt)
- 12 - 20
- 9 - 12
- 6 - 9
- 3 - 6
- < 3

Inferred Groundwater Flow Direction

Bedrock Static Water Level Contour, 50 foot interval (modified from Kim and Dowey, 2017) Supplementary contours dashed

Bennington Landfill

Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

N

0 700
Feet

PFHxA IN GROUNDWATER
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE H.3.4

BARR

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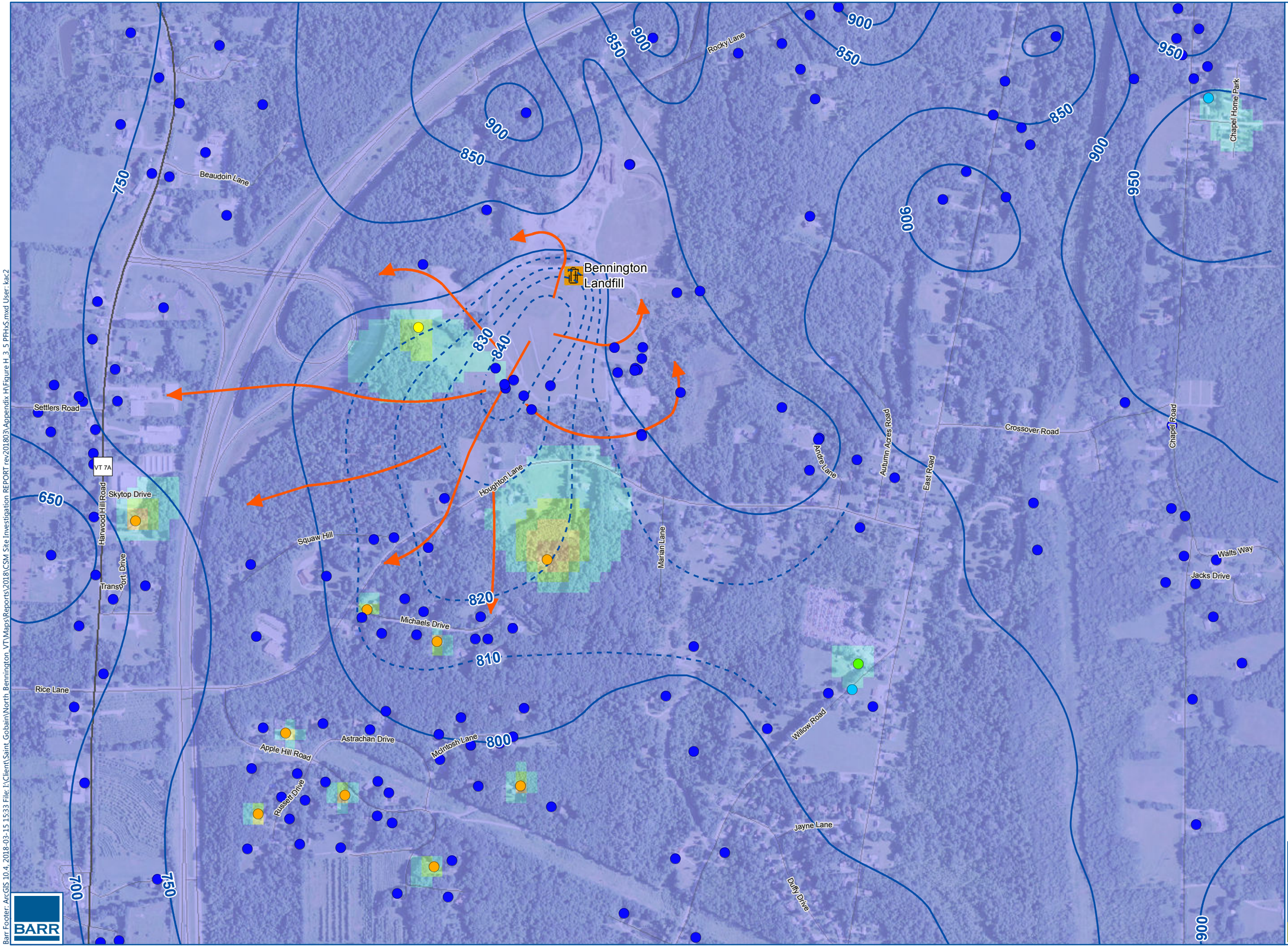

PFHxS (ppt)
- 12 - 20
- 9 - 12
- 6 - 9
- 3 - 6
- < 3

PFHxS (ppt)
- 12 - 20
- 9 - 12
- 6 - 9
- 3 - 6
- < 3

Inferred Groundwater Flow Direction

Bedrock Static Water Level Contour, 50 foot interval (modified from Kim and Dowey, 2017) Supplementary contours dashed

Bennington Landfill

Data sources include:
CSM Site Investigation

VTDEC Well Sampling Database, 11/10/2017 (most recent value shown)

Weston Solutions, Inc. June 10, 2016. Memorandum To: Bennington Municipal Sanitary Landfill Site File, From: George Mavris, Project Leader, Weston Solutions, Inc. Regarding Groundwater, Surface Water, Sediment, Out Fall, and Leachate Vault Sampling Activities at Bennington Municipal Sanitary Landfill, Bennington, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0002; Task No. 0098. Document Control (DC) No. A-00057.

Kim, J., and C. Dowey, 2017. DRAFT Preliminary Potentiometric Surface (Static Water Level) Contours for the Bedrock Aquifer in the Bennington Area, Vermont (feet, smoothed). Open File Report 2017-3D, scale 1:12,000. Montpelier, VT: Vermont Geological Survey.

0 700
Feet

PFHxS IN GROUNDWATER
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE H.3.5

Barr Footer: ArcGIS 10.4, 2018-03-15 15:33 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180315\Appendix H\Figure H.3_5 PFHxS.mxd User: katc2

Appendix I

Water Street Facility Site Investigation Data

Table I.1
Analytical Soil Results - Water Street
CSM Site Investigation Report
Bennington, VT
St. Gobain Performance Plastics

Location		MW01	MW01	MW01	MW01	MW01	MW01	MW01	MW02	MW02	MW02	MW02	MW02		MW02	MW02	MW02	MW03	MW03	MW03	
Date		6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/17/2016		6/17/2016	6/17/2016	6/17/2016	6/15/2016	6/15/2016	6/15/2016	
Depth		0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2 ft	3.5-4 ft	8-8.5 ft	13-13.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2 ft	5-5.5 ft	5-5.5 ft	8-8.5 ft	10-10.5 ft	6-6.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1-1.5 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	FD
Parameter	Units																				
General Parameters																					
Carbon, total organic	mg/kg	**3150**	**2180**	**1420**	**1930**	**631**	**1650**	**445 J**	**1410**	< 169 U	**1610**	**8230**	**5370**	--	**2970**	**1680**	**5980**	**1800**	**1860**	**434 J**	--
Moisture	%	**12.2**	**14.5**	**19.1**	**16.5**	**26.2**	**11.1**	**9.3**	**8.2**	**7.0**	**8.6**	**14.3**	**13.9 J**	**17.7 J**	**18.8 J**	**12.7 J**	**12.1 J**	**6.2**	**5.4**	**6.7**	**5.8**
Per- and Polyfluoroalkyl Substances																					
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.57 UJ	< 0.56 UJ	< 0.59 U	< 0.58 U	< 0.66 UJ	< 0.56 U	< 0.54 U	< 0.54 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.54 U	< 0.57 U	< 0.56 U	< 0.54 U	< 0.54 U	< 0.53 U	< 0.53 U	< 0.54 U	< 0.53 UJ
Perfluorodecanoic acid (PFDA)	ng/g	**0.27 J**	**0.69 J**	**1.7**	**1.8**	< 0.27 UJ	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	**0.33 J**	**0.74**	**8.2 J**	**5.2 J**	**43 J**	**3.9 J**	**8.0 J**	< 0.21 U	< 0.21 U	**0.34 J**	**0.29 J**
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	**1.2 J**	**0.48 J**	< 0.47 U	< 0.46 U	< 0.53 UJ	< 0.45 U	< 0.44 U	**1.3**	**1.6**	**10**	**16**	**9.0 J**	**26 J**	**1.8 J**	**2.5 J**	**6.3 J**	< 0.43 U	< 0.42 U	< 0.43 U	< 0.42 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.34 UJ	< 0.34 UJ	< 0.35 UJ	< 0.35 UJ	< 0.40 UJ	< 0.34 UJ	< 0.33 UJ	< 0.33 U	< 0.32 U	< 0.33 U	< 0.35 UJ	**0.53 J**	**0.54 J**	**0.43 J**	**0.33 J**	**0.62 J**	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.57 UJ	< 0.56 UJ	< 0.59 U	< 0.58 U	< 0.66 UJ	< 0.56 U	< 0.54 U	< 0.54 U	< 0.54 U	< 0.55 U	< 0.58 U	< 0.54 U	< 0.57 U	< 0.56 U	< 0.54 U	< 0.54 U	< 0.53 U	< 0.53 U	< 0.54 U	< 0.53 UJ
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.23 UJ	< 0.23 UJ	< 0.23 U	< 0.23 U	< 0.27 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	**0.23 J**	< 0.23 U	< 0.22 U	**0.35 J**	**0.39 J**	< 0.22 U	**0.29 J**	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 UJ
Perfluorononanoic acid (PFNA)	ng/g	< 0.23 UJ	< 0.23 UJ	< 0.23 U	< 0.23 U	< 0.27 UJ	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.23 U	**0.47 J**	**0.39 J**	**0.57 J**	< 0.22 U	**0.40 J**	< 0.21 U	< 0.21 U	< 0.21 U	< 0.21 UJ
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.80 UJ	< 0.79 UJ	< 0.82 U	< 0.81 U	< 0.93 UJ	< 0.78 U	< 0.76 U	< 0.76 U	< 0.75 U	< 0.77 U	< 0.82 U	< 0.76 U	< 0.79 U	**1.1 J**	< 0.75 U	< 0.76 U	< 0.75 U	< 0.74 U	< 0.75 U	< 0.74 UJ
Perfluorooctanoic acid (PFOA)	ng/g	**1.0 J**	**0.49 J**	**1.2**	**1.1**	**0.59 J**	**0.73**	< 0.33 U	**1.6**	**1.8**	**7.1**	**7.8**	**28 J**	**23 J**	**22 J**	**9.3 J**	**30 J**	< 0.32 U	< 0.32 U	**0.76**	**0.61 J**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.34 UJ	< 0.34 UJ	< 0.35 U	< 0.35 U	< 0.40 UJ	< 0.34 U	< 0.33 U	**74 J**	**93 J**	**40 J**	**11 J**	**20 J**	**19 J**	**1.6 J**	**0.35 J**	**29 J**	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.68 UJ	< 0.68 UJ	< 0.70 U	< 0.69 U	< 0.80 UJ	< 0.67 U	< 0.65 U	**6.6**	**15**	**15**	**6.5**	**6.2 J**	**6.6 J**	< 0.68 U	< 0.65 U	**10 J**	< 0.64 U	< 0.63 U	< 0.64 U	< 0.64 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	**0.45 J**	**0.35 J**	< 0.35 U	< 0.35 U	< 0.40 UJ	< 0.34 U	< 0.33 U	< 0.33 U	< 0.32 U	**1.0 J**	**1.8**	**15 J**	**10 J**	**1.9 J**	**1.4 J**	**3.9 J**	< 0.32 U	< 0.32 U	< 0.32 U	< 0.32 UJ

Table I.1
Analytical Soil Results - Water Street
CSM Site Investigation Report
Bennington, VT
St. Gobain Performance Plastics

Location	MW03	MW03	MW03	MW03	MW03	MW03	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW04	MW05	MW05	MW05	MW05	MW05	MW05
Date	6/15/2016	6/15/2016	6/15/2016	6/15/2016	6/16/2016	6/15/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/15/2016
Depth	1.5-2 ft	3.5-4 ft	6-7 ft	9.5-10 ft	11-12 ft	17-18 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2 ft	4.5-6 ft	8-9.5 ft	9.5-10 ft	12.5-13 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2 ft	3-3.5 ft	5-5.5 ft
Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																			
General Parameters																				
Carbon, total organic	mg/kg	**2380**	**6210**	**5050**	**10500**	**5740**	< 159 U	**1480**	**4290**	**2770**	**2450**	**1000**	**1480**	**4210**	< 124 U	**3560 J**	< 109 UJ	**9040**	**97300**	**15500**	**5610**
Moisture	%	**7.4**	**11.6**	**19.7**	**20.4**	**20.3**	**17.8**	**5.3**	**10.0**	**6.5**	**6.4**	**18.9**	**19.1**	**11.1**	**19.5**	**5.0**	**7.9**	**11.0**	**15.0**	**21.4**	**18.8**
Per- and Polyfluoroalkyl Substances																					
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.54 UJ	< 0.57 UJ	< 0.62 U	< 0.63 U	< 0.63 U	< 0.61 U	< 0.53 U	**1.6 J**	< 0.53 U	< 0.53 U	< 0.62 U	< 0.60 U	< 0.53 UJ	< 0.60 UJ	< 0.52 R	< 0.51 R	< 0.55 R	< 0.59 R	< 0.61 R	< 0.62 U
Perfluorodecanoic acid (PFDA)	ng/g	**0.34 J**	< 0.23 U	< 0.25 U	< 0.25 U	**0.30 J**	< 0.24 U	< 0.21 U	**0.92**	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U	< 0.21 UJ	< 0.24 UJ	**0.24 R**	< 0.20 R	< 0.22 R	**0.36 R**	< 0.24 R	< 0.25 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.43 U	< 0.45 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.49 U	< 0.42 U	< 0.44 U	< 0.43 U	< 0.43 U	< 0.49 U	< 0.48 U	< 0.42 UJ	< 0.48 U	< 0.42 R	< 0.41 R	< 0.44 R	< 0.47 R	< 0.49 R	< 0.49 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.32 U	< 0.34 U	< 0.37 U	< 0.38 U	< 0.38 U	< 0.36 U	< 0.32 U	**1.1 J**	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 UJ	< 0.32 UJ	< 0.36 UJ	< 0.31 R	< 0.31 R	< 0.33 R	< 0.35 R	< 0.36 R	< 0.37 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.54 UJ	< 0.57 UJ	< 0.62 U	< 0.63 U	< 0.63 U	< 0.61 U	< 0.53 U	**1.6 J**	< 0.53 U	< 0.53 U	< 0.62 U	< 0.60 U	< 0.53 UJ	< 0.60 UJ	< 0.52 R	< 0.51 R	< 0.55 R	< 0.59 R	< 0.61 R	< 0.62 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.22 U	< 0.23 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.24 U	< 0.21 U	**1.4 J**	< 0.21 U	< 0.21 U	< 0.25 U	< 0.24 U	< 0.21 UJ	< 0.24 UJ	< 0.21 R	< 0.20 R	< 0.22 R	< 0.24 R	< 0.24 R	< 0.25 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.22 U	**0.44 J**	**0.26 J**	< 0.25 U	< 0.25 U	< 0.24 U	< 0.21 U	**1.2**	**0.22 J**	**0.22 J**	< 0.25 U	< 0.24 UJ	< 0.21 UJ	< 0.24 UJ	< 0.21 R	< 0.20 R	< 0.22 R	< 0.24 R	< 0.24 R	< 0.25 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.76 U	< 0.79 UJ	< 0.87 U	< 0.88 U	< 0.88 U	< 0.85 U	< 0.74 U	**0.85 J**	< 0.75 U	< 0.75 U	< 0.86 U	< 0.84 U	< 0.74 UJ	< 0.83 UJ	< 0.73 R	< 0.71 R	< 0.77 R	< 0.83 R	< 0.85 R	< 0.86 U
Perfluorooctanoic acid (PFOA)	ng/g	**1.1**	**7.6**	**11**	**23**	**3.6**	**1.0**	**2.0**	**3.8**	**4.0**	**3.2**	**2.8**	**7.2**	**2.8 J**	**0.80 J**	**0.54 R**	**5.2 R**	**4.7 R**	**0.62 R**	< 0.36 R	**2.4**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.32 U	< 0.34 U	< 0.37 U	< 0.38 U	< 0.38 U	< 0.36 U	< 0.32 U	< 0.33 U	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 U	< 0.32 UJ	< 0.36 U	< 0.31 R	< 0.31 R	< 0.33 R	< 0.35 R	< 0.36 R	< 0.37 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.65 U	< 0.68 U	< 0.75 U	< 0.75 U	< 0.75 U	< 0.73 U	< 0.63 U	< 0.67 U	< 0.64 U	< 0.64 U	< 0.74 U	< 0.72 U	< 0.64 UJ	< 0.72 U	< 0.63 R	< 0.61 R	< 0.66 R	< 0.71 R	< 0.73 R	< 0.74 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.32 U	< 0.34 U	**0.37 J**	< 0.38 U	< 0.38 U	< 0.36 U	< 0.32 U	**0.61 J**	< 0.32 U	< 0.32 U	< 0.37 U	< 0.36 U	< 0.32 UJ	< 0.36 UJ	< 0.31 R	< 0.31 R	< 0.33 R	< 0.35 R	< 0.36 R	< 0.37 U

Table I.1
Analytical Soil Results - Water Street
CSM Site Investigation Report
Bennington, VT
St. Gobain Performance Plastics

Location		MW05	MW06	MW06	MW06	MW06	MW06	MW06	MW06	MW07	MW07		MW07	MW07	MW07	MW07	MW07	MW07
Date		6/15/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/20/2016	6/20/2016	6/20/2016	6/13/2016	6/13/2016		6/13/2016	6/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016
Depth		9-9.5 ft	0-0.5 ft	0.5-1 ft	1-1.5 ft	1.5-2 ft	5-5.5 ft	10.5-11 ft	13.5-14 ft	0-0.5 ft	0.5-1 ft		1-1.5 ft	1.5-2 ft	2.5-3 ft	9.5-10.5 ft	12-13 ft	22-23 ft
Sample Type		N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Units																	
General Parameters																		
Carbon, total organic	mg/kg	< 177 U	**22100**	**6740**	**8030**	**9060**	**5780**	**1600**	**570 J**	**35000 J**	**18300 J**	--	**16700 J**	**14200 J**	**3980 J**	**1330**	**19500**	**15700**
Moisture	%	**17.3**	**6.5**	**3.8**	**5.8**	**9.4**	**17.8**	**15.4**	**9.5**	**26.5**	**23.0**	**19.9**	**18.3**	**16.2**	**18.5**	**5.5**	**10.4**	**14.7**
Per- and Polyfluoroalkyl Substances																		
Perfluorobutane sulfonate (PFBS)	ng/g	< 0.60 U	< 0.51 R	< 0.54 R	< 0.53 R	< 0.55 R	< 0.60 UJ	< 0.57 UJ	< 0.55 U	< 0.64 U	< 0.64 U	< 0.60 U	< 0.57 UJ	< 0.60 U	< 0.62 U	< 0.53 R	< 0.53 R	< 0.59 U
Perfluorodecanoic acid (PFDA)	ng/g	< 0.24 U	**0.50 R**	< 0.21 R	< 0.21 R	< 0.22 R	< 0.24 UJ	< 0.23 UJ	< 0.22 U	**2.0 J**	< 0.25 U	< 0.24 U	< 0.23 UJ	< 0.24 U	< 0.25 U	< 0.21 R	< 0.21 R	< 0.23 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/g	< 0.48 U	< 0.41 R	< 0.43 R	< 0.42 R	< 0.44 R	< 0.48 UJ	< 0.46 UJ	< 0.44 U	**0.68 J**	< 0.51 U	< 0.48 U	< 0.46 U	< 0.48 U	< 0.50 U	< 0.43 R	< 0.42 R	< 0.47 U
Perfluoroheptanoic acid (PFHpA)	ng/g	< 0.36 U	< 0.30 R	< 0.32 R	< 0.32 R	< 0.33 R	< 0.36 UJ	< 0.34 UJ	< 0.33 UJ	< 0.39 U	< 0.38 U	< 0.36 UJ	< 0.34 U	< 0.36 U	< 0.37 U	< 0.32 R	< 0.32 R	< 0.35 U
Perfluorohexane sulfonate (PFHxS)	ng/g	< 0.60 U	< 0.51 R	< 0.54 R	< 0.53 R	< 0.55 R	< 0.60 UJ	< 0.57 UJ	< 0.55 U	< 0.64 U	< 0.64 U	< 0.60 U	< 0.57 UJ	< 0.60 U	< 0.62 U	< 0.53 R	< 0.53 R	< 0.59 U
Perfluorohexanoic acid (PFHxA)	ng/g	< 0.24 U	< 0.20 R	< 0.21 R	< 0.21 R	< 0.22 R	< 0.24 UJ	< 0.23 UJ	< 0.22 U	**0.30 J**	**0.26 J**	**0.31 J**	**0.55 J**	< 0.24 U	< 0.25 U	< 0.21 R	< 0.21 R	< 0.23 U
Perfluorononanoic acid (PFNA)	ng/g	< 0.24 U	< 0.20 R	**0.22 R**	< 0.21 R	< 0.22 R	< 0.24 UJ	< 0.23 UJ	< 0.22 U	**1.3**	**0.65**	**0.61**	**0.23 J**	< 0.24 U	< 0.25 U	< 0.21 R	< 0.21 R	< 0.23 U
Perfluorooctanesulfonic acid (PFOS)	ng/g	< 0.85 U	**0.76 R**	< 0.75 R	< 0.74 R	< 0.77 R	< 0.84 UJ	< 0.80 UJ	< 0.76 U	**1.1 J**	< 0.89 U	< 0.83 U	< 0.80 U	< 0.83 U	< 0.87 U	< 0.75 R	< 0.74 R	< 0.82 U
Perfluorooctanoic acid (PFOA)	ng/g	< 0.36 U	**0.53 R**	**0.56 R**	**3.9 R**	**3.9 R**	**5.4 J**	**3.0 J**	**2.6**	**4.1**	**5.3**	**5.0**	**6.9 J**	**8.5**	**6.9**	< 0.32 R	< 0.32 R	< 0.35 U
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/g	< 0.36 U	< 0.30 R	< 0.32 R	< 0.32 R	< 0.33 R	< 0.36 UJ	< 0.34 UJ	< 0.33 U	**0.44 J**	< 0.38 U	< 0.36 U	< 0.34 U	< 0.36 U	< 0.37 U	< 0.32 R	< 0.32 R	< 0.35 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/g	< 0.73 U	< 0.61 R	< 0.64 R	< 0.63 R	< 0.66 R	< 0.72 UJ	< 0.69 UJ	< 0.66 U	< 0.77 U	< 0.76 U	< 0.71 U	< 0.69 U	< 0.71 U	< 0.75 U	< 0.64 R	< 0.64 R	< 0.70 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/g	< 0.36 U	< 0.30 R	< 0.32 R	< 0.32 R	< 0.33 R	< 0.36 UJ	< 0.34 UJ	< 0.33 U	**0.83 J**	< 0.38 U	< 0.36 U	< 0.34 U	< 0.36 U	< 0.37 U	< 0.32 R	< 0.32 R	< 0.35 U

Table I.2
Analytical Groundwater Results - Water Street
CSM Site Investigation Report
Bennington, VT
St. Gobain Performance Plastics

Location		MW01	MW01	MW02		MW02	MW03	MW03	MW03S	MW03S	MW04	MW04	MW04S	MW04S	MW05	MW05	MW06
Date		7/13/2016	12/19/2016	7/13/2016		12/20/2016	7/13/2016	12/16/2016	7/13/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/15/2016	7/14/2016
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																
General Parameters																	
Alkalinity, bicarbonate, as CaCO3	mg/l	**139 J**	**183 J**	**286 J**	**286 J**	**299 J**	**278 J**	**280**	**259 J**	**270**	**284 J**	**310**	**295 J**	**346**	**457 J**	**589**	**308 J**
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 UJ	< 1.7 R	< 1.7 UJ	< 1.7 UJ	< 1.7 R	< 1.7 UJ	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 UJ	< 1.7 U	< 1.7 UJ
Alkalinity, total, as CaCO3	mg/l	**139 J**	**183 J**	**286 J**	**286 J**	**299 J**	**278 J**	**280**	**259 J**	**270**	**284 J**	**310**	**295 J**	**346**	**457 J**	**589**	**308 J**
Chloride	mg/l	**21.7**	**55.8**	**112**	**114**	**152**	**46.9**	**37.0**	**26.7**	**39.3**	**113**	**409**	**119**	**332**	**541**	**526**	**262**
Cyanide	mg/l	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Sulfate, as SO4	mg/l	**12.5**	**17.9 J**	**19.5**	**19.8**	**20.6 J**	**16.4**	**19.0**	**16.0**	**19.2**	**21.9**	**24.5**	**21.6**	**24.4**	**22.9**	**30.8**	**22.8**
Total Metals																	
Aluminum	mg/l	< 0.0868 U	< 0.0941 UB	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	**0.140 J**	< 0.0868 U	< 0.0868 U	< 0.0916 UB	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.0868 U
Antimony	mg/l	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U
Arsenic	mg/l	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U
Barium	mg/l	**0.0087**	**0.0110**	**0.0210**	**0.0207**	**0.0246**	**0.0296**	**0.0281**	**0.0338**	**0.0353**	**0.0387**	**0.0461**	**0.0391**	**0.0498**	**0.0635**	**0.0667**	**0.0866**
Beryllium	mg/l	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U
Cadmium	mg/l	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U
Calcium	mg/l	**42.0**	**53.6**	**99.0**	**97.0**	**89.8**	**81.0**	**73.0**	**78.1**	**75.5**	**88.5**	**89.7**	**93.8**	**117**	**139**	**141**	**118**
Chromium	mg/l	< 0.00059 U	< 0.00059 U	< 0.00075 UB	< 0.00083 UB	**0.00070 J**	< 0.00059 U	< 0.00059 U	< 0.00064 UB	< 0.00059 U	< 0.00059 U	**0.00086 J**	< 0.00081 UB	**0.00078 J**	< 0.00059 U	< 0.00059 U	< 0.00059 U
Cobalt	mg/l	< 0.00020 U	**0.00021 J**	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	**0.00024 J**	< 0.00020 U	**0.0015**	**0.0018**	< 0.00020 U	**0.00079 J**	**0.0024**	**0.00092 J**	**0.00024 J**
Copper	mg/l	< 0.00052 U	< 0.00052 U	< 0.00059 UB	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	**0.00084 J**	< 0.00052 U
Iron	mg/l	< 0.0747 U	**0.109 J**	< 0.0747 U	< 0.0747 U	< 0.0747 U	< 0.0747 U	< 0.0747 U	**0.363 J**	< 0.0747 U	< 0.0747 U	**0.0963 J**	< 0.0747 U	< 0.0747 U	< 0.0747 U	< 0.0747 U	< 0.0747 U
Lead	mg/l	< 0.000090 U	**0.00014 J**	**0.00017 J**	< 0.000090 U	< 0.000090 U	< 0.000090 U	< 0.000090 U	**0.00052 J**	< 0.000090 U	< 0.000090 U	**0.00015 J**	< 0.000090 U	< 0.000090 U	< 0.000090 U	**0.00013 J**	< 0.000090 U
Magnesium	mg/l	**12.1**	**16.7**	**28.0**	**27.4**	**24.2**	**28.5**	**27.5**	**23.8**	**23.3**	**28.7**	**29.4**	**27.0**	**36.0**	**29.3**	**30.7**	**40.0**
Manganese	mg/l	**0.0029 J**	**0.0141**	**0.0014 J**	**0.0016 J**	**0.0017 J**	**0.0133**	< 0.00088 U	**0.0527**	**0.0063**	**0.0044**	**0.0123**	**0.0035 J**	**0.0047**	**0.0460**	**0.0207**	**0.0179**
Mercury	mg/l	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	mg/l	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	**0.0012 J**	**0.00093 J**	< 0.00085 U
Potassium	mg/l	**0.730 J**	**1.12**	**1.46**	**1.42**	**1.42**	**1.24**	**1.24**	**1.22**	**1.20**	**1.27**	**1.55**	**1.57**	**1.84**	**1.90**	**2.01**	**1.33**
Selenium	mg/l	< 0.00044 U	**0.00072 J**	**0.0012 J**	**0.0011 J**	**0.0020 J**	< 0.00044 U	< 0.00044 U	**0.00044 J**	**0.00084 J**	< 0.00044 U	**0.00058 J**	**0.00048 J**	**0.00099 J**	< 0.00044 U	< 0.00044 U	**0.00089 J**
Silver	mg/l	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U
Sodium	mg/l	**16.3**	**35.1**	**72.5**	**71.0**	**105**	**25.0**	**18.7**	**20.9**	**20.7**	**74.7**	**96.3**	**80.8**	**155**	**372**	**366**	**135**
Thallium	mg/l	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U
Vanadium	mg/l	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00020 U	< 0.00026 UB	< 0.00020 U	< 0.00020 U	**0.00022 J**	< 0.00038 UB	**0.00030 J**	< 0.00025 UB	**0.00036 J**	< 0.00020 U
Zinc	mg/l	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U
SVOCs																	
1,2,4,5-Tetrachlorobenzene	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
1,4-Dioxane	ug/l	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U
2,2'-oxybis (1-chloropropane)	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,4,5-Trichlorophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,4,6-Trichlorophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,4-Dichlorophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,4-Dimethylphenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2,4-Dinitrophenol	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrotoluene	ug/l	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U
2,6-Dinitrotoluene	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2-Chloronaphthalene	ug/l	< 0.4 U	< 0.40 U	< 0.4 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.41 U	< 0.4 U
2-Chlorophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2-Methyl-4,6-dinitrophenol	ug/l	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U
2-Methylnaphthalene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
2-Methylphenol (o-cresol)	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2-Nitroaniline	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
2-Nitrophenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
3,3`-Dichlorobenzidine	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
3-Nitroaniline	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Bromophenyl phenyl ether	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Chloro-3-methylphenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Chloroaniline	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
SVOCs *(continued)*																	
4-Chlorophenyl phenyl ether	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Methylphenol (p-cresol)	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Nitroaniline	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
4-Nitrophenol	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Acenaphthylene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U

Table I.2
Analytical Groundwater Results - Water Street
CSM Site Investigation Report
Bennington, VT
St. Gobain Performance Plastics

Location		MW01	MW01	MW02		MW02	MW03	MW03	MW03S	MW03S	MW04	MW04	MW04S	MW04S	MW05	MW05	MW06
Date		7/13/2016	12/19/2016	7/13/2016		12/20/2016	7/13/2016	12/16/2016	7/13/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/15/2016	7/14/2016
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																
Acetophenone	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Anthracene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Atrazine	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Benz(a)anthracene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Benzaldehyde	ug/l	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U
Benzo(a)pyrene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Benzo(b)fluoranthene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Benzo(g,h,i)perylene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Benzo(k)fluoranthene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Biphenyl	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Bis(2-chloroethoxy)methane	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Bis(2-chloroethyl)ether	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Bis(2-ethylhexyl)phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Butyl benzyl phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Caprolactam	ug/l	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U
Carbazole	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Chrysene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Dibenz(a,h)anthracene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Dibenzofuran	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Diethyl phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Dimethyl phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Di-n-butyl phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Di-n-octyl phthalate	ug/l	< 2 U	< 2.0 U	< 2 U	< 2 U	< 2.1 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U
Fluoranthene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Fluorene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Hexachlorobenzene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Hexachlorobutadiene	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Hexachlorocyclopentadiene	ug/l	< 5 U	< 5.0 U	< 5 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U
Hexachloroethane	ug/l	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U
Indeno(1,2,3-cd)pyrene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Isophorone	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Naphthalene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
Nitrobenzene	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
n-Nitrosodi-n-propylamine	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
n-Nitrosodiphenylamine	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Pentachlorophenol	ug/l	< 1 U	< 1.0 U	< 1 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U
Phenanthrene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	**0.12 J**	< 0.1 U
Phenol	ug/l	< 0.5 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U
Pyrene	ug/l	< 0.1 U	< 0.10 U	< 0.1 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U
VOCs																	
1,1,1-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
VOCs *(continued)*																	
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
1,3-Dichlorobenzene	ug/l	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U

Table I.2
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Location		MW01	MW01	MW02		MW02	MW03	MW03	MW03S	MW03S	MW04	MW04	MW04S	MW04S	MW05	MW05	MW06
Date		7/13/2016	12/19/2016	7/13/2016		12/20/2016	7/13/2016	12/16/2016	7/13/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/15/2016	7/14/2016
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																
Acetone	ug/l	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	**0.5 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Butylbenzene	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
Butylbenzene, sec	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
Butylbenzene, tert	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	ug/l	**17**	**10**	< 0.5 U	< 0.5 U	< 0.5 U	**1**	**1**	**5**	**3**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cymene p- (toluene isopropyl p-)	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Propylbenzene	ug/l	< 1 U	--	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/l	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

Table I.2
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Location		MW01	MW01	MW02		MW02	MW03	MW03	MW03S	MW03S	MW04	MW04	MW04S	MW04S	MW05	MW05	MW06
Date		7/13/2016	12/19/2016	7/13/2016		12/20/2016	7/13/2016	12/16/2016	7/13/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/16/2016	7/14/2016	12/15/2016	7/14/2016
Sample Type		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	Units																
Per- and Polyfluoroalkyl Substances																	
Perfluorobutane sulfonate (PFBS)	ng/l	< 90 U	**2 J**	< 90 U	< 90 U	**3 J**	< 90 U	**0.8 J**	< 90 U	**1 J**	< 90 U	**2 J**	< 90 U	**2 J**	< 90 U	**3**	< 90 U
Perfluorodecanoic acid (PFDA)	ng/l	--	< 0.5 UJ	--	--	**63 J**	--	**4**	--	**6**	--	**3**	--	**0.7 J**	--	**9**	--
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	--	< 0.5 U	--	--	**4**	--	< 0.5 UJ	--	< 0.5 UJ	--	< 0.5 U	--	< 0.5 UJ	--	< 0.5 UJ	--
Perfluoroheptanoic acid (PFHpA)	ng/l	**10**	**15**	**120 J**	**120 J**	**110**	**76 J**	**74**	**73 J**	**71**	**120 J**	**97**	**110 J**	**110**	**26**	**29**	**73**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 30 U	< 1 U	< 30 U	< 30 U	**2 J**	< 30 U	< 1 U	< 30 U	< 1 U	< 30 U	**2 J**	< 30 U	**2 J**	< 30 U	**1 J**	< 30 U
Perfluorohexanoic acid (PFHxA)	ng/l	--	**6**	--	--	**77**	--	**31**	--	**32**	--	**42**	--	**40**	--	**22**	--
Perfluorononanoic acid (PFNA)	ng/l	< 20 U	**1 J**	< 20 U	< 20 U	**21 J**	< 20 U	**4**	< 20 U	**6**	< 20 U	**3**	< 20 U	**3**	< 20 U	**4**	< 20 U
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 40 U	< 2 UJ	< 40 U	< 40 U	**14**	< 40 U	< 2 UJ	< 40 U	**2 J**	< 40 U	**3 J**	< 40 U	**2 J**	< 40 U	**17**	< 40 U
Perfluorooctanoic acid (PFOA)	ng/l	**510**	**640 J**	**4900 J**	**5600 J**	**4800**	**2200 J**	**1600**	**2400 J**	**2300**	**3700 J**	**2300**	**2900 J**	**2200**	**890**	**740 J**	**1600**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 UJ	--	< 0.5 UJ	--	< 0.5 UJ	--	< 0.5 UJ	--	< 0.5 UJ	--
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	--	< 0.5 U	--	--	< 0.5 U	--	< 0.5 UJ	--	< 0.5 UJ	--	< 0.5 U	--	< 0.5 UJ	--	< 0.5 UJ	--
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	--	< 1 U	--	--	**18**	--	< 1 U	--	< 1 UJ	--	< 1 U	--	< 1 UJ	--	< 1 U	--

Table I.2
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Location		MW06		MW06S	MW06S	MW07	MW07	MW07S	MW07S
Date		12/19/2016		7/14/2016	12/19/2016	7/15/2016	12/20/2016	7/15/2016	12/20/2016
Sample Type		N	FD	N	N	N	N	N	N
Parameter	Units								
General Parameters									
Alkalinity, bicarbonate, as CaCO3	mg/l	**305 J**	**304 J**	**402 J**	**417 J**	**170 J**	**168 J**	**349 J**	**324 J**
Alkalinity, carbonate, as CaCO3	mg/l	< 1.7 R	< 1.7 R	< 1.7 UJ	< 1.7 R	< 1.7 UJ	< 1.7 R	< 1.7 UJ	< 1.7 R
Alkalinity, total, as CaCO3	mg/l	**305 J**	**304 J**	**402 J**	**417 J**	**170 J**	**168 J**	**349 J**	**324 J**
Chloride	mg/l	**356**	**327**	**366**	**399**	**4.8**	**5.8**	**53.2**	**76.8**
Cyanide	mg/l	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U	< 0.0050 U
Sulfate, as SO4	mg/l	**30.0 J**	**27.6 J**	**19.4**	**21.8 J**	**15.4**	**17.3 J**	**13.0**	**14.3 J**
Total Metals									
Aluminum	mg/l	< 0.0868 U	< 0.0868 U	< 0.0868 U	< 0.176 UB	< 0.0868 U	< 0.0885 UB	< 0.0868 U	< 0.115 UB
Antimony	mg/l	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U	< 0.00048 U
Arsenic	mg/l	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	< 0.00068 U	**0.0045**	**0.0069**
Barium	mg/l	**0.0882**	**0.0844**	**0.0843**	**0.0708**	**0.0270**	**0.0273**	**0.268**	**0.267**
Beryllium	mg/l	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U	< 0.00011 U
Cadmium	mg/l	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U	< 0.00019 U
Calcium	mg/l	**104**	**102**	**162**	**128**	**41.6**	**38.7**	**100**	**101**
Chromium	mg/l	< 0.00059 U	< 0.00059 U	< 0.00059 U	**0.00061 J**	< 0.00059 U	< 0.00059 U	< 0.00059 U	< 0.00059 U
Cobalt	mg/l	< 0.00020 U	< 0.00020 U	< 0.00020 U	**0.00026 J**	**0.00023 J**	< 0.00020 U	**0.0025**	**0.0033**
Copper	mg/l	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00052 U	< 0.00067 UB
Iron	mg/l	< 0.0747 U	< 0.0747 U	< 0.0747 U	**0.0854 J**	< 0.0747 U	< 0.0747 U	**2.68**	**3.49**
Lead	mg/l	< 0.000090 U	< 0.000090 U	< 0.000090 U	**0.00025 J**	< 0.000090 U	< 0.000090 U	< 0.000090 U	**0.00042 J**
Magnesium	mg/l	**36.2**	**35.7**	**41.0**	**33.6**	**21.9**	**21.1**	**26.0**	**26.3**
Manganese	mg/l	**0.0023 J**	**0.0014 J**	**0.0192**	**0.0117**	**0.0299**	**0.0026 J**	**0.704**	**0.809**
Mercury	mg/l	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U	< 0.000050 U
Nickel	mg/l	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	< 0.00085 U	**0.0024 J**	**0.0034 J**
Potassium	mg/l	**1.40**	**1.37**	**1.28**	**1.22**	**1.61**	**1.56**	**1.46**	**1.51**
Selenium	mg/l	**0.00076 J**	**0.00071 J**	**0.0012 J**	**0.0010 J**	< 0.00044 U	< 0.00044 U	< 0.00044 U	< 0.00044 U
Silver	mg/l	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U	< 0.00012 U
Sodium	mg/l	**121**	**118**	**200**	**179**	**6.24**	**6.11**	**47.4**	**39.6**
Thallium	mg/l	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U	< 0.00016 U
Vanadium	mg/l	< 0.00020 U	**0.00023 J**	< 0.00029 UB	**0.00032 J**	< 0.00020 U	**0.00034 J**	< 0.00020 U	**0.00048 J**
Zinc	mg/l	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U
SVOCs									
1,2,4,5-Tetrachlorobenzene	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
1,4-Dioxane	ug/l	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U
2,2'-oxybis (1-chloropropane)	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,3,4,6-Tetrachlorophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,4,5-Trichlorophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,4,6-Trichlorophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,4-Dichlorophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,4-Dimethylphenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2,4-Dinitrophenol	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrotoluene	ug/l	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U
2,6-Dinitrotoluene	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2-Chloronaphthalene	ug/l	< 0.40 U	< 0.41 U	< 0.4 U	< 0.41 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.41 U
2-Chlorophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2-Methyl-4,6-dinitrophenol	ug/l	< 5.0 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.2 U
2-Methylnaphthalene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
2-Methylphenol (o-cresol)	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2-Nitroaniline	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
2-Nitrophenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
3,3`-Dichlorobenzidine	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
3-Nitroaniline	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Bromophenyl phenyl ether	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Chloro-3-methylphenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Chloroaniline	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
SVOCs *(continued)*									
4-Chlorophenyl phenyl ether	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Methylphenol (p-cresol)	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Nitroaniline	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
4-Nitrophenol	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Acenaphthylene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U

Table I.2
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St. Gobain Performance Plastics

Location		MW06		MW06S	MW06S	MW07	MW07	MW07S	MW07S
Date		12/19/2016		7/14/2016	12/19/2016	7/15/2016	12/20/2016	7/15/2016	12/20/2016
Sample Type		N	FD	N	N	N	N	N	N
Parameter	Units								
Acetophenone	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Anthracene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Atrazine	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Benz(a)anthracene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Benzaldehyde	ug/l	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U
Benzo(a)pyrene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Benzo(b)fluoranthene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Benzo(g,h,i)perylene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Benzo(k)fluoranthene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Biphenyl	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Bis(2-chloroethoxy)methane	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Bis(2-chloroethyl)ether	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Bis(2-ethylhexyl)phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Butyl benzyl phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Caprolactam	ug/l	< 5.0 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.2 U
Carbazole	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Chrysene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Dibenz(a,h)anthracene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Dibenzofuran	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Diethyl phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Dimethyl phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Di-n-butyl phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Di-n-octyl phthalate	ug/l	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.0 U	< 2 U	< 2.1 U
Fluoranthene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Fluorene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Hexachlorobenzene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Hexachlorobutadiene	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Hexachlorocyclopentadiene	ug/l	< 5.0 U	< 5.1 U	< 5 U	< 5.1 U	< 5 U	< 5.0 U	< 5 U	< 5.2 U
Hexachloroethane	ug/l	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U
Indeno(1,2,3-cd)pyrene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Isophorone	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Naphthalene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Nitrobenzene	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
n-Nitrosodi-n-propylamine	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
n-Nitrosodiphenylamine	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Pentachlorophenol	ug/l	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U	< 1 U	< 1.0 U
Phenanthrene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
Phenol	ug/l	< 0.50 U	< 0.51 U	< 0.5 U	< 0.51 U	< 0.5 U	< 0.50 U	< 0.5 U	< 0.52 U
Pyrene	ug/l	< 0.10 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U	< 0.1 U	< 0.10 U
VOCs									
1,1,1-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
VOCs *(continued)*									
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (EDB)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethylene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
1,3-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichloropropene, cis	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropene, trans	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U

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Location		MW06		MW06S	MW06S	MW07	MW07	MW07S	MW07S
Date		12/19/2016		7/14/2016	12/19/2016	7/15/2016	12/20/2016	7/15/2016	12/20/2016
Sample Type		N	FD	N	N	N	N	N	N
Parameter	Units								
Acetone	ug/l	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U	< 6 U
Benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Butylbenzene	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
Butylbenzene, sec	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
Butylbenzene, tert	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	ug/l	< 0.5 U	**0.5 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Cumene (isopropyl benzene)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Cymene p- (toluene isopropyl p-)	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
Dichlorodifluoromethane (Freon-12)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethyl benzene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl acetate	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl ethyl ketone (2-butanone)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl isobutyl ketone (MIBK)	ug/l	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U	< 3 U
Methyl tertiary butyl ether (MTBE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylcyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Propylbenzene	ug/l	--	--	< 1 U	--	< 1 U	--	< 1 U	--
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethylene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Toluene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethylene (TCE)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (Freon-11)	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Vinyl chloride	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, m & p	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylene, o	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U

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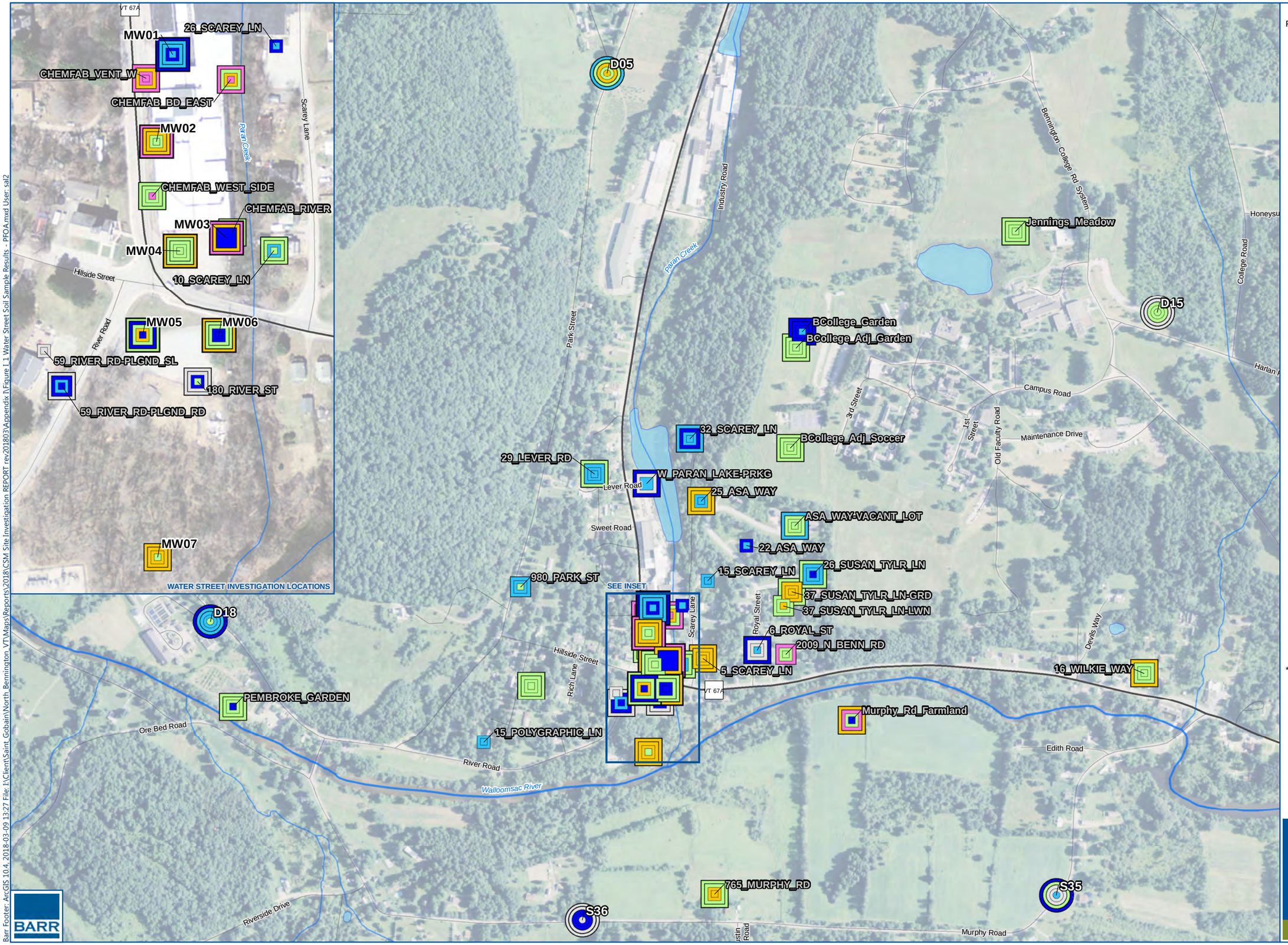
Location		MW06		MW06S	MW06S	MW07	MW07	MW07S	MW07S
Date		12/19/2016		7/14/2016	12/19/2016	7/15/2016	12/20/2016	7/15/2016	12/20/2016
Sample Type		N	FD	N	N	N	N	N	N
Parameter	Units								
Per- and Polyfluoroalkyl Substances									
Perfluorobutane sulfonate (PFBS)	ng/l	**2 J**	**1 J**	< 90 U	**2**	< 90 U	< 0.7 UJ	< 90 U	**0.7 J**
Perfluorodecanoic acid (PFDA)	ng/l	< 0.5 U	< 0.5 UJ	--	< 0.5 U	--	< 0.5 U	--	< 0.5 UJ
Perfluorododecanoic acid (PFDoA / PFDoDA)	ng/l	< 0.5 U	< 0.5 U	--	< 0.5 U	--	< 0.5 U	--	< 0.5 UJ
Perfluoroheptanoic acid (PFHpA)	ng/l	**55**	**70**	**51**	**47**	< 10 U	**2**	**13**	**17**
Perfluorohexane sulfonate (PFHxS)	ng/l	< 1 U	< 1 U	< 30 U	< 1 U	< 30 U	< 1 U	< 30 U	< 1 U
Perfluorohexanoic acid (PFHxA)	ng/l	**31**	**28**	--	**24**	--	**1 J**	--	**12**
Perfluorononanoic acid (PFNA)	ng/l	< 0.6 UJ	< 0.6 U	< 20 U	**2**	< 20 U	< 0.6 U	< 20 U	**0.9 J**
Perfluorooctanesulfonic acid (PFOS)	ng/l	< 2 UJ	< 2 U	< 40 U	**3 J**	< 40 U	< 2 U	< 40 U	< 2 U
Perfluorooctanoic acid (PFOA)	ng/l	**1400**	**1300**	**1800**	**2200**	**34**	**59 J**	**580**	**650 J**
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	ng/l	< 0.5 U	< 0.5 UJ	--	< 0.5 U	--	< 0.5 U	--	< 0.5 UJ
Perfluorotridecanoic acid (PFTrDA / PFTriA)	ng/l	< 0.5 U	< 0.5 U	--	< 0.5 U	--	< 0.5 U	--	< 0.5 UJ
Perfluoroundecanoic acid (PFUnA / PFUnDA)	ng/l	< 1 U	< 1 UJ	--	< 1 U	--	< 1 U	--	< 1 UJ



PFOA (ng/g) *

- > 10.0
- 5.01 - 10.0
- 1.51 - 5.0
- 0.75 - 1.5
- < 0.75
- Non Detect **

Sampling Interval (CSM Site Investigation)

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

Sampling Interval (other investigation)

- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet ***
- 4 - 9 feet ***

Other investigations:

- C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation. (Black labels)
- C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016. (Gray labels)

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.17 - 0.37 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 300 600 900

Feet

WATER STREET SOIL SAMPLE RESULTS: PFOA CSM SITE INVESTIGATION

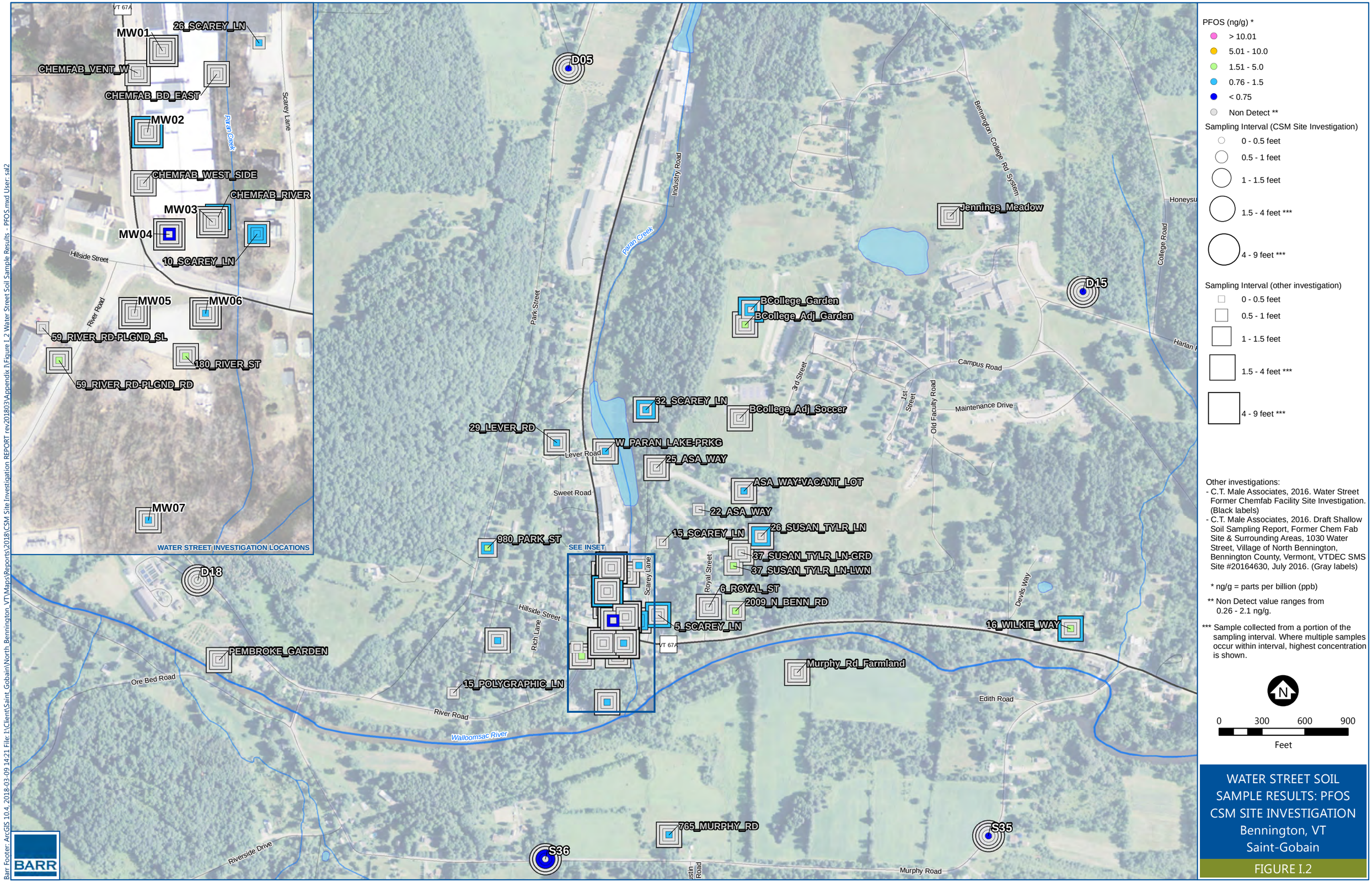
Bennington, VT

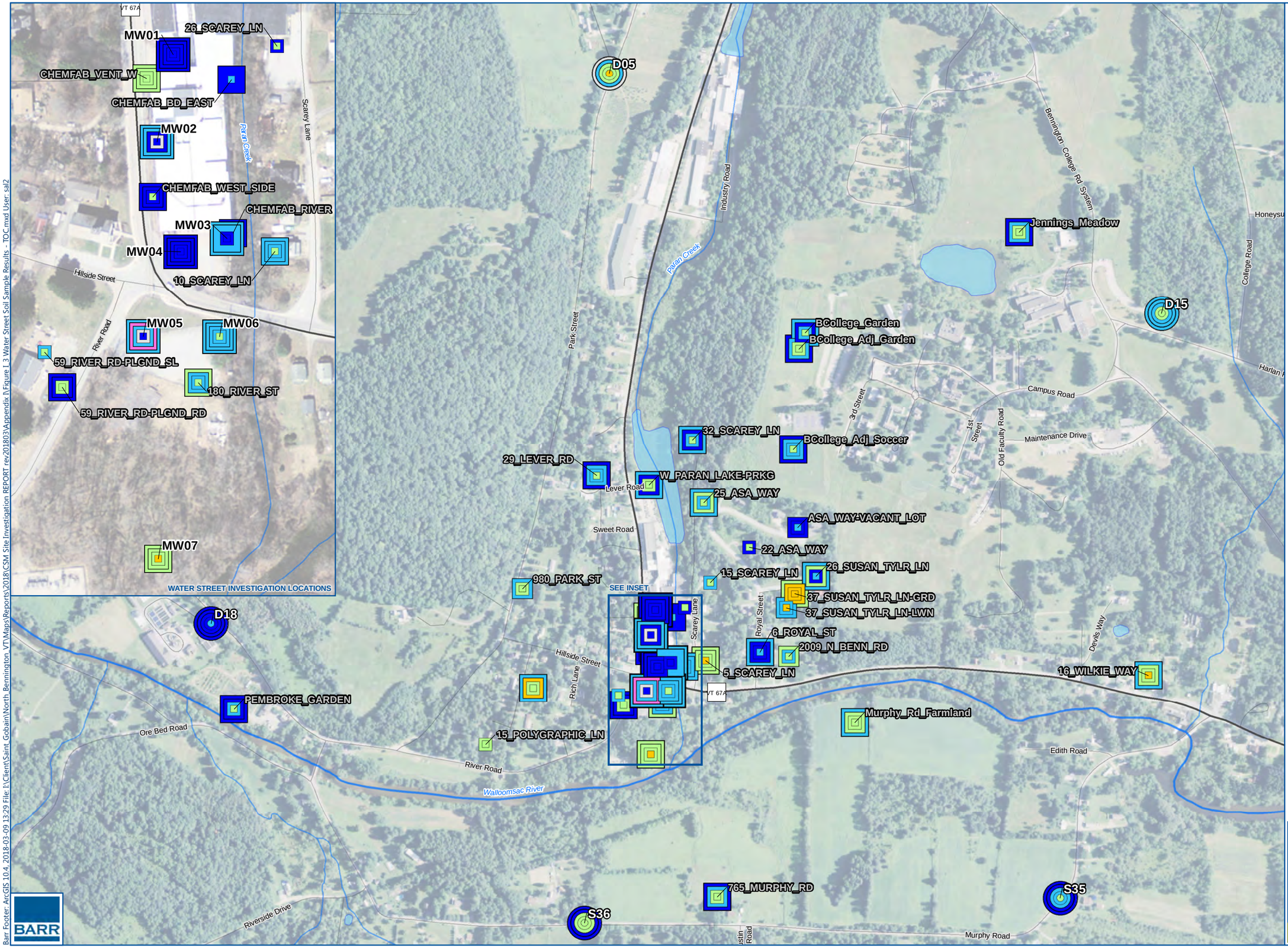
Saint-Gobain

FIGURE I.1

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:27 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180301\Appendix I\Figure I.1 Water Street Soil Sample Results - PFOA.mxd User: sal2


VT 67A
MW01
26_SCAREY_LN
CHEMFAB_VENT_W
CHEMFAB_BD_EAST
MW02
Paran Creek
Scarey Lane
CHEMFAB_WEST_SIDE
CHEMFAB_RIVER
MW03
MW04
10_SCAREY_LN
Hillside Street
River Road
MW05
MW06
59_RIVER_RD-PLGND_SL
180_RIVER_ST
59_RIVER_RD-PLGND_RD
MW07
WATER STREET INVESTIGATION LOCATIONS
D05
Industry Road
Park Street
Benmington College Rd System
Jennings_Meadow
College Road
Honeysu
D15
BCollege_Garden
BCollege_Adj_Garden
Harlan
Campus Road
3rd Street
1st Street
Old Faculty Road
Maintenance Drive
32_SCAREY_LN
BCollege_Adj_Soccer
29_LEVER_RD
Lever Road
W_PARAN_LAKE-PRKG
25_ASA_WAY
ASA_WAY-VACANT_LOT
Sweet Road
22_ASA_WAY
980_PARK_ST
SEE INSET
15_SCAREY_LN
26_SUSAN_TYLR_LN
37_SUSAN_TYLR_LN-GRD
37_SUSAN_TYLR_LN-LWN
Royal Street
6_ROYAL_ST
2009_N_BENN_RD
Devils Way
5_SCAREY_LN
16_WILKIE_WAY
D18
Rich Lane
VT 67A
PEMBROKE_GARDEN
Murphy_Rd_Farmland
Ore Bed Road
15_POLYGRAPHIC_LN
River Road
Edith Road
Walloomsac River
765_MURPHY_RD
S35
S36
Riverside Drive
Murphy Road
PFOS (ng/g) *
> 10.01
5.01 - 10.0
1.51 - 5.0
0.76 - 1.5
< 0.75
Non Detect **
Sampling Interval (CSM Site Investigation)
0 - 0.5 feet
0.5 - 1 feet
1 - 1.5 feet
1.5 - 4 feet ***
4 - 9 feet ***
Sampling Interval (other investigation)
0 - 0.5 feet
0.5 - 1 feet
1 - 1.5 feet
1.5 - 4 feet ***
4 - 9 feet ***
Other investigations:
- C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation. (Black labels)
- C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016. (Gray labels)
* ng/g = parts per billion (ppb)
** Non Detect value ranges from 0.26 - 2.1 ng/g.
*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.
N
0 300 600 900
Feet
WATER STREET SOIL SAMPLE RESULTS: PFOS
CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain
FIGURE I.2
BARR
Barr Footer: ArcGIS 10.4, 2018-03-09 14:21 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180



TOC (mg/kg)
- > 50,000.1
- 25,000.1 - 50,000
- 10,000.1 - 25,000
- 5,000.1 - 10,000
- < 5,000
- Non Detect *

Sampling Interval (CSM Site Investigation)
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

Sampling Interval (other investigation)
- 0 - 0.5 feet
- 0.5 - 1 feet
- 1 - 1.5 feet
- 1.5 - 4 feet **
- 4 - 9 feet **

Other investigations:
- C.T. Male Associates, 2016. Water Street Former Chemfab Facility Site Investigation. (Black labels)
- C.T. Male Associates, 2016. Draft Shallow Soil Sampling Report, Former Chem Fab Site & Surrounding Areas, 1030 Water Street, Village of North Bennington, Bennington County, Vermont, VTDEC SMS Site #20164630, July 2016. (Gray labels)

* ng/g = parts per billion (ppb)

** Non Detect value ranges from 0.26 - 2.1 ng/g.

*** Sample collected from a portion of the sampling interval. Where multiple samples occur within interval, highest concentration is shown.

N

0 300 600 900

Feet

WATER STREET SOIL SAMPLE RESULTS: TOC CSM SITE INVESTIGATION

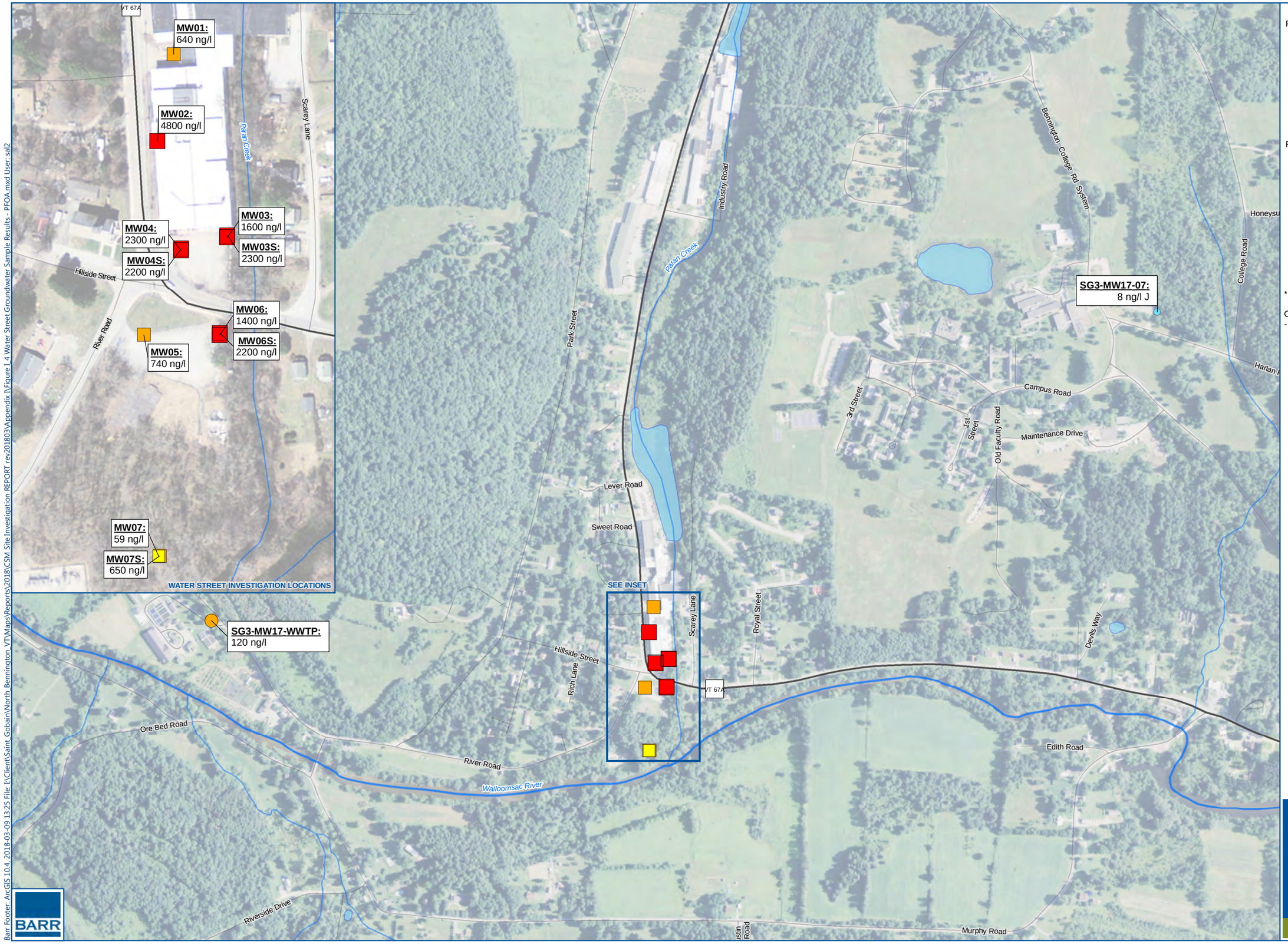
Bennington, VT

Saint-Gobain

FIGURE I.3

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:29 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180301\Appendix I\Figure I.3 Water Street Soil Sample Results - TOC.mxd User: sal2



WATER STREET GROUNDWATER SAMPLE RESULTS: PFOA CSM SITE INVESTIGATION

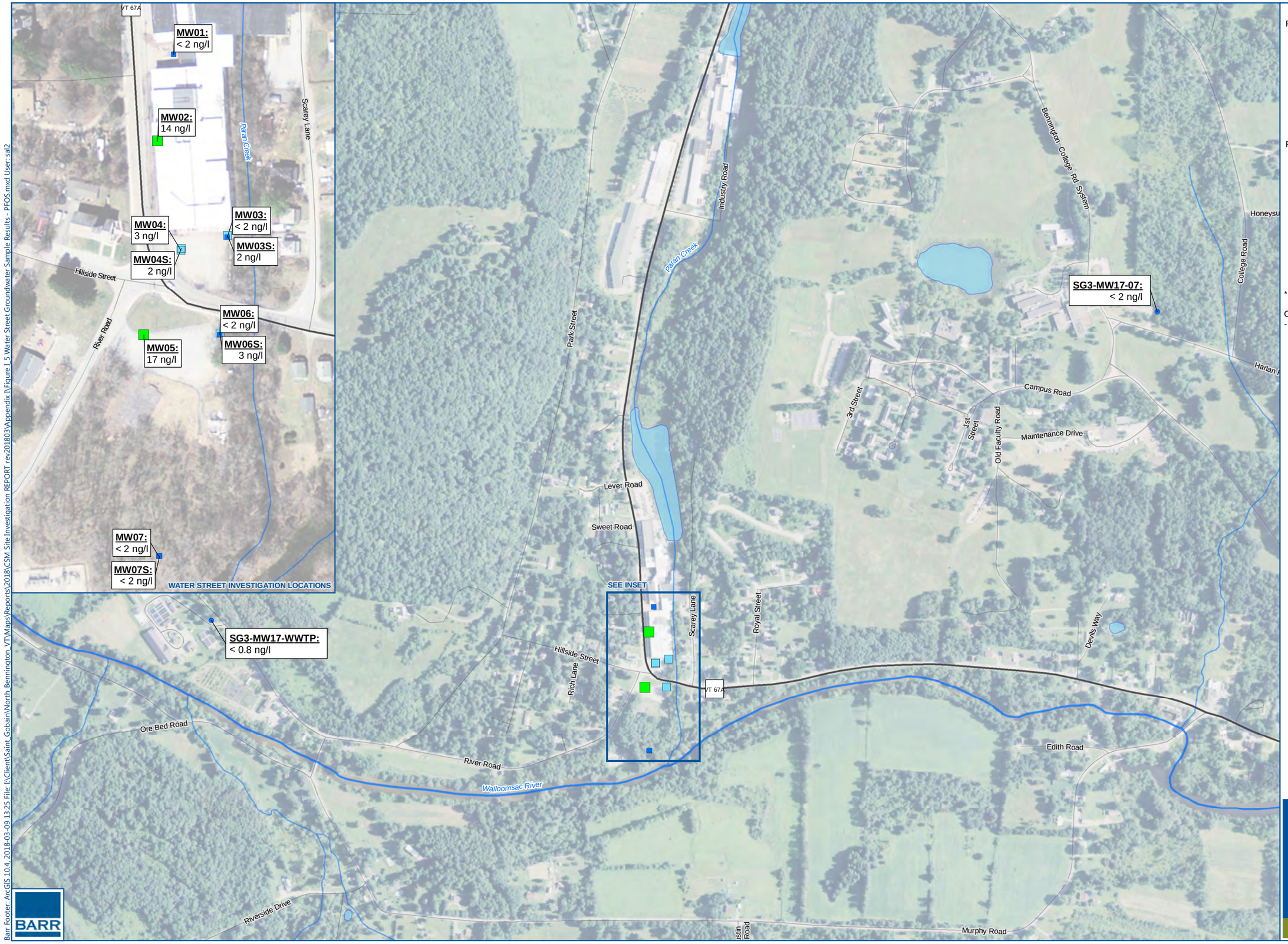
Bennington, VT

Saint-Gobain

FIGURE I.4

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:25 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180



WATER STREET GROUNDWATER SAMPLE RESULTS: PFOS CSM SITE INVESTIGATION

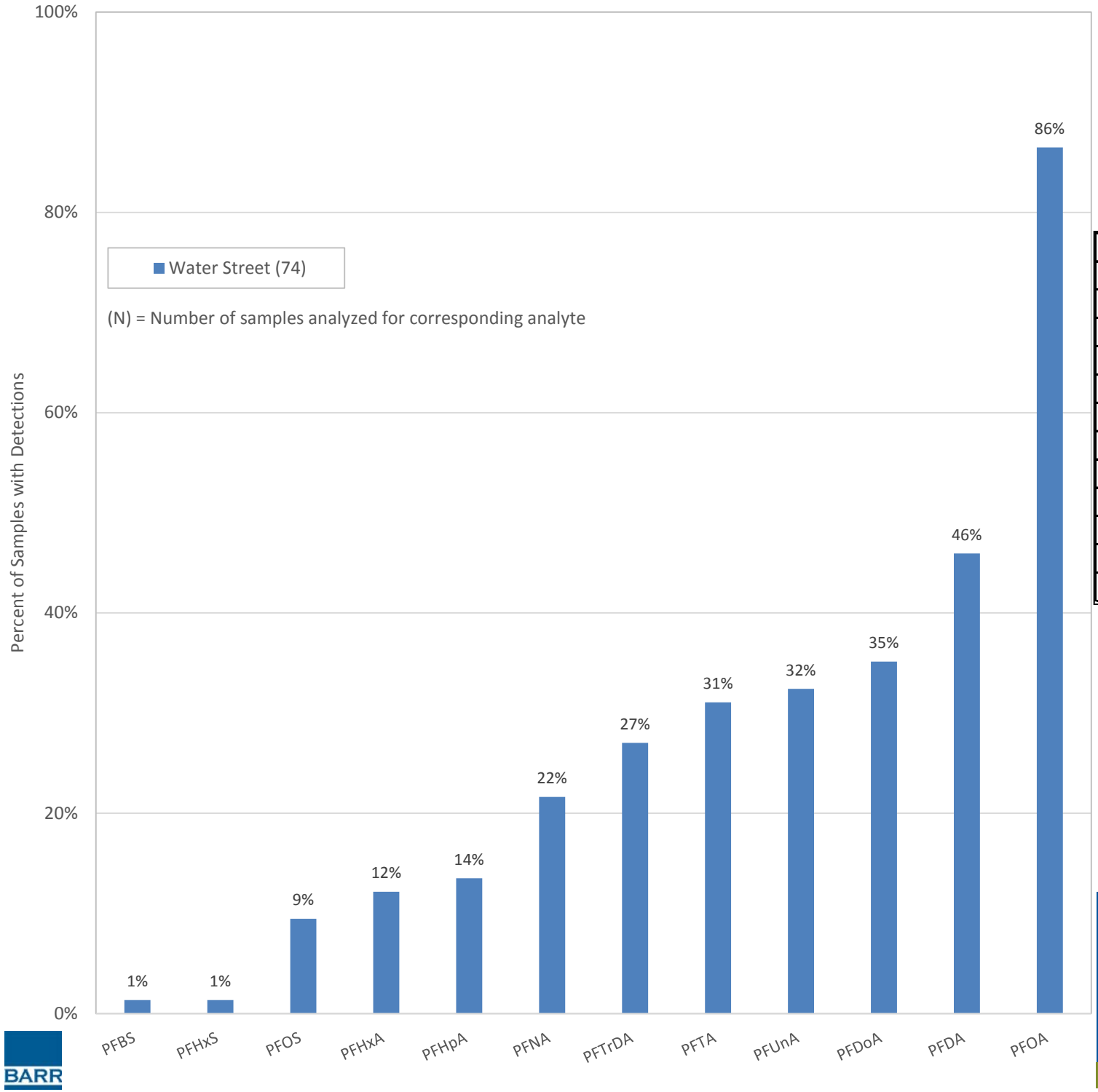
Bennington, VT

Saint-Gobain

FIGURE I.5

BARR

Barr Footer: ArcGIS 10.4, 2018-03-09 13:25 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\CSM Site Investigation REPORT rev20180 3\Appendix I\Figure I.5 Water Street Groundwater Sample Results - PFOS.mxd User: sal2

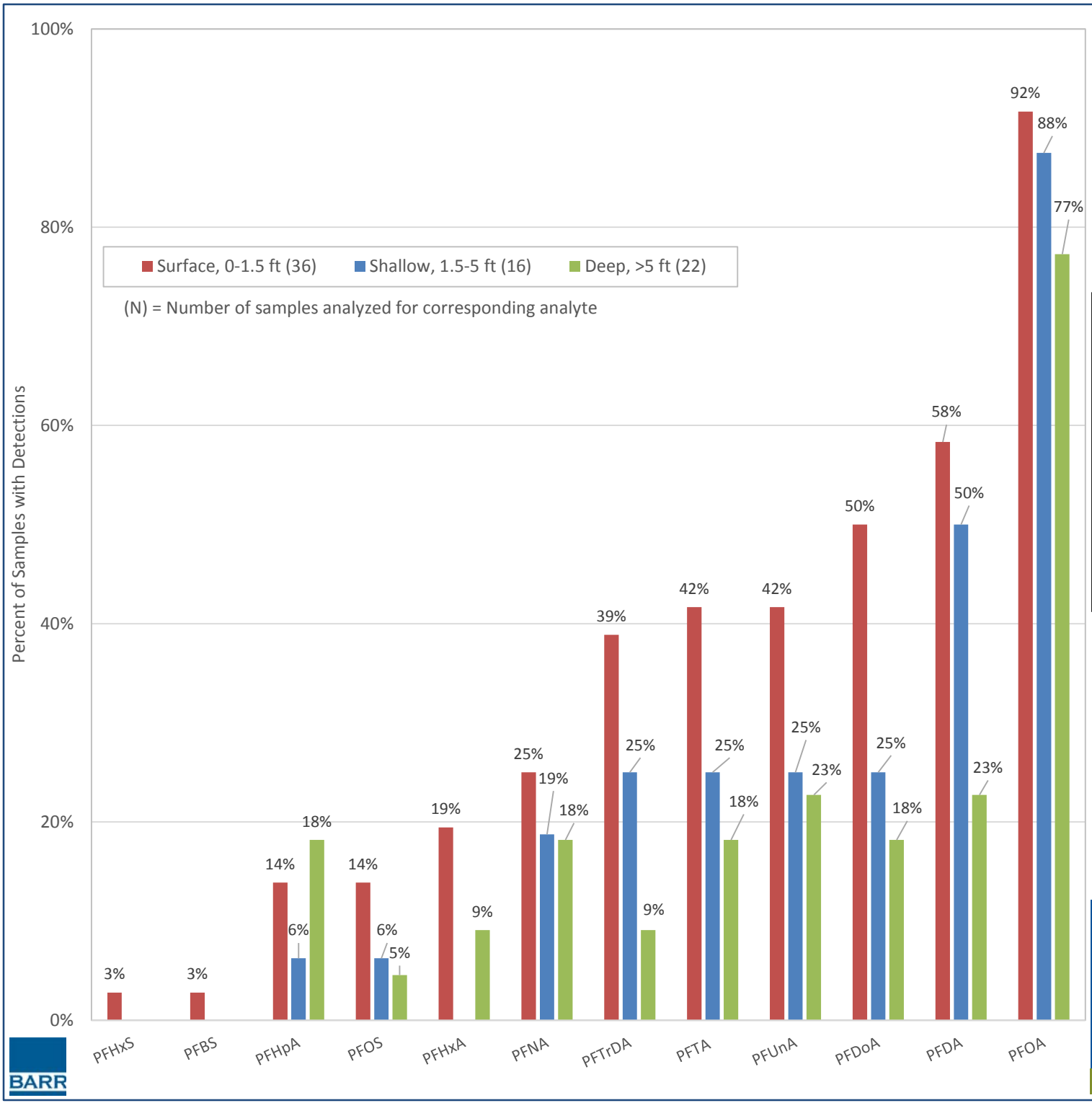


PFAS Analyte		Range (ng/g)
Perfluorobutane sulfonate	PFBS	<0.51 - 1.6
Perfluorohexane sulfonate	PFHxS	<0.51 - 1.6
Perfluorooctanesulfonic acid	PFOS	<0.71 - 1.9
Perfluorohexanoic acid	PFHxA	<0.20 - 1.4
Perfluoroheptanoic acid	PFHpA	<0.30 - 1.1
Perfluorononanoic acid	PFNA	<0.20 - 1.3
Perfluorotridecanoic acid	PFTrDA	<0.61 - 15
Perfluorotetradecanoic acid	PFTA	<0.30 - 93
Perfluoroundecanoic acid	PFUnA	<0.30 - 15
Perfluorododecanoic acid	PFDoA	<0.41 - 42
Perfluorodecanoic acid	PFDA	<0.20 - 43
Perfluorooctanoic acid	PFOA	<0.32 - 30

BARR

FREQUENCY OF PFAS DETECTIONS IN SOIL – WATER STREET SITE INVESTIGATION AND CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

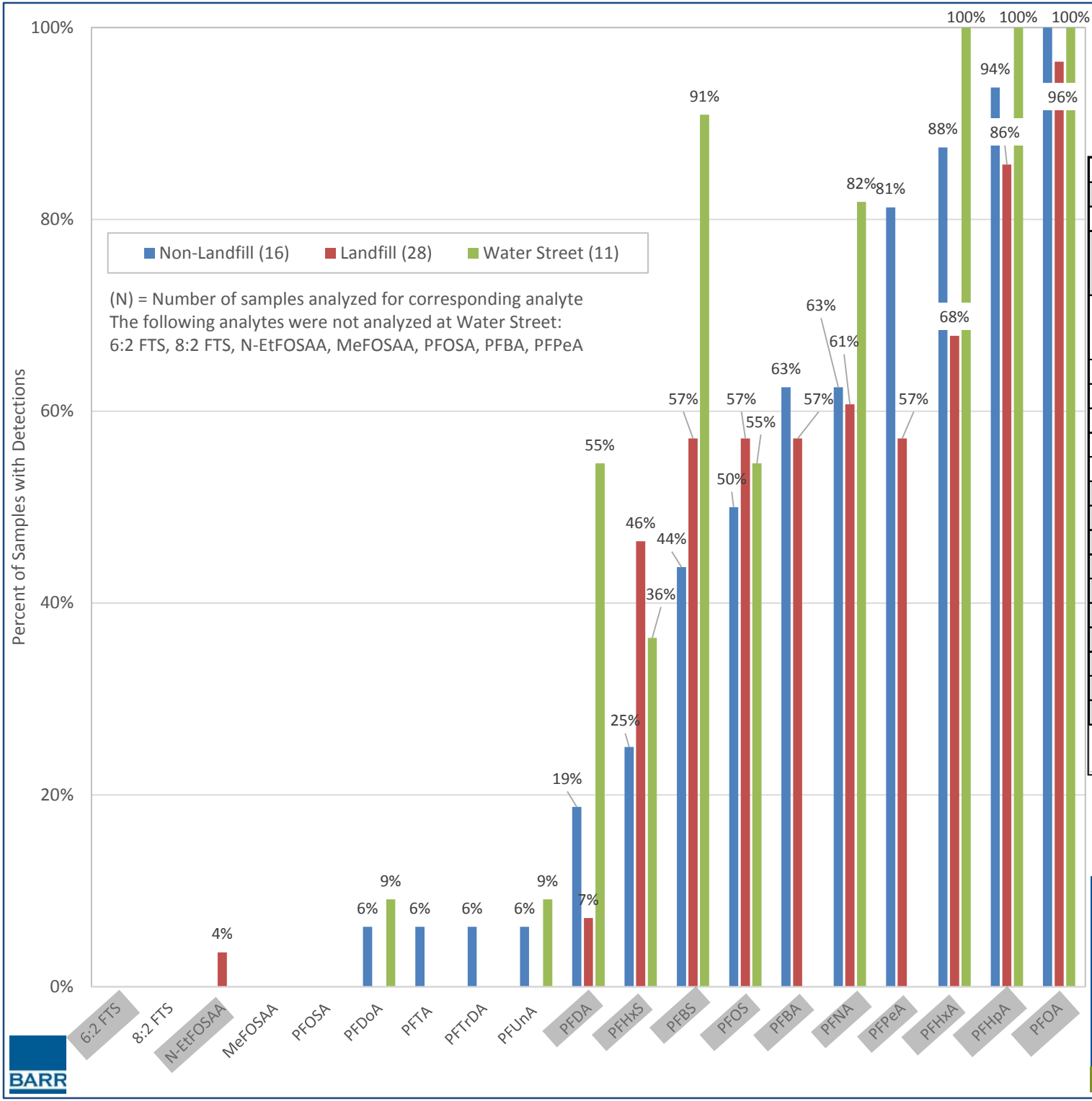
FIGURE I.6



PFAS Analyte		Range (ng/g)
Perfluorohexane sulfonate	PFHxS	<0.51 - 1.6
Perfluorobutane sulfonate	PFBS	<0.51 - 1.6
Perfluoroheptanoic acid	PFHpA	<0.30 - 1.1
Perfluorooctanesulfonic acid	PFOS	<0.71 - 1.9
Perfluorohexanoic acid	PFHxA	<0.20 - 1.4
Perfluorononanoic acid	PFNA	<0.20 - 1.3
Perfluorotridecanoic acid	PFTrDA	<0.61 - 15
Perfluorotetradecanoic acid	PFTA	<0.30 - 93
Perfluoroundecanoic acid	PFUnA	<0.30 - 15
Perfluorododecanoic acid	PFDoA	<0.41 - 42
Perfluorodecanoic acid	PFDA	<0.20 - 43
Perfluorooctanoic acid	PFOA	<0.32 - 30

FREQUENCY OF PFAS DETECTIONS IN SOIL BY DEPTH – WATER STREET SITE INVESTIGATION AND CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE I.7



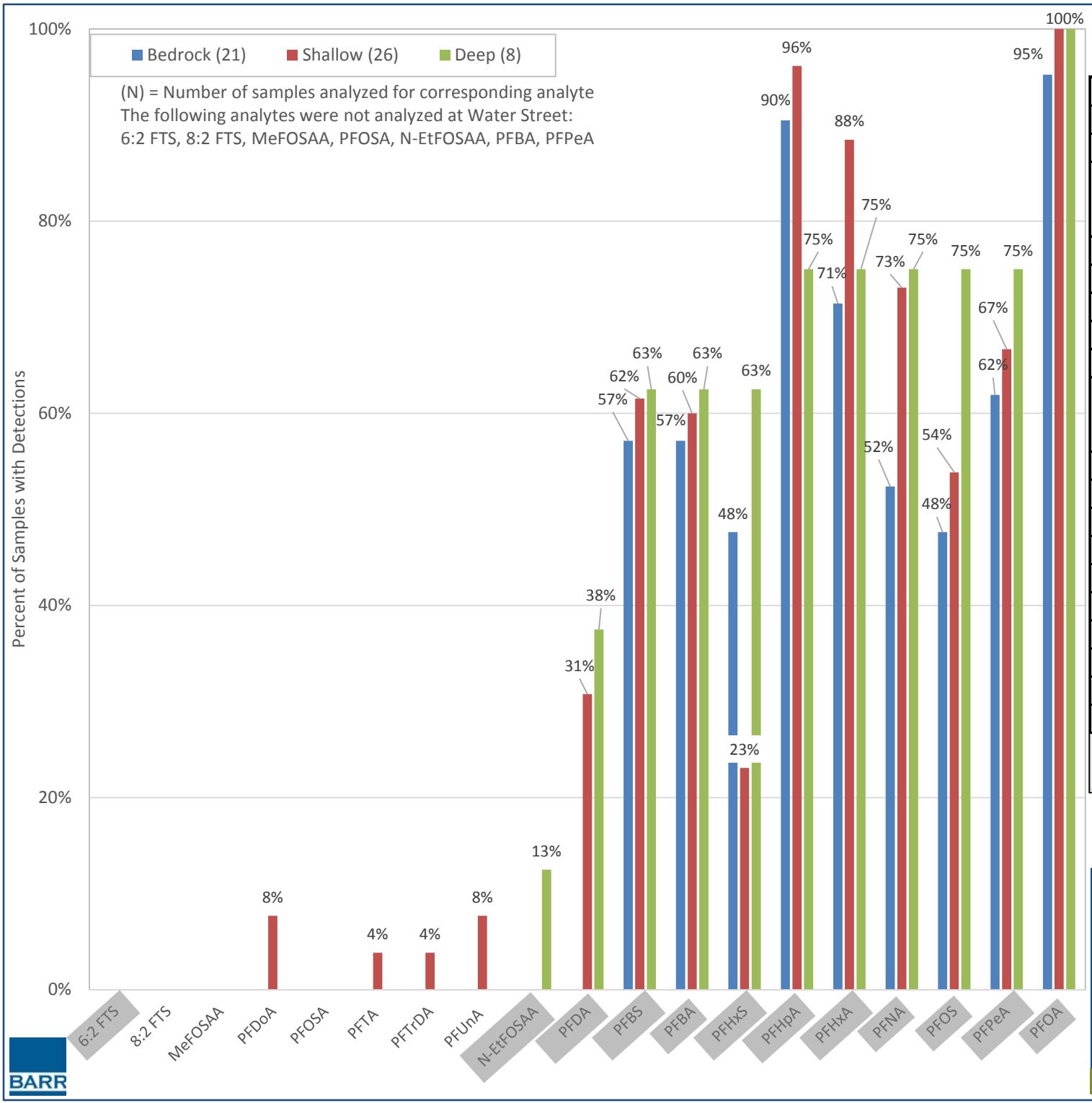
PFAS Analyte		Range (ng/l)
6:2 Fluorotelomer sulfonate	6:2 FTS	<3 - <20
8:2 Fluorotelomer sulfonate	8:2 FTS	<2 - <20
n-Ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	<0.4 - 0.6
n-Methyl perfluorooctanesulfonamidoacetic acid	MeFOSAA	<0.4 - <5
Perfluorooctanesulfonamide	PFOSA	<0.3 - <20
Perfluorododecanoic acid	PFDoA	<0.3 - 6
Perfluorotetradecanoic acid	PFTA	<0.3 - 10
Perfluorotridecanoic acid	PFTrDA	<0.3 - 26
Perfluoroundecanoic acid	PFUnA	<0.4 - 18
Perfluorodecanoic acid	PFDA	<0.4 - 63
Perfluorohexane sulfonate	PFHxS	<0.4 - 10
Perfluorobutane sulfonate	PFBS	<0.3 - 11
Perfluorooctanesulfonic acid	PFOS	<0.4 - 23
Perfluorobutanoic acid	PFBA	<2 - 280
Perfluorononanoic acid	PFNA	<0.3 - 21
Perfluoropentanoic acid	PFPeA	<0.3 - 250
Perfluorohexanoic acid	PFHxA	<0.3 - 77
Perfluoroheptanoic acid	PFHpA	<0.3 - 110
Perfluorooctanoic acid	PFOA	<0.6 - 4800

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

BARR

FREQUENCY OF PFAS DETECTIONS IN GROUNDWATER BY AREA - WATER STREET SITE INVESTIGATION AND CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE I.8



PFAS Analyte		Range (ng/l)
6:2 Fluorotelomer sulfonate	6:2 FTS	<3 - <20
8:2 Fluorotelomer sulfonate	8:2 FTS	<2 - <20
n-Methyl perfluorooctanesulfonamidoacetic acid	MeFOSAA	<0.4 - <5
Perfluorododecanoic acid	PFDoA	<0.3 - 6
Perfluorooctanesulfonamide	PFOSA	<0.3 - <20
Perfluorotetradecanoic acid	PFTA	<0.3 - 10
Perfluorotridecanoic acid	PFTrDA	<0.3 - 26
Perfluoroundecanoic acid	PFUnA	<0.4 - 18
n-Ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	<0.4 - 0.6
Perfluorodecanoic acid	PFDA	<0.4 - 63
Perfluorobutane sulfonate	PFBS	<0.3 - 11
Perfluorobutanoic acid	PFBA	<2 - 280
Perfluorohexane sulfonate	PFHxS	<0.4 - 10
Perfluoroheptanoic acid	PFHpA	<0.3 - 110
Perfluorohexanoic acid	PFHxA	<0.3 - 77
Perfluorononanoic acid	PFNA	<0.3 - 21
Perfluorooctanesulfonic acid	PFOS	<0.4 - 23
Perfluoropentanoic acid	PFPeA	<0.3 - 250
Perfluorooctanoic acid	PFOA	<0.6 - 4800

Shaded cells represent detections in the Bennington Landfill leachate vault sample (VLT-01).

BARR

FREQUENCY OF PFAS DETECTIONS IN GROUNDWATER BY DEPTH
WATER STREET SITE
INVESTIGATION AND CSM SITE INVESTIGATION
Bennington, VT
Saint-Gobain

FIGURE I.9